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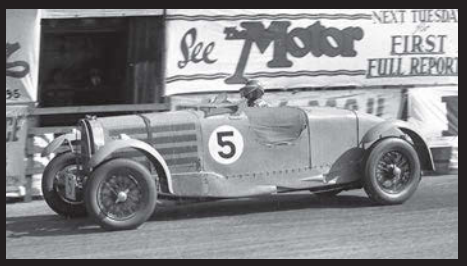
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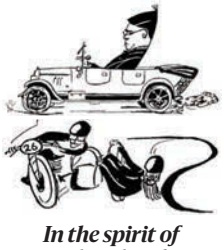
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Nick Trott
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This issue cannot go to print without mention of Bette Hill, who has died aged 91. An extraordinary woman, of whom son Damon said 'survived F1, the Blitz, me, Graham Hill...'

Bette was a beguiling mix of the glamorous, the redoubtable, the beautiful and the formidable. Her life was every bit as colourful as that of a racing driver, and her courage unquestioned.

Bette Hill met Graham at a Boxing Day rowing regatta in 1950. Both were active, competitive and loved sports - although it was Bette who would go on to row for England. Graham, as we know, was possessed by an altogether faster sport - but would carry the colours of the London Rowing Club on his crash helmet throughout his career, as would son Damon.

Graham and Bette married in 1955 - their honeymoon in Bognor Regis so that Graham could race his Lotus at nearby Goodwood. Compared with the challenges and sacrifices that were to follow, this was nothing. For all its glamour, to be close to motor racing in the '60s meant being close to death. Graham survived it, not without incident, but he survived it - with Bette by his side at funerals and podiums alike. To consider what it must have been like for her during this decade, especially with three young children in tow, dealing with triumph and tragedy often simultaneously, is unimaginable. The press often showed her in a subservient light, armed with stopwatches, clipboards and generally taking care of Graham, but from the early '60s Bette was a rock for both men and women across the wider paddock, and indeed was a founder member of what is now the Doghouse WMRAC. Its aim was "To help wives and girlfriends repair their shattered lives, in the event of a tragedy, through financial and moral support: to help anyone connected to motor racing, whose circumstances had altered through accident or illness." The organisation continues its fundraising to this day.

When Graham switched his focus from driving to team ownership in the early '70s, Bette was unconvinced. "I didn't want Graham to build a team," she told *Motor Sport* in 1999. "There wasn't sufficient support or finance. It was the biggest heartbreak and toughest job he ever took on. The saddest thing is he was just getting it together when he had the crash."

When Graham's Piper Aztec came down on Arkley Golf Course, near Barnet, north London, in 1975, all six occupants died. Bette attended the funerals of five of the six who perished - all close friends. It was an excruciating time, made worse by aircraft licensing and insurance investigations and subsequent legal actions against the Hill estate. Graham, despite promises to the contrary, had not made provisions in the event of his death. The Hills were soon broke, but Bette would not allow them to break. She dedicated herself to her children, Damon, Brigitte and Samantha. "My mother," wrote Damon in his autobiography, "having already had a lifetime of grief and anxiety, was now faced with a completely uncertain future with three children to fend for." He continues: "Don't worry Mum," I thought to myself, "I'll sort this out: somehow, some day."

Damon Hill became F1 world champion in 1996, but it was not a gilded path to success, far from it. Unsurprisingly, he was deeply affected by the death of his father both emotionally and financially. He drifted through his final school years, and worked in various low-paid jobs including labourer and motorcycle courier to make ends meet. In his book, he describes the severe depression that has haunted periods of his life since.

Damon sensed an anger and frustration in his mother after Graham died ("I think she was actually very upset with my father for having left her to clear up the mess and leaving her to raise his children"), and this mixed with her naturally competitive nature made her an 'intimidating' force in the paddocks during Damon's racing career. Woe betide anyone who would say a bad word about him in Bette's earshot, or in the press.

Her indomitable spirit would stay with her throughout her life; indeed searching the *Motor Sport* Archive reveals a letter from her that communicates this acutely:

Sir, why is it I always read the 'safety man' in motor racing is always Jackie Stewart; as much as I admire him, he did not start making circuits safe, it was Graham together with Louis Stanley. Graham used to try the circuits before GPs and check things out at his own expense and time. Somehow whenever safety is referred to in articles he gets forgotten, which is very unfair and extremely hurtful for us.

I am, yours, etc.

Bette Hill, Cobham, Surrey
May 2000



In that earlier 1999 interview with *Motor Sport*, Bette was asked for one word that best described both her late husband and son in respect to their careers. "Tough," she replied. It takes one to know one...

Motor racing has lost one of its more interesting characters, and to Damon, Brigitte and Samantha and families, we extend our sincere sympathies.

To find out more about Bette's favourite charity, The HALOW Project, visit www.halowproject.org.uk. To learn more about Doghouse WMRAC, see www.wmrac.com

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ALL CHANGE AT THE TOP FOR TOURERS

WTCC axed to accommodate new-look premier global saloon series

Gary Watkins

The FIA World Touring Car Championship is no more. In name at least. A series than began its modern history in 2005 will become known as the WTCR (or the WTCR – FIA World Touring Car Cup in full) after the adoption of TCR tin-top regulations for the 2018 season.

Switching to the low-cost TCR category was arguably the only solution for a championship that had no firm commitments from manufacturers for next season and a waning supply of privateer machinery built to the outgoing TC1 rules. TCR, on the other hand, is arguably *the* motor sport success story of the second half of the present decade. The category has spread around the world in just three short seasons: there will be 15 national series, including one in the UK from 2018, and approximately 600 cars have been built by 11 manufacturers, including Volkswagen, Audi, Seat, Honda, Hyundai and Peugeot.

The FIA and the WTCC promoter, the events arm of the Eurosport TV channel, have agreed separate licensing deals to use, respectively, the rules and the name of TCR with its founder, Marcello Lotti. That's a significant step for the WTCC because the Italian was the architect of the current WTCC a dozen years ago. He might have sold the company that ran the series in the middle of the 2000s, but he didn't leave his role at the head of the organisation until early 2014 in what amounted to a difference of opinion over the series' future direction.

As part of these licensing agreements, Lotti has called time on his TCR International Series, a global championship with races on the Formula 1 undercard that helped promote the category. Its continuation would clearly have mitigated against Eurosport's efforts to put together a grid for the WTCR.

WHAT IS TCR?

TCR was launched by Lotti after his departure from the WTCC. Originally called TC3, it clearly tipped its hat at the GT3 sports car category in concept as well name. Launched in 2013, Seat's Leon Eurocup one-make racer provided the template and the idea is that any manufacturer with a front-wheel drive hatchback of the required dimensions and a turbo engine up to a maximum capacity of two litres can come and play in the same way that GT3 provides a platform for makes with anything resembling a sports car, from a Morgan Aero 8 to a Bentley Continental GT.

The onus is on providing affordable racing. There's a price cap of €129,000, and a running budget for the WTCR is predicted to be not far north of €400,000 for a single car. That's less than half the cost of a campaign with a top-tier TC1 car in WTCC. An engine lease on its own sets the teams back more than that.

WHY HAS THIS HAPPENED?

The TC1 category never gained the traction it needed to become fully established. Only four manufacturers ever produced cars specifically to a set of regulations that was heavily driven by Citroën, ahead of its 2014 WTCC entry with Sébastien Loeb on its driver roster.

The future of a category that was hardly built on solid foundations was undermined – fatally wounded, even – when WTCC boss François Ribeiro outlined a vision to the manufacturers that involved a switch to the Class 1 regulations of the DTM touring car series. Honda, a stalwart of the WTCC, committed to the 2017 season but not beyond and said it wouldn't develop a TC1 car on the next Civic Type-R. Volvo, which returned to the WTCC in 2016 and won the drivers' title in '17 with Swede Thed Bjork, had little interest in racing on with no factory opposition.

Privateer numbers didn't pick up after the departure of the all-dominant Citroën factory squad departed the scene at the end of

2016. Just 10 independents regularly joined the six works entries from Honda and Volvo on the grid this season.

WHAT WILL CHANGE?

Apart from the name and the cars, not a lot. Ribeiro is promising continuity, though the WTCC name has disappeared courtesy of the licensing agreement with TCR and because there is no championship for manufacturers. WTCR will be for privateers only, hence its 'cup' status.

"There will be much continuity, the same promoter, the same regulator and more or less the same calendar," says Eurosport Events boss Francois Ribeiro. "It will have the same look and feel – Eurosport has a certain expertise in filming touring car racing. Everything we have learnt in the WTCC era, we will be able to transpose to WTCR."

The lack of overt manufacturer participation, something on which the WTCC was reborn in 2005, will not be a problem, says Riberio.

"The history of the WTCC has always been about manufacturers and privateers," he insists. "TCR was launched as a customer category, and we all agreed that having factory teams in the WTCR was not the best objective."

Riberio says that not offering manufacturers a title is a clear signal of intent. But he isn't saying that the brands who've built cars for the class shouldn't support teams "sometimes with drivers or engineers, the way they do in GT3".

THE LIKELY GRID

Ribeiro wants quality and not quantity. That is why the WTCR grid has been limited to 26 cars, plus the chance to add two wildcards for local teams or drivers at each round.

"We don't feel that going after 30 or 35 cars is necessary to deliver the best possible championship," he explained. "I prefer a smaller grid of 26 cars, which is actually already a big grid if you look at other championships."

Ribeiro is confident that he will hit his target. He says he is expecting the majority of the current crop of WTCC drivers to be on the grid next year, as well as an influx of teams from TCR International.

Reigning TCR International champion WRT, best known for its exploits with Audi GT3 machinery, expanded into TCR at the outset and believes that it has a bright future with Eurosport.

"TCR International was a great championship and was always going to grow into something bigger," says team boss Vincent Vosse, whose lead driver Jean-Karl Vernay won the title at the wheel of a Volkswagen Golf GTi TCR. "It didn't have the visibility in the past, but now it can really take a step forward."

THE FUTURE

Eurosport is playing its cards close to its chest about what might happen beyond the two-year deal with TCR. The Class 1 plan remains on the backburner at a time when the long-running efforts to bring the rules for the DTM and Super GT Series in Japan fully in-line appear to be coming together. Witness the displays of Super GT cars at DTM's season finale and vice versa.

The cars from the two series already share a common monocoque, but the DTM is set to adopt Super GT's two-litre turbocharged engine formula for 2019, the year Mercedes will disappear from the series. The other significant area of divergence, the aerodynamic rules, is likely to be addressed at the same time.

That might allow for the rebirth of the WTCC proper, but the level of costs would be far in excess of even TC1 levels. The adoption of the TCR rules by Eurosport offers an accessible platform. A WTCC for high-tech Class 1 cars, or whatever they might be called, would be something different altogether.





HOT TOPIC

DOWN BUT NOT OUT

Porsche has quit LMP1, but is ramping up its GT assault

We know that there will be no Porsches racing in the LMP1 class of the World Endurance Championship, but don't doubt the German manufacturer's commitment to sports car racing. It will be upping the ante with all things 911.

That commitment means there will be as many factory Porsches at the Le Mans 24 Hours in June as there were in 2017. Last season, there were two P1 919 Hybrids and a two GTE Pro class 911 RSRs. In 2018, there will be four factory 911s on the grid at the blue-riband WEC round. Porsche is bringing its factory squad from the IMSA SportsCar Championship in North America to compete at the French enduro. CORE Motorsport will run a pair of cars alongside the WEC regulars.

It's a significant move for a manufacturer trying to win the GTE Pro class for the first time since 2013. And one that would not have been financially possible had Porsche stayed in LMP1, says the marque's head of GT motorsport, Frank-Steffen Walliser.

Porsche's renewed commitment to GT racing doesn't stop with Le Mans and the WEC. It will also be making its first full-season factory campaign in the five-round Blancpain GT Series Endurance Cup, which includes the Spa 24 Hours.

Porsche is giving a clear message that the 50-year history of the 911 in motor sport isn't about to end any time soon.




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MIND THE GAP

Haas has fared better than other recent Formula 1 newcomers, but should its performances be viewed as an encouragement to would-be entrants... or a deterrent?

Mark Hughes

Haas took eighth place in the championship for constructors in 2017, just as it did in its inaugural F1 season 12 months beforehand. It was within 10 points of Renault's sixth place and ahead of McLaren and Sauber. Its drivers Romain Grosjean and Kevin Magnussen scored points 13 times between them, with a best finish of sixth (Grosjean in Austria). This was all within the context of running on the lowest budget in the field (about £80 million), courtesy of being the only team operating within the 'listed parts' template. Since 2015, a relaxation of the rules has essentially allowed a team to compete without making its own car - so long as that car has none of a number of specified crucial parts manufactured by another team. So Haas races a car conceived in the Ferrari wind tunnel, using Ferrari running gear, built by Dallara and operated out of a race shop in Banbury.

This structure allows the team to number no more than 120 people, which is actually about 80 fewer than even Manor used to employ to campaign a car that had no hope of transcending its tail-end status as it attempted to race according to the template of the old regulations - with its own car concept and production department.

So there can be little argument that the listed-parts concept is a more effective way to compete in the midfield, with a reasonable expectation of a good points haul over a season. So is this the blueprint for new entrants into F1? Perhaps, but there are many very specific reasons it has worked as well as it has for Haas. Both the specialisation and success of Gene Haas' machine tool business has made him extremely well placed - maybe even uniquely so - to maximise the opportunity offered by the listed-parts F1 concept.

Haas, from Ohio, founded his machine tools business in 1983, and its vast success allowed him, a couple of decades later, to buy a NASCAR team, combining his passion for racing with a promotion medium for the business. There were also many obvious synergies and Haas Automation came to supply racing teams and manufacturers in many categories with machine tools, particularly with the advent of CNC technology. Haas supplies Scuderia Ferrari, among others.

It was Günther Steiner - working within the NASCAR scene, but with previous F1 experience at Jaguar and Red Bull - who persuaded Haas of F1's merits. This was during the time that F1 was flirting with the concept of privateer teams - independents who would buy cars from established teams such as McLaren - an idea that was eventually scuppered, amid concerns from the likes of Williams and Force India that it could put them out of business. That was then modified to the listed-parts concept, whereby an independent team would still have to supply its own monocoque, survival cell, front-impact structures, roll-over structures, bodywork, wings, floor and diffuser







- but there was nothing to say these parts could not be supplied by someone else, so long as that was not an existing F1 team.

With Haas's business already enjoying a relationship with Ferrari, and the world's biggest racing car producer, Dallara, also in Italy, Haas and Steiner saw how this could work. Gene provided the financial muscle and structure (plus some of the facilities already in existence for his NASCAR team). He'd be guided by Steiner, who would organise it all and use his F1 contacts to recruit and liaise.

Using Ferrari running gear, piggy-backing Dallara's production and design facilities, combined with Ferrari's wind tunnel (and a team of ex-Ferrari aerodynamicists assigned to the programme) there was a much greater chance of producing a respectably competitive car than could ever hope to have been achieved by recent 'budget' F1 teams such as Manor, Caterham and HRT. So it proved - with Grosjean's fairytale sixth place on the team's debut in Australia 2016.

Gene Haas's empire was perfectly scaled and positioned to pull this off. He was wealthy enough to get it off the ground - and with a business justification behind it. As he said at the F1 project's launch: "Just the association with being in F1 basically takes a brand from nobody to the stratosphere. If I can achieve an extra billion in sales, I can pay for whatever F1 costs." It remains to be seen if he'll be proved right on that. For although the costs are lower doing it this way, so is the income.

Taking a short-term view, he now admits he'd have been better off taking Bernie Ecclestone's advice and buying an existing team. "Bernie was always saying 'why don't you just buy an existing team?' - that was actually a better idea, because there were only 10 teams at the time so economically it would've been a lot more beneficial. Bernie was probably right because there are so many advantages when you're a top-10 team."

NUMBER CRUNCH

To illustrate what he means, we can take a look at some order-of-magnitude numbers, using three independent teams, Haas, Williams and Force India. These represent three distinct F1 team models. Williams is a self-contained entity with the facilities to design and produce almost everything in-house, including its own gearbox, and

"Haas admits he'd have been better off taking Bernie's advice to buy an existing F1 team"

employs more than 600 people. Force India has its own wind tunnel but contracts out a lot of components to suppliers, buys in a gearbox from Mercedes and employs about 360 people. Haas makes almost nothing, hires its design and production from Dallara and employs about 120. But Williams and Force India, as established F1 teams, have an ongoing share of F1's 'Column 1' revenues as well as the results-based 'Column 2' payments. A new team does not receive Column 1 payments until it has finished in the top 10 of the constructors championship in at least two of three consecutive seasons. So in the first two years of Haas F1's existence, the comparison would have looked something like this:

2016 & 17

WILLIAMS
Spent..... £150,000,000
Received £52,000,000
Deficit £98,000,000

FORCE INDIA
Spent..... £90,000,000
Received £54,000,000
Deficit £36,000,000

HAAS
Spent..... £80,000,000
Received £14,000,000
Deficit £66,000,000

As can be seen, the absence of Column 1 revenues for Haas will have made it a more expensive operation to sustain than Force India, despite substantially operating lower costs (though still cheaper than Williams).

However, with two consecutive eighth place finishes in the championship, for 2018 Haas will be eligible for those coveted Column 1 payments (assuming it has a commercial agreement with Liberty). These payments are divided up equally between the 10 qualifying teams, with the results-based Column 2 added on. As such, the projected 2018 numbers using the same on-track results might look more like this: (NB: in addition, Williams receives 'heritage' payments.)

2018

WILLIAMS
Spend..... £150,000,000
Received £49,000,000
Deficit £101,000,000

FORCE INDIA
Spend..... £90,000,000
Received £51,000,000
Deficit £39,000,000

HAAS
Spend.....£80,000,000
Received £38,000,000
Deficit £42,000,000



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So it has taken someone of Gene Haas' financial clout to suffer the initially heavier costs of establishing a new team - even a listed-parts one - over those of buying an existing small team (Force India and Toro Rosso are both believed to be for sale). Only his heavy investment has made it possible for the team to perform well enough over two seasons for it to be able to reduce the financial load to around that of an existing small independent team. Trying to replicate that would be a big risk for any would-be new team owner to take.

Furthermore, how many would-be new team owners would be already placed in a business that could really make the synergies with F1 work? Haas Automation was already doing business with F1 teams, selling them very expensive production machinery, and continues to do so. He already had a racing empire in a different category and must count himself as fortunate that there was a ready race shop with the facilities needed (being sold by the Manor team administrators).

It has worked for Haas thus far in that the team is now established as a very respectable mid-grid operation that can go wheel-to-wheel with other independents - and any under-performing works operations. But there are inherent limitations in transcending that level to become serious contenders for regular podiums or race wins - and Gene Haas has already posed the question: "If we cannot win in future, why are we in it?" (That was said in the context of his views on a possible future regulation cost cap).

RULED OUT?

The way the F1 technical regulations are so tightly defined and prescriptive now means there's virtually zero prospect of a small team coming up with a revolutionary technical innovation that will allow it to punch above its financial weight. Instead, the last few tenths of lap time now come from optimisation, of multiple iterations of the same processes, refining and refining and with ever more sophisticated simulation tools. Which all takes budget. Then there is consistency of performance: that takes money too, and it's notable that in 2017 the Haas VF-17 could sometimes work very well (Grosjean twice qualified best-of-the-rest after the big three teams), but also it would sometimes be unable even to graduate from the Q1 part of qualifying. But even working very well in this context means that as best after the big three, you will still be more than 1sec per lap off the ultimate pace. There's no making that up on a budget.

Giving some insight into the limitations in the field is the team's chief race engineer Ayao Komatsu. "Our aero team was so small, so we couldn't cover a wide efficiency range when the car was configured. So we just had to pick a range where we could optimise, which was in the middle. So it meant that at high-downforce tracks like Budapest and Singapore we were nowhere and at low-downforce tracks like Baku we really struggled. But if we could get everything working together well at those middle tracks, we had a chance of doing okay."

If a midfield team has any aspirations of one day developing into regular winners and title contenders - as Red Bull did, as Williams says it has - then it can't be done on the Haas template. But that's with the F1 regulations as they are. If Liberty can ever succeed in imposing a serious cost cap, things might change. This is what Haas himself seems to be hoping for. Speaking to NBC at Monza this year, he commented: "If anything, my point of view is that it's a gap we can't reduce. With what our current resources are and what we know, it seems impossible.

"I think some of it is that the top three teams are quasi-manufacturers, and since they run the whole car and make the whole car, they understand it a lot better. So we're always going to be at something of a disadvantage to the manufacturers who understand the car better than we do.

"But I think there needs to be some kind of a randomness in the sport, where even a team at the back has some possibility of winning once in a while. Not every race, but if you can never win in this sport, it's really not going to be much of a sport.

"I think every team should have at least some possibility of winning a race once in a while, through a fuel strategy or some alternative. But the gap's so big now that I just don't see how we can possibly close it." ◘



Romain Grosjean to the fore last season in Austria, where he finished a season-best sixth

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It's been a while since a TR7 took an international victory: canny rerouting made Carl Tundo and Tim Jessop joint winners of the Safari Classic along with Brits Ryan Champion and Richard Jackson, seen centre in their pink Porsche 911

TWIN WIN IN AFRICAN CLASSIC

British team shares victory in the world's toughest classic rally after mud stops play

Paul Lawrence

An arranged tie brought the 2017 East African Safari Classic to an unlikely finish after a typically demanding nine-day rally across Kenya and Tanzania. Yorkshiremen Ryan Champion and Richard Jackson were declared joint winners with Kenyan ace Carl Tundo and his co-driver Tim Jessop.

A ruling by the event stewards resulted in the joint victory after most of the field got stuck in a mud hole on day seven. At the time, Jackson and Champion (Porsche 911) were leading by two minutes but the mud hole halted all but four of the competing cars.

Tundo (Triumph TR7 V8) saw the cars stuck ahead and re-routed around the section and gained about an hour. After lengthy deliberations, and with the approval of both crews, the results were amended to produce joint winners for the first time in the event's history. Champion and Jackson duly became the first British drivers to win the world's toughest historic rally, which had previously only been won by Kenyans or Swedish aces Björn Waldegård and Stig Blomqvist.

"That's been eight days of the toughest rally in the world," said Champion. "It was an amazing rally and an amazing experience and mentally draining. We came to an agreement and were declared joint winners after the issues on day seven."

This was never an easy run for Champion and Jackson, who shared the driving of Jackson's Tuthill-prepared Porsche. They were stuck in a river on the first day and had to be pushed out by locals, on day two they lost all brakes for 50 miles and on day five they broke a shock absorber after 60 miles of a 100-mile stage.

Champion and Jackson joined Colin McRae and Richard Burns (top right) as the only British winners of the rally bearing the East African Safari tag. McRae and Burns were both winners of the original rally when it was a round of the World Rally Championship. First run in 1953 to celebrate the coronation of Queen Elizabeth II, it later joined the World







"That's eight days of the toughest rally in the world. An amazing rally, an amazing experience, and mentally draining"





McKLEIN



Rally Championship and was renowned as the toughest and longest event of the season. It counts many of the greatest names in the sport among its winners including Ari Vatanen, Juha Kankkunen and Carlos Sainz.

The rally was dropped from the WRC for 2003 due to financial and organisational issues. In truth, its format of incredibly long sections on roads still open to general traffic was increasingly at odds with the modern-day World Rally Championship.

The future of the rally even in its classic guise is now also under threat. This year saw a significant drop in entries. From a capacity field of 60 cars in recent times, the latest edition had just 36 starters and 26 finishers. Some estimates put the cost of competing on the rally at well over £100,000, starting with an entry fee of £30,000.

Sadly, the event was marred by the death of rally chairman Jaideep Singh Vohra, following a road accident early in the rally. "We believed that JS would have wanted the rally to go on, and we believed the 2017 event should continue in his memory," said Clerk of the Course Richard Leeke.

FORMULA JR JUBILEE

A celebration of the world's most successful historic racing category, Formula Junior, will be the key historic racing feature at Autosport International at the Birmingham NEC later this month (11-14 January).

The Historic Sports Car Club will feature Formula Junior on its central display as the single-seater class celebrates its 60th birthday. The stand will showcase six of the period single-seaters, one from each year of the category that ran from 1958 to 1963. It spanned the era when racing car designs went from front- to rear-engined.

The 2018 season is a special year for Formula Junior as the category's 60th year is also the final season of a three-year Diamond Jubilee World Tour. The Tour, which has already visited Australia and New Zealand, South Africa and North America, will finally conclude with four races and more than 100 cars at the Silverstone Classic in July.

Duncan Rabagliati of the Formula Junior Historic Racing Association said: "2018 is also the 25th anniversary of the FJHRA and the race at Mallory Park in 1993 when FJHRA and HSCC first came together to save the Historic Formula Junior race series. It is truly fitting that we should both be celebrating the success of this great little formula, 25 years later."

Today, Formula Junior has racing on five continents for over 300 active cars. It is for racing cars using production-based engines of up to 1100cc. An amazing variety of chassis makes it an incredibly diverse category and though the leading designs are from Lotus, Brabham and Lola, up to 150 marques built cars in period.

First conceived by Count Johnny Lurani

in Italy, it was an international category for just six seasons from 1958 to 1963 before Formula 3 took over in 1964. Yet in those years it helped many future stars make their mark in the sport.

CHEVRON HONOURS

The first race ever dedicated to the Chevron B8 will honour 50 years of the timeless sports-racing car at the Oulton Park Gold Cup next August.

The Chevron B8 first raced in March 1968 and now a single-make race for the model, and its forebear the B6, will mark half a century of Derek Bennett's design, which remains one of the most popular and successful cars in historic racing.

The cars were built in a former mill in Bolton and were regularly tested and raced at the Cheshire track in period. Over the ensuing half-century, the B8 has claimed many victories at Oulton Park, making it the perfect setting to celebrate this classic design.

The Historic Sports Car Club is aiming at a grid of more than 20 cars for this race, which will be a central attraction at the annual Gold Cup meeting on Bank Holiday Monday.

More than 40 B8s were built during 1968 as GT or Group 4 cars, many with 2-litre BMW engines although some used Ford-based FVA or FVC engines. During the previous year, Chevron produced six or seven examples of the model, initially called the GT. Later the GT was re-named as the B6. Chevron built more B8s than any other model but the company faltered after Bennett died in a hang-gliding accident in 1978.

Grahame White, Chief Executive Officer of the HSCC, was sales manager at Chevron in the early 1970s and came up with the idea: "We thought it was very appropriate to mark the Chevron B8's 50th anniversary with a race at Oulton Park. Derek Bennett was a truly gifted race car designer and constructor but was a very unassuming character. I think he would be amazed, but quietly rather pleased, that we are going to celebrate 50 years of one his most successful designs."

SEASON'S MEETINGS

The two big hitters in European historic racing, Masters Historic Racing and Peter Auto, have unveiled their 2018 calendars, and both organisations are introducing new tracks to their schedules.

Masters have withdrawn from the Iberian Peninsula and dropped early- and late-season events at Barcelona and Estoril. Instead, the season will open with a first visit to the Imola track in Italy in April and finish at the established Dijon Motors Cup in October. Peter Auto will also visit Imola for its final event of the season, the Imola Classic (October 26-28).

The Espiritu de Montjuich event at Barcelona in early April, which remembers the Spanish Grand Prix races held in Montjuich Park, has found an alternative slot as the opening event on the Peter Auto schedule for its package comprising Classic Endurance Racing 1 & 2, Heritage Touring Cup, Sixties' Endurance, Trofeo Nastro Rosso, Euro F2 Classic and Group C Racing.

Masters will run five major series as the new Endurance Legends category joins FIA Masters Historic Formula One, FIA Masters Historic Sports Car, Gentlemen Drivers and Masters Pre-66 Touring Cars.

Peter Auto has dropped its trek to the Hungaroring after disappointing grids for its debut visit last September, but Masters has added a new date at the Most circuit in the Czech Republic in late June. Masters will have traditional UK dates at Brands Hatch (May 26-27) and the Silverstone Classic (July 20-22).

Masters founder Ron Maydon said: "We are very excited about our 2018 European season. We are looking forward to offering our drivers some new and exciting venues."





HOT TOPIC

SCOTTISH RALLY INQUIRY

Report on spectator deaths recommends changes

UK rallying has given a generally favourable response to the official investigation into the spectator deaths on 2013 Snowman and 2014 Jim Clark Rallies. One spectator died on the Snowman, while two signed-on media and one spectator died on the Jim Clark.

Sheriff Maciver QC's Determination regarding the Fatal Accident Inquiry (FAI) has been widely regarded as a comprehensive and balanced review of both incidents. It was clear that the Sheriff had gained a good understanding of the sport. His report made a series of detail recommendations, such as changes to stage set-up plans, notably for spectator locations, that a record be kept of incident locations, that the in-stage yellow flag system be reviewed, that the MSA pursues a yellow light in-car system and detail changes be made to the operation of safety cars. He praised the work already done by the MSA.

Rob Jones, MSA Chief Executive, said: "We welcome the publication of Sheriff Maciver's Determination. In particular, we acknowledge his thoroughness during the FAI and we are grateful that he delivered his report within two months."

The Sheriff concluded that the Jim Clark accident was a 'perfect storm' of interconnecting circumstances and an array of coinciding events. However, the report identified that the actions of one of those killed contributed to the incident. "Mr Iain Provan was wilful in his refusal to accept advice and he persisted in standing outside the red tape and near the roadside although he had been told personally on at least two occasions not to do that and had been specifically instructed on one occasion to move."

The Sheriff considered the death of a spectator at the Snowman Rally to be an accident, which was probably entirely unpredictable and unforeseeable.

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SAVING THE BEST UNTIL LAST...

Is the British GP the finest race on the Northants/Bucks border? Not necessarily

Simon Arron

The wall of spray remained intense all the way from London's western fringe to junction 10 of the M40 and beyond. It wasn't so much that it was raining, more that somebody had decided to put the A43 through a fast-rinse cycle. But with about 115 Formula Ford cars on the horizon, no amount of inclemency was likely to be a deterrent...

SILVERSTONE

This was the 17th running of the Walter Hayes Trophy, an event whose creator James Beckett continues to promote with every bit as much vigour as he did on day one. It might be the tail end of the UK racing season - with short days and temperatures struggling to break into single figures at November's dawn - but few domestic race meetings generate anticipation on this scale.

Fresh from overseeing Joey Foster's Formula Ford Festival victory at Brands Hatch a fortnight beforehand, veteran entrant Don Hardman was raring to go. "I can't wait," he said. "This is my favourite meeting of the year and always produces the best racing..."

And so it came to pass.

The meeting was initially delayed, simply because it was too wet to allow qualifying to commence on schedule, but the awkward conditions added a layer of fascination. At Becketts, some drivers stuck to the conventional line and ploughed on regardless through the standing water, a technique that seemed to compromise exit speed onto the Wellington Straight rather less than attempting to steer around the puddles. Meanwhile, 2016 winner Niall Murray appeared to experiment with a slightly different line on almost every lap, made most of them look workable and took pole for his heat by almost nine tenths (although he would be eliminated in an accident at the semi-final stage).

And while all this was going on, it was possible to keep an eye on some kind of track-day event on the South Circuit, the main feature of which was a well-driven Ford Fiesta running rings around a bunch of Ferraris

The wet also gave those in older cars an opportunity to capitalise on the reduced torsional stiffness that would normally be a disadvantage: Callum Grant (Merlyn Mk20A) and Michael Mallock (U2 Mk9) both finished fifth in their heats, obliterating much newer machinery, but as conditions dried so opportunities for further giant-killing receded. Great fun to watch while it lasted, mind.

Grant and Mallock also played starring roles in the Historic Formula Ford Consolation (effectively a final for the older cars), in which they formed part of a five-way lead tussle with Richard Tarling (Jamun T2), Ben Mitchell (Merlyn Mk20) and Mike Gardner (Crosslé 32F). There was absolutely no compromise, but nor was there any contact. It was motor racing in the old manner, hard but clean and ripe with respect. Positional changes were constant and all five were covered by 1.093sec at the flag, with Tarling ahead, though for much of the distance it had been even closer.

If there was a better contest anywhere on the planet in 2017, I'd love to know about it.

The main event was at times a little more robust, a consequence of ambition rather than intent, but the racing remained uniformly compelling. Josh Fisher (Van Diemen RF99) beat Oliver White (Medina) by 0.027sec in the first semi-final, while Festival victor Foster (Ray) positively romped home in the second: he had 0.150sec in hand over Michael Moyers (Spectrum) after the latter ceded ground by running slightly wide at the final corner. Moyers' compensation came in the grand final, when he squeaked ahead of Fisher - *just* before a yellow-flag zone - to take the lead at Brooklands on the last lap. Job done.

'Sensational' is an oft overused adjective in all spheres of sport, but in this instance it is wholly appropriate.

The headline races won't be the only things





JAKOB EBREY









SIMON ARRON

Clockwise from above: White leads; Mallock starred in rain; Murray and Melrose tangle; winner Moyers under pressure and on the podium. Right, Gilmour leads as Turner's 917 looms

"If there was a better contest anywhere on the planet in 2017, I'd love to know about it"



to endure in the memory, either. As ever at the WHT, the organising Historic Sports Car Club's traditional almost-anything-goes sports/saloon libre races - one of them an all-female event - reaped a rich harvest. It's not often that you see a Dallara LMP3 prototype lapping a Renault Clio in the heat of competition, but you could here. And the Dallara, tidily driven by Martin Short (once he'd finished larking about with the other prototypes, for the sake of the show), sounded fantastic - completely audible around every one of the national circuit's 2,637,714.8 millimetres.

You want to watch a Rover P6 taking on an Elva Courier? Or a beautifully turned out Porsche 917 replica being challenged by a Clubmans Mallock? Step this way...

And then - a first at this event, as far as I'm aware - there was a two-hour Britcar 'into the night' fixture. A nice idea, but one had to feel for the marshals (especially as more than half the cars were entered only in the 'sprint' section of the race and were thus flagged off after 50 minutes).

In the paddock, meanwhile, former racer Gerrit van Kouwen could be found with his nose poked deep into the cockpit of a Lola T644E similar to the one the Dutchman had used to win the 1984 FF Festival. "I was wondering whether it had the same mods that I used in period," he said. And teenage

Belgian karter Amendola Michelangelo did a decent job to make it through to the final, but then had to sacrifice his place at the rear of the grid in order to get back to St Pancras to catch his train home...

I recently read some comments from Sean Bratches, Formula 1's director of commercial operations, who spoke to *SportsPro* magazine about developing a new fanbase. He said, "We have an RFP [request for proposal] in the marketplace right now to create a live and non-live over-the-top product and to better utilise the data and metrics that come out of each race. There are 1500 points of data that come out of each of these cars every second of a Grand Prix. We're not going to suffocate the fan but we want to identify a substantive amount of those metrics so that we can convert the ones and zeros into very compelling user interfaces to tell our story."

I think I understand some of that, but if you want to guarantee that people will become engaged with our sport there's a simpler method.

Send them to the Walter Hayes Trophy.

CADWELL PARK

Officially the clocks had gone back one hour, although stepping out at 4.15am it felt as though they had been rewound to an ice age.

The Auto 66 Club's annual Sidecar Bash had long been on my radar. Previously staged at Mallory Park, it always seemed to clash with some other pressing commitment (clue: involving cars), but finally on October 29 I was free to attend - and one should never spurn an opportunity to visit Cadwell, whatever the temperature.

I've always loved watching sidecars (without ever feeling the inclination to sit anywhere near one), but while entries are strong at BSB meetings - and even more so on the Isle of Man - they tend to be a little thin at club-level events.

Not here.

There were about 100 outfits entered, ranging in shape and size from the era of Eric Oliver and Jenks to the more rapier-like missiles of the modern age. The paddock was rammed and there were a couple of decent grids for solo races, so all the right ingredients were in place. Well, all bar one: logic...

Certain bike clubs - BMCRC and Thundersport GB spring to mind - are responsible for some of the UK's slickest motor sport, but this wasn't from the same manual.

There were 18 races listed, but another three had to be carried over from the previous day - and the first four-lapper was then delayed by a red flag (which meant it took 53 minutes to complete). Some of these things are beyond the reins of race control, but officials persisted with reducing scheduled distances, trying to cram in the programmed number of events, and very few races settled into any kind of rhythm.

It would surely have been wiser to run categories for eight laps rather than four and then halve the number of races (same track time, less messing about on the grid, fewer green flag laps and so on). I've yet to find anybody who can explain why this wasn't possible, but if somebody knows...



Flying on the ground: the BMW of Steve Gagg and Sylvia Hase



CLUB RACING SPOTLIGHT

Stuart Kestenbaum: more than three decades in FF1600...

He has become almost as integral a part of Formula Ford racing as the Kent engine. Stuart Kestenbaum, 68, made his debut in the category during the summer of 1983 and has been present almost ever since.

"After winning the Star of Mallory FF1600 title in 1988, I stepped away for a couple of years to do Sports 2000," he says. "I was second in the championship in 1989, but a different tyre was introduced in 1990, I lost my way a bit and decided to return to what I knew.

"That short spell apart, I've been in Formula Ford since I started. I've missed bits of seasons - usually through hurting myself - and my wife almost persuaded me to stop racing circa 1986, but it was only an 'almost'.

"I've loved FF1600 from day one. It's fantastically good fun and the driver can make a difference - it's pure formula racing and the cars are precision instruments. Even the old ones were state of the art in their day and they're completely adjustable - in a different way, perhaps, but it amounts to the same thing."

Of late he has been campaigning a Crosslé 16F, a 1969 design with which he hopes to take a crack at the HSCC Historic Formula Ford Championship - though he will continue to race it against more modern machinery when opportunity permits.

"I've always loved putting an old car higher up the grid than it should be," he says. "If you lose, so what? It's only to be expected - it gets rid of any need for excuses. And if you do well, people tend to notice."



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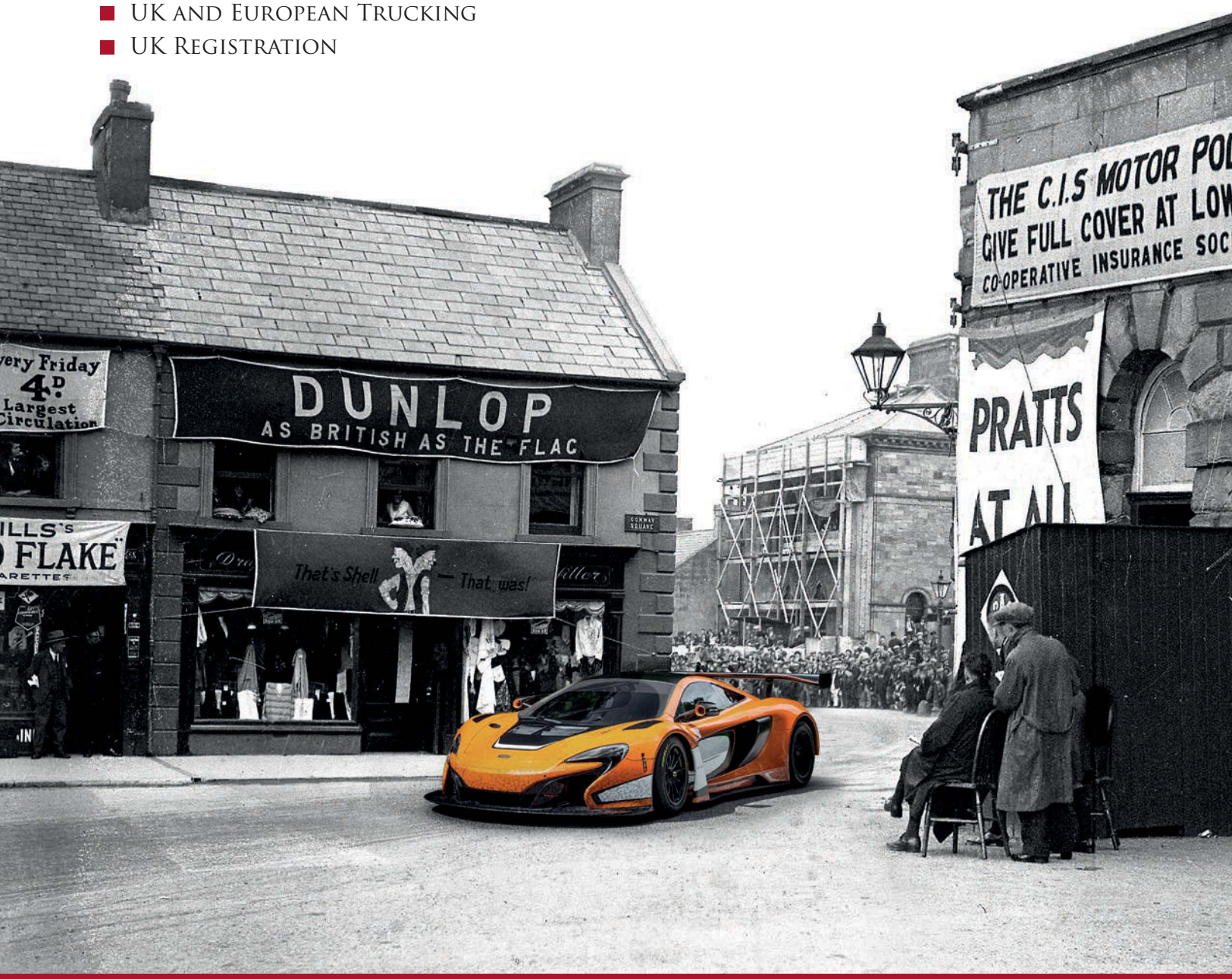
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IN THE UK ***Feb 15-18 – London Classic Car Show, ExCel*** **More than 700 classic cars park up in London this February for the fourth running of the London Classic Car Show, which this year pays homage to getaway cars. The London Motorcycle Show takes place just next door.**

IN THE UK ***Feb 17 – Stunt Fest, Santa Pod Raceway*** **Monster trucks, banger racing and drifting make Stunt Fest an ideal half-term family outing at the UK's premier drag racing venue.**

INTERNATIONAL ***Feb 18 – NASCAR Daytona 500*** **The opening NASCAR race promises action, close racing, fireworks and quite possibly even fisticuffs. This year marks NASCAR's 70th anniversary and the 60th running of this famous race.**

IN THE UK ***Mar 10-11 – Border Counties Rally, Jedburgh*** **The first round of the MSA British Rally Championship starts in Scotland – and Jedburgh's 12th century abbey provides the main base for an event featuring six loose-surface special stages and 45 competitive miles.**

IN THE UK ***Mar 17 – British Rallycross Championship, Silverstone*** **Before the World Rallycross Championship touches down at Silverstone, watch the British RX season-opener at this newly developed facility within the existing Grand Prix circuit.**

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FEB 24-25	WORLD SBK	Phillip Island, Australia
FEB 25	NASCAR	Atlanta
FEB 27	F1 TESTING	Barcelona
MAR 3	HISTORIC RALLY	Tour of Cheshire



SHORT BREAK

race retro
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STICKING POINTS

Ground-effect cars in Race Retro spotlight as legends of stage and track gather for popular historic showpiece

Race Retro kicks off the 2018 historic motor sport calendar in style, with famous drivers and cars in attendance plus breathtaking live rally action.

The 16th International Historic Motor Sport Show runs from *February 23-25* at *Stoneleigh Park*, near Coventry. The show's scope is wider than ever this time, including an exhibition celebrating ground-effect aerodynamics (40 years after Mario Andretti won the F1 title in a Lotus 79). There will also be a collection of Prodrive machines, plus appearances from the Vintage Sports-Car Club, MG Car Club and Equipe GTS.

The successful Lotus 79 (in Ronnie Peterson's hands, above) will be among the ground-effect cars at Race Retro, alongside a Williams FW07 and cars from other categories that embraced the same principles.

***Motor Sport* is an official show partner and sports car legend Brian Redman is due to appear on our Live Stage, alongside other engineers and designers who will provide fascinating insight. Names have still to be confirmed, but the 2017 cast included Ari Vatanen, Tom Kristensen and Mike Costin.**

There will also be an exhibition celebrating *Motor Sport* Hall of Fame inductee and Prodrive founder David Richards. This includes an ex-Colin McRae Group A Subaru Impreza, from 1996, and the 2004 BAR Honda F1 car raced in period by Jenson Button and Takuma Sato.

Adult tickets start from £20 when booked in advance. Those for children aged 5-15 begin at £5 in advance. *www.raceretro.com*

HOW TO GET THERE

Stoneleigh Park, Coventry, CV8 2LZ. Easy access by car from M40 and A45. The nearest train stations are Coventry, Warwick Parkway and Leamington Spa. Birmingham International Airport is the most convenient for international visitors.

ALSO GOING ON

Silverstone Auctions will be hosting a sale of competition and classic cars (£5.7 million changed hands in 2017), while 250 specialist traders, exhibitors and race or rally organisers will also be present, showcasing their series and displaying a wide range of cars.

DON'T MISS

Race Retro's live action stage has become a popular annual staple. Operating on Saturday and Sunday, it features more than 80 classic rally cars – including many from the Group B era – on a purpose-built course located close to the main exhibition halls.


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Suzi Perry

confirmed for

Motor Sport Hall of Fame

June 4th, 2018

The 2018 *Motor Sport* Hall of Fame will be hosted by Suzi Perry, one of the most accomplished and passionate broadcasters on British television. Perry has spent more than two decades presenting coverage of MotoGP, Formula 1 and the Superbike World Championship for BT Sport, the BBC and Channel 5.

Taking place on June 4, the Hall of Fame celebrates the greatest names in racing across F1, motorcycling, sports cars and other disciplines. Guests can witness Perry award their heroes – as voted for by the *Motor Sport* community – while dining among them within the splendour of the Royal Automobile Club.

"All the *Motor Sport* HoF nominees tick the boxes for me, and then some," said Perry. "It's a list of the greatest racers ever, the Who's Who of greats, and it's an honour to be able to talk about these drivers and host the awards.

"As one of only a few people to have set foot in the MotoGP and F1 paddocks as a broadcaster, I know it's a privilege to have witnessed the greatest sport in the world – and it means everything to me. To be able to stand on stage and award these heroes is a rare and amazing opportunity.

"It took a while for me to earn my stripes but I've always felt welcome in motor sport paddocks, across all branches of the sport. People are always very supportive.

"Now I'm sharing the stage with motor sport icons, it feels absolutely brilliant."

Previous guests to have savoured the intimate atmosphere of the Hall of Fame include Nigel Mansell, Murray Walker, Sir Jackie Stewart, Alain Prost, Niki Lauda and Damon Hill.

"I've been a reader of *Motor Sport* for a while," added Perry, "and it's my love of motorcycle racing that's drawn me to it, especially Mat Oxley's work. He's my go-to for motorcycle coverage, and it's great to see him featured in a magazine that hits the nail on the head.

"Hosting the Hall of Fame is a totally different job for me, as I normally report on live races, but this is a once-in-a-lifetime opportunity, and not something I take lightly. The incredible displays of bikes and cars are really exciting, and I think it will be a thrilling evening."

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Equipe Pre '63

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By carefully selecting eligible cars, the original Equipe GTS series has delivered close and exciting racing with an emphasis on competitive yet high driving standards. Equipe Pre '63 will follow the same ethos and also retain the club and social feeling of the original series.

Equipe Pre '63 will run on Dunlop Historic 'L' tyres for cars to FiA appendix K specification; FiA Papers are welcome but not mandatory







The 2018 calendar has 9 race weekends including the Silverstone Grand Prix Circuit, Donington, Brands Hatch, Oulton Park, and Zandvoort.

For further information including eligible cars and full regulations visit:

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EQUIPE CLASSIC RACING



BE THERE AT HOME

VIRTUAL REALITY RACING

Google and Red Bull are bringing high-octane racing closer than ever – inches from your face

Jack Phillips

This new Red Bull and Google partnership is not for those with a fear of flying: the two giants are going to put us right in the middle of the Red Bull Air Race through virtual reality (VR) headsets.

If successful the tie-up will set a new benchmark for watching live events and could be replicated by other motor sports. It's happening on February 2, 2018, during the championship event in Abu Dhabi, and will allow spectators to put themselves in the place of the pilots and see exactly what they see as they fly their 370kph, 10g planes through the course. There is a snag - it currently only works with Google's Daydream headset (£99).

Red Bull and Google promise it will be a totally immersive experience, with real-time telemetry and live flight data such as pitch, roll and airspeed displayed on the screen. And, says Czech pilot Martin Sonka, it could even aid the pilots: "We can see mistakes that we've made in previous flights and find the right corrections."

Virtual reality (VR) headsets have previously been used to take users on rollercoaster rides, or on laps around a circuit from the comfort of their sofa via a smartphone plugged into a visor. As you turn your head your view changes too, whether that's left, right or behind courtesy of a 360-degree video image.

GoPro has been trialling live 360-degree immersive video for years. Randy Mamola was able to ride virtual shotgun with his son during a MotoAmerica race at Salt Lake City in 2016 (watch at motorsportmagazine.com/Mamola360) while he was the other side of the world. But that was one camera, for one person, on one stream, unlike this global Red Bull/Google project.

Formula 1 actually tested live 360-degree cameras at the Singapore Grand Prix, becoming the first theoretically to be able to sync it with live television feeds and remove the previous 30-second delay for processing. That was a test for a later implementation as part of Liberty's grand plan, presumably.



IndyCar has been innovating with live visor cam technology, which does what it says on the tin, and has had remotely controlled cameras turning and spinning to follow passing cars for years.

But this Red Bull and Google partnership, if successful, could signal a shift into the mainstream for virtual reality.



HOT TOPIC

GT SPORT EXPANDS

More tracks to come, with packed virtual paddocks

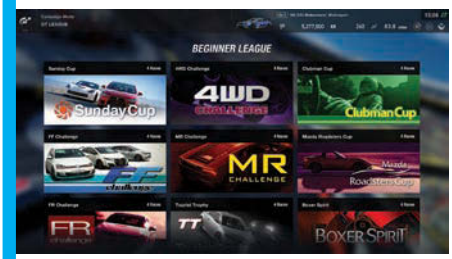
One of the main complaints about GT Sport was the lack of cars and tracks. And that has now being rectified. From November many players will have seen the Audi LMP1 R18 appear along with an Iso Rivolta Zagato 'Vision Gran Turismo' concept and a Shelby Cobra.

At the time of writing an additional 12 cars are set to land in a December update including a VW Samba Bus Type 2, no less.

But for those more interested in speed than curiosities in a racing game, the Enzo and F40 Ferraris are coming; so too are the Countach, KTM X-Bow, C3 Stingray, a brace of Skylines, an RX-7, F-150 Raptor, Chevy Nova concept and Suzuki Swift Sport.

That's just the start: a total of 50 cars are said to be on the way along with an unconfirmed number of tracks.

The latest update will also allow players to take part in GT League, a single-player option where players face challenges in a series of increasingly difficult leagues.

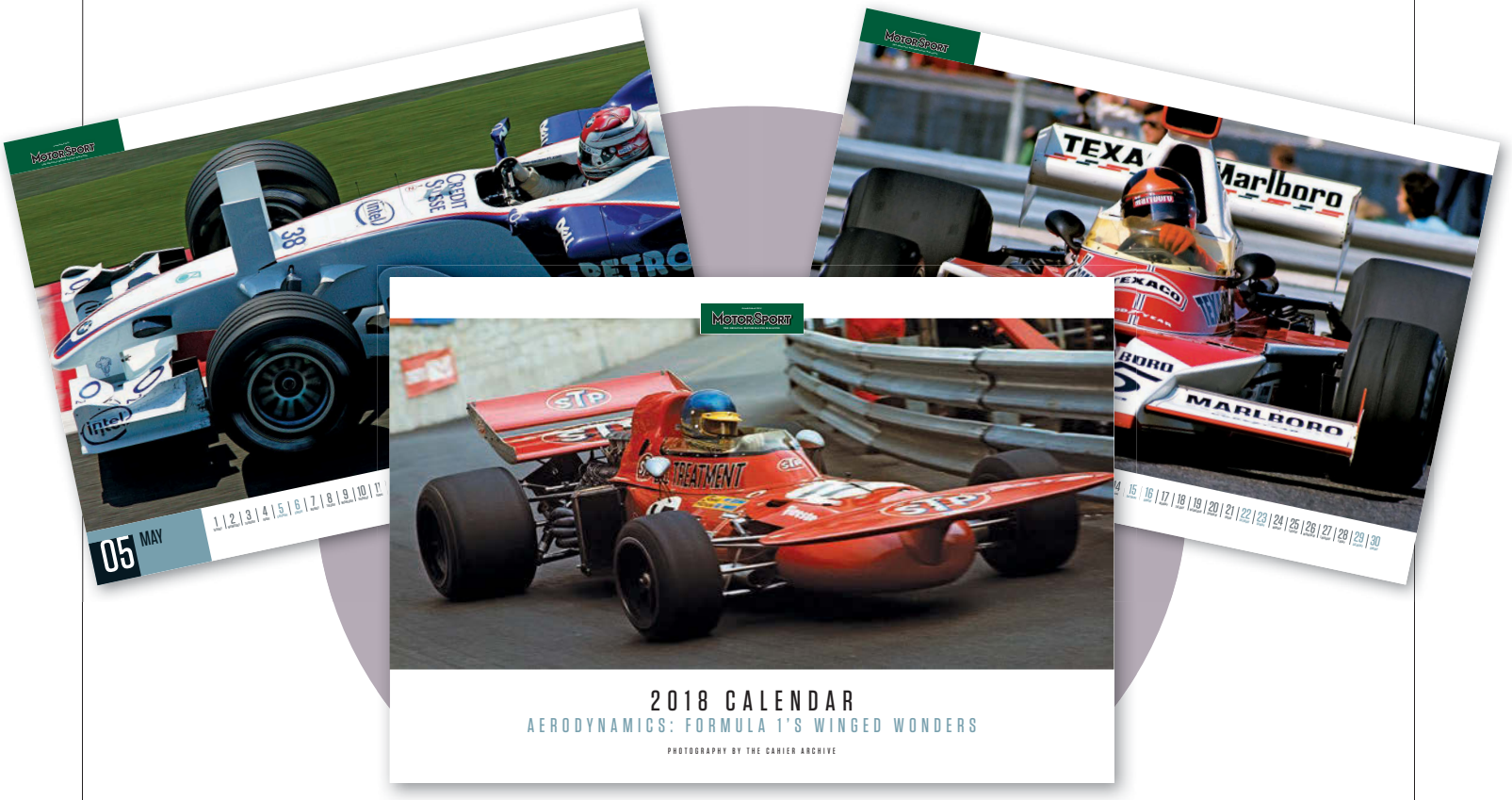




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SENNA BREAKS COVER

McLaren launches ultimate track-day special

Andrew Frankel

Unveiled – McLaren's fastest road car yet. And they've given it the name of the fastest driver ever to race for its Formula 1 team. The McLaren Senna is the second in its 'Ultimate' series of cars, following the P1 hybrid hypercar of five years ago.

The two cars are very different beasts, however. While the P1 was intended to be both an effective track car and a plausible long-distance road car, the Senna is a track car through and through, albeit one that retains road-going capability for the sake of convenience and owners who want to show off to their friends. And while the Senna follows the P1's lead by being built around a carbon cage, having carbon bodywork and using twin-turbo V8 power, the way it goes about generating its pace is very different indeed.

Most notably, the Senna does without the hybrid system that boosted the P1's power output from 737bhp on engine power alone to a total of 903bhp. The Senna has 'only' 789bhp but doing without the additional weight of the electric motors and batteries means it hits the track with a dry weight of just 1198kg, making almost 200kg lighter than the P1 and providing a superior power to weight ratio of 668bhp per tonne compared to 647bhp per tonne.

The result is a car that will certainly be several streets quicker than the P1, whose performance insiders admit has already been eclipsed by the 710bhp 720S. It will also likely give it strong claim to being the world's fastest production car around any given circuit, at least until the next generation of hypercars like the Aston Martin Valkyrie and Mercedes-AMG Project One hit the track.

The Senna is based on a new development of McLaren's 'Monocage' carbon-fibre tub said to be the strongest in the company's history. Behind a new carbon rear bulkhead sits a version of the 4-litre V8 already seen in the 720S, located lower in the chassis to improve the centre of gravity. The use of lightweight internal components, ultra-low-inertia twin-scroll turbos and electronically controlled wastegates has resulted in a power output of 789bhp, making it the most powerful internal combustion engine in McLaren's history. It is also knuckle-gnawingly close to hitting 200bhp per litre of capacity, a specific output once only the province of purpose-built Formula racing cars and sports prototypes.

McLaren has issued no performance data but despite the traction limitations of its rear-wheel-drive design, it is entirely possible it will be able to travel from rest to 100mph in fewer than five seconds.

However, this being a McLaren and a track-honed one at that, perhaps even more attention has been focussed on the car's aerodynamic performance. Indeed it takes its 'form follows function' philosophy to such levels that you might fairly say the former now trails the latter by a considerable distance. The cars profile is dominated by a massive rear wing which can angle through 20 degrees according to the need for braking for corners, generating maximum downforce through the turn or reducing drag as far as possible on the straights. Each movement is met by an equivalent change in profile of blades in the front splitter to ensure the car's handling balance remains consistent throughout. McLaren has not said how much downforce the Senna will produce but it is certain to eclipse the 600kg offered by the P1, which was itself a new level for road legal production cars. The suspension is a next generation of the inter-connected, hydraulically controlled system found on the P1 and is now snappily entitled RaceActive Chassis Control II. It provides modes from Comfort to Race and can lower its ride height to maximise on-track downforce.



McLaren admits the Senna will come as a shock to those used to Woking's reputation for producing supercars that are easy to live with, saying it 'deliberately compromises McLaren's trademark breadth of supercar daily usability'. Instead it intends to provide 'the purest connection between driver and car, to deliver the most intense circuit experience of any road McLaren.'

The Senna costs £750,000 before local taxes, just 500 will be built and all have been sold in advance of the car's formal unveiling at the Geneva Motor Show in March.

LAMBO'S SUV

More than five years after unveiling the concept, Lamborghini has finally revealed the production version of its Urus SUV.

Its eye-catching styling cleverly conceals the fact that it is the fourth SUV to be launched Volkswagen's MLB platform following the Audi Q7, Bentley Bentayga and Porsche Cayenne. At launch it will feature the most powerful version yet of the group's 4-litre twin-turbo V8 engine, offering 641bhp, enough to push all 2.2 tonnes of Urus past 62mph in just 3.6sec and onto a top speed of 190mph, beating the Bentley by 3mph and allowing it to claim, at least for now, the title of world's fastest SUV.

Lamborghini's boss, ex-Ferrari F1 team principal Stefano Domenicali, claims the Urus is 'a true Lamborghini in terms of design, performance, driving dynamics, emotion' though as it is well over half a tonne heavier than any Lamborghini sports car, is the first to use turbochargers and the first to have five doors, the driving experience will be dramatically different to that of any previous Lamborghini, even the company's other SUV, the outlandish LM002 of the late 1980s.

But it is crucial to Lamborghini's plans to revolutionise a business that has spent over 50 years building up to its current production rate of 3500 cars a year: the Urus is tipped to double that volume in its first full year on sale.

The Urus is priced at £165,000, less than all other Lamborghinis bar the cheapest version of the Huracan supercar.

NEW LISTER

Lister Cars has started to tease images of the first road car to wear the badge since the 1990s. The new Lister Thunder will appear in the new year and is based on the Jaguar F-type, albeit discreetly modified in external and internal appearance, with revised suspension and, most importantly, a 666bhp tune for the 5-litre supercharged V8 from the 567bhp F-type SVR. Reports claim it is capable of 0-62mph in 3.2sec and 208mph. Just 99 cars will be sold at a price still to be announced.

LONG ARM OF THE LAW

A second Volkswagen executive has been jailed for his role in the Dieselgate scandal. Oliver Schmidt, who looked after VW's compliance issues in the US, was given seven years and fined $400,000, far harsher than many had expected and interpreted as intending to have a deterrent effect. Schmidt does not appear to have been directly involved in the decision to fit VW diesel engines with so called 'defeat devices', his crime instead being not to divulge their existence once he knew about them.

He follows James Liang, former head of VW diesel competence in the US, who was jailed in August for 40 months and fined $200,000 after prosecutors argued he was a 'pivotal figure' in the design and fitment of the devices.

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F1 FRONTLINE

Mark Hughes

It could have been one of the greatest sporting comebacks of all time, but Robert Kubica's dream return to F1 appears to finally have foundered

The dream of Robert Kubica's comeback has been dashed against the unforgiving rocks of time and finance, as Williams has opted instead for Sergey Sirotkin as 2018 partner to Lance Stroll. What could have been one of the greatest sporting comeback stories of all time is therefore on the backburner, quite possibly forever.

The time element has three components - the seven-year gap between his catastrophic injury in a rally car and his attempt at an F1 comeback, the lap times he delivered in the Abu Dhabi Williams test and the time needed to adapt to tyre traits he struggled to get his head around.

Looking at each in turn, seven years is a vastly longer gap than that preceding any previously successful F1 comeback. Niki Lauda returned after two seasons away, won on his third race back and a couple of years later took a third world title. That has to go down as the most successful of all F1 returns, but by the time of that 1984 championship he no longer had the cutting edge of speed of his best years - and was invariably whole chunks off the qualifying pace of McLaren team-mate Alain Prost. He essentially won that year through being one of two guys in a car way faster than anyone else's and suffering fewer mechanical breakdowns than Prost. His best stuff was back in 1974-78.

Kimi Raikkonen came back to win Grands Prix for Lotus in 2012-13 after his two-year rallying sabbatical, but returned looking like the measured Ferrari pro of 2007-09 rather than the devastating speed monster of his earlier McLaren years.

Michael Schumacher came back after three years away and only rarely looked anything more than a pale shadow of the driver he once was. Personally, I believe his motorcycle accident, and the damaged neurons from a neck injury that in 90 per cent of cases is fatal, was probably more responsible for his lack of form second time around than age or length of absence. But still, even Schumacher didn't manage it - and seven years is a huge amount of time to be away, even without the injury effects.

As for the lap times in Abu Dhabi, they were difficult to interpret, but Williams read them and came to the conclusion that Sirotkin actually tested slightly better.

The 2018 tyres were different from the 2017 Pirellis used in the preceding Grand Prix, the high-mileage engine was turned down for reliability and the track grip in the heat of the desert day was less than during the dusk of the race. Nonetheless, Kubica's 14-lap race stint on Tuesday averaged about 0.6sec faster than the first 14 laps of Felipe Massa's race. How much did that mean, given the variables? The consensus was that it was a very solid stint, probably slightly better than Massa's. He asked for changes to the car but these weren't made until the following day - when Sirotkin did his race stint. This averaged slightly faster than Kubica's from the day before, but how much of that was the car improvement?

Muddying the waters further, Sirotkin was slowed by a niggling gearbox problem that prevented the most aggressive upshift settings. But it was Kubica's low-fuel qualifying simulation laps later that day that probably sealed his fate. His had two runs on the new hyper-soft. On the first of them he got traffic on his first lap and, by the time he tried for another, the tyres were overheated. On his second run he put together a scrappy 1min 39.4sec lap that didn't join up his best sector times - and which compared to Massa's qualifying time of 1min 38.5sec (but again with provisos that only the team could realistically evaluate).

Afterwards Kubica was apparently talking of how difficult understanding the tyre was - how much to conserve through the first sector in order for it not to be too hot at the end. Abu Dhabi is a notoriously difficult track for the Pirelli and for a measure of the outright, full-attack pace of a driver, was probably a poor choice of venue. The track's very smooth surface means that the tyre is responsible for much more of the total grip than on tracks where the roughness allows it to penetrate a greater depth into the tyre's tread. So the surface of the tyre gets overworked and overheated quite easily. It's similar at Sochi and Monaco. Kubica felt too much understeer in the car and so changed the set up before his short runs.

This contributed to him overheating the rears in the first two sectors. A more conventional track surface would not have brought this complicating variable into the assessment equation. But it's all that was available. So with a few months and a few race weekends of learning, might Kubica have been at something much closer to his best? Would that time have healed his problems? Williams decided it couldn't afford to find out.

Although Kubica would have brought sponsorship, it was rather dwarfed by Sirotkin's budget (which informed rumours put at something in the region of 15-20 million euros). The technical team went into the Abu Dhabi test believing that Kubica could probably deliver a performance that would allow them to convince the commercial team not just to take the driver with the biggest budget. But he didn't, for whatever reason - and Sirotkin tested well.

> ***Would more time have healed his problems? Williams decided it couldn't afford to find out***

It gives Williams its least experienced driver line-up since back in the mid-70s, days when Frank Williams was struggling as a one-man band and ready to run whichever budgeted driver could keep him in business. The numbers are rather higher now, but the same principle applies. Besides, occasionally one of those budgeted drivers turns out to be fast. Not as romantic as the greatest comeback of all time. Just hard-headed realism. ⊠

Since he began covering Grand Prix racing in 2000, Mark Hughes has forged a reputation as the finest Formula 1 analyst of his generation

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RACING LINES

Dickie Meaden

Should recently built 'classic' cars be permitted to race at historic events? Join us for a stroll through a well-trodden minefield...

In the often snooty world of classic cars it's almost compulsory to look down upon kit cars and replicas. It's ironic, then, that historic racing -arguably the pinnacle of the classic car scene - should be packed with cars that aren't what they seem. There are no Nissan 350Zs masquerading as Ferrari 250 GTOs, but rare is the grid that doesn't feature an apparently old racing car that's probably seen fewer Christmases than your socks.

Copy. Clone. Continuation. Evocation. Replica. Call 'em what you will. New cars built precisely to blueprints of the originals are a fact of life in historic motor sport. Whether they're a good or bad thing is one of the more complex and emotive issues facing all of us.

Some series organisers have a policy of not accepting copies or continuations. But as with most rules, there are always one or two exceptions that undermine the zero tolerance approach. Other organisers make no distinction between genuine cars that were built and raced in period and authentic cars that have been built in recent years. When your business is filling grids there's no right or wrong answer.

The only thing not at the organisers' discretion is the need for an all-important FIA Historic Technical Passport (HTP), which is a requirement for any car competing in international historic motorsport. It's a common misconception that HTPs somehow authenticate a car's provenance, for they do no such thing. As the UK Motor Sport Association (MSA) explains: "The HTP is essentially a sporting document and says nothing about the authenticity, provenance, origins, etc, of a car. It is concerned only that the car's specification is that of the particular model it purports to be. The whole purpose of the HTP is to try to ensure that cars accord with the authentic specification and can therefore compete with one another fairly.

"Whether the car is wholly original, partly original, assembled wholly or partly out of period components or a copy built recently is not relevant to an HTP. The prime criterion is that the car represents a provable specification that competed internationally in period."

So the technical specification of new and original cars ensures they should perform equally, but does that make the playing field level? I'm not sure it can entirely, at least if you're one of the few racing a genuine period car with significant history against someone in a car with equal performance but worth a fraction of the money. That said, the jeopardy works both ways. Nobody wants to be the one who crashes, or crashes into, some priceless piece of history. Ultimately this just underlines my belief that historic racing should place emphasis on having the right attitude above simply having the 'right' car.

Adding to the conundrum are the number, variety and pedigree of the new-built cars. In the mid '90s the late John Willment enlisted the help of GT40 expert Bryan Wingfield to build the final three officially sanctioned GT40s, using original parts and chassis numbers. Real cars, then, just not built in period. Since then companies like Gelscoe and Kirkham have been building beautiful, FIA-compliant GT40s and Cobras from all-new parts. You will unquestionably have seen them race, wittingly or otherwise.

Lola famously built two runs of T70 Mk3B continuation cars - the first in the late '90s, the second in the mid '00s. Since then, a few years before his death, the late Eric Broadley gave his blessing to Broadley Automotive, a firm building perfect copies of the Mk3B Lola T70 at premises located a few miles from Lola's old Huntingdon HQ. Price? About £350,000 - half the cost of a Mk3B with patchy history, or roughly a quarter of the value of the best original cars.

Another celebrated modern continuation project is by Jaguar Heritage - six FIA-approved £1.2m Lightweight E-types, which have been given the last remaining chassis numbers that were originally allocated - but never built - in period. And so it goes on: Lister building a fresh batch of knobbly-bodied Lister-Jaguars; Aston Martin a run of 25 track-only DB4 GTs. The common theme? All cost big money, but still a fraction of the value of an original car.

Perhaps the biggest source of conflict and contradiction are the toolroom copies fielded by those who also own genuine cars. Not all do it, but there's a tacit acknowledgement that having the real car gives you the right to build and race a clone. Do I blame the owners for doing so? No. Does it diminish our enjoyment of the racing? I don't believe so, though if we all knew precisely which cars were originals and which were copies it might erode the sense of significance.

Now imagine being the organiser trying to tread that delicate line between upholding standards and filling your grids. Of course due deference should be shown to the owners of the original cars, but to be honest if they happen to be racing a clone what's the difference between them and those racing continuations? You could turn the whole thing on its head and say it's wrong for a clone to continue accruing history for a car that retired years ago. Like I said, it's tricky.

Personally I think so long as the significant original cars get priority if grids are oversubscribed, then where's the issue in letting the other cars race? It's short-sighted (selfish, almost) to think historic racing can exist in its present form without the replicas and continuations. Just as it's unrealistic to believe historically significant period-built cars that have been actively and competitively raced for many years can possibly be completely original.

Is it time historic racing grasped the nettle and openly conceded the sport is about cars like those that raced in period as well as those that *did* race in period? Surely better to do this than enforce unfair and inconsistent policies on the paddock, then expect that same group to maintain the pretence with a conspiratorial wink? Answers on a postcard, please.

> ***There's a tacit acknowledgement that having the real car gives you the right to build and race a clone***

Dickie Meaden has been writing about cars for 25 years – and racing them for almost as long. He is a regular winner at historic meetings

MAXTED-PAGE

HISTORIC RACING PORSCHE











The last 3.0 RS to leave the factory / Restoration by Maxted-Page

1974 Porsche Carrera 3.0 RS | Chassis # 911 460 9109

A total of just fifty-four Carrera 3.0 RS Coupes were built and chassis #9109 was the last numbered RS in this short series to leave the Porsche factory. The cars were road legal and fitted with a 3.0 Type 911/77 engine which was perfect for road use but also eminently suitable as a Group B competition car in races and rallies.

First registered on 28th June 1974 in Germany, finished in Grand Prix White (908) with Guards Red Fuchs wheel rims and matching Carrera scripts. The car has had four previous owners in France and competed only in historic rallies, including the 1996 Tour Auto and several historic Tour de Corse. Acquired by the current owner in 2013, this genuine numbers-matching example has been meticulously restored in-house at Maxted-Page and is now offered for sale complete with UK V5 registration and EU taxes paid.

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Mat Oxley

The dystopian movie* Rollerball*, an orgy of over-corporatised, violent sport, was set in 2018. Obviously, it could never happen for real...

The year 2018 is a cultural milestone in motorcycle sport, because it is the year in which Hollywood movie *Rollerball* is set. *Rollerball* is a dystopian vision of a 21st century in which American sportsmen spill their blood to entertain the crowds. This ultra-violent ballgame takes place around a sci-fi velodrome, the competitors wearing roller-skates, studded leather gloves and American football helmets and body-armour, some of them riding motorcycles, with which they tow their skating team-mates.

The motorcycles are humble Honda CB125s - single-cylinder four-stroke commuter bikes - dressed up to look bad in shiny sheet aluminium. These machines career around the banked boards, trying to get the rollerball into the goal and spread carnage among rival players.

The more vicious the game, the more the crowd loves it. "They'll change the rules until we skate on a slick of blood, we all know that," says one player.

Rollerball, sound-tracked throughout by portentous Bach organ music, was based on a short story, *The Rollerball Murders,* written by William Harrison. "When I look at the film now, I feel like a prophet," says Harrison. "In Roman times they had death sports in the Coliseum and the Circus Maximus. They've been toned down now into NFL and other sports but they're still there. When I wrote *Rollerball*, sports were becoming dark and violent. There was a general nastiness, which I picked up on."

Perhaps Harrison didn't only look darkly into the future, perhaps he also looked to the past, to the USA's first bike-racing craze, board-track.

Board-track was born in the early days of the last century, when motorcyclists (and some car drivers) started racing around velodromes, that had been built in the 1890s for bicycle racing. The new sport was an instant sensation. Dozens of so-called motordromes were constructed from east to west. The tracks got bigger and more steeply banked until they became half-mile walls of death, with riders rattling around the boards on 1000cc Indian or Harley v-twins in bicycle frames, with no brakes, no gears and no clutch. No throttle either, just a magneto cut-out button: full power or nothing.

You didn't need to be a genius to work out what was going to happen next as gangs of riders fought vicious duels - fisticuffs were all part of the fun - at 90 miles per hour. And once the deaths started happening, they kept on coming. At first, this was anything but a problem for the promoters. "Neck and neck with death!" proclaimed an advertisement nailed to the outside of Detroit's Michigan Motordrome.

Board-track's greatest superstar was Jake De Rosier, who became very rich, albeit at the price of a fractured skull, a severed artery, numerous broken limbs and multiple splinter wounds. "De Rosier has probably gouged enough splinters out of board-racing tracks to build a small-sized cottage, with a chicken house and a backyard fence stringing out behind," reported the *Los Angeles Herald*.

But the laws of physics made sure it wasn't only the racers who suffered. Spectators sat in grandstands immediately above the board-tracks, in real danger whenever a rider lost control, which was often.

The beginning of the end for board-track came in September 1912, when Eddie 'The Texas Cyclone' Hasha and Ray Seymour were disputing the lead at the New Jersey Motordrome. Hasha crashed heavily, killing himself, one other rider and six spectators. Ten months later another rider and nine spectators lost their lives when a bike veered into the stands at Lagoon Raceway in Kentucky. Deaths became commonplace and the motordromes were renamed murder-dromes. Within a few years the sport itself was dead, replaced by dirt-track racing.

Rollerball doesn't only concern itself with bread-and-circuses entertainment. The movie looks beyond the velodromes, into the decadent mansions of the star players and executives of the Houston team, which is bankrolled by the Energy Corporation, the global energy monopoly. The grey-haired chairman of Energy sits in his luxuriously appointed office, brooding malevolently while dreaming up crowd-pleasing rules and off-piste scenarios. Remind you of anyone?

The greater premise of *Rollerball* is that all nations are bankrupt and the world is run by giant corporations. Sport is now just another business, run by obscenely rich megalomaniacs, addicted to the vicarious glamour and pleasured by beautiful androids. You can't help but think that Harrison very nearly got it all right.

The idea behind the sport itself is that it serves a double social purpose of keeping the proletariat amused and demonstrating the futility of individual effort. It's all about the team, all about doing what you're told and working together. "No man is bigger than the sport," growls the Energy chairman.

However, he's wrong. The star of the movie is Jonathan E, played by James Caan, who sets himself against his controllers, who plot to destroy him via a new game format: play to the death. But Caan is the game's only survivor. The crowd chant his name as the chairman of Energy shuffles away, aware that he has lost control of the sport. People will always love heroes.

Rollerball is worth a watch, but make sure you see the 1975 original, not the 2002 remake, described thus, "A checklist shaped by a 15-year-old mallrat: thrashing metal track, skateboards, motorbikes, cracked heads and Rebecca Romijn with her top off." ◘

> ***Spectators sat above the tracks, in real danger whenever a rider lost control, which was often***

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REFLECTIONS

Richard Williams

You can't help but buy into the romance of Alfa Romeo, even if the first one you bought blew up on the M1 within 24 hours of purchase.

Someone who lives in the next street to mine has just taken delivery of a new Alfa Romeo Giulia. It's the Quadrifoglio model in the proper cerise paintwork with all the bells and whistles, from the twin-turbo 2.9-litre V6 to the lovely little metal clover-leaf badges set into the flanks of bodywork. I'm extremely envious, even when I think back to certain incidents from my own experiences of Alfa ownership.

Back on a bright autumn morning in 1973 there was the trip up the M1 in an exquisitely pretty three-year-old 1750 GT Veloce, acquired the previous day from the Chequered Flag on the Chiswick High Road; the journey ended in a horrible noise, a sudden loss of power and a cloud of acrid smoke somewhere around Junction 15.

A hole in a piston was later traced to mismatched plugs. Twenty five years later a brand-new 156 with the Arese-built 2.5-litre V6 suddenly and without warning expelled the contents of its air-conditioning system into the passenger footwell, ruining a friend's rather nice shoes.

But what lovely cars they were in every other respect, built to be driven as well as looked at, with engines that spun up frictionlessly through the rev range. There was nothing, apart from the initial blow-up, to criticise about the driving experience offered by the older car, and you could almost forget that its successor delivered its power through the front wheels.

Both cars felt like they had proper heritage, belonging at the modern end of a company history that included so many beautiful vehicles and so much in the way of motor racing legend. And when I walk past the Giulia, that's how it presents itself. So many things about it - the colour, the heart-shaped grille, the little honeycombed air intakes on the bonnet and behind the front wheels, the overall proportions, the knowledge that the power goes to the rear wheels - remind me in particular of a car that is among my half-dozen all-time personal favourites: the Touring-bodied 8C 2900 B Speciale coupé entered by the factory team at Le Mans in 1938.

Raymond Sommer and Clemente Biondetti saw off an early challenge from the Delahayes and Talbots so effectively that by 9pm they had established an unchallenged lead, and Sommer even survived a blown front tyre on the Mulsanne in the early afternoon before valve trouble forced the car into retirement in the final hour, after completing 219 laps and 2934 kilometres.

I wonder if my fortunate neighbour knows about that history, or even cares? Does he know about Alfa's first racing success, when Nino Franchini won his class with a 40-60 HP in the 1913 Parma-Poggio di Berceto hill climb? Or Enzo Ferrari's win in the Coppa Acerbo in 1924, at the wheel of a Tipo RL Targa Florio? Or Tazio Nuvolari's epic win in the 1935 German Grand Prix against the might of German engineering in the Scuderia Ferrari's Tipo B? Or the great season of 1950, the inaugural year of the official F1 drivers' world championship, when the Alfa 159s won all six rounds (forgetting Indianapolis) and filled the podium in the final standings with the three Fs - Farina, Fangio and Fagioli?

Even if he doesn't, something of the Alfa heritage will surely have filtered into his consciousness. That sort of thing takes a long time to build up and isn't easy to wipe away, even when the company concerned has done nothing substantial in the racing world for decades. It's like the patina on a classic car, which new owners disturb at their peril.

It was a bit of a shock when Sergio Marchionne decided to stick the Alfa badge on the rear bodywork of the Ferrari SF16-H a couple of years ago. Yes, we all nodded, the Scuderia Ferrari's shield had graced the bonnets of Alfa's grand prix cars in the 1930s. But this was different: a pure marketing wheeze, albeit perhaps intended to prepare the way for the Milanese marque's return to F1 after an absence of three decades.

And so it has turned out. A week after the 2017 season ended in Abu Dhabi, Marchionne announced a three-year deal with Sauber, under which the Swiss team's Ferrari-engined cars will carry Alfa's name and colours. A show car had been painted in a 'concept livery': mostly white, but with a cerise engine cover.

You can only hope that this venture will be more successful than the last time Alfa Romeo entrusted their F1 project to an outside team: so poorly did the Euroracing-run, Benetton-sponsored 185T perform in 1985 that it not only embarrassed its two fine drivers, Eddie Cheever and Riccardo Patrese, but led to the company's withdrawal from racing.

Before that, from 1979, a proper Alfa F1 team had been supervised first by Carlo Chiti and then Gérard Ducarouge. Chiti's 177 and 179 were driven by Bruno Giacomelli, Vittorio Brambilla, Patrick Depailler and Mario Andretti, while Ducarouge's 182/183 were piloted by Giacomelli, Andrea de Cesaris and Mauro Baldi. Giacomelli finished third at Las Vegas in 1981 and in '82 de Cesaris took pole in Long Beach and lay second until he crashed. Such promise would not be fulfilled.

Any revival of Alfa's fortunes, on road or track, is to be applauded. One hopes, however, that this new venture is not being undertaken simply in order to give Marchionne the leverage of an extra vote in the coming negotiations with Liberty Media over the specification of the next generation of F1 engines and the vexed question of budget caps.

It's hard to imagine the reaction of Giuseppe Merosi, the designer of the 40-60 HP, or Vittorio Jano, the mastermind of every Alfa racing car in the golden age from 1924 to 1937, or Gioacchino Colombo, who worked closely with Jano throughout those years before creating the all-conquering 158/159, to this strange and seemingly opportunistic new alliance. ◘

> ***It was a bit of a shock when Sergio Marchionne decided to stick the Alfa badge on the Ferrari a couple of years ago***

Richard Williams is a former editor of* Melody Maker*, was* The Guardian*'s chief sports writer and is the author of several books on Formula 1

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Doug Nye

Ford has a reputation as a giant of 1960s sports car racing, thanks to its four Le Mans victories. But the Blue Oval wasn't successful everywhere.

Shivering here in my workroom, late November, reminds me of when we would spend this end of the month wondering what results would emerge from the annual Bahamas Speed Week. I personally recall happy days in Nassau during a stop-off on the way home from reporting the Daytona Continental sports car race.

I wandered among the salty brushwood and crumbling concrete of the Speed Week's old abandoned Oakes Field aerodrome circuit, even then being encroached upon by developers. In my inquisitive head I knew that the aerodrome had been named after Sir Harry Oakes – a philanthropic American-born, Canadian-resident gold mine operator who had taken British nationality and moved to the Bahamas in 1935 to avoid tax. There he became a property developer, and invested especially in enlarging the airport that took his name. Into wartime Sir Harry was New Providence Island's wealthiest and most influential resident. But on July 8, 1943, the 68-year-old zillionaire was found in his mansion, battered to death, partially burned and covered with feathers...

The contemporary Governor of the Bahamas was the Duke of Windsor – formerly King Edward VIII – who since his abdication and effective banishment to the Bahamas (not too onerous?) had become a great friend of Oakes. Now the Duke was not – perhaps – the brightest spark. Faced with the difficulty of summoning Scotland Yard detectives at the height of World War 2, he instead called two dodgy detectives from nearby Miami. Within 36 hours these Americans had fingered Oakes's son-in-law – the unsavoury Count Alfred de Marigny – as his murderer.

His sensational trial lasted several weeks, which the Duke spent in America, perhaps to avoid giving evidence... It would emerge that his chosen American detectives had falsified fingerprint evidence to convict de Marigny, who was found 'not guilty' but immediately deported to Cuba on the grounds of 'unsavoury character' and 'frequent advances to young girls'. Despite many theories – including murder by the American mafia because Sir Harry had loudly opposed plans to open a Nassau gambling casino, murder by a Florida-based African ritual specialist hired by a Bahamian business associate of Oakes, Sir Walter Christie – or indeed murder part-approved by the Duke of Windsor since Oakes was planning to transfer his vast wealth to Mexico (simultaneously undermining the Bahamian economy which, if investigated, might reveal the Duke's own illegal money transfers to Mexico despite wartime restrictions) – plus further alternatives... The whole riddle remains famously unresolved.

During World War 2, New Providence provided two handy Atlantic airbases. Oakes Field was joined by another airfield, newly built five miles to the west, which was named Windsor Field.

But come 1946 the RAF withdrew from the latter, which reverted to minor civilian use, while Oakes Field – closer to the town centre – remained Nassau's primary airport.

A post-war visitor to the islands was then Sherman F 'Red' Crise, a successful New York stock exchange figure who had developed a garage business, became a motor racing fan and served as a wartime photo reconnaissance pilot. Into the early 1950s he was a keen sailor. On one visit he spotted the aerodrome racing potential of Windsor Field's empty runways, and with a group of local businessmen set about copying mainland-American SCCA success airbase racing.

His associates included Sir Sydney Oakes – Sir Harry's son – and the Bahamas Speed Week races were run annually for 13 years, from 1954 to 1966. They combined the best of wealthy American sports car racing with really serious socialising. In this pretty informal – sometimes chaotic - season-closing jamboree, visiting stars confronted the best the SCCA scene could offer.

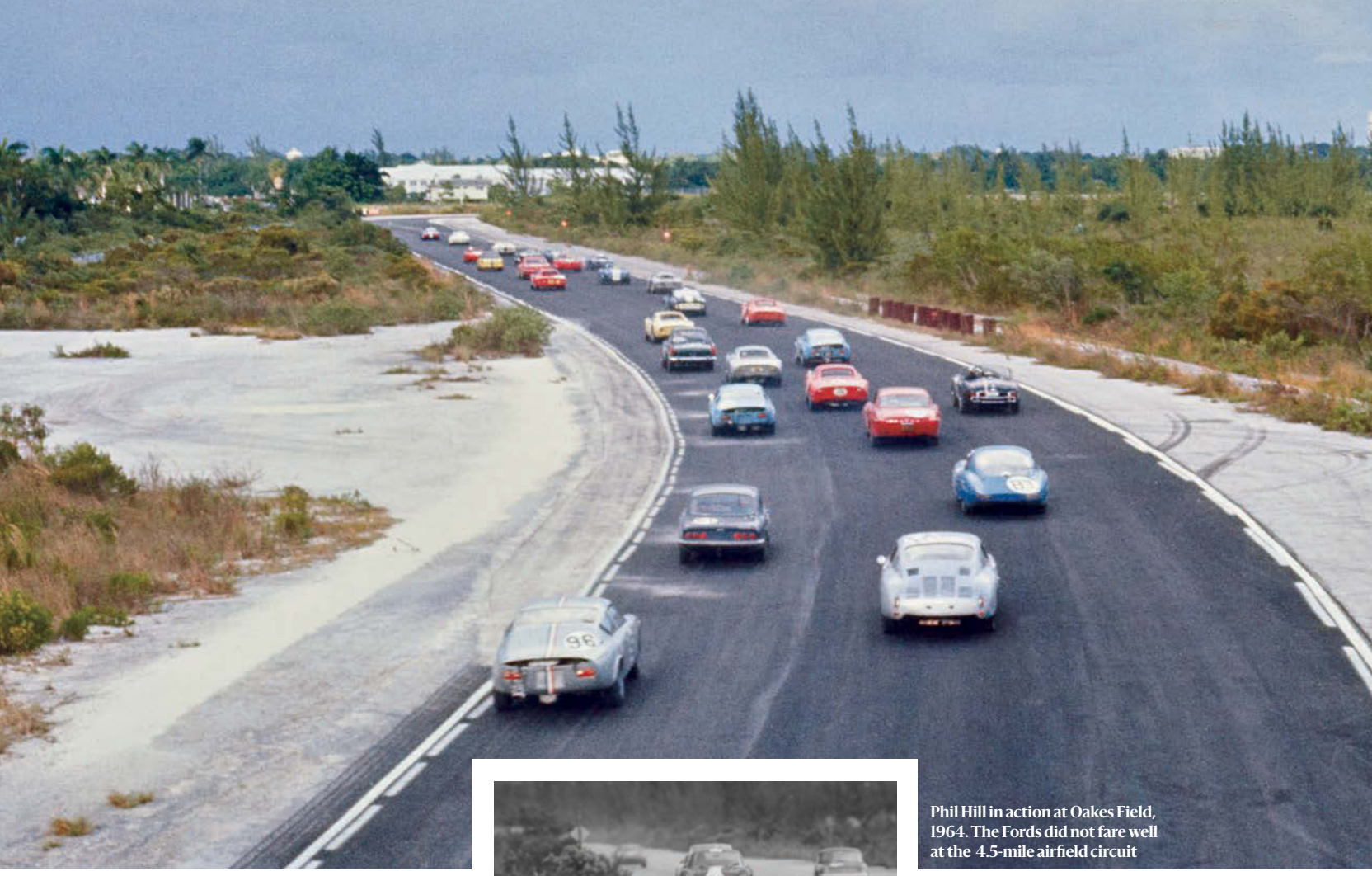
Up to 1956 the Speed Week's races were held at Windsor Field, whose 3.5-mile circuit was highly abrasive, its crushed coral rock and asphalt surface just eating tyres. But from 1957 racing moved to Oakes Field, while Windsor Field adopted international airport status. Oakes Field racing began on a five-mile circuit, later reduced by half a mile. Although works-supported cars appeared occasionally in these speedfests, their backbone was the full American phalanx of privately run high-grade Ferraris, Maseratis, Lotus 19s, Cobras and King Cobras. Then in 1963 the GM-supported Chevrolet Corvette Grand Sports ran there. And Augie Pabst drove John Mecom's new Lola GT – with a Chevrolet V8 in the back.

The Lola GT programme had just been acquired by Ford as the basis of its similarly rear-engined Ford GT project – and some within Ford Detroit exploded at the thought of a Lola-Chevrolet. The first 'works' Ford GTs then emerged in Europe in 1964, and failed to topple Ferrari at Le Mans. In the Reims 12 Hours they failed again. In the Ford Motor Company's world this did not compute. How could huge investment fail to topple the little specialists?

Those first-year Ford GTs were quick, but their Colotti transaxles and the programme's top-heavy management proved to be Ford's Achilles heel. In addition Ford Advanced Vehicles' chief engineer Roy Lunn concluded that the small-engined 4.2- to 5-litre Ford GT as originally conceived was never going to do the job, so he set about developing a big-engined 7-litre prototype to do better for 1965-66.

> *"Once airborne a warning came that there was a bomb on board – doubtless payback for the Brits' strike-breaking*

John Wyer – the ex-Aston Martin racing manager – headed the FAV operation developing and racing those cars from Slough, England. He would recall that when he criticised the FoMoCo engineers' 7-litre preference, by saying archly "We race with cars, not engines", it "was not well received". Ford management then decided that two of the existing 'small' Ford GTs would be sent to the





REVS INSTITUTE

Phil Hill in action at Oakes Field, 1964. The Fords did not fare well at the 4.5-mile airfield circuit

Bahamas Speed Week at the end of November, 1964.

Wyer would describe this as "The final imbecility. It was no place for a major manufacturer... We had nothing to gain from success and everything to lose from failure." He admitted in his autobiography: "Because I lost the argument... I was thoroughly bloody-minded and took no interest in the preparation. It was a stupid attitude and I was wholly to blame when the cars performed badly".

His former Aston Martin race engineer John Horsman - at the time a fresh recruit to FAV - also regarded these Nassau entries as just "an excuse for the Ford executives, of whom there were many, to have an expenses-paid trip with their wives to a warm climate for a few days".

Horsman and team mechanic John Etheridge accompanied the cars on the BOAC air freighter. Arriving late at Heathrow, Horsman was just in time to see the loading crew smash one car's oil cooler and ducting against its intended wooden pallet - the loading ramps were far too short. When John remonstrated with the loaders a BOAC functionary warned him to back off or "they would go on strike".

Etheridge fell ill during the long flight on the thunderous propeller freighter, which landed in Montréal before flying on to New York. There the cars were unloaded, and left in the open in heavy rain. Another airline would be flying them to Miami. There was a long delay. John Horsman finally learned that the expected truck drivers were on strike. The two Johns finally pushed the two 2000lb Ford GTs the half-mile to the departure depot. Once airborne on the Miami-bound aircraft a warning came that there was a bomb on board - doubtless payback for the Brits' strike-breaking. The aircraft promptly landed at Savannah for a fruitless search. Finally reaching Miami, Horsman found that no Ford arrangements had been made to transport the cars to the docks for the landing-ship ferry to Nassau. That became another saga until a Ford fellow finally arrived, and at last the exhausted Horsman and Etheridge could catch some sleep. John Horsman's book *Racing in the Rain* is highly recommended.

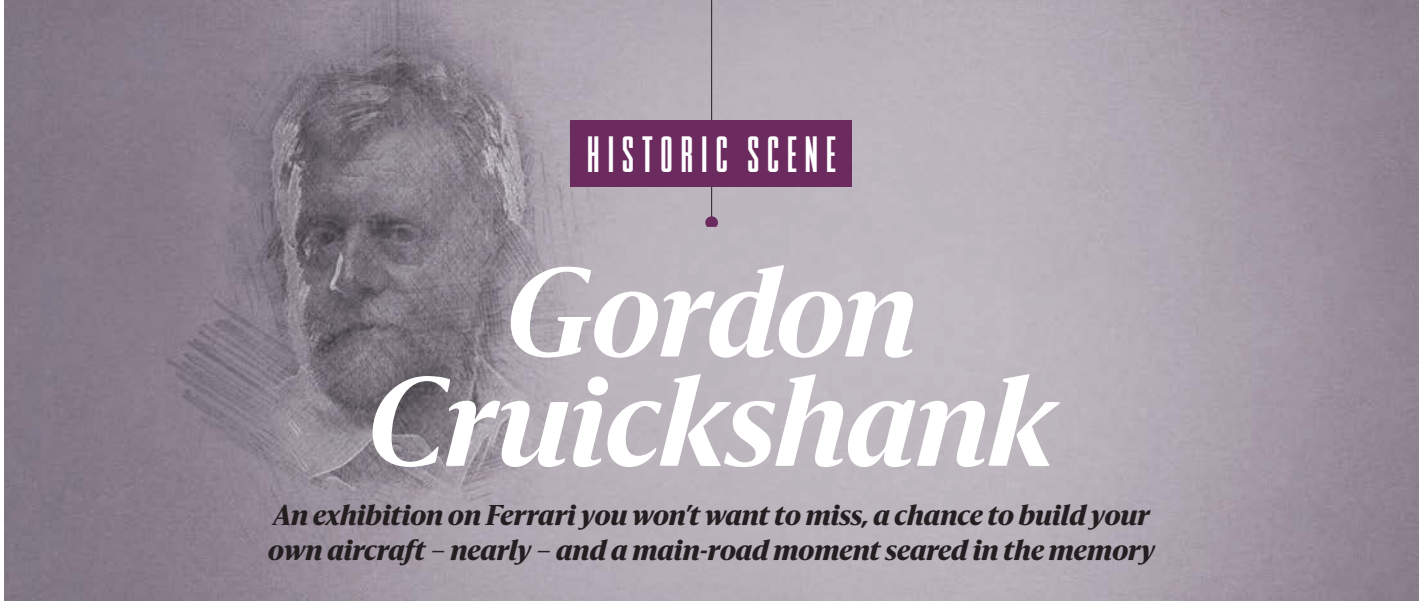
In Nassau, drivers Phil Hill and Bruce McLaren found it simply impossible with their 4.7-litre engines to match the pace of the 7-litre Corvette Grand Sports. As Wyer and Horsman had predicted, Oakes Field's short straights and tightish corners offered nowhere for the Fords' superior top speed and handling to excel. Bruce's car suffered the standard 289 cubic inch V8 engine failure - blown head gasket - while Phil's had a front suspension lower ball joint fall apart - retaining washer undersized, enabling the nut to work loose. Three FAV men lost their jobs as a consequence...

So Ford's GT effort had crumbled embarrassingly in the face of more Chevrolet Grand Sport success for GM. In part consequence Carroll Shelby was welcomed aboard "to share" direction with Wyer - as JW put it "Carroll - as an American - was in a better position to deal with Ford politics than I was and I wanted no part of them". In truth that first season of Ford GT racing had proved to be a $2.2-million shambles. Honda's return with McLaren in Formula 1 attracted less derision - it had looked that bad.

At the end of 1965, GM's non-attributable clandestine racing also won over Phil Hill from Ford. He like Wyer couldn't stomach FoMoCo practices. The last straw was when their legal department tried to bully him into signing a new contract for '66. In Phil's final letter to a company lawyer he wrote: "Jim Hall phoned shortly after I got [Ford executive] Homer Perry's message via Al Dowd, suggesting that in so many words 's--- or get off the pot' as far as signing the contact was concerned. In our ensuing conversation we came to an agreement that was satisfactory to both of us."

And that was 'job done'. Phil would drive for Chaparral Cars in 1966, and Ford bombast had failed - yet again. GM racing interests 2 - FoMoCo nil. Naïveté had ruled - innocents literally abroad.

Doug Nye is the UK's leading motor racing historian and has been writing authoritatively about the sport since the 1960s



HISTORIC SCENE

Gordon Cruickshank

An exhibition on Ferrari you won't want to miss, a chance to build your own aircraft – nearly – and a main-road moment seared in the memory

Anniversary years can wear you out. Everyone from bloggers to museums wants to show that they've noticed, with the result that you read/watch/hear a huge pile of repetition. In this, Ferrari's 70th year, there was bound to be an avalanche of Maranello material, so when I heard that the Design Museum in London had an exhibition opening in November 2017 I felt they had missed the Rosso Corso boat.

Wrong. Newly located in a striking building in Kensington, it's one of my favourite museums (though I miss its old Shad Thames home and I have strong reservations about the new place), and what curator Andrew Nahum has offered up leapfrogs any simple timeline of Ferraris. It's on until mid-April and if London is reachable for you, I recommend a visit.

A room flooded with bright red light makes a startling entrance before you confront the first ever car badged Ferrari - or, since both built were dismantled, the factory's painstaking replica 125S. How many thought it would be the cornerstone of an empire?

There are more cars inside - complete, dismantled, shells, bucks -but if anything confirms this as special, it's the room of paperwork and photos. Drawing largely on the collection of arch archivist Ronald Stern, whose astonishing assemblage of historic racing artefacts we have featured before, it offers up Mille Miglia entry forms, Enzo's own driving licence, personal letters and photos such as Enzo's christening, even hand-written reports by *Il Commendatore* himself. It's a rare chance to delve into a remarkable archive.

Space is one of the luxuries here: on one stand a bare 250LM shell hangs above the full-size wire form of a 250GTO - a sculpture you could gaze at every day - and the wooden buck for the one-off three-seat 365P. Backed by coachwork drawings from Scaglietti and Pininfarina, this section is about shaping Ferraris, including a full-sized half clay/half painted J50 special and hefty quarter-scale wind tunnel models, before we go under the skin (the show's title) with running gear components, chassis and a 458 shell. A complete 250SWB chassis made me wonder where the body went, and what Joe Macari wants for the SWB shell currently in his showroom...

Short of Goodwood you're unlikely to see such a slew of prime competition Ferraris in one place: curving away on a banked white shelf are Ascari's 1952 title-winning 500, Schumacher's similarly lauded F2000, Ross Brawn's SWB TT winner, the experimental SWB that Stirling Moss raced to a Daytona victory, sweeping you towards a display of race helmets that once cradled the heads of Ascari, Hawthorn, Villeneuve and more. Opposite all this are gleaming F1 engines up to the hybrid era - no bigger than the 1.5-litre Colombo V12 that greets you at the start - and on the wall (looking remarkably pudgy from above) the body buck for a Sharknose 156. The craftsmanship of that alone is worth admiring.

> ***Short of Goodwood you're unlikely to see such a slew of prime competition Ferraris in one place***

Road cars, some on elevated plinths that give a novel view angle, include Gianni Agnelli's own 166MM and unique open Testarossa Spider (the Eighties one), a 275 GTB4 in flattering powder blue, and a car I've only seen previously in pictures, Peter Collins' unique 250 GT cabriolet with driver's door cutaway like a Vanden Plas Bentley so the flamboyant driver could freely swing the wood-rimmed wheel. Chef Gordon Ramsay's LaFerrari Aperta showcases the company's hybrid future, other famous Ferrari buyers - Bardot, Sellers, Eastwood -reinforce the marque's glamour, and a big-screen loop of the cult film *C'etait un Rendezvous*, in which we are passengers in a Ferrari making an early morning high-speed sprint across Paris, adds Gallic drama - sadly without the V12 wailing urgently in our ears.

But though the assemblage of cars is magnificent, it's the juxtaposition of original design sketches with body shells and aero models, and personal Ferrari artifacts with rarely seen photos that turns this from a mere car display into an investigation of how one man can found a legend.

PERHAPS THE LAST MAJOR ELEMENT IN ALAN WYNN'S masterplan before he sadly steps down as director of Brooklands Museum, November saw the opening of the Flight Shed and Aircraft Factory. No, Brooklands isn't going back into manufacturing planes, but this is Wynn's neat approach to presenting the history of all the aircraft that were born here and flown off that now hardly visible airstrip down the middle of the speedbowl.

Created in the huge Bellman shed recently moved from the Finishing Straight, the 'factory' shows construction methods from the wood and fabric days up to the titanium and composites of TSR2 and Concord, via the unskinned Loch Ness Wellington bomber which is the centrepiece, its geodesic skeleton and battered propellers towering over the hall. There are props being laminated, bare wings awaiting linen, and a cosy corner sitting room to show something of home life for the many who worked here. But it's not just displays: children - and adults - can try rolling and riveting aluminium or get hands-on with timber.

"The children love getting involved," says Wynn now it's been open for a while. Visitors also clock in and out with time cards, while sections of aircraft are presented in primer as if part-way through assembly. It's an imaginative way of telling the story - and a creative way of showing partial aircraft.

Above and behind, the new Flight Shed is both a display area for complete planes and a functioning hangar, with doors opening onto the extensive straight where the aircraft that function can be run up and taxied. Hunter, Hart and Hurricane sit side by side with an Avro 504, the sort you'd have your lessons in in the carefree Twenties.

No, there's no mention of cars or racing, but we all like any sort of fast machinery, don't we?



'Under the Skin' show is exactly that; right, half-clay J50 special; below, Agnelli 166MM and Testarossa spider which are all on display at the Design Museum









AT LAST I'VE FOUND A FIRM WHO CAN FIT THE HAND CONTROLS I want into my newest purchase, a BMW 635CSi. It's far easier doing this in an older car than a new one with electric steering and digital CAMBUS electronics, so it shouldn't have been difficult to arrange. We're only talking about simple mechanical links from the hand lever to brake and accelerator, but everything I was offered involved a cable to operate the throttle. Now, I once had a bit of a moment with a broken throttle cable...

Sprinting onto a busy A3 from a side road in my previous BMW 528i, I realised the throttle had jammed open and I was heading for a stationary queue at 60mph and rising. Leaning on the brake lever, engine roaring, I was able to jink to a clear lane through Robin Hood roundabout but now the car was changing down and fighting me ever harder. With my arm about breaking I squeezed through the traffic to the thankfully empty left lane and hauled the speed down to maybe 15mph, but I couldn't get any slower, nor did I dare release the (right-hand) brake lever to grab the ignition key. Reverse seemed a bad idea, so I yelled at my scared passenger to reach over and cut the ignition while I went for neutral. We slammed to a halt as the rev needle – and our heart rates – flicked momentarily to the red line.

The supremely fortunate thing is that at that point, the start of the old Kingston Bypass (scene of many an illegal car speed test over the years) the left lane grows out of a feeder road so a) no-one was in it and b) once my passenger had reached down and pulled back the throttle pedal, I could idle in reverse back into a side road as traffic flashed by at 60. I can't think of any other place it would have worked out so well.

Sure enough, it was a broken cable, and thanks to a prompt AA man I was mobile again only 30 minutes later. And my blood pressure was normal again about 30 hours later.

You can see why ever since I've insisted on having an all-rod system. Now I've found what I want and I'm off for a fitting.

Long-time staffman Gordon Cruickshank learned his trade under Bill Boddy, and competes in historic events in his Jaguar Mk2 and BMW 635







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Blasts from the past

Dickie Meaden's piece in the January issue, about time-travelling to the past, evoked a few fond memories for an old man. He's right about the Targa Florio. I was determined to witness it before it got stopped and made it in 1970 with a year or two to spare.

I arrived a few days early, hired a Fiat 850 and set off around the course. I was bumbling along minding my own business when suddenly a works Alfa Romeo TT33 came screaming past at three times my speed. It was such a shock I nearly went off the road! I had barely recovered when it shot past in the opposite direction on its way back to the pits (too far to go all the way round).

1970s Italy certainly was another country, where they did things differently. Track limits were defined not by kerbs or walls but by spectators' legs, all under the nose of the police. Other memories are the adoration by the spectators of the local hero Nino Vaccarella when he walked down the pit lane to cries of 'Nino, Nino', and also a very nervous Brian Redman before the start.

My other memories include seeing Ferrari win its first Formula 1 race (British GP, Silverstone 1951) when the team's 4½-litre V12 beat the 1½-litre supercharged straight-eight Alfa Romeo 159 for the first time. Of course, at eight years old I was too young to appreciate what I was witnessing, but in my mind's eye I can still see a fat bloke in a T-shirt (Froilán González), all arms and elbows, sawing away at the wheel as he drifted around Club.

Happy days!

George W R Smith, Long Marston, York



Cut and paste

I'd like to add a couple of points to Dickie Meaden's recent CUT7 article. The bonnet bulge is the usual shape; originally it had extra bulges to accommodate the D-type engine, which finally gave up while Paul Vestey was driving. Most annoying, as he was leading at the time. Vestey then damaged the bonnet at the Goodwood chicane. I severely damaged the car at Silverstone during practice, not a test, twisting the tub.

Of the 30-odd races we both did, there were only three DNFs. It was a fantastic car to drive, especially on the road with trade plates...

Richard Ward, London SW1

Honourable mention

I read with interest Gordon Cruickshank's article on Mike Salmon, as I had the honour to work as a mechanic for the Honourable John Dawnay, later Viscount Downe, during the 1965 and 1966 seasons, looking after the various cars being campaigned at the time, including two of the three ex-Tour de France Ford Mustangs and then the Ford GT40 that was mentioned briefly in the context of the burning GT40.

As always, there is a separate story related to that incident, which occurred at the 1966 Le Mans 24 Hours and explains how Mike suffered the burns Gordon mentioned. In those far-off days there was an assigned official to each car (a *plombier*), whose sole responsibility was to cut the lead seal locking the fuel filler cap when the car came in for refuelling, and then re-apply a new seal when refuelling was completed.

'Our' car was a 1964 version (ex-Essex Wire Corporation) with a fuel filler cap atop each of the front wings, and during the first stop yours truly was overseeing the activities from the track side. I saw the *plombier* cut the seal and the refuelling being completed, whereupon the official tried to be helpful and snapped shut the cap before fitting the requisite seal. The rest of the stop continued, and off the car went, never to return.

The car got through the Esses, all the way down the Mulsanne Straight and, under braking for Mulsanne Corner, the fuel in the tank washed up the filler neck (angled up toward the front of the car), gushed out over the white-hot brake disc and burst into flames. At the same time, fuel was bleeding down the side of the car, and with no door seals the fire reached poor Mike, who had the presence of mind to put the car into the sand banks on the outside of the corner and roll out, but not before he sustained nasty burns.

When we were allowed access to the car on Monday morning, it became clear what had happened. The filler cap had jammed before resealing correctly, though the *plombier* would not have known this, hence the terrible consequences.

Brian Evans, Warwick, England.

Waving the flag...

I very much enjoyed reading Gordon Cruickshank's piece on Mike Salmon in the December issue, and I hope that he may revisit it with some further stories regarding his long racing career in a future issue.

I remember attending Le Mans in the early 1980s, when patriotic British fans didn't have much to cheer owing to the dominance of the new works Porsche 956, but the thundering, privately entered Viscount Downe Nimrod Aston Martin was the exception.

Things don't get more patriotic or romantic than that, especially with the financial backing of the ebullient and dapper Victor Gauntlett of Pace Petroleum and Aston Martin.

The Nimrod Aston couldn't hope to compete with the turbocharged Porsche on qualifying (or indeed race) pace, but Mike brought it home to a respectable seventh overall in 1982.

Neil Kirby, Shenfield, Essex.

...the wrong way up

In the latest issue you featured a great photo of Lewis Hamilton deservedly celebrating his fourth F1 world championship. However, he is holding the Union Flag upside down, which historically is a coded distress signal. Perhaps Mark Hughes could shed light on whatever stress Lewis was suffering.

It is not just motor racing - it's happened at Downing Street, the Ministry of Defence and in a multitude of sports stadia. Perhaps you could run a little article on the protocol of flying the flag, so motor sport can take a lead in getting it right.

Nick Harman, Chardonnay, France

Right man, wrong vowel

I have just received the November issue in the US, and have a small item to mention. In the Scarab article, "Lee Goossens" is credited with the engine design. He is more commonly known by his real name, Leo Goossens.

Otherwise a great issue, especially the Alan Mann Mustang article.

Andrew Watry, Berkeley, California, USA

LETTERS



Two-horse race

Regarding Mat Oxley's excellent article about Spain's supremacy in motorbike racing, I would like to point out that Italian riders have almost the same level of dominance. Of all the championship points awarded in all three categories in 2017, Spanish riders took 34 per cent, while Italian riders gathered 32. Between them, Spanish and Italian riders scored more than two-thirds of all points. All other nations combined took only 34 per cent.

Italy is the other 'grand nation' of motorbike racing, almost on the same level as Spain. Plus, they have Ducati, the Ferrari of motorcycling.

Each month I look forward to the moment when I open a new edition of *Motor Sport*. Thank you for providing this enjoyment!
Raimund Fein, by e-mail

That's true. But perhaps I didn't make the point well enough - Italy has been winning GPs since 1949. Spain won its first in 1968. MO

Distinction of Mark

My compliments to Mark Hughes on his outstanding journalism. Continuing in the footsteps of the late, great DSJ and Alan Henry, we are now able to enjoy his race reports almost as quickly as he can write one via *Motor Sport* online - and then comment.

And we are still able to get them in print, which reminds me of how I was 'educated' into F1 through my late father. He loved F1 and received monthly copies of *Motor Sport* via the post in Rhodesia, probably several weeks after publication in the UK.

I'm drawn to ask a question that arises from Mark's December report comparing the two top cars - the Mercedes W08 and Ferrari SF70H. Clearly, the engineering is on another level to get these cars to do what they do, and MH has gone to some length to explain this aspect and the dark art of aerodynamics to us laymen.

The Merc has been tricky all season and is 7-8kg overweight compared to the Ferrari, a better overall car. Based on the numbers one sees written, 1kg equates to 0.04sec/lap and 50bhp equates to 0.8sec. That means the Merc is producing about 18bhp to overcome the weight disadvantage, and the engine is working harder all the time just to overcome that disadvantage, which in turn means higher temperatures and more fuel used. Then we read the Mercs have a Q3 mode worth 0.15sec. That's an extra 9hp - in total 27bhp to keep its nose at the front, excluding the driver factor.

The laws of physics say you can't get anything for nothing, so how is it that the Merc can overcome the weight disadvantage and still dial in a special qualifying mode? Is this down to the dark secret of oil burning?
Nick Meikle, by e-mail

Analyse this

Your piece in December on the Lotus Mark X, comparing it to the D-Type, was hugely informative. Modern analytic tools give us insights on chassis effectiveness and performance potential that designers could only guess at 60 years ago. I'd love to see more like it. Maybe you can tell me why the Bugatti T35, with so much positive front camber, or the Alfa 2.9, with its rear swing axles, were made to handle so well.
Paul Wilson, Fairfield, Virginia, USA ⊠

Further letters and images may appear in our digital edition only. Please include your full name and address when corresponding

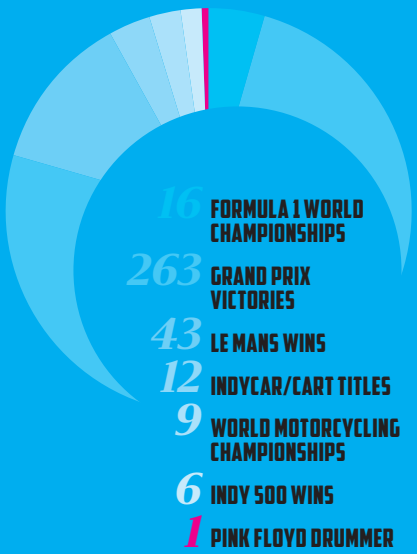


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IWC James Bond has worn some lovely watches on screen over the years, from Sean Connery's Rolexes through to Daniel Craig's Omegas. Possibly the least handsome of all was the digital watch worn by Roger Moore in *Live and Let Die*. The Hamilton Pulsar P2 had a blank screen, and when you pressed a button, red digital figures would appear telling you the hours and minutes. In 1973 this was cutting-edge tech, but by the time I saw the film – some time in the early 1980s – technology had moved on and Bond's watch already looked like a relic. Still, it got high marks for innovation as it was, as I then thought, the first digital watch ever made.

But while battery-powered digital watches were new in the 1970s, mechanical versions had already been around for a century. Making a mechanical mechanism to power digits that change every minute, every 10 minutes or every hour presents an extra technical challenge over regular watches, because the energy from the mainspring has to be stored and released in short bursts, rather than ticking away constantly.

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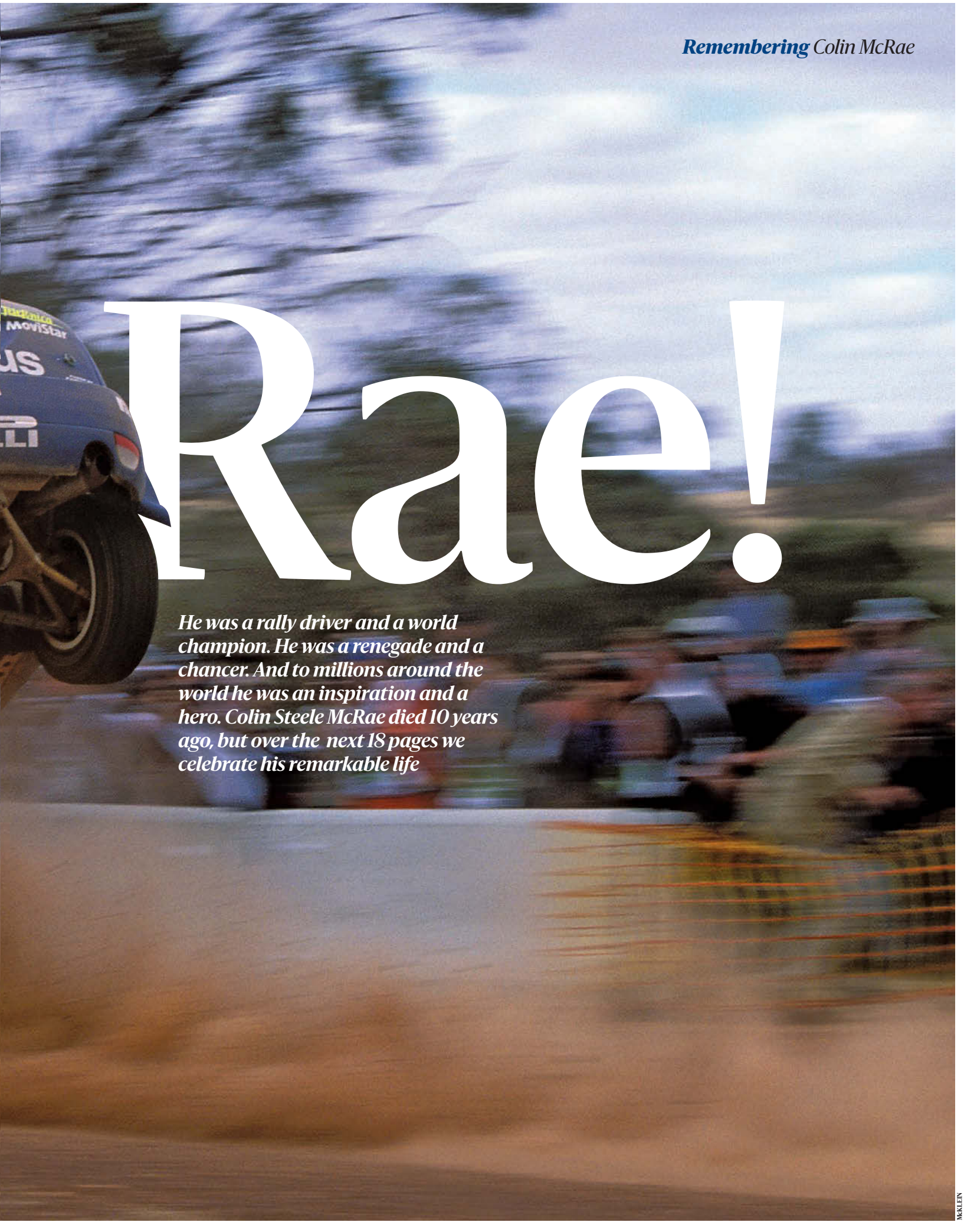
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Mc



Rae!

He was a rally driver and a world champion. He was a renegade and a chancer. And to millions around the world he was an inspiration and a hero. Colin Steele McRae died 10 years ago, but over the next 18 pages we celebrate his remarkable life

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SS13, Molls Gap, 9.8 miles, Colin McRae

If you've ever raised the question of why Colin McRae exerts such a grip on the imagination, search for this onboard footage.

There are countless videos that demonstrate Colin's profound mastery of the automobile, but in this film you witness something quite extraordinary. Perhaps it's the location. You see Colin not on the Monte or any other famous world championship event, but on the N71 in County Kerry, Ireland. Occasionally, when tourists aren't enjoying the panoramic drive from Kenmare to Killarney, the road is closed to become one of the most demanding rally stages on the planet. Conditions invariably switch from dry to wet as the stage climbs into the mountains, where crowds sit in the clouds to watch tarmac rallying at its finest. In 2005, they were in for a hell of a treat. Colin was driving the course car - his own highly modified Ford Escort Mk2 - and extracting every last fraction of speed.

Colin Steele McRae died alongside his son and two family friends in a helicopter accident near his home in Lanark 10 years ago. It was a paralysing shock. McRae had become rallying's first true global superstar; the figurehead of the world's biggest rally game, loved for his down-to-earth persona, and worshipped for his speed, commitment and acute natural talent.

It was a talent that manifested itself in anything Colin drove or rode. In the excellent book, *McRae - Just Colin*, there's a fantastic picture of the Scotsman as a toddler, sitting on a tricycle and holding the bars in a typical opposite-lock position. He has a huge grin on his face. It was a smile that would follow him throughout his career - a smile that belied nothing.

Colin would go on to win schoolboy motocross championships at 13, autotest championships at 16 and make his rallying debut at 17. Six years later he was British champion, a year later he won it again, and at 27 he became the first Brit and the youngest driver to win the World Rally Championship. He still holds the record. But the magic of McRae has always been so much more than results. He epitomised the charger spirit, battling to the end and refusing to yield - often in cars that had been rolled into a ball and were held together with fence bolts. The latter actually happened.

But there's more. Take time to study the McRae driving aesthetic. For all the flamboyant arcs he carved across tarmac, dirt and ice, his style was illusory. Inside the car, Colin's inputs were economical to the point of mystery. While rivals such as Delecour and Auriol would puff and pant, hunched over the wheel, Colin would coax broad, expressive movements with small and relaxed movements from within.

Fans of wider motor sport may not quite 'get' why Colin is missed by the rally community - which is partly the reason we celebrate him here. He was, and should be remembered as, a Nuvolari, a Villeneuve or a Senna - for the manner in which he transcended his sport. *Nick Trott*

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The James Dean of rallying

A celebration of Colin McRae's life attracted a galaxy of stars. We asked them how they remembered the man and the legend

WRITER Dan Trent

To some observers the World Rally Championship has lost its way in recent years. The fact every driver's title since 2004 has been taken by a Frenchman named Sébastien is impressive, but hasn't helped the sense of stagnation. And a well-intentioned attempt to make the cars faster and more exciting is yet to deliver the anticipated spectacle. For all the metronomic brilliance of Loeb and Ogier, the ever-increasing capability of the cars and the attempts to make it more spectator-friendly, there remains a nostalgic sense that rallying isn't what it used to be.

For a taste of the sport's glory days, the annual San Marino-based Rally Legend event offers a sense of what's been lost. Fast stages on closed roads, passionate fans packing the routes and a huge spread of classic rallying. And in 2017 it had an extra element, too: a celebration of the 10th anniversary of the death of one the sport's most charismatic performers, Colin McRae.

The fact that it was Colin meant a galaxy of stars turned out to pay their respects, including 10 former world champions. Surveying a paddock filled with iconic rally cars and the drivers who made their reputations with them, Colin's father Jimmy McRae was quite overcome at how many had chosen Rally Legend to pay their respects. "It's emotional for us," he said. "There's never been a gathering like this and I don't think there will be again. It's something else."

But what is it about Colin that captures the imagination of both fans and fellow drivers, even those too young to have met him or seen him compete? Occasionally hot-headed, sometimes prickly with the media and stubborn to the core, he was not without his flaws. And although his extraordinary talent was never in question, in statistical terms his record has been surpassed by many.

Ari Vatanen, the 1981 world champion, has his theory. "He is the James Dean of rallying," he said, that sense of a huge and charismatic talent taken prematurely perhaps playing its part. But time and again, from fans to fellow drivers, it's McRae's driving style that unites opinion. From Biasion to Auriol, Blomqvist to Solberg you get the same response - all use words like "spectacular" and "flamboyant" to describe McRae's approach and it's clear from the fans' response that they also appreciate this style. After all, you don't spend hours on a cold, dark hillside or climb a tree to watch a car carve past you clinically on a perfect line - you do so because you want to be showered with stones from one being pushed so hard it's dropping a wheel off the road, spitting flames and teetering on that fine line between glory and disaster.

Modern WRC machines have higher limits and are faster than ever but demand a more calculating style. Getting the most out of the cars in the McRae era often required going over the ragged edge, a characteristic that suited Colin's style and endeared him to the fans. But it was more than that - McRae's victories did not come from tactics or playing the long game, they simply came from an utter determination to go as fast as possible and be quicker on the day than anyone else. This romance is what keeps the passion for rallying alive, and what brings fans in their thousands to an event like Rally Legend. Here, they see the flame still burning.

"It's easy for people to identify themselves with someone like Colin," said Vatanen. "He worked his heart out and that is what sport is all about. It's what humanity is all about - you push limits and you don't play some calculated games. He never did and you may win fewer rallies but maybe you live a richer life."

Here - in the words of family, friends, team-mates, rivals and those he inspired - is what made Colin McRae so special.



Ari Vatanen

Former world champion and one of McRae's Subaru team-mates

"I'm sure it is true that we had a similar style. It is easy to observe and one reason we got on so well is because we found ourselves on the same side - we discussed it with David Richards. Colin's raw talent was very obvious and I remember when he came to our first Prodrive session in Wales - his first proper test with the Subaru Legacy. So I took him out - Colin and Ari in the same car! - and said to myself, 'I'm going to show this young guy a thing or two, I can still teach him.' So we go one time out and one time back and I am coming too fast into a corner and we rolled - that was the end of that test. That was how I introduced him to the Subaru team! Very, very embarrassing...

"There are of course issues that are far above the numbers, the octane, the brake horses or whatever. If you have a kind of a perfect life it's not a real life. People may respect you for winning, but they can't identify themselves with you, because they know in their own lives it's very often an uphill struggle and they can identify with someone who is needing to fight. And then, of course, like very often with shooting stars in life, they remain with us just because humanly speaking they leave too early. You don't measure the value of life by its length."



Alister McRae

Colin's younger brother

"Why do people love him? I think it's just the way he drove with such flamboyant style. He obviously proved he could be steady and consistent on the Safari and the Acropolis, but when that wasn't needed it was 100 per cent all the time and I think that just stuck in people's minds. Back then the cars were more sideways and they didn't need to be driven the way the cars are driven today. They were more spectacular and the fans loved it.

"I think wherever you go they're all very passionate. When you go to Argentina or Spain, they're all very passionate about motor sport and Colin's style. And this event almost goes back in time the way it's run, the spectators just love it and people have travelled such a long way to be here. I met a woman who came over from Australia - she went to MotoGP, Formula 1 and then here."



Didier Auriol

1994 world champion who lost his title to McRae the following year

"I was fighting with Colin a lot of the time so I think of him very often. He was a spectacular driver and what I remember is that we had a little bit of the same style. It was his style of driving the fans love, maybe the crashes too but that was Colin. But you know it was always full attack and he wanted to be the best. Of course everyone wants to do that, but if there was a jump Colin would be in the air more. If you were on motorbikes he just wanted to go faster than anyone!

"I think the people at this event like the old-style rallies, the passion of the cars and what the drivers do with them because everyone would like to do what we have done. It was such a nice job and I think people have a good memory of this time. It's incredible how people like the stories of the old rally cars and drivers, but we all have a good feeling about Colin and if we can do something with his family it is important."



Sébastien Loeb

Nine-time world champion and one of McRae's Citroën team-mates

"Colin is a legend. I really discovered rallying through the Colin McRae game and I had some seasons where I was team-mate with him and he was a nice guy, a funny guy.

"I was at Citroën before him, but when Citroën told me he would be my team-mate I thought it would answer a lot of questions. Was I really good? Was my car better than before? Finally, I had my first real point of reference. The first time I won we were driving the same car on the same rally, so it was some good news!

"We had different styles but that didn't matter - you can still work together to improve the car and we can see what works better. If he was flying then you can identify yourself, we understand what happened. He helped us a lot to develop the car because I didn't have any experience of WRC machinery at the time - we had the electronic diff and had to do all the set-up, so his experience helped."



Petter Solberg

Former world champion, two time WRX champion and ex-McRae team-mate

"Why are we here? It's all about history. Colin was my team-mate, he helped me massively because I came in the car with him when I was very young and then we developed the Colin McRae game together, went on vacation together. We have been very close and here we have all the drivers together. It's incredible, it won't happen very often.

"He's a special guy, big attack, very competitive and especially his driving style."



Miki Biasion

World champion in 1988 and 1989

"Colin was so crazy, his style was so entertaining for everyone to see. He was an acrobat, that is why people liked him so much. He had many spectacular accidents but he would always try and get back on the road. For me or the other drivers, if we have a problem in the car we stop immediately. He could have 20 rolls, come back from the forest and be fighting again. He has been one of the most spectacular drivers and it is so nice for all of us to join together - this is a great opportunity to have a drink all together after a few years. I'm enjoying it.

"As you can see, this event is full of rally fans. People say rallying is not as popular as it was in the past, but look how many spectators have come to see young and old drivers together. Rallying is still alive!"







Star-studded assembly included many world champions, together for the first time in years, and a galaxy of fine cars – some of them ex-McRae. Right, Ogier and Vatanen making a point











Stig Blomqvist
1984 world champion

"We didn't compete together but he was an incredible driver, a really talented guy, totally instinctive and always giving it 100 per cent. He was a guy who came from a motor sport family too and absolutely never gave up, always trying.

"It's good fun driving at Rally Legend, especially with the chance to drive my Sport Quattro S1 after so many years - it's my car from Argentina 1985 and lots of fun."



Nicky Grist
Former McRae co-driver _ they shared 17 victories together

"I think the reason people here love him so much is that he was a very competitive person in the car, out of the car - if it was four wheels or two wheels he was your man. He drove with such flair. I think that is why people admired him so much - his driving style was very individual, very fast but very flamboyant and the spectators just loved him for it. I was fortunate enough to spend some great time with him, won a hell of a lot of rallies, and I am one of the lucky ones to have experienced it as his passenger. Okay, it wasn't all plain sailing but to be honest the good times were fantastic and the not-so-good times were acceptable.

"I found myself in a position where I was head-hunted from Juha [Kankkunen] to go with Colin and, at that time, it was arguably a little bit risky because of this 'Colin McCrash' reputation. But there were a few things I brought to the table, so it was definitely the right move. I think David Richards wanted to have someone who could be a calming influence on him as much as anything else and I think that's where I came into the equation. But when I joined him we hit it off straight away and I didn't really have to do that much really, other than telling him to take it easy or be calm at certain times. Colin knew the change of co-driver meant he had to change his ways and concentrate a little bit more. Our relationship just gelled and we ended up winning five rallies in our first year.

"As a person you needed to know him before he let you in. He was quite guarded and quite shy around strangers, so I think a lot of people didn't see inside him, probably saw him as quite grumpy and quite moody. The press always had a hard time but as a co-driver we bonded straight away and we got on very well because we rallied hard, we partied hard and we worked hard as well. Socially he was a bit of a timebomb - you never knew when it was going to happen, or where, but when it did you knew you were going to have a hell of a funny time and I think that's a side very few people had an opportunity to see.

"I think the one thing for which people know him best is his driving style, because he was so incredibly flamboyant. He'd always be the highest and furthest over the jumps, he'd always be the most sideways and in modern terms the way Colin drove was very uneconomical against the clock. But even in the middle of a rally, if Colin saw a crowd there would be a big slide. Don't get me wrong, if you were in a fight for the lead he wouldn't squander wins for the sake of having fun, but if we were having an average rally and he saw some spectators he'd just showboat a bit - and that's why they loved him. He never stopped trying.

"When he had an opportunity to win he had an enormous passion to be the fastest, to win as many stages as he could, to be leading at the end of the first, second and third legs and to win the rally. It was all about being first, and while we all love him for what he's done, in rallying terms that was his biggest downfall because if he could only have accepted second place sometimes he would probably have achieved far more in terms of results.

"Colin was crazy, his style was so entertaining. He was an acrobat, that is why people liked him so much."

"Malcolm Wilson said the one thing he can remember more than anything else was the 1999 Safari, when we started with the Focus. It was brand-new, it hadn't finished a rally. Colin never even had a puncture in it and although we were not fastest on one section of that rally, we won it by a huge margin. He applied himself so well to these rough events - we won the Acropolis three times on the trot, we won Cyprus which was a rough event and we won Argentina, also generally a rough event. He applied this system and suddenly Colin McRae wasn't this Scottish lunatic driving flat out, he was using his head. He turned all these rounds that weren't his strong events into his strongest - and that's where I think I brought something to the table.

"He died 10 years ago, he was a world champion 22 years ago but look at all these world champions who've come here to support and celebrate him. It's tremendous and I think if anybody had half his following they would be happy."



Sébastien Ogier
Current world champion

"I think Colin has always been a role model. I'm from a generation who never met him, but first knew him through a video game as a kid and then, of course, I knew he was a big champion of our sport with a lot of charisma and very spectacular. When Luis Moya contacted us to bring all the champions together in memory of Colin, I immediately thought it was a good idea and that is why we're here today.

"The fans like you for your success and everything you achieve and, of course, you attract a lot of respect this way. But you also catch a lot of fans by the way you drive and the charisma you have and that's the main thing about Colin - he was spectacular, he was driving to the limits and I think the fans enjoyed it even if he won 'only' one title.

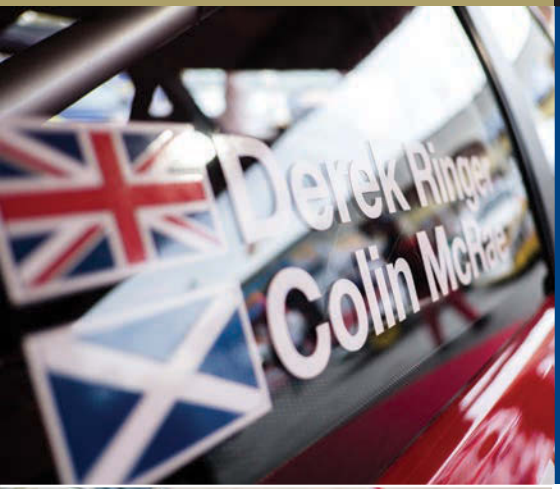
"Here at Rally Legend the passion for motor sport is very big, especially for rallying, and when you come to Italy you know you're going to be celebrated and people are going to appreciate what you do. They have an interesting concept with this rally - you can see a lot of cars of every generation and this year we managed to unite nearly all the champions, which makes it really special."







Blomqvist was pleased to be reunited with a Sport Quattro, above. Right, it wasn't all top-line WRC machinery – Hungarians Gabor Hodosi and Barnabas Hollo with their Lada











"He just never lifted his foot"

When he was still cutting his teeth on the Scottish club scene, Colin made an impression on those who watched him

Even as a teenager, McRae's talent shone through and many who saw his early drives believed he was destined for the top.

Ian Gemmell was running Kames, the club in Ayrshire close to where Colin cut his teeth at the time and said: "Right from the start he stood out. He came down to Kames with his father, Jimmy.

"There is a small area down by an Armco barrier and up a wee side road. Jimmy went around and showed him how to hold the car and steady it. He was not going fast, but Colin just jumped in the car and did it first time. No bother. Two years later Jimmy brought Alister down and showed him the same thing. Alister tried and tried. It took him ages to perfect it. That was the difference between them.



"You gave Colin a car and he said 'Right, I'll drive it' – anything with four wheels and an engine. He was fearless on a motorbike, too.

"When he sold the Vauxhall Nova with which he won the Scottish title, one of Colin's mechanics said to me 'The guy that bought it thinks he has got a very special car. There is only one special thing – and that was Colin'. He just never lifted his foot.

"I do a lot of driver training. You could always pick them out within the first two or three minutes. You knew the ones who had it and the ones who would struggle to do it. Alister is a good driver who has won a number of events, but he wasn't a natural like Colin."

McRae's first rally was on the Kames Stages, Ayrshire, in 1985. He borrowed a Talbot Avenger from Davie Burdon, after agreeing to put a gearbox in it, and came 14th. East Ayrshire Car Club historian Robert Smith says Colin appreciated that early support and came to many charity nights as a 'thank you'.

"Colin had his first rally at our track in Kames and showed great promise. We saw from that first day how confident he was. Like his father, he was interested in bikes, scrambling and trials, but rallying was the natural place to go and his talent stood out right from the word go.

"Even then you could see he was aggressive. As he progressed, he had a few accidents because of that aggression. When he controlled that, he started to be successful." *Jon Doran*

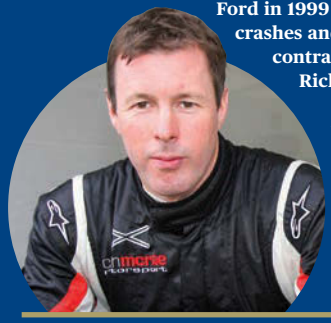
DATA TRACE

The land of the rising son

The son of five-time British rally champion Jimmy McRae, Colin entered his first rally as soon as legally able to drive and made his world championship debut on the 1987 Swedish. His battered Sierra 4x4 was sixth on the 1990 RAC Rally and McRae then signed with Prodrive and Subaru. British champion in 1991 and 1992, he was a full-time member of Subaru's world championship line-up from 1993. Winner of Rally New Zealand that year and the next, McRae ended 1994 by becoming the first home winner of the RAC Rally in 18 years.

Retirements in the opening two rallies of 1995 did not bode well, but he finished all the remaining rounds, winning in New Zealand and Great Britain to become the first British world champion.

Runner-up to Tommi Mäkinen for the next two years, McRae was third overall in his final season with Subaru. He accepted a lucrative offer from Ford in 1999 but that campaign was marred by crashes and reliability woes. He extended his contract into 2001 and lost that year's title to Richard Burns when he crashed in Britain.



A single winless campaign with Citroën followed in 2003. Without a regular ride from 2004, he competed in events as diverse as the Dakar Rally and Le Mans 24 Hours.

He lost his life in a 2007 helicopter accident that also claimed his young son and two family friends.

CHAMPIONSHIP TITLES

World rally champion	1995
British rally champion	1991, 1992

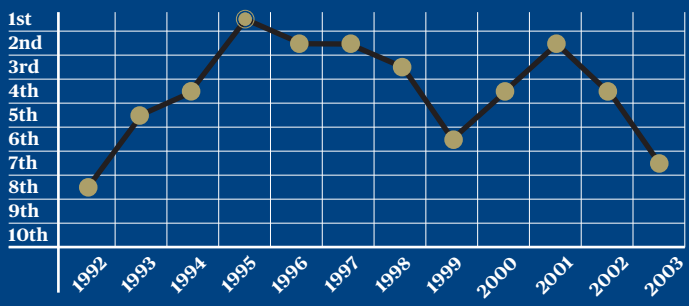
WORKS TEAMS

Subaru	1991-1998
Ford	1999-2002
Citroën	2003

WRC WINS

Argentina	2001
Australia	1997
Catalunya	1996, 2000
Corsica	1997, 1998
Cyprus	2001
Great Britain	1994, 1995, 1997
Greece	1996, 1998, 2000, 2001, 2002
New Zealand	1993, 1994, 1995
Portugal	1998, 1999
Safari	1997, 1999, 2002
Sanremo	1996, 1997

CHAMPIONSHIP POSITIONS



'Data Trace' was born from Motor Sport's online Database, which includes results from around the world, from the mainstream to the obscure. There are full results for the main championships, while the history of others is detailed with race winners and champions, a feature that is expanding all the time

www.motorsportmagazine.com/database



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MY FRIEND COLIN

WRC driver Kris Meeke takes the wheel of McRae's 2003 Citroën Xsara and remembers his mentor and friend

WRITER Kris Meeke

People associate Colin McRae with Subaru, understandably. But he also drove for Citroën in the 2003 season, alongside team-mates Sébastien Loeb and Carlos Sainz - and that's not a bad line-up!

All three of them drove a Xsara, and I recently had the chance to try Colin's car myself. It was incredible. It was one of the last WRC cars he ever drove, because after one season at Citroën the rules changed - teams could henceforth have only two drivers. Citroën opted for Loeb and Sainz for 2004 and so Colin didn't have a drive.

Even though it is more than 10 years old, the Xsara is not that different from modern WRC cars, though now we have more horsepower and more aerodynamics. Back then they had paddles to shift, for example, which we have now. So these cars were quite advanced. It is not like going back a few generations to the old Group A Impreza and Legacy models Colin drove. Those cars have an H-pattern gearbox and zero aerodynamics, the diffs are quite primitive and they had a load of horsepower and a load of torque. That made them hard to drive, not like the Xsara.

All WRC drivers like to sample different cars, and those from that era are rewarding because the more you put in the more you get back. With cars with from the mid-Nineties you can be quite aggressive and they allow you to express yourself as a driver. Today speeds are higher, but it's easy to over-drive, which is when you lose speed. It was a different era.

The Xsara is from the in-between generation, with sequential gearshifts and everything. That's the era when Sébastien Loeb began to dominate. You could say this car represents a transitional phase between the simpler cars of the mid-Nineties and the cars we drive today.

One of the biggest developments between then and now was suspension technology. Today, you can take a lot of bumps and big compressions completely flat out and not even think about it, because the suspension works so incredibly well. Back then you had really short-stroke suspension and the technology inside wasn't so great to absorb bumps. Yet the car could be so much more rigid, so though it wouldn't have the performance they do now, it was much more rewarding to drive.

DRIVING THE XSARA WAS ESPECIALLY rewarding because it was one of Colin's cars. I remember there were thousands of spectators at the event. It was amazing to see the following he still attracts, so many years after he won the world title and since his passing. That was emotional, to be able to do it in that environment, and in front of his brother Alister and father Jimmy, too.

I had close connections with all the family and I actually lived at the family home for two to three years. In fact, I wouldn't have made it into rallying if it wasn't for Colin.

I didn't really follow the usual path to being a rally driver. I went to university and trained to be a mechanical engineer, then got a job at M-Sport as a design engineer at the time Colin was driving for the team.

But I still had the burning ambition in the back of my head that I wanted to drive rally cars some day, so I entered a competition with Peugeot in 2000 and won. The prize was to do a rally - I won my class and then wanted to do more.

It was difficult to raise the budget, though. Then one day towards the end of 2001 I attended a test near Dumfries. It was a Super 1600 Ford Puma run by Chris Birkbeck Motorsports. Colin and his father Jimmy were there with three other drivers. They let us recce the course and make notes, and they checked them, then chatted with us and I sat in the car with Colin beside me. I grew up with Colin being my idol, so looking across at him sitting beside me was a surreal experience. But you just go and see what you can do. I just went and drove like hell, and tried to keep it on the road. A few days after that, his father Jimmy called me and said he was looking to do something, and that's just how it went.

There were many people on the way helping with sponsorships and trying to get me to do more rallies, but without Colin I wouldn't have made that step into the international scene. He took my career from the junior categories to the junior world championships.





Kris Meeke at the wheel of Colin McRae's Xsara, left, and in action, above.

"You're imagining what the cars are going to do –then Colin arrives and does something you would never imagine was possible"

COLIN WAS GOOD AT USING HIS INFLUENCE with manufacturers. We'd done the first BRC season with Ford and that all worked quite nicely. I was still working in M-Sport's design office and designing parts for Colin's rally car for the world championship. In between, I was doing the BRC in a Ford Puma and I thought it was working quite nicely, but the following year Colin had departed Ford and moved to Citroën, but he managed to get me a deal with Opel to drive a Corsa Super 1600.

That's when it got a bit complicated. I was working in Ford's design office, Colin was driving for Citroën and I was competing with Opel. Something had to give, so I gave up my engineer's job at M-Sport and just winged it from there, all under the guidance of Colin.

I think Colin is still one of the biggest names in the sport, the most recognised. Colin was one of those iconic figures back in the day. Everybody took a step back when they heard Colin driving. He was just using the road as a rough guide. His style and approach were something to watch. At one time he held the record for the most rally victories. His 'never say die' attitude, always flat out... it really sat with people and endeared him to them.

There have been a lot more successful drivers in WRC since: Sébastien Loeb rewrote the rulebook for consistency and performance in driving a rally car, with nine world titles in a row and 78 WRC victories, which is colossal.

Sébastien certainly eclipsed Colin in terms of overall records, but in terms of fans and how they reacted to drivers, I think Colin is number one.

His driving style was unique, too. I was lucky enough to sit with him a few times but even watching him you could tell that he was using lines other people wouldn't dare to try. He was second to none. Often it bit him and he ended up in the trees, but he was something else. You're standing watching this bit of road moments before the cars arrive and you imagine what they're going to do; then Colin arrives and does something you'd never imagine was possible. He was in a league of his own in that way.

In that era of rallying, there were maybe 10, 11 rallies a season, and three smashes a season was pretty acceptable. Tommi Mäkinen, Juha Kankkunen, Richard Burns, Carlos Sainz... all these guys would have three or four fairly bad accidents a year. Now, after Sébastien Loeb rewrote the rulebook for everybody, if you make one mistake you're on the naughty step. It's a different ballgame.

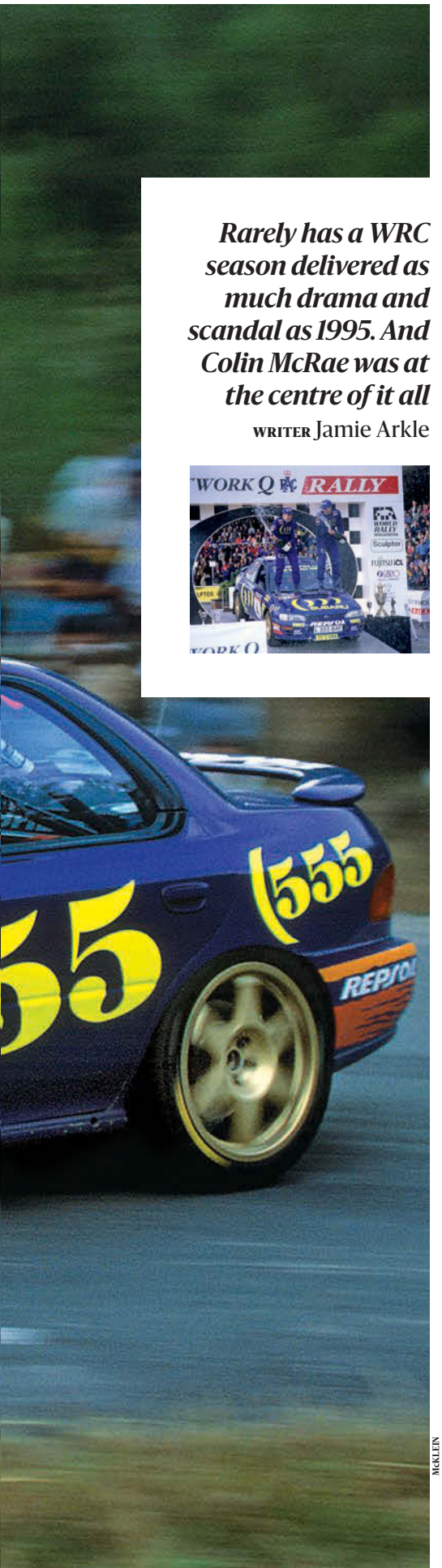
Part of the reason is that technology has evolved so much. Twenty years ago it was fairly primitive and that allowed the driver to make the difference. You could over-drive the car and be quicker. Nowadays if you over-drive you can be slower. It's a fine line you're treading. Back then it was about who could stretch their legs the furthest. And Colin was certainly one of the best at doing that.

But people often forget that he was a mechanic, too. He could work with engineers very well and understood the set-up and the car's underpinnings. All the talk was about wild, aggressive style, but if you watched him drive on tarmac he was really quite smooth. He won two Safari rallies, which takes a really clever driver with a lot of car and driver sympathy.

He'd take a line through a corner and if there was a bad bump or something, he'd know how to take the maximum speed without hurting the car. That's not to say he never went too fast or off the road...

The Xsara didn't bear any scars from its time with Colin. But driving it, all these memories of Colin came back to me. He was a one-off. He was my mentor but also my friend.


1995
555
SUBARU
COLIN McRAE
DEREK RINGER
REPSOL
PIRELLI
IHI TURBO
BILSTEIN
KENWOOD
PIAA
NGK
RACC
A
4
REPSOL
55
REPSOL
PIRELLI



Rarely has a WRC season delivered as much drama and scandal as 1995. And Colin McRae was at the centre of it all

WRITER Jamie Arkle

McKLEIN

It was all about Colin McRae v Carlos Sainz. As team-mates, Subaru expected – or rather demanded success from its drivers. The Impreza was now into its third year of competition and, having invested heavily, the Japanese firm needed to demonstrate a return.

Sainz was Subaru's star signing. He was already a world rally champion for Toyota with a willingness to develop cars and a well warranted reputation for attention to detail. In the other blue corner was McRae. His speed was unquestioned, but it came with hot-headedness.

Round one in Monte Carlo went to the Spaniard. It seemed that winter development had generated a car better suited to Sainz's driving style, particularly on tarmac. Round two (Sweden) brought the team down to earth with a bump, as both cars retired with engine failure. A subsequent post-mortem of the EJ20 flat-four revealed that usually hard-wearing coating on the cylinder liners had begun to flake off, jamming the oil pump and leading to a massive (read terminal) pressure spike.

As a result McRae failed to trouble the scoreboard on either round – made worse for the Scotsman when his team-mate won the next round, Portugal, at a canter. McRae had to make do with the bottom step of the podium but at least had some points on the board, with a few more added thanks to a fifth next time out on the Tour de Corse. One might have been tempted to write McRae off at this point, but fate had other ideas.

FIRST OF ALL, SAINZ WAS THROWN FROM his pushbike and broke his collarbone, and was forced to miss New Zealand, McRae's happy hunting ground. The somewhat inevitable happened; McRae romped to yet another Kiwi victory, his third on the trot, and followed it up with a second on the next round, Australia, where Sainz failed to score. Then, when the WRC circus pitched up in Spain, Toyota's ingeniously devious adjustable turbo restrictor scam was discovered by the FIA and the team was booted from the championship as a result.

The fluctuations of the campaign meant that both Subaru drivers went into the final two rallies of 1995 with a good chance of taking the biggest prize in rallying, with both seeking to do well in front of their respective home crowds. The tarmac of Catalunya came first, and the rally will forever be known as one of the most contentious of them all thanks to team orders enforced by Subaru during the event's final day.

It all came to a head when team principal David Richards instructed the Imprezas to hold station, Sainz in the lead and with no opposition from any other driver bar his team-mates, McRae in second and Piero Liatti in third. McRae was stung by this decision and didn't bother to hide his displeasure, well aware that the 20 points on offer for victory would give him a handy lead heading into the final rally of the year, the RAC.

Fireworks duly flew when McRae refused either to back down or hold station, blasting through the remaining stages and narrowly missing a pair of Prodrive employees sent out to slow him, even upshifting as he went by to ram the point home. Only some choice words from David Richards and some wise ones from his father, Jimmy, convinced McRae to accept a time penalty and gift the win back to a less-than-pleased Sainz. It did nothing to quell the bad feeling between the two Subaru drivers or the immense pressure now bearing down upon the team. And to add to the tension – the final rally and championship decider would be in the UK, Colin and Prodrive's home event. A nation expected.

During the run-up to the event, Sainz dropped a bombshell. He announced that he would not be at Subaru in 1996, having opted to decamp to Toyota (though he would eventually wind up at Ford in the wake of the turbo scandal), something which might well have had an impact on team orders had Prodrive felt the need to impose them. They weren't required, but it undoubtedly added spice to one of the most intriguing title fights in the WRC's history.

THE McRAE OF OLD MIGHT WELL HAVE let the pressure get to him, and at first it did indeed appear to be taking its toll, with Colin off the pace compared to the Mitsubishi Evo IIIs of Tommi Mäkinen and Kenneth Eriksson. While their charge ultimately faded, McRae's own chances were dealt a blow when he hit a rock and incurred a puncture in the 37 miles of Pundershaw. He lost a full two minutes but, thanks to some frenetic spannering at the road side, lived to fight another day.

Sainz's progress was far from smooth thanks to a sickly, overheating Impreza. He'd damaged the radiator in the Donington Park water-splash on Sunday afternoon, but it didn't prevent him from carving out a 39sec lead by the end of the second day, ahead of McRae and Eriksson. It wasn't to last; McRae, the bit between his teeth, set out to make the third leg his own, blasting through the Welsh forests in a manner which has subsequently gone down in rallying lore. He reversed the overnight order to end the day with a 17sec lead, a position he was to hold over the remaining stages on leg four, finally taking the win in Chester.

McRae's performance didn't merely give Subaru its first championship for manufacturers (with help from Sainz and Burns, in second and third respectively), it made him Britain's first, and the sport's youngest, world rally champion.


ROTHMANS OPEL RALLY TEAM
ROTHMANS
ROTHMANS
GG-CN 346
MICHELIN
GM
DEALER SPORT



McRae never had a proper crack at the WRC, but was a regular on the UK round. He finished third in 1983

LAT

LUNCH WITH

Jimmy McRae

Rally champion who started late yet became a national star – not to mention passing on his natural skills to two rallying sons. Collectively they won eight British titles

WRITER Simon Arron

Scotland might be one of the world's most beautiful inventions, but you wouldn't know it on a day like this. 'Drookit' and 'dreich' are suitable terms, Scots adjectives that translate as overwhelmingly wet and dreary. It's not so much that you can't appreciate the majestic local landscape, more that it's tricky seeing one side of the road from the other. "Welcome to Lanark," says Jimmy McRae. "It's often lovely around here, but we also get this - and I think a combination of adverse weather and the surrounding road network helps drivers pick up essential skills. When I was young you could zap around the lanes at a million miles per hour and nobody would bother you. It's a wee bit different nowadays, with more traffic and speed cameras, but in tricky weather I think drivers up here can still learn much more than somebody living in the centre of Manchester or Birmingham. You have to understand how to read the road and I think that definitely helped me."

We're at the Inn on the Loch, on the edge of town, to discuss McRae's distinguished career and his role as the figurehead in one of motor sport's most celebrated dynasties. Between them, Jimmy and sons Colin and Alister won eight British Rally Championships, while the boys also respectively scooped the world and Asia-Pacific titles. Alister emigrated some years ago to a much warmer Perth than its Scottish namesake - and his teenage son Max has already collected a string of kart championships in Western Australia.

But first things first: does he prefer to be Jim or Jimmy? McRae laughs. "I was definitely Jim when I started and I'm still Jim at home - unless my wife Margaret thinks I've misbehaved, in which case I'm suddenly 'James' - but as soon as I competed in England people called me Jimmy. I asked Andrew Cowan about it once and he told me they automatically began calling him Andy when he ventured south of the border - I think the same happened with Jim Clark, too. It just seems to be what happens. In a rallying context, then, I'm Jimmy."

Formalities settled, he orders onion soup and chilli salmon, with half a pint of shandy to whet his appetite and a cappuccino to sign off. Next stop: the 1940s...



McRAE GREW UP A FEW MILES FROM LANARK IN THE VILLAGE OF Blackwood, where his father was a blacksmith. "I was interested in mechanical things and really got into motorbikes when I was 14 or 15 - scrambling and trials, mainly. I had a car when I was 17 and would go tearing around the Lanarkshire roads, but although I was interested in rallying I could never afford to do it. Two or three friends had rally cars and encouraged me to try it, but I simply didn't have the money and thus stuck with my bikes. And I wasn't really interested in co-driving - I'd previously been out with friends in their rally cars and decided very quickly that, if ever I had a go myself, it wouldn't be from the passenger seat."

Having served a plumbing and heating apprenticeship, McRae initially opted out of the trade and went instead to work in Glasgow as a surveyor - "earning less than I would have done as a plumber!" He rose to become chief surveyor, before buying an existing plumbing business in Lanark. "I'd always fancied running my own company," he says, "and as things built up I found I had a bit more money to spend on motor sport - although by then I was already in my 30s.

"I can't recall how much I paid - it was only a few hundred quid - but I found an elderly four-door Mk1 Ford Cortina, which had been a 1200 but was fitted with a Lotus twin-cam engine. It needed a bit of work doing, so I stripped it down, rebuilt it and made my debut on the 1974 Arbroath Stages. It was usually a fairly small event, but the organisers took over some of the stages from the Granite City Rally that had been cancelled because of an ongoing strike by fuel tanker drivers. That made it quite decent, so there I was in my Mk1 Cortina, never having done anything like this before, and I finished 11th. The first couple of stages were a bit Mickey Mouse, through farm roads, but once I got into the forests I thought, 'Bloody hell, I like this.'

"The driving part seemed to come very naturally - things just clicked. I then entered the Border Counties Rally and finished fifth or sixth overall in the Cortina, after which somebody offered to buy it for twice what I'd paid. So I doubled my money and switched to a twin-cam Mk1 Escort."

The Border Counties wasn't just McRae's second rally, but also that of the somewhat younger Malcolm Wilson. Their paths would cross again...

Does he feel his background on two wheels assisted his transition?

"Definitely," he says. "A lot of people think there's a huge difference between bikes and cars, but when you're driving quickly, looking for grip and to get the most out of the car, it's all about balance - on four wheels or two. In trials riding and motocross you very quickly learn to look for grippier bits of road and I believe a lot of what I learned on bikes translated directly into what I did in rallying."

McRae ran the Escort in 1975, winning an award as best newcomer in the Scottish Rally Championship, and then wondered what to do next.

"At the end of '75 I came very close to buying a Mk2 Escort, but the deal fell through. That's when it occurred to me that if I wanted to get myself noticed I should probably try to find something that wasn't an Escort - everybody else had one of those. So I approached SMT, a Vauxhall dealer in Perth whose managing director was rallying a Magnum for a bit of fun.

"I put forward a proposal and they offered to get a Magnum from the Vauxhall press fleet at Luton and convert it to Group 1 specification, as per the regulations at that time. I received a bit of stick from guys like

Jimmy McRae

A career in pictures



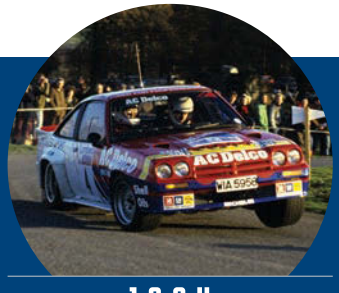
1976

Early days with Ian Muir and DTV, taking a Magnum to 12th overall – and second in class behind Bror Danielsson's Kadett – on the RAC



1980

McRae and Mike Nicholson head for third on the Manx Rally in their Chevette HSR. This was the year of the Scot's first Irish Tarmac title



1984

En route to seventh on the RAC, his Manta 400 co-driven by Nicholson. The later Mantas were, he says, "fantastic asphalt cars"

LAT: McKLEIN

Donald Heggie and Drew Gallagher, who had quick BDA Escorts in Scotland. They wondered what on earth I was doing, but it was simply my way of trying to get noticed. I started in late 1974, ran my own car in '75, had a sort of semi-works deal in '76 and by '77 I'd been hired by Dealer Team Vauxhall to do a programme of national rallies. I'm not sure I was being paid, but I was no longer having to spend anything on my rallying - and my career went from there. I often wonder whether I'd have progressed in the same way if I'd bought that Escort - would Ford have spotted me and offered a deal? I've no idea, but there wasn't much of a gap between my starting the sport and receiving manufacturer support. It all seemed to go pretty quickly.

"It was a good time to be involved, too, because in the late 1970s basically everybody was coming to compete in the UK - Stig Blomqvist, Ari Vatanen, Markku Alén, Hannu Mikkola... they were all there and it was pretty much as competitive as the world championship." He was paired with some top-line co-drivers, too, including Mike Nicholson, Ian Grindrod and Rob Arthur.

McRAE STAYED WITH VAUXHALL'S THEN-PARENT GENERAL Motors until 1985, driving Magnums and Chevettes before moving on to Opel Asconas and Mantas. He won the British Rally Championship for the first time in 1981, repeating the feat in 1982 and 1984 while also taking back-to-back Irish Tarmac titles in 1980 and '81 and finishing second (to fellow Ascona driver Antonio Fassina) in the '82 European championship. "I'm pretty sure I could have won that," he says, "but it wasn't part of my main programme and I was finding sponsors on an event-by-event basis. Opel finally got more involved once it became apparent that I might be able to win it, but if they had committed a little earlier...

"One of the unfortunate things for me is that my late start meant I never really had a chance to tackle the world championship. I was locked into the UK because I'd done well and Dealer Team Vauxhall was funded by national sales outlets, who wanted me rallying at home. With GM Dealersport it was the same thing, the money coming from Opel dealers who wanted the car to be seen on British soil. I did a few WRC events, bits and pieces here and there, but regret that I never had a proper crack at it. I wonder what might have happened if I'd started five years earlier, but it's impossible to know.

"I was lucky to drive some very fine cars, though. When the Chevette HS came out it was the best thing I'd ever driven - and the following HSR was an improvement on that. I then went from the Chevette to an Ascona, which Tony Pond told me equated to leaving cars behind to join the bus and truck division. It *was* big compared with an Escort or a Chevette, but it also handled well - it was beautifully balanced. And then the Manta came along and that was another step forward. They were normally aspirated and had only two-wheel drive, but the late Mantas were absolutely cracking cars. They weighed 1000 kilos and had 260 very usable bhp, which made them brilliant on asphalt."

In 1986 McRae switched to an MG Metro 6R4, again concentrating on the UK. "That was the only Group B car I drove," he says, "and it's another case of 'what might have been'. There was talk of Rothmans backing me to drive a David Richards-run 6R4 in a decent programme of WRC events for '87, but then Group B was banned and I was back to square one. That's probably when I began to accept that I was never going to get a decent world championship opportunity."

He continued in the British championship until the end of the end of the 1980s, taking two more titles at the wheel of a Ford Sierra RS Cosworth, then scaled back his own rallying commitments to start helping a younger breed of McRae.

"From the end of 1989 I didn't have a works - or at least properly sponsored - drive, mostly because I took the decision to start helping out Colin and then Alister. I was hustling the likes of Ford and David Richards to get drives for Colin rather than myself. The boys became my focus.

"From the moment I began rallying, working at home in the garage on the Cortina, then the Escort and my first Magnum, Colin would always be there, watching what I was doing. He could be a pain in the backside at times, but his interest was obvious. Alister was more into bikes. He could have made a name for himself in motocross, but - a typical problem - he injured his knees and was advised to pack it in. Colin started rallying as soon as he could, aged 17, but Alister came to it a bit later. I think he was quite happy ploughing a different furrow to Colin and I, but then circumstances obliged him to move across.

"My other son Stuart showed absolutely no interest in the sport, but at one point - when we were running McRae Motorsport up here in Lanark - he walked in one day and said he might fancy having a go. Alister's old Nova 1600 was in the garage at the time, so I said that we'd pull it out and that the boys would assist. Alister and Colin told Stuart that he'd need to pitch in, then cleaned the car up, put it on jacks and set to work. I think Stuart turned up for four hours on the first night, two on the second and then phoned in on the third to say he couldn't make it. I believe that happened twice, at which point the other two put the car down on its wheels and rolled it back into the corner. Stuart was supposed to do a Scottish championship event, but it never happened. I think Colin and Alister took the decision for him: if he wasn't working on the car, he wasn't driving it!

"I actually co-drove for Colin at the start of his career, on the Galloway Hills Rally in his 1300 Nova. He probably frightened me, but I realised pretty quickly that he had talent. But it wasn't just his speed, it was his mechanical sympathy towards the car. That was really special, particularly when you considered how quickly it was going. That marked him out - as did the results he got with that Nova..."



1986

McRae had his only taste of GpB in a Rothmans Metro, finishing fourth in the BRC. Here on the Welsh Rally, he and Ian Grindrod were second



1987

With his WRC ambitions torpedoed by GpB's demise, McRae continued in the BRC, switched to a Sierra and won his fourth national title



1994

Celebrating son Colin's victory on the RAC Rally. One year on, McRae Jr won again on home soil to become the UK's first world champion

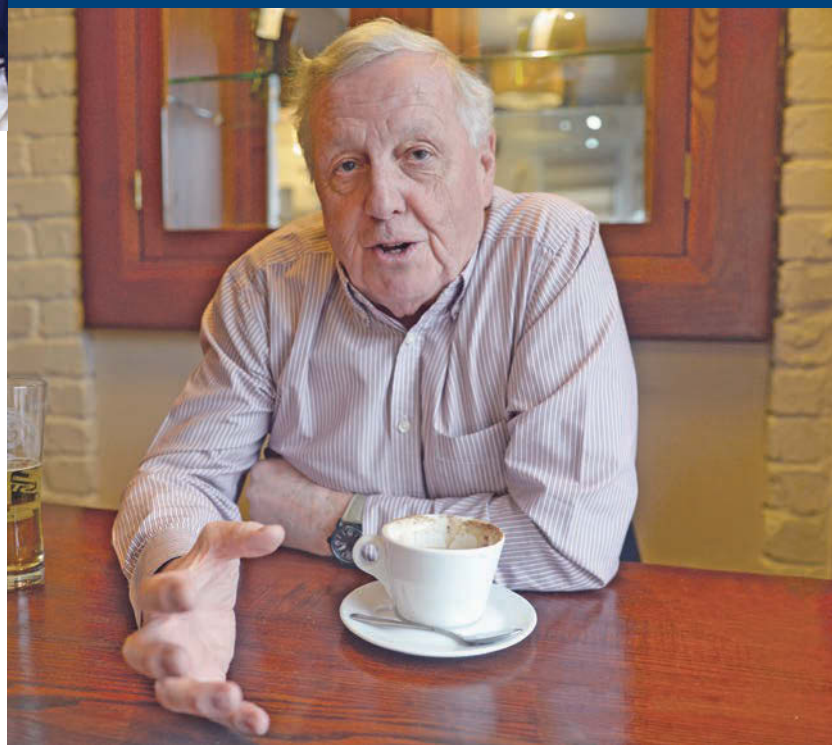


2011

McRae has been active in historic rallying for more than 20 years, in a variety of cars. He and Pauline Gullick are pictured on the Ulster



"The boys were hell-bent on beating each other whether it was Ludo or driving, but always remained the best of pals"



When Jimmy scored his only win on the Scottish Rally, with a Sierra Cosworth in 1988, Colin was ninth overall in the little Vauxhall, ahead of many much more powerful cars. "I knew if he could put it all together he would get to the top, but even with such attributes it was quite a leap from there to becoming world champion.

"When Alister came into rallying people said he was more calculating, whereas Colin would go flat out from the start. But if Alister had been given the right break at the right time, which should have happened at the end of 1995, when he won the British title and then finished fourth on the RAC, I think he also had world champion potential. While Colin's approach was perhaps a bit like that of Ari Vatanen - go out there and do it - Alister was more like a Carlos Sainz. He'd work away and build up his speed.

"Whatever the two boys did, whether it was fun karts, motocross or quad bikes, Colin would be on it almost straight away but Alister would sometimes be quicker by the end of the day. At one point I know Carlos Sainz said he wouldn't want Alister as a team-mate at Ford, because he felt he'd go away and exchange technical information with Colin, but that was a load of crap. If Alister wanted to beat anybody, it would be his brother!

"I do take a great deal of pride in what the family has achieved. Between us Colin, Alister and I won the British title eight times in 14 years - quite incredible.

"TWO OF COLIN'S RALLIES PARTICULARLY STAND OUT FOR ME. One was the 1999 Safari, because the Ford Focus was new - this was only about its third event, so nobody thought the car would last. I certainly didn't. But as each stage went by you could see he was getting into a rhythm. He didn't set a single fastest stage time, but settled down to a practical pace and won the event. The other was the 1995 Rally GB. Because he'd had team orders imposed on him in Spain two weeks beforehand, very much against his will, he set about his home event with particular determination. Even when he lost significant time with a puncture on one stage, he told me it wouldn't be a problem - and it wasn't. His confidence was absolute.

"I think that was one of Alister's best rallies, too. We hired an Escort from Malcolm Wilson -Malcolm later admitted it wasn't quite up to the spec of the car he was driving - but Alister finished fourth, beaten only by the factory Subarus. That was a really good performance, but I'm not sure many people noticed because everybody was focusing on Colin becoming Britain's first world champion. And hardly anybody mentions Alister's success in the British championship that same season. If he'd landed the works Ford drive the following year, I think we'd have seen some real fireworks between them - they were hell-bent on beating each other, whether they were playing ludo, riding bikes or driving, yet they always remained the best of pals.

"I'm not sure whether it's widely known, but Colin had signed a deal to do the 2008 Dakar Rally with BMW and had also been talking to Prodrive about reviving his WRC career. I often wonder what might have happened if he'd lived, because I'm sure he could have won Dakar. He'd done it a couple of times with Nissan and set fastest stage times, and he'd proved on the Safari that endurance events suited him, but we'll never know."

WHILE CONTESTING A PATCHWORK PROGRAMME OF EVENTS during the 1990s - he won the 1997 Manx Rally in a 6R4 - Jimmy also took up historic rallying, with which he remains engaged, and also tried a spot of circuit racing. He drove Hugh Chalmers' BMW M3 in a few British Touring Car Championship races in 1990 and was also invited by TVR to compete in the Tuscan Challenge.

"I think I first tested the Tuscan at Cadwell Park," he says. "The car felt okay and I came back to the pits to tell the mechanics as much - and they were all smiling when I pulled in. Apparently I'd lapped as quickly as anybody, which was a nice surprise. I then qualified on pole for my first race, on the Brands Hatch Indy circuit, but found I wasn't quite so good when it came to mixing it with the others in a racing situation. I wasn't used to people blocking me mid-corner. I'd never really thought about racing before, simply because I'd been too busy with my rallying, but I did enjoy it.

"I also did a couple of events in Caterhams, though the enduring memory is probably driving into a shower of mudguards and assorted other debris at the first corner and wondering what I'd let myself in for..."

In the main, though, he has spent the most recent phase of a long career as a historic rally devotee, driving such as Mk2 Ford Escorts. Porsche 911s and - perhaps inevitably, given his background - a Vauxhall Firenza. There was a chance, though, that he would tackle the 2017 Wales Rally GB in a Vauxhall Adam - the first time since 2004 that he'd







Competing in historic rallies keeps McRae in touch with his Vauxhall roots

LAT: SIMON AARON

Jimmy McRae career in brief

Born 28/10/43, Lanark, Scotland
1974 Rally debut in Mk1 Ford Cortina 1975 Ford Escort TC 1976-77 Vauxhall Magnum; WRC debut on '76 RAC 1978-80 Vauxhall Chevette; Irish Tarmac champion in '80 1981 Opel Ascona; first BRC title; successful defence of Irish Tarmac crown 1982 Opel, Ascona; British champion; 2nd in European Rally Championship 1983 Opel Ascona & Manta; 3rd in BRC; 4th in ERC 1984 Opel Manta; BRC winner 1985 Opel Manta; 2nd in BRC 1986 Metro 6R4; 4th in BRC 1987-89 Ford Sierra RS Cosworth; two more BRC titles, 3rd in '89 1990-93 Selected contemporary rallies 1994-present Historic rallies 2014 Vauxhall Firenza; class winner, British Historic Rally Championship 2018 Schedule TBA...

have contested the event in contemporary machinery.

"I was asked if I wanted to take part and said 'yes', but I didn't want to do the national event, following the world championship runners, because I've done that a couple of times in recent years and the four-wheel-drive cars really churn up the stages. By the time the national runners start you can do little more than drive through steadily or you'll break the car. In 2016 I was on for a good result, chasing a class win in a Vauxhall Firenza, and on the final stage a ball-joint broke because the car was snagged by a rock.

"I was then offered the chance to run the Adam as team-mate to Chris Ingram. I wasn't keen at first, because I hadn't competed in a front-wheel-drive car for many years, but then I had a think and decided to do it if I could get a day's testing. In the end they didn't think they'd be able to get the British-spec gravel bits for the car and there was going to be no time for testing, so I felt it was best not to do it at all if I couldn't do it properly - but that didn't become apparent until about 10 days before the start."

He then went off to do the Roger Albert Clark Rally in a V8-powered Firenza, finishing a class-winning 13th as the leading non-Escort driver. "It's a great event," he says (and, indeed, one he won in 2006), "a real reminder of what the RAC used to be like. Four days, night-time stages and so on. When I looked at it in the cold light of day I thought, 'Shit, why on earth am I doing this?' - but we got a fantastic result, even though a V8 Firenza probably wasn't the best car for slippery conditions.

"There are times, when it's dark and you're struggling on the ice, when you think, 'I could be sitting at home with my feet up', but that passes quickly and I still get a buzz from doing well, so I'll carry on for as long as I enjoy it. I am concerned, though, about the way historic rallying has been going, with cars running last through stages after the main event has passed. There was some sort of safety theory - that running the historics first was risky, because it might lead to spectators dashing in at the last minute to watch the main event - but I think it's the other way around. There are often more people coming in to watch the historics than there are to watch the main rally! Hopefully a sensible compromise will be reached.

"Historics don't cut up the stages as much as the more modern cars - and people don't want to wreck their Minis and Porsche 911s on badly rutted tracks, so entries have dropped. Historics still run first on the Pirelli Rally and everything works fine, so I hope other events will follow suit."

GIVEN HIS PENCHANT FOR ENDURANCE-STYLE FORMATS, HOW does he feel about the condensed nature of the modern WRC? His eyebrows rise and might be rising still.

"I feel sorry for the mechanics in modern rallying," he says. "They service the cars at seven or eight in the morning and might not see them again for a few hours. What is there for them to do in the service park apart from twiddle their thumbs all day? On the Roger Albert Clark Rally we still have service crews following the event around and you can see the smiles on the mechanics' faces. They love it. Okay, perhaps you couldn't do that for a full world championship rally, but today every WRC event is pretty much the same - you do three stages, then come back to service, do the same three stages again, back to service and you're through for the day. The next day will be the same. Service, three or four stages, back in. I think we had the best of rallying in my heyday.

"If I were in charge I'd encourage event organisers to set out their own itineraries, rather than being told what to do. I'm sure the likes of Portugal could put on a different type of event from some of the others. The current cloverleaf format is mega-competitive when you see the top three cars separated by less than a minute, but I think we need to go back to having different types of event.

"I was also one of the guys who thought they were going the wrong way when they brought in the current cars, with extra power and more aero. I concede that they're fantastic to watch, but where's it all going in the future? Quite a few guys used to buy ex-works cars to use on national events, but they're not going to buy these because they won't be able to run them. We're going to end up with R5-spec cars being used at national level and then a huge step up to the WRC, where only the big factory teams will have the means to run competitively.

"I probably feel more upbeat about the British Rally Championship, which has been through a rough patch but has a bit of atmosphere building up again thanks to a number of young guys coming in. There has definitely been a big improvement and young Finns are starting to come over once more, which is how it used to be.

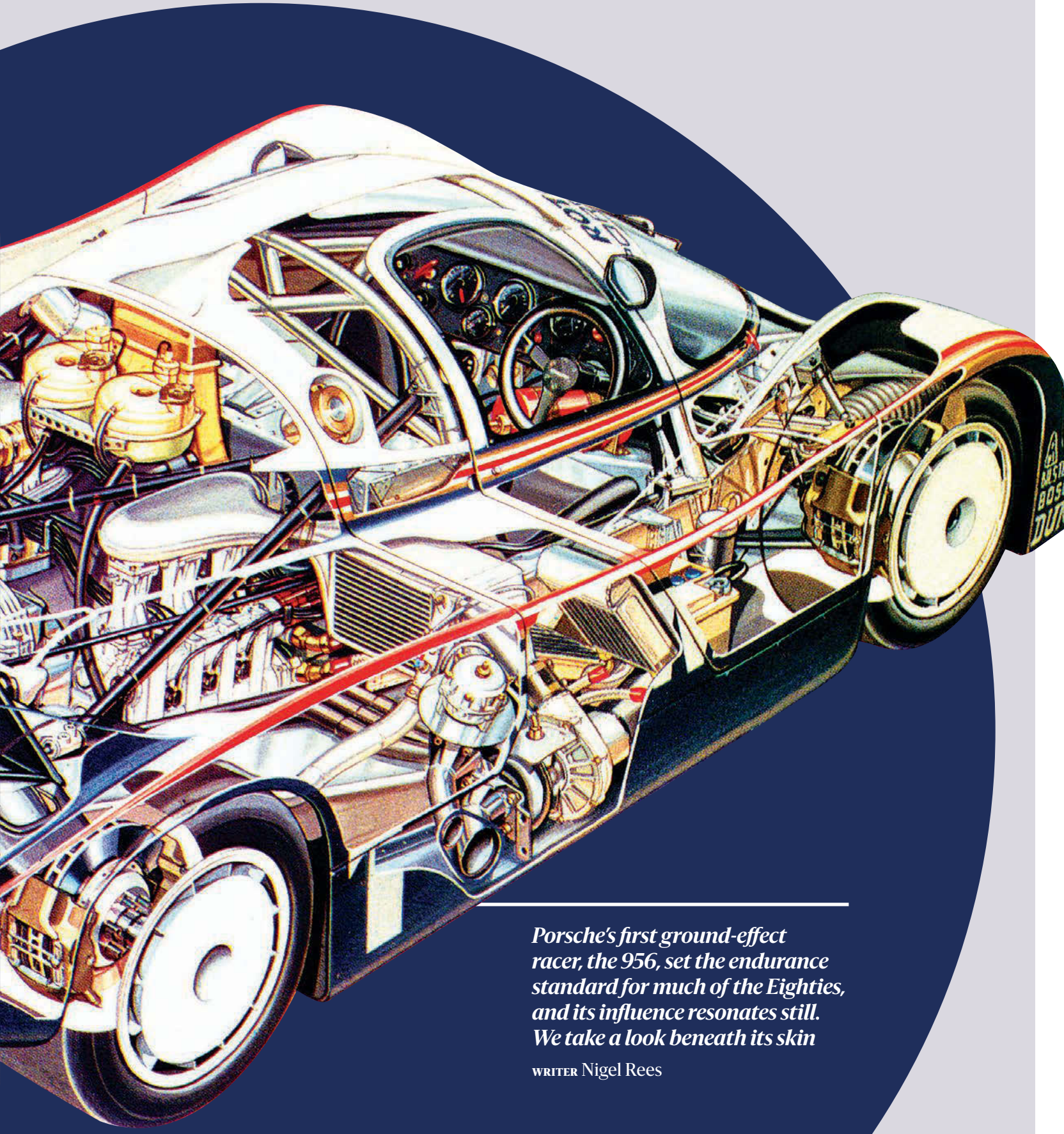
"I always enjoyed the ultra-competitive element. Russell Brookes and Tony Pond were the main two rivals for me - Russell and I always got on much better than the press made out, the same situation that Colin and Richard Burns later encountered. It was good having somebody so competitive in the same team, because it drew the best out of both of us. And if Group B had continued into 1987 I'd have been up against Malcolm Wilson and Tony in 6R4s - I was definitely up for that."

Thirty years on, his competitive zest remains intact. "As things stand," he says, "I have no idea what my programme will be for 2018. I hope to do some historic rallies with a 2.3-litre Magnum - maybe the Border Counties and the Pirelli, then we'll see how things go from there. Every time I get a decent result, Margaret says, 'Oh no, not again. I suppose this means you'll be carrying on...'

"In my mind I'm still a young fella - and you have to remember that I came to rallying quite late. As far as I'm concerned, that means I can finish late..." ◘

May the downforce be with you





Porsche's first ground-effect racer, the 956, set the endurance standard for much of the Eighties, and its influence resonates still. We take a look beneath its skin

WRITER Nigel Rees

Endurance racing has seen several 'boom and bust' cycles over the years, usually driven by regulation changes. High points included the glorious Ford versus Ferrari showdowns of the mid-1960s and the gladiatorial battles between the Porsche 917 and Ferrari 512 in 1970 and '71.

For many enthusiasts, however, the greatest era in endurance racing began in 1982, with the introduction of FIA Group C regulations. These were designed to encourage manufacturers by allowing a wide range of engine types and rewarding fuel efficiency. Some mocked the regulations as an 'economy run', but Group C was immensely successful in attracting manufacturer and privateer participation. The 1982 to 1991 period produced the fastest cars ever to race at Le Mans and, in addition to great racing, Group C inspired some of the most spectacular and visually stunning racing cars ever built.

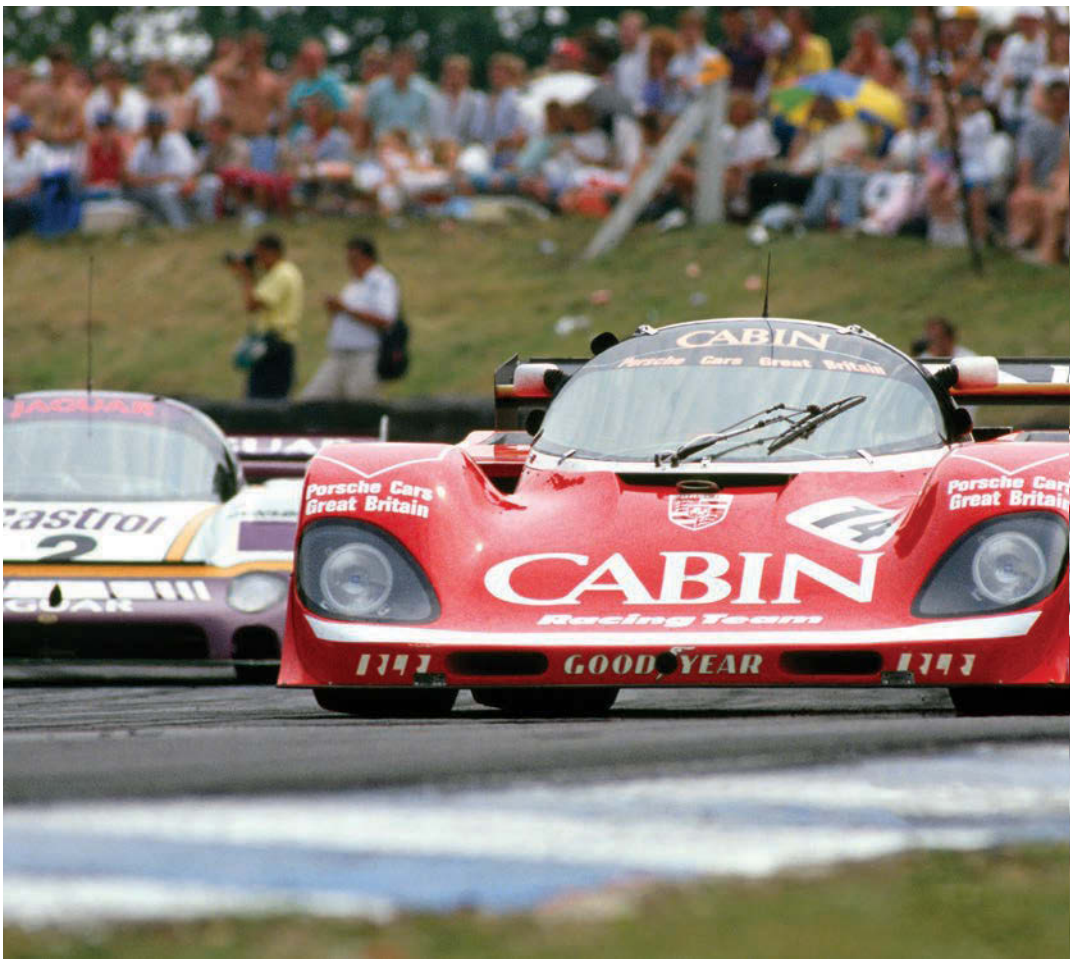
The 1982 campaign also heralded the birth of the ultra-successful Porsche 956/962. The Porsche 956 won the World Sports Car Championship and the Le Mans 24 Hours for four consecutive years from 1982 to 1985 and the almost identical 962C won Le Mans in 1986 and 1987. The 956/962 saw off very serious challenges from Ford, Lancia, Jaguar, Sauber-Mercedes, Nissan, Mazda and many others, until finally outgunned by the Jaguar XJR-9 in 1988. Success was not confined to Europe, either: the 962 was highly successful in Japan and in the IMSA GTP series in the USA.

The 956 was the first ground-effect Porsche – it is estimated to have developed more than three times the downforce of its forebear the 917 – and the example featured here will form part of a themed *Motor Sport* display at Race Retro 2018, which runs from February 23-25 at Stoneleigh Park, Warks. It has been arranged to commemorate the 40th anniversary of Lotus's F1 title success with the 79 – the first such success for a ground-effect car – and extends to embrace other period aero concepts (for tickets, see raceretro.com).

SO, LET'S TAKE A DETAILED TECHNICAL look at the Porsche 956/962 and try to determine just why it was so successful. We will then look at the Jaguars, from XJR-5 through XJR-12 to the IMSA GTP XJR-16, to establish how Coventry toppled Stuttgart

First, we need to understand the background.

The Group C regulations for 1982 were unusual in that they did not stipulate maximum engine capacity/swept volume. Instead, they imposed a fuel tank capacity of 100 litres and a maximum number of fuel stops: five were permitted for a 1000-kilometre race, 25 for a 24-hour race. The cars had to achieve an average of 1.67km/litre, or 4.71mpg. Minimum weight was 800kg dry, but most manufacturers did not get close





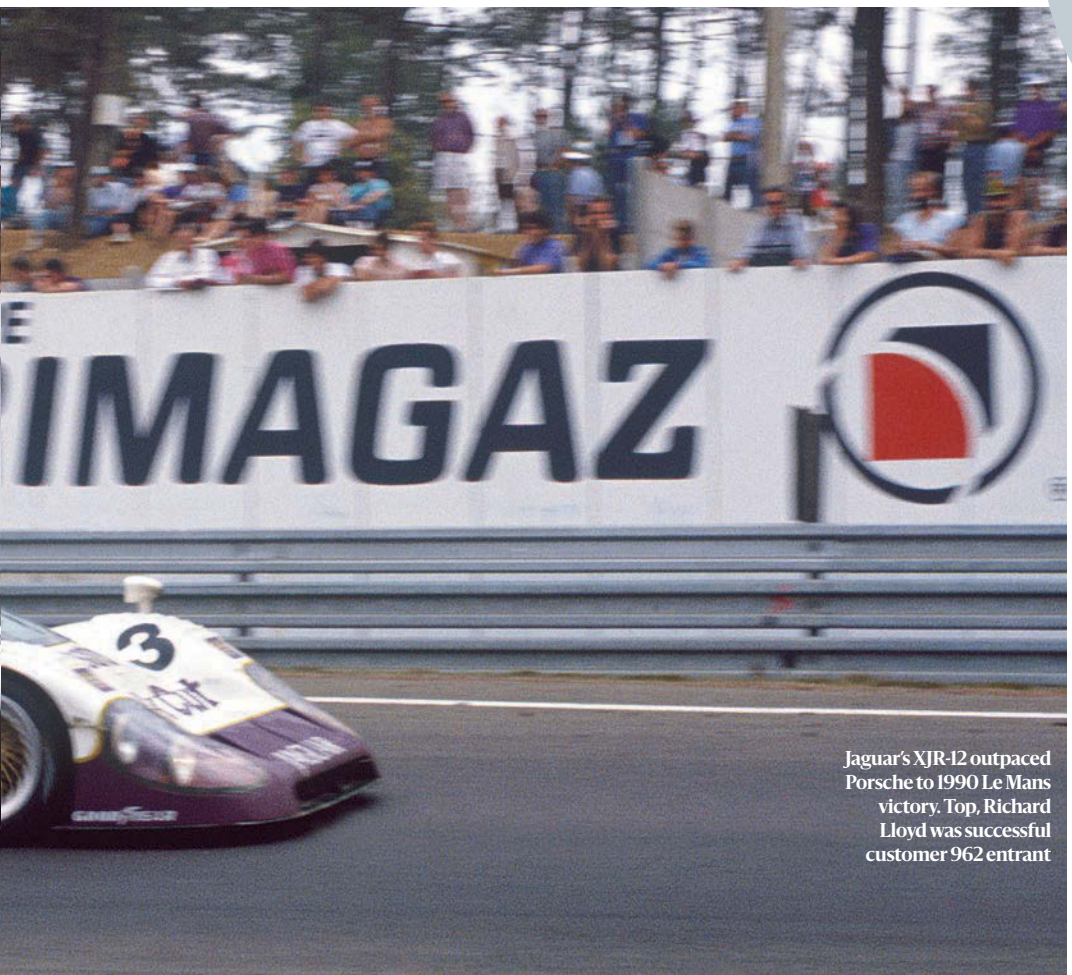


LAT



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See this Porsche 956 in the *Motor Sport* Hall of Fame Live area, where we celebrate the ground-effect era. For more event information and to purchase tickets, visit www.raceretro.com



Jaguar's XJR-12 outpaced Porsche to 1990 Le Mans victory. Top, Richard Lloyd was successful customer 962 entrant

to that. Maximum wheel/tyre width was limited to 16in. When these regulations were drafted, in late 1981, ground-effect aerodynamics dominated Formula 1. Mindful of this, the Group C regulations required a 1m x 800mm flat-floor section and stated that no component other than tyres and wheels could protrude below the plane of the flat floor. This still left plenty of room for ground-effect venturi diffuser tunnels, but meant that the skirts used in F1 to seal the venturi tunnels could not be used in Group C. Both these clauses were designed to reduce the designers' ability to generate downforce. Maximum width was restricted to 2m, length 4.8m. Fuel was restricted to petrol, maximum 102RON.

These regulations allowed manufacturers to compete using their own choice of turbocharged, normally aspirated or rotary engines of any capacity – the challenge being to deliver the maximum possible performance from the limited fuel supply.

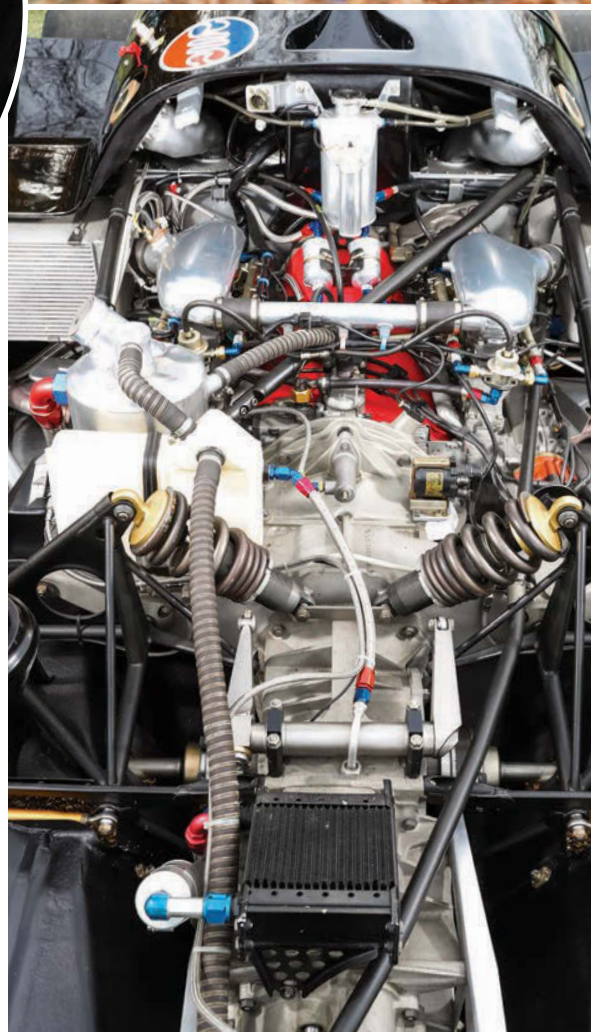
The Porsche design team, headed by Norbert Singer, plumped for a 2.65-litre twin-turbocharged flat six featuring four camshafts, four valves per cylinder, water-cooled







Porsche flat six wasn't ideal motor for ground effect, yet the 956/962 was supremely successful for many years



cylinder heads and air-cooled barrels. It initially delivered 620-635bhp at 8200rpm using 1.2 bar boost and Bosch mechanical fuel injection. Drive was transmitted through Porsche's own five-speed, full synchromesh transaxle. Final drive options were 9:36, 9:37 and 9:38.

When GSD RaceDyn analysed an early 956, we were surprised to discover that the car - a low-drag Langheck example in Le Mans configuration - used a 'spool', i e there was no differential but a solid connection between the rear wheels. This was used at Le Mans and at most other circuits.

The chassis was a sheet-aluminium monocoque with integrated light alloy roll cage and a triangulated tubular spaceframe supporting engine, transmission and rear suspension. The 962/962C variants had a steel roll cage and a 120mm longer chassis (and wheelbase), to move the driver's feet behind the front axle centreline. These changes were made to meet IMSA GTP regulations and address safety concerns in Europe.

The front suspension was conventional, with dual unequal-length wishbones and interposed coil spring/damper units. Rear suspension was by lower wishbone and a tubular top rocker operating an angled coil spring/damper unit. This arrangement kept the springs and dampers out of the vital venturi diffuser tunnels. Rising-rate titanium springs, Bilstein gas dampers and conventional anti-roll bars with rotating blade adjustment were used at both front and rear. Steering was by rack and pinion with an 11:1 ratio. Surprisingly, power steering was not fitted.

The carbon fibre-reinforced glass fibre bodywork was developed in the wind tunnel, in two versions. The Langheck (long-tail) version, with a relatively small, low-mounted single-plane rear wing was used at Le Mans and some fast circuits. The short-tailed version had a much larger, higher mounted, heavily cambered single-plane rear wing and was used on slower, twistier tracks. Water and oil radiators and the air/water turbo intercooler were mounted in the sidepods, fed by large forward-facing ducts.

At the nose, the only openings were for brake ducts. The centre section of the nose was raised to feed air into the ground effect underbody, which featured a throat and short diffuser well forward. Near the front axle, a very unusual concave 'hump' fed in to a secondary throat, the mandatory flat-bottom section and two long, relatively deep diffuser tunnels that vented into the low-pressure area behind the car.

The flat six was not ideally suited to

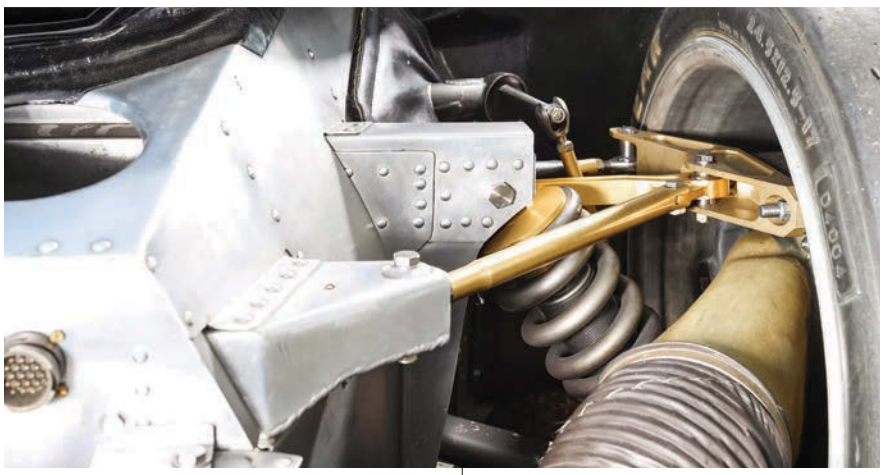


ground-effect cars, tending to restrict tunnel size and depth. However, the engine and gearbox were angled up slightly to allow wider, deeper tunnels. Regarding the unusual concave hump, GSD has not run wind tunnel tests or CFD, but we suspect that the forward throat helps to move the centre of pressure (aero balance) forward and the 'hump' helps to reduce pitch and ride height sensitivity. The Porsche 956 was the first sports-prototype effectively to use a ground-effect underbody. It has been said - reputedly by Porsche insiders - that Porsche did not really understand the ground-effect aerodynamics, but I suspect they'll have had a pretty good understanding. They clearly understood the importance of low drag to achieve the necessary fuel efficiency and high downforce to deliver cornering speed and lap time. They also understood the need to minimise pitch and ride-height sensitivity for stability - and to make the driver's job easier over a long stint.

When analysing the 956, we did not have access to wind tunnel data and could not carry out the usual airfield aerodynamic tests. Using basic theory, experience and published information, downforce for the 'Langheck' car in Le Mans configuration was estimated at 1050kg at 200mph, drag at 382kg at 200mph. With 635bhp, this gives a theoretical maximum speed of 218mph. The ratio of downforce to drag (L/D) - a measure of aerodynamic efficiency - is 2.75. We have not looked seriously at the high-downforce 'sprint' version, but we estimate that it would deliver more than twice the downforce of the Langheck, which equates to roughly 1280kg downforce and 320kg drag at 150mph (figures at 200mph are irrelevant for the high-downforce configuration - drag levels would not permit the car to reach that kind of speed). To put this into context, in sprint trim, downforce is six per cent higher than the best 1982 F1 car, drag 15 per cent less, power 19 per cent greater - seriously potent.

"It has been said that Porsche did not understand the ground-effect aerodynamics but I suspect they had a good understanding"







MOVING ON TO MECHANICAL DESIGN, chassis torsional stiffness is clearly adequate, but certainly not as stiff as the carbon-composite Jaguar XJR-6 and XJR-9. Anecdotal evidence from the 1980s tends to confirm this - IMSA 962s were sometimes referred to as 'flexible flyers'. Both factory and customer teams fitted additional stiffening diaphragms.

Tyres were Dunlop radial slicks front and rear, on 16in rims. Goodyears and Yokohamas were also used in the USA and larger rims and tyres were used later, particularly at the rear.

Suspension geometry and kinematics are generally good. The roll axis is slightly higher than ideal at static ride height, causing jacking, but almost at ground level - which is ideal - when the suspension is compressed by downforce at speed. Pitch geometry gives appropriate anti-dive and anti-squat. Steering scrub radius is very small, therefore avoiding kickback over bumps. Rear roll camber correction is poor, but manageable provided roll is well contained.

Before looking at springs, it is important to recognise that downforce varies with the square of speed - i e downforce at 200mph is four times greater than downforce at 100mph. Ground-effect cars like the Porsche thus need massively stiff springing to hold them off the ground, but that makes them very stiff at low speeds, which tends to reduce grip in slow corners.

Porsche offered a range of rising-rate titanium springs to suit low- and high-downforce configurations. The rising-rate springs were initially soft, giving good adhesion in low-speed corners, but stiffened as the car was compressed by aerodynamic downforce. This particular car had suitable front springs, but the rear springs were too soft. A car in high-downforce configuration would have required significantly stiffer springs or a dual-rate system with secondary spring assisters.

Very stiff anti-roll bars are also required to keep the underbody aerodynamics stable.

On this 956, the front anti-roll bar is four to five times softer than we would expect and the rear bar two to three times stiffer. This is because of the solid spool differential.

The advantages of the 'spool' were simplicity, reliability, straight-line stability and straight-line traction. The disadvantage is understeer in slow- and medium-speed corners. Le Mans had very few slow corners in 1982 (before the Mulsanne chicanes), so overall the spool was probably an advantage. To combat the spool-induced understeer it was necessary to run the front bar soft, the rear bar stiff and add castor to help unload the inside rear tyre and let the car turn.

The Porsche 956/962 was not necessarily outstanding in one particular area, but was absolutely competent in all of them. A superbly engineered all-rounder, the car delivered sufficient power, good fuel consumption (adjustable by reducing revs and boost), good downforce, low drag and above all, excellent reliability. It was also relatively easy for customer teams to run.

These cars were very physical and demanding to drive near the limit. Huge g forces, heavy steering and a cramped, hot cockpit made for a challenging ride. Launched in early 1982, the 956 had a difficult first race at the Silverstone Six Hours. The fuel allocation was for 1000 kilometres, but six hours at Silverstone meant 1100. A 956 qualified on pole, but was forced into low-boost fuel conservation mode in the race, finishing second to a Group 6 Lancia. Thereafter, matters improved, the Porsche winning five major races in 1982, including Le Mans.

For 1983, Lancia built a pukka Group C car, the Lancia LC2/83 with a Dallara chassis and a 2.6-litre twin-turbocharged V8. The Lancia was generally as fast as the Porsche, but suffered tyre problems and niggling reliability issues. It won only one race in 1983 and the marque never would realise its full potential.

Despite increasing competition from several manufacturers, Porsche domination of Group C continued through 1983, '84 and '85. Its success was built on the all-round technical competence of the 956/962 - and numbers. In addition to the factory team, strength in depth came from highly professional customer teams including Joest, Kremer, Lloyd, Fitzpatrick and Trust. These privateers introduced significant improvements of their own, while the factory continued with major developments including electronic fuel injection and engine management (which improved both power and fuel efficiency), water-cooled barrels and improved chassis stiffness. Porsche also developed the ground-breaking PDK double-clutch, seamless-shift gearbox on the 956. It was later used regularly on some of the factory 962Cs.

THE MOST SIGNIFICANT THREAT TO Porsche dominance was launched in September 1984, when Jaguar commissioned Tom Walkinshaw Racing to design, build and race Group C cars. The original intention was to use the successful Bob Tullius/Group 44 Jaguar XJR-5 IMSA car, but it soon became clear that this wouldn't be competitive. TWR contracted top designer Tony Southgate to pen a completely new car. The Jaguar XJR-6 used a carbon-composite monocoque and a 6.2-litre 24-valve V12 based on the XJS. The engine initially delivered 650bhp at 7000rpm and drove through a March/TWR five-speed transaxle with a ramp-and-plate LSD. The car featured very advanced aerodynamics with exceptionally deep, wide diffuser tunnels, a large dual-plane rear wing and a substantial front splitter. Both front and rear suspension used dual unequal-length wishbones. Front spring/damper units were operated by a pushrod and bell-crank system. The novel front roll bar was a large-diameter carbon-fibre 'horn'. The rear was a conventional interposed arrangement with the near vertical spring/damper tucked inside the wheel rim to keep the diffuser tunnels clear. The XJR-6 was somewhat overweight, but it did win the 1986 Silverstone 1000Kms.

The XJR-6 evolved into the XJR-8, which won three races and the WSC title in 1987. A further evolution, the XJR-9, stormed to six race wins - including Le Mans - in 1988. For 1989, the Metro 6R4-inspired Jaguar twin-turbo V6 powered the XJR-11, but this was not as successful as its forerunners.

The V12 – now delivering 730bhp at 7000rpm - returned for 1990, winning Le Mans again in the XJR-12, the final evolution of the XJR-6.

Jaguar decided that a car designed specifically for the IMSA GTP series was needed for 1991. The XJR-16 was based on the XJR 6-12 family, but used the turbocharged V6 from the XJR-11, a longer bellhousing and pushrod/bell-crank rear suspension. A conventional front anti-roll bar replaced the XJR-12's carbon-fibre 'horn'. Unlike Group C, the IMSA regulations did not include fuel restrictions, so turbo boost could be turned up to counter additional downforce – and drag. This was added in the form of a larger splitter

"These cars were very demanding to drive – huge g forces, heavy steering and a cramped cockpit made for a challenging ride"







XJR-12 was Jaguar's final iteration of XJR-6 concept.

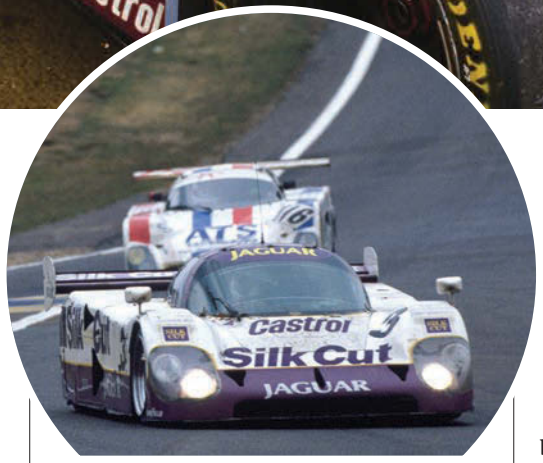
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and dive planes at the front. At the rear, the normal high-mounted dual-plane rear wing was augmented by a second low-mounted dual-plane wing which helped energise the diffusers.

GSD RaceDyn has analysed Jaguar XJR-5, XJR-12 and XJR-16 models. We will focus on the XJR-12 and XJR-16 to understand how the Jaguars finally derailed the Porsche 956/962 freight train. First, aerodynamics.

Aerodynamic tests on Richard Eyre's XJR-16 at North Weald were not entirely satisfactory due to wind gusts, but gave a downforce of a staggering 2800kg at 200mph, the highest levels GSD has ever measured. The 'drag coastdown' tests showed much higher drag than expected, 720kg at 200mph. A low-downforce set-up was used for the 2014 Le Mans Classic. Although expected maximum was 196mph, before braking for the first Mulsanne chicane, the car pulled 208mph, meaning that drag was only 550kg at 200mph. As suspected, those gusts at North Weald had made a Horlicks of our drag measurement, and the higher top speed pushed ride height lower than planned, causing diffuser flow separation and porpoising. A small change to the spring set-up eased the problem and Richard finished fifth against very strong competition.

GSD has also analysed the Jaguar XJR-12 run by Moto Historics for Shaun Lynn, but has not yet been able to run aerodynamic tests. Based on theory, published data and experience with the XJR-16, we have estimated that at 200mph the XJR-12 delivers 1700kg downforce and 446kg drag in low-drag Le Mans configuration, 2700kg downforce and 632kg drag in high-downforce 'sprint' configuration.



Comparing the Jaguar XJR-12 with the Porsche 956/962, the Jaguar is about 90kg heavier but gives almost 15 per cent more power and huge torque - it still delivers 606bhp at 5500rpm, allowing rpm to be reduced to control fuel consumption. With both cars in Le Mans trim, we estimate that the Jaguar delivers 62 per cent more downforce for only 17 per cent more drag. The Jaguar chassis is significantly stiffer - and safer - than the Porsche. Suspension geometry and kinematics are both good. The Jaguar runs stiffer springs (because of the higher downforce) and a much stiffer front antiroll bar which gives better balance and traction.

By running simulations, we can compare the theoretical performance of the XJR-12 and 956/962 at the current Le Mans circuit. The Mulsanne chicanes were in place when the XJR-12 won in 1990, but other parts of the circuit have changed slightly, so we cannot compare directly with 1990 times. In order to run enough laps to win, fuel consumption of around 7.4 litres/lap was necessary in 1990.

For qualifying, Porsche could increase boost. Simulation suggests that the Porsche 962 should outqualify the Jaguar XJR-12 by some 1.2 to 1.8sec. In the race, Porsche would need to run reduced turbo boost and Jaguar reduced rpm. Simulation shows that with Porsche boost reduced and Jaguar rpm reduced so that both cars achieve the necessary consumption, the Jaguar XJR-12 is almost 5sec per lap faster than the Porsche.

Results from Le Mans 1990 bear this out. The best Porsche 962 qualified 3sec faster than the fastest XJR-12, but the XJR-12 won and the best 962 finished nine laps behind.

In conclusion, the Porsche 956/962 was superbly optimised to the Group C regulations and was dominant for an incredible five years. By 1988, however, the Jaguar could outperform the Porsche on most circuits, by virtue of a better chassis, more efficient aerodynamics and a simple, torquey, fuel-efficient engine. ◘

For the latest show information and to buy tickets, visit www.raceretro.com

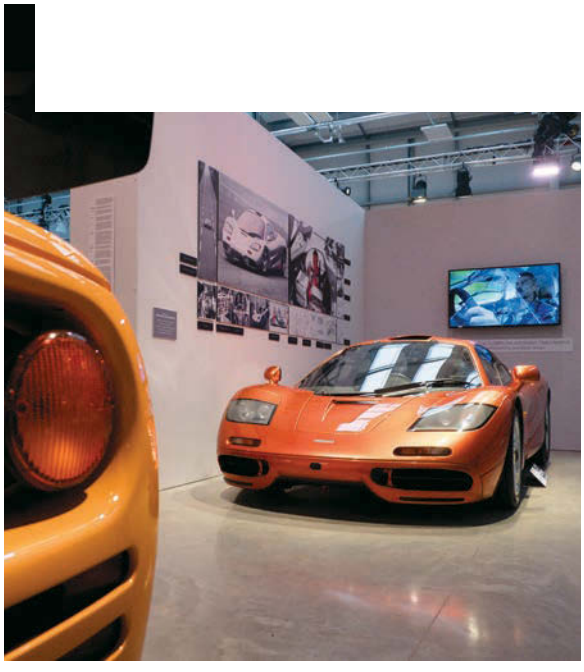




Gordon's golden touch

A retrospective show celebrating a lifetime of car design proves that even at 71 Gordon Murray remains one of the world's most innovative engineers

WRITER Gordon Cruickshank





When Gordon Murray decided that his 50 years in cars was worth remembering, it coincided with a new project and a new factory. Not content with creating Formula 1 race winners, the greatest supercar yet built, an eco city car and redesigning the entire process of car manufacture, Gordon has decided to start a new car marque.

Partly to announce that and partly in celebration of those 50 years of achievement, Murray's team assembled an amazing once-in-a-lifetime show of 40 cars he has created, from his IGM Ford built at his South African home in 1967 to the latest TVR Griffith, in a brand-new building at Dunsfold aerodrome. While Gordon Murray Design remains at Shalford, Surrey, expanding his revolutionary iStream manufacturing process, Dunsfold will be home to Gordon Murray Automotive, developing and building small-run cars under the IGM label (it stands for Ian Gordon Murray). And while Gordon was reticent about detail as he announced it, the first car will be a compact, light supercar designed by Murray's never-varying philosophy of 'lightness first'.

You could see that principle in the man's own car collection - not supercars but flyweights: Fiat 500, Alfa Romeo SZ, Mini, Abarths, Elans - all weighing in at less than 1000kg. It's Murray's obsession.

NEXT DOOR WE STROLLED AROUND THE 'One Formula' exhibition, Gordon chatting casually about his Grand Prix-winning cars, most of which were lined up here from BT42 through the red Alfa Romeo era and blue and white title-winning years into McLaren glory, including the BT46B fan car. "Chapman made up the stuff about stones being fired at following drivers," he said wryly, patting the dustbin-sized fan cowling. "The air exit speed was only about 50mph."

That IGM logo appeared at the start of Murray's design life, on that T1 sports car, and while the car here is a recent replica, the original IGM-badged steering wheel was hanging on the wall. Alongside was a reconstruction of Gordon's first office featuring his drawing board, desk, instruments and Dansette record player. Music's another theme - the show was backed by hundreds of LP covers.

Not your average company director... Gordon Murray with 200 of his 780 music T-shirts

Amazingly it's 25 years since the McLaren F1 redefined the word supercar, and a squad of them on show ran through 'base' model and LM winner to the long-tail GTR. But in between the physical vehicles were the 'ghost cars' - projects that never materialised, such as a McLaren 2+2 supercar, a side-by-side two-seater to partner his tandem Rocket, a Brabham-Offy Indy car.

In this fascinating show, occupying the spaces that will see new IGMs created, one thing was noticeable: Murray is incapable of making an ugly car. Even the flat-pack Ox truck, assembled from simple panels, and the garden tractor he knocked up using Tyrrell six-wheeler tyres have attractive proportions. Speaking of gardens, also on show were some of the soapbox karts that every year fly down a rough track in Gordon's private 'grass prix' at his place in France. This is not a conventional corporate man.

Convention is in fact so far from Murray's standpoint that he hopes to disrupt the whole car manufacturing industry, and his tiny city cars demonstrate that. Minimal is the game, although the last car in the show is the brawny TVR Griffith; but GMD managed to fillet even this roadburner so it's 300kg less lardy than its rivals. Weight, he says, is "the last frontier. Car companies will pay more than ever for every kilo saved. On the other hand, an iStream structure is not only innately lighter but completely future-proof. We don't care whether it's petrol, electric, hybrid or hydrogen, or if it's autonomous, it can adapt simply. Well," he adds after a pause, "I personally care if it's autonomous..."

SITTING ON A RED AND WHITE VINYL SOFA by a glowing jukebox issuing rock & roll classics, he told me about what comes next. The aim is to develop and licence his iStream principle from Shalford, while at Dunsfold GMA will develop cars for clients and build prototypes. Plus its own IGM designs. "In very





From left to right: Murray with the author namesake Cruickshank; classic flyweights; 50 years of car design; bikes are another passion; de Cadenet-Lola and BT42



"Weight is the last frontier. Car companies will pay more than ever for every kilo saved"

limited quantities - 50 or 60 cars. We don't want to be another car company, another Ferrari."

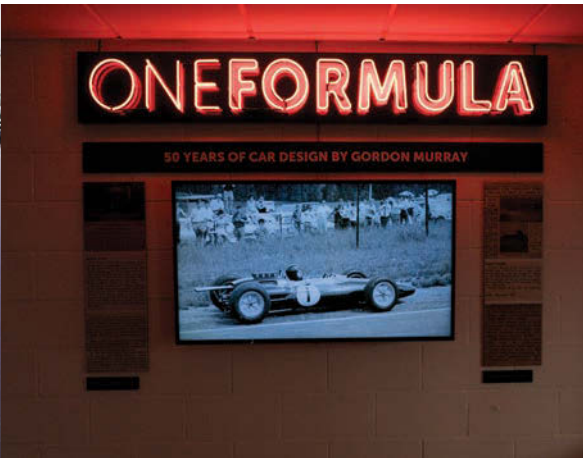
He's unlike Enzo in another way, too: he values his history, retaining all drawings, notes and records. "But I can't think how I had the energy to design all these cars!"

Currently he's restoring a BT44B Brabham, too. "I drove every Brabham up to the BT48," he says. Did he time himself? "Oh no. I was good enough to win a few races in South Africa, but I'm no F1 hand. But it was valuable to feel the spring progression, the damping, the gearchange function."

The exhibition wasn't open to the public - insurance and facilities concerns scuppered that. However, the next best thing is on the way in spring - the book of Murray's career. I don't think it will be dull.

Later, Gordon was the guest on one of our RAC/*Motor Sport* talk shows, and as usual sparkled. You can hear that on the *Motor Sport* website. But the conversation carried on once the mikes were off: how George Harrison tried teaching him to play guitar, and he still has Harrison's annotated scores, about aircraft - "I've designed a simple aircraft on iStream principles, a rugged short-strip machine something like the Britten-Norman Islander" - and about architecture.

"I love architecture," he said, eyes lighting up, flicking through his phone for pictures. "I keep building on to my houses, and I have a thing about polygons. I moved an octagonal church and rebuilt it beside our English place. Even our bedroom is octagonal!" There's also a place in Scotland, on a little bay in a wild north-western corner of Sutherland. He's amazed I know it and pulls up pictures. "I've designed loads of houses," he says, "but this was the first completely new design." It's obvious the whole process excited him as much as - well, everything else he tackles. So just how many hours are there in a Murray day? "I don't sleep much," he shrugs.







"I should have been terrified, but I wasn't"

In early December Gordon Murray sat down with the editorial team of *Motor Sport* to record a talk show at the Royal Automobile Club in Pall Mall. Over the course of an hour the celebrated designer covered topics as diverse as architecture, Formula 1 and Jim Clark. You can hear the entire Royal Automobile Club *Motor Sport* Talk Show via our website, *www.motorsportmagazine.com* Here are some of the highlights.



Gordon Murray on

.... his aesthetic sense

When I went to high school, I did a month of art, and then I switched to technical drawing - thank goodness, because I would have made a pretty lousy artist, I think. I love styling cars. I've styled all my cars; I've led the styling team on all of them apart from the SLR, which was done by Mercedes. I think that's why the cars are slightly better proportioned than other cars of the time.

...the new company

I don't want to start a car company at 71 years old. What we are starting is an automotive business, and there's a subtle difference. I thought, "While we're licensing iStream Superlight, how nice it would be to come up with a few platforms people can licence." You cut out of the customer timescale all of the concept and design loops before you actually get to a rolling chassis

Then I thought "If we're going to make our own platforms, why don't we make limited editions of our own car?" And if you want to grab people's attention, do a headline car. I've thought for five years I've probably got one more good sports car in me, and what a great opportunity to do it using our new technology, and to re-launch the IGM brand, which is now 50 years old.

...declining a job offer from Colin Chapman

I thought Chapman and I were too alike. I was very bolshy in those days, very autocratic. I looked at Chapman and thought, "He's probably pretty much the same". I could just see a lot of head-banging. I thought we'd spend most of our time arguing rather than getting on with the job. That's why I declined.

...the confidence of youth

I look back and I'm more terrified now. At 24, 25 I was designing cars, but by 26 I was running the team when Bernie [Ecclestone] made me Technical Director. I should have been terrified, but I wasn't. I must have had a massive amount of confidence and self-belief in those days. And as I said, I was much more bolshy in those days, so I was probably a bit forceful.

...whether active suspension belongs in F1

Absolutely not. I don't like anything that complicates the cars even further and takes away driver input from the performance envelope point of view. I'd like to see Formula 1 getting back to being more of a driver's championship. No interference from the pits at all. Nothing. That would get rid of probably a quarter of the budget, as well. These days the gear changes are all selected on a simulator before they leave for the circuit. Now you've got a massive team of people, not only at circuit but back at base, making decisions all the way through the race. The driver still has to have a lot of natural ability, but it's a bit 'point and squirt', and I don't like that.

...whether F1 cars are quick enough

From a speed point of view, they're quick enough. They don't sound good enough, but they're quick enough. Speed is actually irrelevant. Formula 1 only needs to be quick enough so that it is still the quickest formula of circuit racing, that's it. It's perceived speed that's important for the public. If you look at a 1960s race for the 1.5-litre formula, those cars had very little power -180hp - but they look quick because they're drifting and sliding, and you can see the driver fighting. it's perceived speed that matters; the actual numbers aren't that important.

...which driver he'd like to have worked with, but didn't get the opportunity

I would love to have worked with Jimmy Clark, I just would have given anything to work with him. When you see somebody who can jump out of a saloon car into a Formula 3 car, into a Formula 2 car, into a Formula 1 car, and then an Indianapolis car, or a Galaxy, Lotus Cortina, and can handle that engine characteristic, that chassis characteristic, those vehicle dynamics - wow, I would have liked to have worked with him.

...how keen he is to get back into racing, as either driver or team principal

Actually, both, while I still can. I had the good fortune that Charles March asked me to bring my T1, my first IGM racing car, to Goodwood. I ran it up the hill at the Festival of Speed, and that was pure nostalgia. I was 19 again. The noise, the smell, the way the car handled, the steering feel; everything came back to me. It would be fun to do some hillclimbs or something with that.

And I've just built a recreation of the Brabham BT 44B and I'd love to drive that, too. I drove all the Formula 1 cars up until the BT 48, and then we lost our tall drivers and I made the monocoque three inches shorter and I couldn't fit anymore. Stupidly. Didn't think of that. So I never drove the fan car. I'd like to. That would be fun. ◘



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The Daytona Classic 24 Hour is a world away from its European counterparts – and all the more terrifying for it

WRITER Dickie Meaden

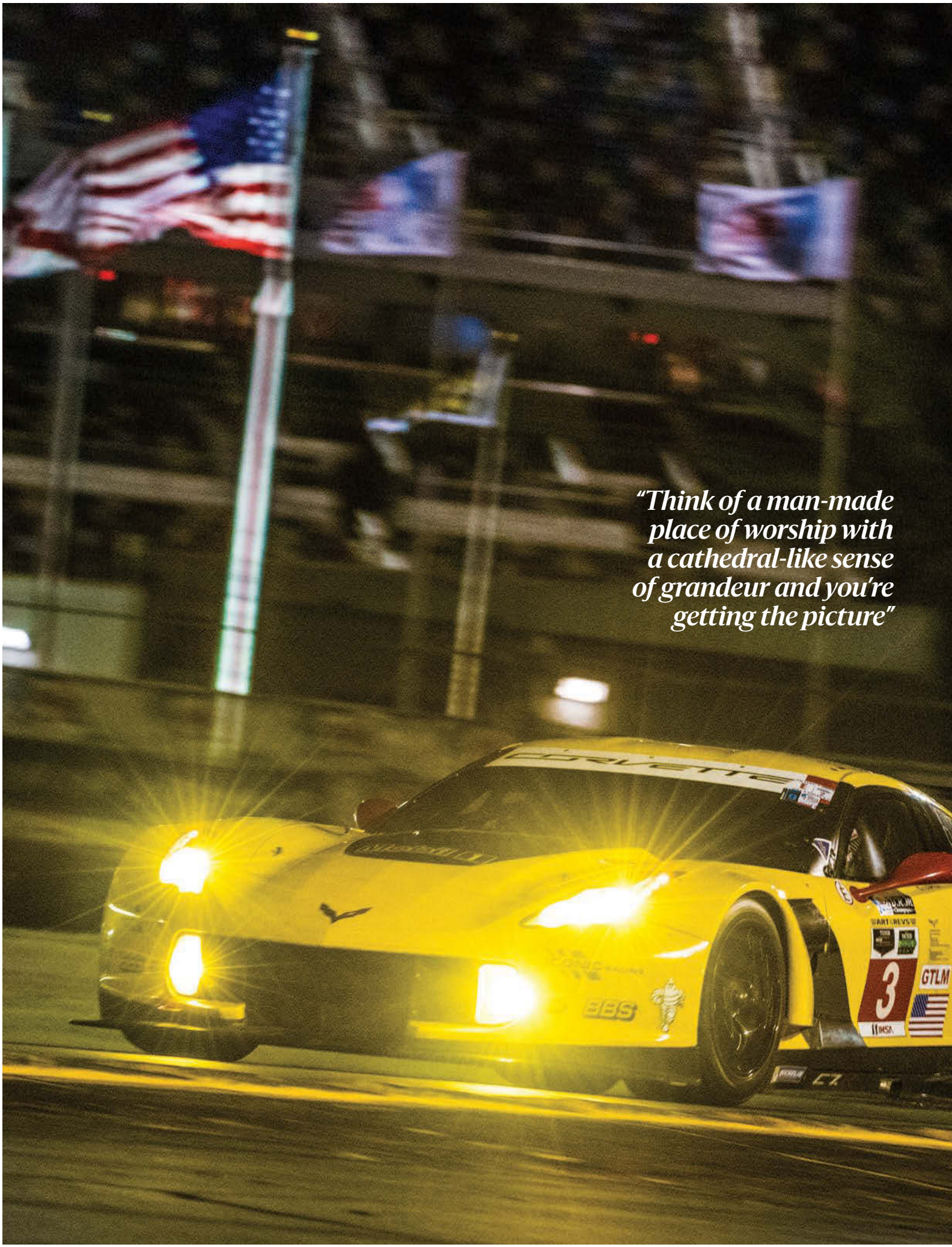
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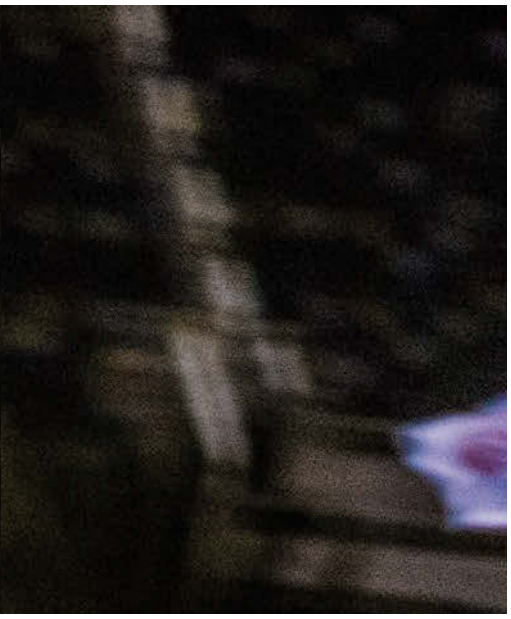
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"Think of a man-made place of worship with a cathedral-like sense of grandeur and you're getting the picture"



When it comes to iconic motor sport venues the Daytona International Motor Speedway is right up there with the best of them. The self-proclaimed title of 'World Center Of Racing' that's unashamedly writ large atop the colossal start-finish grandstand is debatable, but when you're standing in the pit lane, dwarfed by the surroundings and nervously contemplating your first taste of what this legendary track has to offer, it's hard to think of a more imposing or impressive place to drive a racing car.





I've travelled to Florida to take part in the snappily titled Historic Sportscar Racing Classic 24 at Daytona presented by IMSA. Though a relative newcomer to the world of classic motor sport the Classic 24 Hour at Daytona has quickly established itself as one of the Bucket List meetings on the historic racing calendar.

Being a jammy so-and-so I'm doing it in some style, driving not one but two cars run by Iconic Racing: a Broadley T76 (that's a newly-built, FIA HTP compliant and 100 per cent accurate copy of the legendary 1969 Lola T70 Mk3B, in case you didn't know) and a factory Pratt & Miller-built Corvette C7.R - the actual GTLM class winner in both the 2015 Rolex 24 at Daytona and Sebring 12 Hour races.

If you know anything of Peter Auto's biannual Le Mans Classic meeting then Historic Sportscar Racing's (HSR) formula for Daytona Classic 24 will be very familiar, with six grids taking to the track in rotation across a 24-hour period. Like LMC, the spread of cars reflects the history of the 'real' 24 Hours meeting, though as Daytona held its first 24 Hours in 1966 it doesn't have such a large pool of machinery from which to draw.

The Broadley runs in Group A for cars from 1960-1972, the Corvette in Group E, which spans 2003-2015 and features the most modern cars at the meeting. That might seem at odds with the event's 'classic' billing, but HSR was amongst the first to pioneer a shift towards more contemporary cars: a trend that's now being seen across historic racing in the UK and Europe.

Group F, the sixth and final grid of the meeting, is made up of HSR regulars who have cars that were never eligible to compete at Daytona. Again that's not the norm, but it's a nice touch that's typical of the inclusive nature of US racing. Naturally it also helps HSR claw back a return on its considerable investment to hire Daytona for five days, but ultimately it adds to the diversity of the cars on show, as a mooch round the paddock reveals.

As purpose-built racing venues go Daytona is amongst the most intimidating I've ever driven. Every morning when you head to the track and emerge from the vehicle tunnel that burrows beneath the banking, the sheer scale of the place blows your mind. For a moment or two you don't know where to look, but then your head begins to slowly rotate in an owlish attempt to drink it all in. The novelty of it never wears off.

To someone steeped in British and European racing Daytona is at once familiar and utterly alien. Familiar because it's part of the fabric of our sport, alien because it is so obviously the product of a totally different racing culture - one largely devoted to the raw speed and pure spectacle of NASCAR. Think of it as a man-made place of worship with a cathedral-like grandeur and you're getting the picture.

WITH PLENTY OF TESTING, FREE PRACTICE and qualifying sessions spread from Wednesday until the Classic 24 races begin at 1300hrs on Saturday afternoon, there's an abundance of track time. Which is just as well as although I've visited Daytona on two previous occasions to see the Rolex 24, I've never so much as done a passenger lap around the 3.56-mile road course.

Like most motor sport in America, the vibe is remarkably laid-back compared to the equivalent meeting in Europe. There's a distinct lack of formalities and the drivers' briefing is actually worth going to, which has to be a first. The garages are a mix of humble low-rise buildings and bigger, more modern constructions. All are set some way from the vast expanse of pit apron which itself sits a long way back from the track, in true Super Speedway fashion.

There's a real hubbub once everyone has arrived and starts to set their spaces up for the weekend. Where possible the organisers cluster cars from each race group together, but when there's a team running lots of cars across multiple grids they tend to keep them as a unit. In the case of Iconic Racing this means the Broadley is parked nose-to-tail with the Corvette C7.R, while immediately adjacent are a fabulous LMP900 Judd V10-engined Oreca-Chrysler owned and driven by Florent Moulin and an equally gorgeous GT1 Saleen S7-R owned by another Iconic customer. It's quite a quartet.

While Gérard Lopez - with whom I'll be sharing the Broadley and Corvette - familiarises himself with the C7.R, I get ready to drive the Broadley. I've raced this car

and a genuine T70 many times before, but never anywhere like this. The banking looms over you literally and as the time to drive draws near, psychologically too. Three or more storeys high and raked at 31 degrees, it's a monumental and daunting prospect. Worse, unlike a normal track, where you can familiarise yourself quietly and steadily while keeping out of everyone else's way well off the racing line, there are no half-measures at Daytona.

Still, if there are such things as the Gods of Motor Sport I'm hoping they'll be looking down approvingly at the Broadley's livery, for it's the very same as that worn by the 1969 Daytona 24 Hours-winning T70 run by Roger Penske and raced by Mark Donohue and Chuck Parsons. Few combinations of car and place come more evocative than this. It looks born to the task ahead.

The first time I step out onto the pit lane apron and hop over the low concrete wall it's like walking into a Kodachrome archive image from the '69 race. The car looks sensational against the backdrop of the front stretch grandstands. Almost timeless. I half expect to see Roger Penske leaning into the cockpit or for Donohue to hop out and start talking to the engineers. It's pinch-yourself moments like that which make historic racing so special and sit at the core of meetings like the Classic 24.

If you're big the T70/T76 cockpit is a bit snug, but my compact (okay, short-arsed) frame fits just fine. When the door is dropped shut we do a quick radio check between car and crew, then I get the whirly finger signal to fire up the Chevy V8 before being waved out onto the circuit. The pit exit is a challenge in itself. Barely a car wide, it follows the inside of Turn One and is separated from the live circuit by a metre-high concrete wall. The first curve isn't so bad, but after a brief squirt of throttle there's a more acute 90-degree left that looks tailor-made for a humiliating 20mph shunt on cold tyres. I make a quick mental note to treat this section with utmost respect, especially in the Corvette.

I don't take much of the infield circuit - basically a trio of hairpins linked by short straights and one ballsy kink - because all I can think about is what the banking has in store



"When I step into the pitlane it's like walking into a Kodachrome archive image of the 1969 race"





for me. The answer comes quickly and explicitly, for no sooner do you pop out of Turn 6 (the last corner of the infield section) than you're climbing the banking where NASCAR Turn 1 segues into NASCAR 2.

It's a wild feeling to power up towards the rim of this vast tarmac saucer, punching through the gears until you've got no more to throw at it. Speed and g force ramp up quickly, as does the sensation of being tilted steeply to the left. What remains of NASCAR 2 isn't sufficient to get the full impression of speed, but as the banking flattens you really do fire out onto the Back Stretch and the run towards the Bus Stop chicane that punctuates the Tri-Oval for the Classic 24, just as it does for the modern Rolex 24.

From here it's back up onto the banking and the crazy charge through NASCAR 3 and 4. This is where you get the full Daytona experience as you strain your neck against the lateral g to try and get a glimpse through the top left corner of the windscreen in a desperate effort to see through the endless corner. By now the Broadley is butting into its rev limiter in its long top gear. We could up the rev limit by 500rpm, but Iconic reckon it already equates to just on 180mph. Slow by NASCAR standards, I know, but still honking on in my book.

AS THE WEEKEND SETTLES INTO ITS rhythm Lopez, Frantz Wallenborn (my other co-driver in the Broadley) and I get ourselves dialled in. Qualifying is actually run as a race on Friday, but it's lap times that count rather than finishing positions. Things go brilliantly in the Broadley, which sets a time that's comfortably on pole. Lopez and I have a clean run in the Corvette, too, but for some reason there are a few protoypes running in the E-7 class. We're right up there with the quickest of the GT cars, but ultimately outpaced by the Oreca and Ligiers.

After forming up in the assembly area, grids are sent straight out onto the track in two-by-two formation behind a pace car. With one lap to get some heat in tyres and brakes everything happens pretty fast, as before you know it you're straining your eyes to see the flag marshal perched in the gantry above the start-finish line. When the green flag waves everyone pins the throttle and the whole grid tears down towards Turn 1 like a stampede. It's proper heart-pounding stuff whether you're in the car or watching from the pit lane.

Lopez and I decide to do alternate races in the Corvette. My first is five in the afternoon, which means my second run comes at five in the morning. The muggy Florida humidity has abated a little, but it's still warm. The sun sets early and rises late this close to the equator, but such is the level of floodlighting that there's nowhere around the lap that's left without some level of illumination. That said, it's dark enough to have senses heightened as I slide over the hefty side impact bars of the roll cage and into the low-set, super-supportive seat.





Corvette felt unbreakable and simple to drive; Broadley T76 showed all the physicality of its 50-year-old design



The C7.R's cockpit is a wraparound array of displays and switches. There's a big rearview display screen - sadly we don't have the radar system fitted that predicts which way quicker traffic will pass you - and myriad switches on the steering wheel. I'm sticking with the traction control settings suggested by Pratt & Miller, so I won't need to fiddle too much with any of the controls, apart from the radio button to signal when I'm entering the pits (there's a mandatory pit stop in all the races, and a minimum pit-in to pit-out time, hence my call as I close the entry line) and the pitlane speed limiter.

Otherwise it's all pretty simple stuff - left and right paddle shifters to go up and down the gearbox and a few warning lights to signal brake lock-ups and when the traction control is cutting in.

After the animalistic Broadley it feels safe and calm in the Corvette. You're much less active in the car. Fewer steering inputs, finger flicks to change gear and no clutch to pump once you're out of the pits. You just seem to be sitting there, clamped firmly in place and watching for the shift lights to prompt your next upshift. It's strangely serene, yet exhilarating at the same time.

BOTH CARS FEEL AT HOME AROUND Daytona. No great surprise, but a welcome discovery. Where the Broadley feels rampant everywhere the Corvette is much more contained. As it the modern way you don't hustle a car with slicks and wings in the way you need to in the Broadley. You can make the rear end work a little, but the window between working the rear tyres j-u-s-t enough and tipping into a scrappy, snappy slide is narrow. When the tyres are coming in you have a fabulous sense of grip and traction. You soon learn this is something precious, for if you can tread that line fine line where you're working everything cleanly and close to the limit, that feeling of grip, balance and poise stays with you for a few laps longer. However, when you have grip and traction it's easy to over-drive, and when you do that you squander the tyres and enter a vicious circle as less grip means more scrappy slides, which overworks the tyres and leads to, you guessed it, less grip. It's hugely frustrating, not least because you know it's entirely self-inflicted.

The C7.R's V8 is running GTLM restrictors so it delivers a big slab of power and torque, but feels a bit strangled in the higher gears at high speed. Once you're up into sixth gear it's as though you've driven into an invisible buffer. I think it's fair to say you must always crave more speed at Daytona, but the upside of being one of the middling Group E cars for ultimate pace is that you get treated to the spectacle of the big prototypes going by you on the top lane of the banking.

One of the highlights of the entire weekend is Andy Wallace coming by in the Champion Racing Audi R8 as we head through NASCAR 4. Memories of seeing his 'AW' crash helmet tucked down behind the windscreen and watching the rump of that magnificent car leaving me for dead along the Front Stretch now replay in my head a scene from a movie.

One thing the Corvette emphasises is just how important nailing your braking points is at Daytona. Without any challenging sequences of corners - say something like the Maggots/Becketts section at Silverstone - the big braking areas into Turn 1, the International Hairpin and the Bus Stop are where commitment will gain you time. With so much of the lap spent with the throttle pinned this



"Confetti cannons pump a blizzard of red, white and blue flakes into the sky"

means you have plenty of time to think about these critical braking zones and, if you're me, find new and imaginative ways of not quite nailing them.

Jumping from one car to the other is the best kind of history lesson - one in which I learn how quick a car designed some half a century ago and running on treaded tyres can be made to go (my qualifying lap is a 1:48.7, compared to a 1:46.7 in the Corvette), and how endurance racing used to be a divergent mix of needing to go quick, but to also look after the engine, brakes and gearbox. And of course there's the physicality of simply operating the machine.

By contrast the modern GTLM machine feels unbreakable - as sharp and keen at the end of the weekend as it was at the start. It's this relentless stamina coupled with a remarkable ease of operation that places extraordinary pressure on the driver to work the car to its limits lap after lap after lap. Discipline, consistency and precision is the modern way, but it's as mentally tiring as the Broadley is physically. It certainly threw new light on how tough it must be to compete at the highest level in GTLM.

SO HOW DID WE DO IN THE CLASSIC 24 standings? In a nail-biting crescendo to an exhilarating weekend's competition, Gerard brings the Broadley - ailing badly with what we think is a fuelling issue - across the line to secure an outright win Group A. In the moments after the initial euphoria has passed it's always a strangely deflating feeling knowing the racing is done and dusted. That said, walking into Daytona's Victory Lane is a really nice moment, especially as the car gets in on the podium celebrations. Confetti canons pump a blizzard of red, white and blue flakes into the sky, and as we push the gorgeous Sunoco blue car away it leaves stripes of clean tarmac as its fat Avon tyres - still hot and sticky from the final race - cloak themselves in a multi-coloured blanket of paper spots.

We have one final race left to do in the C7.R, but after a long night shift in the Corvette and Broadley I'm now beginning to flag. That's nothing a coffee and some breakfast wouldn't sort, but I'm more worried about my ears than tiredness. Without the sound-deadening protection of moulded silicone earplugs (I don't have a set with radio kit) I had to use foam radio plugs, which offer scant defence against the high-decibel hammering from the Corvette's ear-splitting side-pipes and the Broadley's roaring small-block. I can't face subjecting myself to another 45-minutes of intense noise, so I reluctantly rule myself out.

As it transpires Gerard's not that keen to run either, though his decision is based on the belief we've ridden our luck to the limit with the C7.R. Having dodged my way through two potentially major pile-ups in my Group E races, and learning how close Gerard came to experiencing a sudden tyre deflation on the banking after a rear wheel rim was broken by a coming-together with another car, I'm inclined to agree with his decision to withdraw from the final race while his precious Rolex Daytona 24 Hours and Sebring 12 Hours winner is still in one piece.

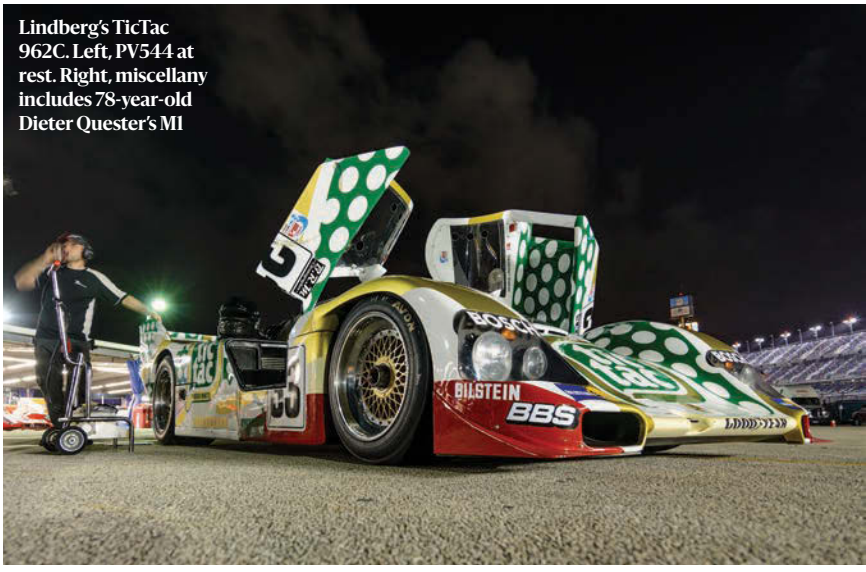
It's not quite how we'd planned to conclude the 2017 Daytona Classic 24, but it does nothing to detract from what's been a brilliant race meeting and a spectacular experience. Driving this uniquely thrilling circuit in these two fabulous cars - one that raced and won its class here just a few years back, the other shot through with the DNA of the outright winner from almost 50 years ago - has been better than I dared hope. The American Dream? I think it just might be.





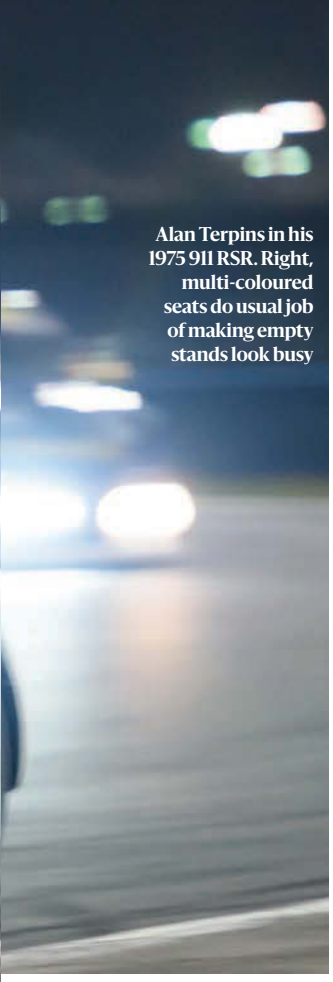


Lindberg's TicTac 962C. Left, PV544 at rest. Right, miscellany includes 78-year-old Dieter Quester's MI

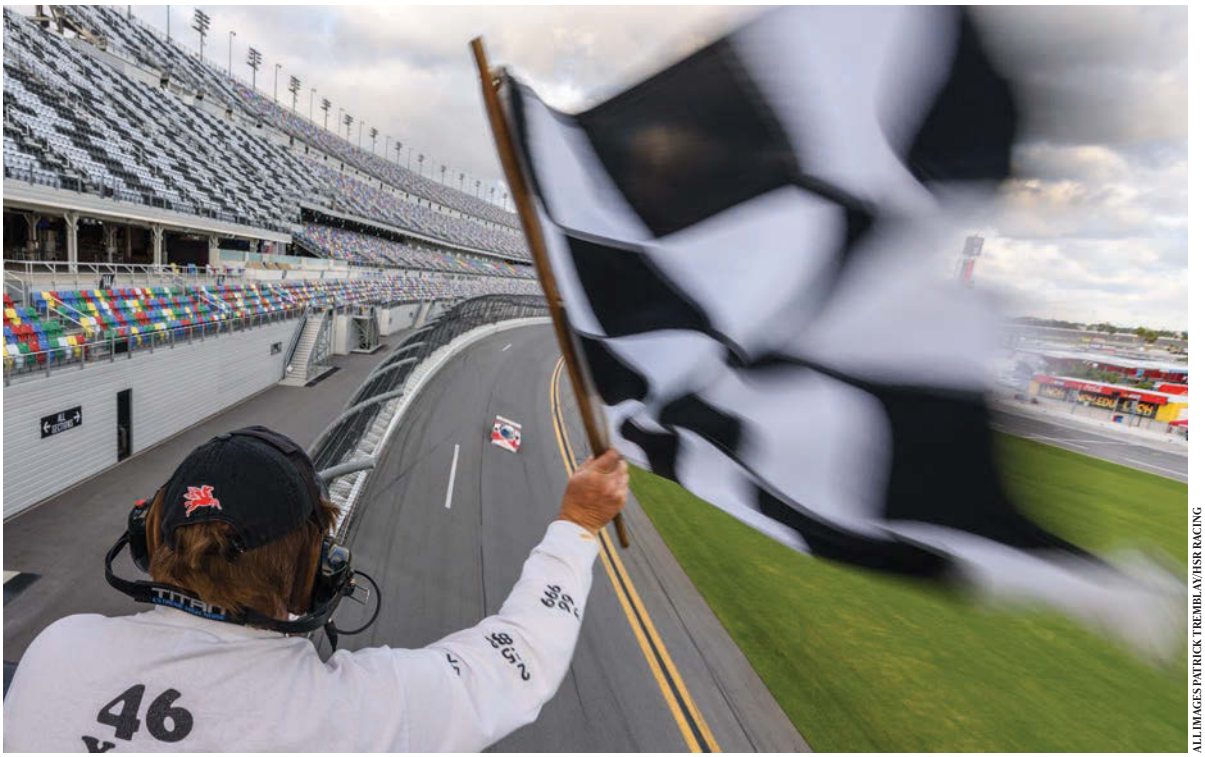








Alan Terpins in his 1975 911 RSR. Right, multi-coloured seats do usual job of making empty stands look busy



ALL IMAGES PATRICK TREMBLAY/HSR RACING

A postcard from Daytona

First run in 2014, the Classic 24 is back after a one-year sabbatical. The entry was slightly down, the quality high...

PHOTOGRAPHER Patrick Tremblay













Defining 'classic' has long been open to interpretation - and Daytona's take on the theme is more liberal than most. This was the famous Florida speedway's third Classic 24 and cars ranged from a 1962 Volvo PV544 to Ligier JS P3s on which the paint was barely dry.

As with the similar - but longer-established - event at Le Mans, cars are separated into six groups, each of which races four times (in 42-minute segments) during the event. Although some fields were strong, only 10 cars lined up for the opening Group C race - and attrition eventually whittled the field down to six.

That notwithstanding, Daytona hosted its first 24-hour enduro in 1966 and remains an appropriate theatre at which to appreciate six decades of endurance racing history.


Bull
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How to build a **Racing Car Designer**

Adrian Newey is arguably the greatest technical director of his generation. But his passion for motor sport started with plastic kits. Here he explains where it all began and discusses some of his greatest achievements

WRITER Mark Hughes **PHOTOGRAPHER** Drew Gibson



"That Tamiya Lotus 49 kit was where it all started," says Adrian Newey about a model he badgered his dad to buy him as a kid. As he explains in his new book *How To Build A Car* (review: page 181), completion of that kit didn't lead to him wanting to build a collection of them, but to modifying them - or improving them, as he firmly believed. Ensconced within the Milton Keynes base of The Hobby Company - the UK distributor for Tamiya, among others - Newey talked about the creative process, how it has unfolded within him over the years to produce the longest blockbusting sequence of landmark F1 cars of any designer in history - and for five different teams over almost 30 years.

Although Newey's creativity is expressed within a tightly regulated formula, many of his innovations seem to have arisen from the abstract. Like many musicians, he keeps a pad and pencil close by for when a great idea might wake him in the middle of the night. He takes his inspirations from all sorts of places outside racing, sometimes just in everyday things. His subconscious brain seems always to be working, neurons making vital links and connections, joining up the unconnected in the way of an artist. Only then does the left-brained analytical engineer within him start figuring out how the abstract solution can be made real.

"I've been lucky in that my father had quite an analytical mind and my mother was quite artistic," he says, "and I seem to somehow to have inherited both traits. I really enjoyed painting and sculpting when I was in my teens - and sketching. But the thing I was passionate about painting and sketching was racing cars. So the two were a natural marriage. I did art O-level but my portfolio was all of racing cars! If I'd gone in that direction, I guess it would have been the Michael Turner route; the painting of racing cars."

That's all very well, but Newey is the man Frank Williams once described as 'the most competitive person I've ever met,' and that quality has driven his creativity, given it immense power and traction. Where did that come from? "That's a good question and I have asked it of myself. When Frank said that, I thought, 'That's not a very nice thing to say,' but over the years I've reflected that actually coming from Frank it is a compliment. Then I began to accept that I am competitive. The honest truth is I don't know, because I certainly wasn't competitive at school - sports and stuff I wasn't bothered about at all. I think even when I started in motor racing at Fittipaldi, say, I wasn't competitive. I just loved the design engineering." He'd joined Fittipaldi F1 team straight from university in 1980. When it folded he joined the March F2 team (and was infamously sacked by Christian Danner, continuing with Johnny Cecotto instead). In 1987 he race-engineered Mario Andretti in Indycars for Carl Haas's team.

"As you start to compete - particularly as a race engineer where it's very immediate - the competitiveness sort of creeps in. As a designer or aerodynamicist you're just that one step removed from the coal face, but as a race engineer it smacks you every Saturday afternoon in qualifying and every Sunday in the race.

"Also the fact that I never fitted in that well at school maybe had something to do with the competitive thing. I felt the need to prove myself a little bit better, perhaps. Similarly when I got to university, the struggle I had to get through it - because I hadn't done A-levels - kind of taught me determination. Determination and competiveness are reasonably close bedfellows."





"When I started in motor racing I wasn't competitive. I just loved the engineering"





Plastic paradise: Newey and Hughes discuss the art of racing car design (when not being distracted by the allure of Tamiya)



AS YOU WILL READ, WHILE NEWEY DISCUSSES THE ROOT OF various innovations he has made over the years, downtime seems to be key, freeing the mind of the immediate necessity of fulfilling tasks, allowing the brain's right-sided part to go into overdrive. Probably the single most innovative car of his whole career was the March 881 - which took shape in his mind during the many transatlantic flights he was obliged to make in 1987 when in a dual role of designer in the UK and Andretti's race engineer in the States. The pivotal idea behind a super-fast McLaren came when on holiday. Flying out to Barbados during a break from work at Williams, the shape of the plane's engine cowling inspired a big improvement in the '96 car's performance. So surely there's a conflict between the creative process and actually doing the slog of an F1 season? "Yes, well identified. It *is* a problem. When you feel under pressure to get through a fairly heavy work schedule, what can then suffer is the downtime when you're dreaming about nothing very much. Sometimes it'll be driving in the car where you've missed the junction because you're dreaming away and on auto pilot. Those things... it can be as simple as going to the loo for a pee, doing something mindless. A problem might have been bugging me for anywhere between five minutes and a month and suddenly a solution will pop up from nowhere. The subconscious brain is remarkable, silent processes that just keep churning away."

So the note pad and pencil stay by the bed? "No. They were, but I found it was giving me sleepless nights - just because it was there! So I then moved them to the bathroom. So now it has to be an idea good enough to be worth getting up, putting the light on and going to the bathroom!"

Here we have chosen six of Newey's F1 innovations - many of them features that came to be generic F1 but which Newey thought of first - as case studies to bring out the shade and light of how the whole mysterious creativity process works.

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The creative spark of a true free spirit

From March to Red Bull via Williams and McLaren, a sprinkling of ideas that set Newey apart from his contemporaries





1) March 881 vee-shaped chassis

The Leyton House March 881 was by far the most aerodynamically advanced car on the 1988 grid, and a key part of that was how Newey took the driver's feet – wider at the toes than at the heels - on the pedals as his cue for the chassis shape, to give significantly less frontal area than the conventional rectangle-section tub. "That came on one of those transatlantic flights. I was thinking about how to treat the underside of the chassis as an extension of the front wing rather than as something that happened to be there and the wing got bolted onto it. That seemed a bit basic so I tried to create a sympathetic and minimal structure behind the front wing - hence raising the underside of the chassis to, roughly speaking, put the other side of the chassis on a streamline off the wing in side view. Then you have to come down at some point to get down to the reference plane at the back edge of the front wheel. That meant having to depart from the natural streamline so I wanted to get that part as narrow as possible. You couldn't go any narrower at the balls of the feet but you could go narrower at the heels. That's where the vee keel came from."

2) Williams FW18 cockpit proportions

New regulations were introduced for 1996 that defined a minimum cockpit height for enhanced head protection.

Newey's FW18 appeared to contravene the rule, but a careful reading of the regulations proved otherwise.

"The rules appeared to be asking for these very high ugly [and aerodynamically disruptive] side headrests, but when you read through it carefully it specified the height of the side of the chassis and it specified a minimum area for the side of the headrest but it didn't anywhere say that the side headrest top edge had to match the profile of the chassis.

"An easy goal!

"I prefer not to know the intent of a regulation. Because that can lead you to pre-judge. I'd prefer just to read the regulation in black and white without knowing what it's trying to achieve. That's one of the reasons I resigned from the F1 Technical Working Group. The others being that it was brain-numbingly dull and a bit depressing in that my fellow technical directors were like turkeys voting for Christmas and wanting ever-more restrictions!"

3) Williams FW18 Modified airbox

A newly elongated section between the back of the cockpit and the airbox inlet, introduced at Hockenheim in '96, cured the long-running problem of airflow separation starving the front two inlet trumpets of the engine.

"On holiday during a flight from Barbados to St Barts, I looked out of the window and saw the shape of the engine intake just below the propeller and it triggered a thought. If you look at most turbo-props you have the hub of the propeller, then a bit of a gap down, then the engine intake. Typically that intake will be stand-alone and the bit in between the top of the intake and the underside of the propeller hub will be a nice rounded shape.

"So turn that upside down and it suddenly became the solution to something I'd been battling with for best part of a year of how to stop the air off the back of the driver's helmet and onto the top of the headrest separating and spoiling the flow to the trumpets."



4) Red Bull RB5 pull-rod rear suspension

The key innovation of this 2009 car – which would be the basis of the title winners of the next four years – was the thorough repackaging of the rear end in response to radically different aero regulations that limited the diffuser height.

"Because we now had a full-length diffuser of very limited height, to get it working as well as possible you needed to create a very low pressure at the diffuser exit. Feeding really good quality flow to the beam wing would become vital because the harder you can get that to work, not only is it creating its own downforce but it acts as an extractor for the diffuser. So you work your way to upflow and ask, 'What's the dirty flow that's impeding the beam wing from working as efficiently as possible?' One very obvious thing was the push-rod and the rocker assembly around it. So convert to a pull-rod and it allows you to raise the rocker out of the way.

"The push-rod had become a convention for good reason. On the previous generation of cars the diffuser started much earlier – at the front edge of the rear wheel rather than the centre line of the rear axle – making it difficult to package a pull-rod because it would have been going straight through the diffuser. But now we had a change in the regs.

"When something changes, what else does that allow you to alter rather than just saying. 'Okay, I'll just adopt the change?' It wasn't a new technology, just adapting an existing one in response. Motor racing as an industry is very good at that. It's too small to do genuine research – we're not going to create new materials or write start-from-scratch CFD codes. But we are prolific users of technology and that's what makes the industry so interesting to corporate suppliers we now have as tech partners. We can take that product and work it much harder than other industries. A good example is the driver-in-loop simulators we use, which take a lot of software from the gaming industry.

"Sometimes coming up with a wacky idea is quite easy. But then it's a case of being critical of them. I apply the 24-hour rule. Scribble something down then leave it and if after 24 hours it still seems like a good idea, pursue it further. Even a team the size of Red Bull can't pursue every idea that someone proposes. We have to choose the ones most likely. I do see that with some of my colleagues – at both Red Bull and previous teams. They will come up with an idea and start to pursue it and it will start to become obvious it's a turkey and isn't going to fly. But you'll see some will belligerently keep pushing it because it's their idea. That's where the disciplined engineering mind comes in – you have to keep critiquing it and saying, do I think this can work or is it time to ditch it and move onto the next one?' "



5) Williams FW14 front wing foot plate extension

Newey's first design for Williams, the March-like FW14 of 1991, featured an extension to its endplates that prevented the dirty airflow from the tyre squirt (the air gets squirted either side of the tyre at the contact patch as it has nowhere else to go) polluting the flow to the underbody.

"This one wasn't very health and safety. We were using the Southampton University wind tunnel for the critical surfaces. It had an 11 foot by 8 foot working section and we ran a 40 per cent model. On each side of the rolling road there was a platform, about 10 inches wide, which if you were careful you could just about walk along. I was trying to understand the flow physics of the car because in those days we didn't have CFD or PIV and all the things we now have. So it was flo-viz and bits of wool. Flo-viz can only teach you on-surface. The only way to understand the off-surface flow characteristic was to go with a wand of wool. That's exactly what I did. I got the tunnel technician to slow the tunnel down to a speed I could just about not fall over and break my ankle and I walked along the side with my wand of wool and observed all this very dirty air just around the inboard side of the front contact patch area. That was wheel squish, which hadn't been named at the time because we hadn't properly understood it.

"I had a eureka moment in the shower shortly afterwards. We needed a physical barrier there. So I then had a look through the rules and realised there was a loophole between the centreline of the front wheel and the back edge of the front wheel. It was unrestricted in height, didn't have to be 25mm above the reference plane (which the front wing itself had to be)."



6) McLaren MP4-20 front suspension

Rules that lifted the front wing 50mm for 2005 potentially put the wake off the back of it smack into the lower wishbone, destroying the flow further back. The convention with the raised noses of the time was for the lower wishbone to be mounted to a keel beneath the nose. Newey thought it didn't need to be that way.

"The tip vortexes were clattering into the wishbone and making a mess. So the obvious thing to do was raise the wishbone. So how do you do that and get the required structural strength? The drawing office and stress guys came up with it. Having raised the wishbone at the outboard end you might as well join the wishbone straight into the bottom corner of the chassis, and not have the flexible bit at the bottom. It sounds blindingly simple now and the surprise almost was no other team did it.

"This thought came to me while on holiday and faxes were flying back and forward from the hotel. I wasn't very popular on holiday..." ◘

To read more about Newey's innovations, visit www.motorsportmagazine.com

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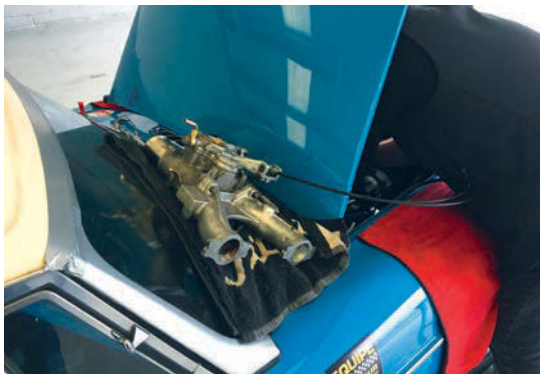
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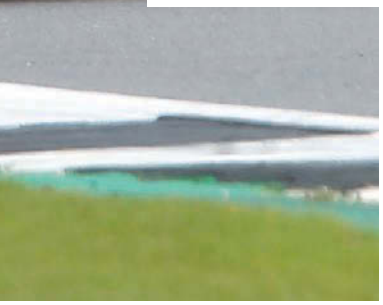



Nick Trott
Peter Haynes
EQUIPE
3 HOUR CLASSIC RELAY
EQUIPE
GTS


SILVERSTONE
MARSHALS
TEAM









A race less ordinary

Editor Nick Trott experiences the highs and lows (and everything in between) in the inaugural, and brilliantly eccentric, Equipe Classic Relay

"What's the water temperature?" asks Nick Crewsdon, our mechanic for the Equipe Classic Relay. I'm sitting waiting in the pitlane for the end of a red flag period in John Pearson's beautiful sky blue MGB Roadster. It's the day before the Equipe Classic Relay - the first of its kind - and I'm giving Pearson's MGB a quick run to check that everything is OK.

Everything is not OK.

The B's water temperature needle is rising in direct proportion to a feeling of panic welling up inside me. Oh Lord, what have I done?

THE RELAY CAN TRACE ITS ORIGINS BACK TO Brooklands in 1931 - at least that's what it says in the excellent *Motor Sport* magazine archive, which I unashamedly plug (see *motorsportmagazine.com*). The first race was called the Relay Grand Prix and had an entry of 66 cars divided into 22 teams. The engine capacity limit was 1½ litres.

"The point of the 250-mile Relay-Race," recalled former editor Bill Boddy in the September 1977 issue, "was that amateur drivers with comparatively ordinary sports and racing cars could have the opportunity of driving in a long-distance race without having to submit their cars to too much lappery, while being able to enjoy the kind of pit-work and strategy associated with such a race." Boddy recalled a number of "humorous scenes" from the early Relay-Races at Brooklands, including watching the "decidedly intrepid" Morgan three-wheelers speeding around the rim of the banking, and "the changing-over of the sashes, which might include the spectacle of drivers running long distances to achieve this, after their cars had expired out in the country".

The Relay concept evolved and expanded over the years, notably through Holland Birkett. Throughout the UK, and indeed the world, the Relay became a must-visit event for competitors and drivers alike. It was the spirit, fun and camaraderie of these early Relays that Equipe series organisers John Pearson and Rob Cull were looking to recreate with the first Classic Relay. Buoyed by the success of their Equipe GTS pre-66 series, they took the plunge and booked Silverstone for a three-hour event in September 2017.

"There was a huge gap in the market for a long-distance team event for smaller-engined cars. The Spa 6 Hours is a fantastic trophy event for historic cars, but the race is dominated by semi-professional drivers in GT40s, Jaguar E-types and Cobras. Also, asking one car to last six hours is a tough call." Pearson has a

fond opinion of the long-standing history of the Birkett Relay, but feels the traditional balance between old and new cars is now too skewed in favour of the newer cars. And so the Equipe Classic Relay was born.

The entry criteria for the Equipe Relay demanded pre-66 GTs up to 3 litres and touring or saloon cars up to 2 litres. All cars had to comply with FIA appendix K and slither around on Dunlop historic tyres in wet or dry conditions. The field included a number of recognisable historic racing shapes, from MG to Lotus, Triumph to Healey, but with a few curios including Elva Couriers, a Turner and a Tornado Talisman. Speaking to John and Rob a month before the event, they could hardly contain their excitement that the Relay had received entries from a number of cars with period racing history.

So how does the Equipe Classic Relay work? You have a team, preferably with a daft name (ie 'Team Bald and Short'), with two to four cars allowed per team. Only one car is allowed on track at any time, although drivers physically handing over a sash or a baton in the Brooklands tradition, despite its comedy potential, is not required. The race would be three hours, with a good result ultimately dependant on a) a good team manager with a clear race strategy, b) consistent and mistake-free driving, c) efficient driver changes and d) the handicap system. You'll note there's no mention of strong reliability here, because while vehicle dependability in any classic race is important, the rules of the Relay allow competitors to pace their vehicle to suit its inherent reliability. For instance, if a team entered a car with a known weakness, it could complete a more sympathetic shorter stint and allow a car with greater reliability to take a longer one.

And the handicap? This is where it gets truly fascinating, and mysterious. Equipe Classic employed the services of Martin Dewey, arguably the most experienced handicapper anywhere in the world. Prior to the race, all drivers were required to submit lap times from previous races at the circuit - the Silverstone National. I had no prior experience of the circuit so I submitted a time based on my average pace relative to Ed Foster, the owner of the MGB I have been sharing this year (see p166). I'm generally about a second a lap slower than Ed, so I found his times from his last race on the National at tsl.timing.com, created an average and added a second to that. As I trawled through this process, I hoped that other rookies were being as diligent - and honest - as I was!

These prior lap times were analysed by Martin then compared with each driver's qualifying times on the morning of the race. If any inconsistency or nefarious behaviour was suspected, Martin would delve deeper into individual driver performance at previous races, and adjust the handicap to suit. When it all shook out after qualifying, each team was given a number of laps. These laps represented your team position at the start, and drivers would be required to catch up throughout the race. Once again, vehicle preservation is key here, in that you are not necessarily racing the cars around you and with consistent lap times you could stay on or ahead of the handicap.

"Finer details of the handicapping process were never revealed. There was a beguiling sense of mystery"

The finer details of the handicapping process were never revealed, and teams were not given the opportunity to challenge it. This meant there was a beguiling sense of mystery, and all drivers had to take it on trust that Martin had got it spot on, but not one driver or team complained - which must be some kind of record in racing today.

Speaking to other drivers, there seemed to be a consensus in that attempting to cheat the handicap meant risking a penalty that you'd never see - as Martin would apply it pre-race and stack the odds against you. For the control freaks among us (which is about 99 per cent of all people involved in motor racing) it meant a form of surrender - but John and Rob recognised this before the event and walked miles up and down the pitlane in practice, qualifying and the race to ensure the spirit of the event and the faith in Martin was maintained. "The ambition," Rob Cull told me just before practice, "was that every car would be on the same lap, on the last lap, and it would be a race to the flag."

BUT AT PRESENT, IT LOOKS LIKE WE AREN'T in the race at all. Nick emerges from under the B, frowning. It has sprung a leak. We push the car into the garage, and a depressing stream of fluid trickles behind it.

I'm not a car breaker. I've had one spin this year and not one mechanical issue. I pride myself on this and was therefore mighty depressed that I might have contributed to our exit before the race had begun. I was honest with Nick and John - on those first few laps in a new car on a new track, I scanned the gauge perhaps a couple of times (but not enough). When I remembered to check, all seemed fine. However, a short stop in the pits created a sudden temperature spike that I didn't notice.

Bonnet up, Nick goes to work. A major fault is suspected. I want to bury my head in the Silverstone tarmac. Then John suggests that we whip off the cylinder head. The car received a new head gasket at the previous round, and perhaps something has gone awry. I call co-driver Peter Haynes, and team-mate Paul Latimer to give them the news. Paul is just about to load his own MGB on a trailer and





Haynes and Trott shared John Pearson-owned MGB, which ran faultlessly after pre-race gasket swap







Rivals voice their approval

Experienced racers John Yea, Bill Rawles and Steve Winter also competed. Their thoughts?

"It was a highlight to see our cars running the full stints," says John Yea of The Heritage Boys team, "plus we had some reasonable changeovers. I was delighting in the shower of rain we had – until I spun coming out of Copse, fortunately without hitting anything, or impeding anyone. Overall, I found the whole atmosphere to be of good-natured but serious rivalry, properly competitive, but with respect for other participants."

Bill Rawles, of Keeping Healeys Racing concurs. "The atmosphere was very friendly, the event was brilliantly organised and ran smoothly from start to finish. Although the highlight of the race was definitely taking the lead off the start line. Going from fourth to first and then to lead for 45 minutes was an amazing feeling, almost surreal. I enjoyed the pressure and the excitement at the same time. It was also a very proud 'dad' moment to share a race for the first time with both of my sons, who grew up with my racing Healey and used to watch me in action."

Steve Winter of Team GB, which ran Porsche 911s, adds: "It was so good to be racing among like-minded people, My highlight? Finishing!

"More seriously, I learnt a new line into Brooklands, passed on to me by Calum Lockie. It worked a treat and I overtook five cars there at different stages of my stint. It was always a horrible corner for me, but now it is my favourite. And the Scandinavian flick into Becketts is best fun ever. I didn't get lapped at all in my stint, which is what I love about Equipe GTS – all the cars are very similar, unlike other GT championships where our little 911 gets buzzed by Chevrons and E-types."





That winning relay squad. From left: Jack 'Neubauer' Phillips, Nick Trott, Peter Haynes and Paul Latimer

depart for Silverstone. I tell him to sit tight...

To everyone's great relief, it turns out that the head gasket has indeed failed – although the cause remains a mystery. Nick fits a new one. I call Peter and give him the good news, and Paul is back on the road. We're on!

OUR TEAM MANAGER ARRIVES. Christian Horner was unavailable, and while Ron Dennis was interested in reprising the role he mentioned something about washing his hair, so Jack Phillips stepped in. Jack is *Motor Sport* magazine's digital editor. He's never had a role on a race team before; he casually read the rules the night before and looked altogether befuddled. Plus in his work life, I'm his boss. No pressure. However, he speaks to John and Nick and a few knowledgeable folk in the pitlane and applies the most basic strategy: one hour each, no unnecessary pitstops, plus a fast and consistent pace. He would monitor lap times, and if he felt confident with his calculations and analysis would give us the 'hurry up' on the pitboard, but otherwise we would stick to the strategy.

In qualifying, Peter and Paul are properly quick. I'm a little slower, but consistent. That'll do. Then I get a call to visit the clerk of the course, who informs me that I pulled out ahead of another car in the pitlane, causing it to swerve. I recall seeing the car in my mirrors, but contest that I pulled out ahead of him. As the race has yet to start, and a pleasant relationship with all the officials is prudent (and encouraged), I back down. Humbly.

Then I get called to the clerk of the course again! What now?! This time team manager Jack volunteers to attend as I sense a tantrum brewing inside. What a baptism. He is told that two of our team cars were on the circuit for a couple of laps in qualifying – a big no-no. It turns out it was my fault. I saw what I thought was Paul's MGB drive past in the pitlane, and drove onto the circuit. However, it wasn't Paul's car – it was another similar B! For the millionth time this weekend, I say sorry.

We decide shortly before the race that each driver should complete a full hour. This will minimise time lost 'passing the baton', but



"Two of our cars were on circuit for a couple of laps in qualifying. A big no-no..."

introduce an element of jeopardy in that John's B will need to complete two hours, albeit with an hour's break while Paul is on track. We qualify 10th of 27, thanks to a stellar lap from Peter, and figure that with consistent driving, solid teamwork and close analysis of the lap charts from Jack we might finish in the top five. And it starts well. Very well.

Peter positively rips off the line. He's up to sixth then fourth by lap six. He's quick. Bloody quick. Too quick? I consider asking Jack to show him a 'steady' board, but ultimately it's Jack's call and there's no sign that he's overdriving. Plus John's MGB is singing sweetly. However, mechanical trouble or accidents can strike at any time, so Paul sits belted in his car in the pit garage – should he need to scramble.

He sits for an hour. Now we know why Rob suggested a cautious approach to taking on fluids before the race...

Peter pits. Paul heads out on track. We're running fourth overall and our calculations suggest we're right at the sharp end in the handicap. This is fun. We muck in to refuel John's MGB, then I visit the loo, then jump in and belt up. I'm ready.

Still ready 10 minutes into Paul's stint.

Still ready 20 minutes into Paul's stint.

Still ready 30 minutes into Paul's stint.

Then I fall asleep.

Fortunately, my dad – who's come to watch – taps on the window.

"I think you're out soon," he says.

Jack confirms it. Then I go. Steady to the end. Paul runs a stellar stint and has kept us in fourth overall, and we're still right up there in the handicap. Steady, Nick. Steady.

It rains. Cars spin off. Concentration wavers a little. I think about my family and kids in the grandstand and imagine them cheering – so I showboat with a long slide through Luffield and then instantly issue myself a reprimand. Don't cock it up now...

Chequered flag. It's over! We did it. No problems. Fantastic atmosphere, hugs and smiles all round. We're fourth overall, but the result doesn't matter. We help to pack up, forgetting that the race is a handicap and the result hasn't been calculated. It doesn't seem to matter, until at the trophy ceremony John and Rob call out our name. We'd won!

With thanks to John, Rob, Nick Crewsdon Racing, Roy Gillingham of Chequered Flag Classics, title sponsor of the event British Motor Heritage Ltd (www.bmh-ltd.com).

For more information on Equipe GTS, visit www.equipeclassicracing.com. Speak to the Equipe GTS organisers at Race Retro, stand 2-336.

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Power TO THE People



While GT3 is now very much targeted at the sports car racing elite, its junior sibling provides serious performance for the slightly less committed. And Mercedes has just stepped into the GT4 arena

WRITER Andrew Frankel

Just because progress is unstoppable, that does not mean it is always in the right direction. I bow to no one in my admiration for the latest slew of GT3 machines from the likes of Bentley, Aston Martin and McLaren but, having driven a few, I can confirm that these are recreational race cars no longer. These are cars that require not just considerable talent and skill to stay at the super-competitive sharp end of the grid, but high levels of physical fitness too. I remember talking to an exhausted Olly Jarvis, recently recovered from a Bentley Continental GT3 in the 2017 Bathurst 12 Hours, who confirmed his Audi LMP1 car was a physically far easier car to drive. "The G-force is higher in the prototype," he said, "but it goes where you aim it. You're fighting this every step of the way."

That's very good news for the top teams with seven-figure budgets and the world-class professional racing drivers they are therefore able to attract, but to the common or garden gentleman racer? Not so much.

It wasn't always like this. Ten years ago a GT3 car like Aston Martin's DBRS9 was quick in a straight line but not overly blessed with downforce or racing car reflexes. It felt like what it was: a road car adapted for racing purposes. Compared to its sister, the only superficially similar Le Mans class-winning DBR9, it was nowhere. But today GT3 cars are just as quick as GTE Le Mans cars, possibly quicker.

What's less well known is that the GT4 cars that have slotted in so neatly below GT3 are as quick today as were those early GT3s a decade ago. Or at least that's the opinion of Thomas Jäger, long-term Mercedes GT racer, former Bathurst winner and the man tasked with showing me around Mercedes-AMG's first ever GT4.

MERCEDES-AMG HAS BEEN THINKING ABOUT this car for a while. At least two years ago AMG boss Tobias Moers turned the tables on me mid-interview to ask if I thought he should make a GT4 coupé. I'd like to say I am therefore the reason this car exists, but the truth is the way the racing world is going, a GT4 car is as close to a no-brainer for a premium manufacturer as exists at present. They cost a fraction to develop relative to GT3 cars that are becoming ever closer to silhouette racers, go down the same production line as their road-legal sisters and sell not by the dozen, but by the hundred.



Restrictive forward view is disconcerting, but you get used to it. Test engine had 503bhp









For the customer the case is equally clear: for less than half the price of a GT3 - and that's before what for many will be prohibitive running costs - you get a factory-developed racing car, which should run trouble-free for seasons and which is eligible for championships all over the world. Yet they're simple enough that if you wanted to keep one at home and just use it for humiliating hypercars at track days, you could.

This GT4 is based on the AMG GT R road car, currently Mercedes' fastest car. But it is far from a street machine with some go-faster body addenda. It really is a completely different animal altogether.

On the negative side, it's nothing like as powerful. While the GT R has 577bhp from its 4-litre twin-turbo V8 motor, the GT4 has just 503bhp. Why? Because even 503bhp is way more than it'll be allowed once subjected to Balance of Performance assessment. As it stands, it's still quicker than the GT R even in a straight line because it is 240kg lighter and has a better power to weight ratio.

The body uses some GT R parts, like its carbon-fibre front wings and torque tube, to which the GT4 adds a composite bonnet and aero pack. Aero is becoming increasingly important in GT4, which is why it comes with a deep front splitter, dive planes and an enormous range of adjustment for its sizeable rear wing. It carries full race suspension with two-way adjustable dampers and steel brakes because, as with GT3 cars, carbon ceramics are not allowed.

The cockpit looks like a direct copy of the GT3's cabin - though it is actually quite different in detail - and almost unrelated to the road car. Certain other GT4 cars make little effort to optimise their interiors for racing purposes and look like road cars with additional safety equipment, but to see the lengths gone to here at least suggests a similarly thorough approach has been taken with the rest of the car.

EVERYTHING IS INTENDED TO MAKE LIFE easier. Like the GT3, the GT4 has been designed to accommodate a driver up to two metres tall, weighing up to 130kg, which is to say almost everyone who has ever donned a race suit. It's not particularly comfortable to wriggle in and out, but it is easy and, as important, quick.

You find yourself sitting in a carbon safety cell with your seat fixed to the rear bulkhead, centralising and stabilising the considerable mass you represent in the middle of the car. You don't move to meet the car, it moves to meet you, both in the reach and rake of its steering column and the considerable fore and aft movement of its pedal box.

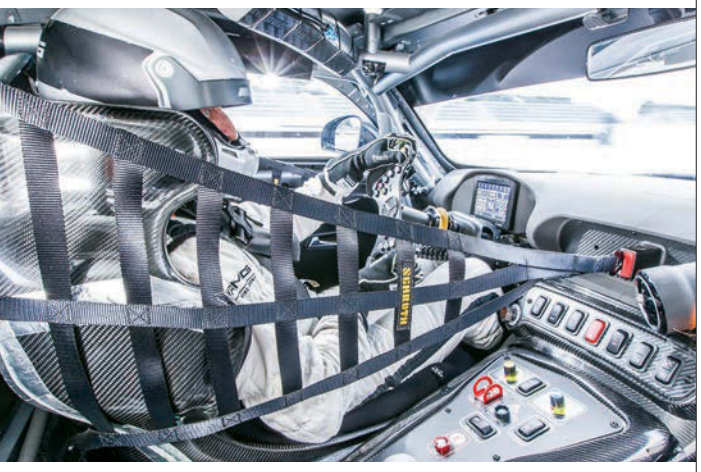
The switchgear seems to have been made by Mattel, and all the better for it because even an approximately aimed finger sitting within an inexpertly guided glove will still likely find its mark. Most controls do not require you to remove your hand from the wheel and those that do, such as the 12-position rotary dials for the ABS and traction control, are colour coded and linked to the super-clear Bosch screen where each new setting is briefly displayed as an enormous digit in front of you. I'm sure you could make a pig's breakfast of it, but it's hard to see how. There are even coloured bars of lights to tell you not only when the ABS has been activated, but on which axle, so you can adjust your brake bias accordingly. It seems all very simple but for amateur drivers and even professionals, anything that makes your life easier is welcome because, ultimately, it makes you both less likely to crash. Quicker, too.

The only thing I don't like is the view out, or the lack thereof. The trailing edge of the windscreen is low, the A-pillar thick and your vision not helped by the chunky legs of the roll cage. It feels like the inside of an armoured car and, more seriously, it makes the apices of tight left-hand corners hard to see and hit. McLaren's 570S GT4's visibility is the London Eye by comparison.

No matter. I'm strapped in and it's time to go. Because this is a test, there are no restrictors in place so I have all 503bhp at my disposal. In a car weighing the same as a 107bhp A-class hatchback, it should be sufficient.

A press of the ignition switch brings the 4-litre V8 to life. The most significant difference between this GT4 car and its GT3 sister is that this is the first racer to use this new motor, the GT3 still using the old AMG 6.2-litre normally aspirated V8. The first GT3 car to use the modern V8 will in fact be the Aston Vantage GT3 whose motor has been developed for race purposes not by AMG, but Prodrive.







Rocking all over the world

GT4's extended footprint covers many marques... and several continents

For anyone wanting to race in GT4, the range of choices available is pretty daunting and that's just deciding on the car. You can choose anything from a Toyota GT86 or Nissan 370Z all the way to something rather exotic like a McLaren 570S, and because of the Balance of Performance rules you should be competitive in any. BMW, Audi and Mercedes naturally have their own GT4 cars, as do Lotus, Porsche and Aston Martin. There are plenty of others from which to choose and more are joining all the time.

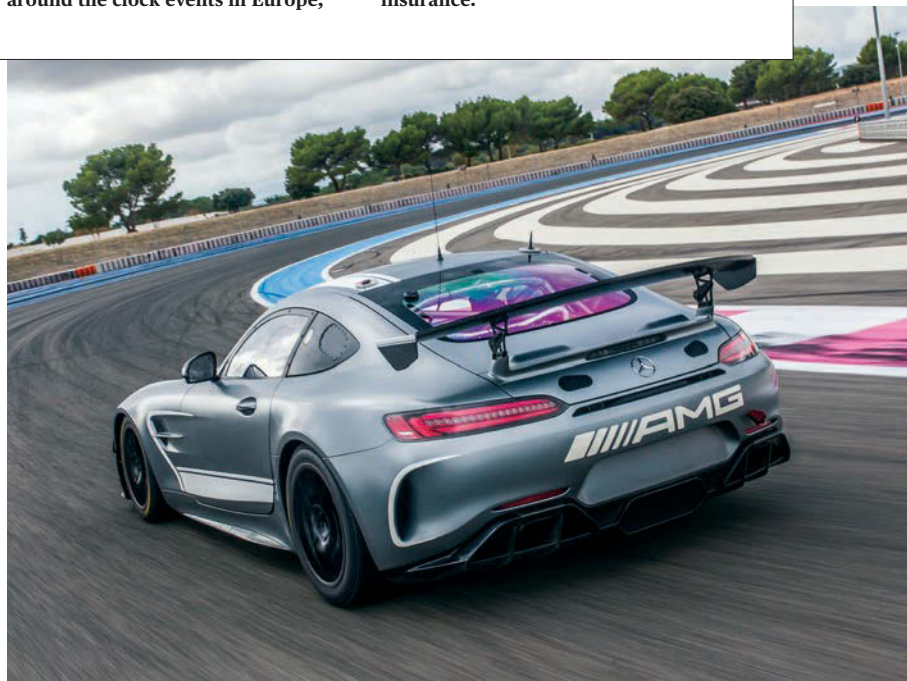
And you can race them literally all over the world, with IMSA in the USA, Blancpain in Asia and in the Australian GT Trophy in, er, Australia. In addition there are both the Northern and Southern European Cup series and, for long-distance lovers, the 24H series hosts twice around the clock events in Europe, the Middle East and America. You can do a season of VLN racing on the old Nürburgring if that takes your fancy, or stay at home and do British GT instead.

As for costs and for those wanting factory-developed cars, about £80,000 buys a Ginetta G55 (which races under a waiver because it has no road-going derivative), costs escalating up to about £175,000 before tax for an AMG GT4. Costs for a season vary immensely. If you ran a limited domestic programme in a car you owned yourself, you could probably have a very good season for £100,000, so long as no one binned it. At the other end of the scale, if you'd like to rent an AMG GT4 for a season of racing in Europe, Mercedes reckons you should set aside about £250,000 for a comprehensive package including insurance.

In GT4 spec it's already done more than 30,000km of testing and should go on and on. Its voice is not so menacingly sharp as the older atmo unit, nor do its revs rise and fall with such hair-trigger response, but it still properly thunders, which is exactly what you, or at least I, want it to do.

A pull on a paddle elicits a very mechanical clonk and, with it, something of a surprise. I thought GT4 cars needed to retain their road transmissions but I am wrong: in place of the double-clutch gearbox used in road AMG coupés, this one has its own lighter, quicker and stronger sequential race transmission made up from an AMG casing housing Hewland internals.

The last bloke who drove it managed to both stall and spin it, so despite the fact that this is meant to be an example of the most







AMG works driver Jäger explains the finer points of GT4 to the taller Frankel

user-friendly kind of sports racer, I'm still anxious about not looking a complete twit in front of Jäger and the team. Usually the best thing in such circumstances is not to attempt to balance the clutch and throttle deftly, because - not knowing how or where the former engages - it's likely to have the opposite effect to that intended. Just give it lots of revs and side step the clutch: it's crude, but it works. The Pirelli slicks have been toasting away in their blankets for a while so spin only momentarily before bowling me down the Paul Ricard pitlane.

It's a highly technical track and my visits have been too infrequent for the intricacies of its layout to be retained by my somewhat porous brain, but it is in also extremely safe so there's nothing more than your pride to lose by pushing on a bit.

SLIGHTLY TO MY DISMAY, I DON'T MUCH like the car at first. It's a surprise because it should be a relatively straightforward thing with which to get to grips. But I feel intimidated by the lack of visibility and steering that is too light, quite aggressive and lacking in feel. What I love is the power: in this specification it has little less than the GT3 car and with lower levels of drag it would undoubtedly draft straight past its big sister on the endless Mistral Straight even when, as today, we're breaking it up with a chicane at half distance.

The first couple of laps are fractured, corner-by-corner affairs but as I slowly learn where to turn, unravel the mysteries of the always complicated lines and learn which kerbs can be taken as part of the track, it starts to flow. And as it does, so the GT4 comes to me.

I still don't much like the letterbox windscreen, but once I'm going fast enough to put proper loadings into the suspension and get the car moving around a little, the rest soon starts to make sense. And there are some real surprises here. First is the downforce, which I'd not expected to be much more than vestigial: in fact it seriously expands the car's performance envelope, never more than through the famed Signes curve at the end of the straight. No, the car doesn't feel chemically bonded to the track in that weird way you find in prototype race cars, but there's no question where that precision is coming from, nor the confidence it inspires. The AMG GT3 is a well-known downforce monster and at its own level its little sister seems cut from the same cloth.

"A GT3 has to be set up for a pro, but that's not how to make it fun"

What I also didn't expect was that once I'd acclimatised I enjoyed driving it every bit as much as a GT3 car. Perhaps more. First, you don't get quite so beaten up, or indeed made so aware of the limitations of your fitness, skill and courage. Second, it responds to more than one driving style - making a GT3 go fast is all about being as hard and late on the brakes as possible and staying there all the way through the turn-in phase, bleeding off brake pressure as downforce levels reduce, before jumping back on the gas as soon as humanly possible. With less grip/aero, the GT4 provides a middle ground, one where the car can be balanced on the throttle in the traditional way enjoyed by old-shed racers like me. Once you've dialled back the traction control there's very little to fear from neutralising its inherent desire to understeer with your right boot.

Most of all, though, I appreciated how much more evenly allocated this unfettered GT4 car's power and grip reserves are over any GT3 I've driven. The truth is that GT3s are as unremarkable in a straight line as they are extraordinary under brakes and through corners, but this GT4 feels well served and equally provided for in all three disciplines.

Prior exposure to other GT4 machines had suggested this formula now represents the absolute sweet spot for people who want to race a car with slicks and wings, but who enjoy the simple business of driving as much as shaving every last tenth off their lap times. A modern GT3 car has to be set up for a professional driver because that's how it will go fastest. But that's not how to make it the most fun to drive. And that's the point: GT4 cars are far slower from one point to the next but if you could measure the breadth of the smile on the drivers' face after a decent stint I think you'd find them far more evenly matched. And if driving pleasure gained per pound spent could ever be quantified, I'd expect you'd find the far more accessible GT4 cars are in a different league. Let's just hope they don't go the way of GT3 cars over the last 10 years, and get to stay that way.

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JY I	85 ABD	BDR I	4 CEJ	DLB I	5 EJA	69 FLH	GMW 3I		I LPW	8 MTP	OP I	I PWP	I RNC	26 SPD	I VJT
FL I	ABF 4	80 BE	99 CF	I4 DLJ	EJE I	8 FMT	GNM I		2 LRD	I00 MU	32I OT	PWW I	55 RNM	II SRJ	VJW I
SJ 2	25 ACJ	I BEF	CFH 93	DLP 95	3 EJN	3 FMW	3 GPA		3 LRG	9 MV	I4 OW	90 PY	RNS 3	I SRK	I8 VL
LHB I	80 ACL	I BFH	4 CFP	DMM I	I EJO	49 FP	9I GPB		3 LRJ	I MVH	I OY	RAO 73	3 RO	SSR 90	I VMC
BRS I	8 ACN	I BFM	CFT 7	I DMP	I EJW	80 FR	I4 GPR		3 LRP	I MVS	94 PAJ	RBC I	6 RPP	STL I	I VMM
I TEB	48 ACR	BG 72	CG 8I7	407 DP	EK I	93 FRM	GPS 55		I LRT	837 MW	8 PCA	RBH I	I RRC	SU 5	I VMP
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KWR I	4I ADF	II BGM	CHG I	3 DPN	EMC I	5 FS	4 GRJ		4 LTH	4 MWJ	PCT 8I	55 RBT	RTD I	TAD I	II VMS
I RGB	I AEA	I BGR	55 CHR	20 DPR	EMD 60	FU 424	GSP 43		54 LV	MWR 26	PDA 3I	RCE I	I RTJ	TCR 2	VMT I
I WCL	AFF 50	5 BJA	I CKM	DRE 24	I EMT	FV I0	50 GU		87 MAK	MZ I	6 PDK	RCG 87	8 RV	3 TDD	9 VN
I MMH	4I AFH	6 BJE	5 CL	I2 DRG	68 EN	60 FY	GY I		MBD 88	I6 NAJ	I0 PDR	7 RDA	2 RWF	4 TDG	VP I
UGL I	AG I	II BJH	333 CO	8 DSA	EP 2	400 GA	90 HAK		9 MBG	NAK 35	PE 8	RDJ 22	RWK I	TDS 6	I VS
VE 7	77 AGA	BJK I	I CPO	DSH 43	EPD I	9 GAD	I HAW		99 MBJ	NAS 29	5 PEJ	I RDK	RWR I	68 TE	78 VV
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48 WH	50 AJY	BME 6	58 CWC	65 DY	EST I	6 GDR	HET I		MEO I6	86 NK	3 PKH	RGD I	I SCD	2 TLF	I WEC
	I ALG	6 BMO	6 CY	E 2	I ET	GEJ 5	HF 586		MES 94	73 NL	5 PKP	3 RGG	I2 SCJ	I TLJ	48 WH
	93 ALW	I BN	D 5	EAG 65	I EV	I GEK	HFB 48		I MFF	2 NLA	I PLC	RGH 75	9 SDA	I TLW	I WHM
	76 APM	222 BO	I2 DAK	9 EAK	I FAC	II GEP	59 HG		MGD 4	8 NLB	2 PLJ	I RGM	SDL 95	TLY I	WJ I49
	ARF I	650 BP	I0 DBA	I EAS	6 FAD	99 GEW	38 HGB		I MGE	I NLT	I0 PLM	3 RGP	I SDO	80 TN	WJA 8I
	I6 ARJ	II BPM	4 DBD	EAW I	FAH I	3 GFP	I HJA		MHF 7I	I NLW	5 PLR	I RGT	99 SDR	TP I	WJB 8
	ARW I	I8 BPP	I7 DBF	EBB 32	3 FCB	GGM I0	I HJL		I MHK	89 NMD	5 PMO	RHF I	SDS 80	I TPS	WJL I3
	93 ASC	6 BPR	II DBG	98 EC	FCH 8	5 GHC	I HJN		I MJK	I NMR	I5 PMR	I RHP	7 SE	TRD 80	WJP I
	78 ATB	BPS I	DBH I	I ECA	6 FCM	5 GHD	I HJT		I MKF	9 NPM	PMT I	300 RJ	I SEK	8 TRP	I WJT
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	25 AU	6 BRJ	I DCR	I ECL	64 FD	54 GHR	HLB I		MLF I	NR I	I0 PNM	I RKR	4 SGJ	UGL I	WPS 4
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	BC 6	I CCF	3 DHD	5 EEP	I FJT	GM 6	63 JAE		88 MPO	NTC I	40 PTC	6 RMJ	I SLN	34 VJ	YS 34
	5 BCP	5 CDD	7 DHJ	II EFH	7I FJW	I GMK	I JBG		I6 MRJ	NU I	PTD I	20 RML	78 SLR	2 VJA	II YW
	I BDD	66 CDF	I68 DK	9 EFW	FL I	GMM I	52 JBM		MTJ I	I OAA	PTS 88	70 RMS	I SNH	I VJD	YZ I



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6I JCM	JPS 23	KEC I	KSS 68	LGS I					
9II JD	9 JRJ	KEJ 76	I KTS	I LGW					
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84 JEC	8I JRR	KGM 9	4 KV	II LHG					
JFA 97	53 JTD	I KHC	KWR I	LHH II					
JFF 4	JTP 46	94 KJ	KY I	I LHM					
8 JFJ	JTR 59	I KJF	96 LAJ	LHP I					
I JFO	I JTT	KJG I	90 LAS	85 LJC					
JGJ I	60 JU	I KJN	LBS I0	33 LJD					
JGM I9	I JVL	I KLD	I LBW	LJG 2I					
I JHR	I JVS	4 KLE	6 LC	8 LJJ					
8 JJT	I JWA	I KLP	4 LCE	LJL 34					
JKW I	JY I	KML 65	8 LCJ	I LJR					
83 JLM	KAA 97	I KMO	5 LCR	82 LK					
JM 49	82 KAD	67 KMT	3 LDF	7 LKP					
5 JMO	KB I	I KMW	LDL 7	I LKR					
JN 4	KBB I	5 KNM	6 LDW	I LLC					
8 JND	I KBC	KNS I	94 LE	I LLG					
I JNH	6 KCD	KP I	2 LEF	I LMG					
35 JNW	I KCW	9 KRL	77 LEL	2 LMO					
25 JPD	5 KDA	59 KRM	I LGG	LO I					
82 JPF	I KDB	KRW I	LGM 4	LPP I2					

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TOT 77IE	A824 HAM	BAT II4M	82I LL	CHII RMS	DEII YTH	FAW 637T	G236 ORY	H7I AND	LEN 2	MCC 60Y	N3I MES	PEE 3K	ROM 4IIN	SPE II6E	STII DOR
GI2 AVE	ABR 44M	B4 TON	B2I5 TOL	CLA 42K	D3 NBY	F34 STS	GRII EFF	HYS 5IOP	LEII SES	MCC 24E	N397 UNE	PEE 3L	ROS 4A	SPR 477T	TUR I3Y
PAM 5	ABR 24R	BEA 6IIE	820 CK	CII4 UDE	D3II HAM	F3I LOW	G2I3 VES	J43 GER	LON 3R	M63 WAN	NEW 902T	PEN I5	ROS 4IIE	SPR IIIG	TUI2 VEY
HAR 7E	ACK 207D	B34 KER	B206 DEN	CI47 DEN	DEII YER	F3II DER	GI20 VES	JAG 63R	LOP 3S	M66I NTY	NI ALL	PEN 205E	ROS 720N	STA IE	TYN 3E
CI2I CKY	AAD 3L	BEA 7A	BRII KER	CI34 NER	DER 23K	FER I2IE	GRU II0Y	JAL I4L	LOR 3IIA	MC6I ONE	NI88 LER	PER 6H	ROT 73N	S74 MPS	T72 ONE
FOR 63T	AGA 2R	BEA 73N	BRO II2E	CLII NCH	DES I2E	FI3I DEN	GII ARD	JAII OPY	LOR 377A	MCK I3E	NI3I SEN	P322 OTT	ROT 73R	S74 PLE	UUN I7E
VEG 6E	AGA 7A	BEA 73R	820 OKS	CL07 HES	DI3 SKS	FFII TCH	GUN 73R	JAN IIIA	LOII GHS	MCL 823N	NOO I3E	PHO 3I3E	ROW 33R	S74 I2E	URE 3N
SMA II3Y	AGE 3R	BEA 777S	82 OOM	CII0 UGH	DIII VYA	BFL 333	GUT 73R	JER 53Y	LOU I56E	MCN 4IIR	NOO I2R	PII6 KUP	RUD 66E	S7I LTS	USH 32R
LUV IIE	ALE 66C	BEE 2R	B2 USH	CIII NGE	DON 394N	FLI6 KER	OGW 3N	FJE 57	LOII THY	M34 NEY	NOR 44A	PIII UME	RUII DLE	S77 ORK	V44 GUE
W4I DEN	AIII EXA	B36 LEY	BUN I30Y	COA 555T	DOR 4A	FLO 47S	H46 GER	JES 73R	LOV 3IL	MED 4L	NOR IIA	POC 606K	RUS 550N	STR 4IIG	VAL IIIE
WOR 5I3Y	ALII SOP	BEH 4N	BUR 23IL	COA 7S	DOI2 CAS	FLO 77D	H4I RCO	JEY 3S	DIO VER	MED 4IS	NUS 24T	POII DER	SAB 444H	STR 44Y	VAR 6A
80 DDY	ALT 74F	B3II BOW	BUS 5E	COL I42D	DOI2 OTA	FOW II3R	HAL 3S	J063 LYN	LOV I3S	MEG II4N	NUT 73R	POII AND	SAG 5IE	S72 OUD	VAS IIE
WIII COX	AMB 205E	BEN 6H	BUS 7Y	COL I5ON	DOR 53T	FRO 23N	H44 LEY	JUN 6G	LUC 6IE	SME IL	I NYE	POO IS	SAII RAS	STI2 UTT	VEG I5
VI3 NUS	I AMY	BEN II7A	BUT 77IE	COII TER	DOY IIIE	FUR 83R	HAL IIIL	KAL I33M	LUM 503N	MEN 200M	OHA 22A	POR 2I7T	SAL 6H	S777 UMP	VEG 5
BI ANE	ANH 4R	BEN IIIE	BUX 770N	COII BOY	DRU 6E	GAB 80R	HAL IIIA	K4I5 OOM	LUII ACY	MEII DES	OLD 3R	POS 3Y	SAM 5	SUE 4	VEII OUR
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COO 7E	ANN I84L	B3II TON	BYW 473R	6 ORK	DUM 80S	GAM 8I3S	HAII COX	KAY II3Y	LYII NNE	MER 2IIL	OLW 6N	P24 SAD	S4II KEY	TAII ORX	VEI2 ONA
COP I3Y	AII5 ELL	3 ETS	CAB IIIE	COR I37T	DII2 HAM	94 NT	HAN 63R	KEE 93R	L7II SAY	M333 RRY	ONI2 ONS	PRA 7I3Y	SAN 550M	TAN IIK	VES 7A
DAN 5	AII5 LOW	BET 55Y	CAB IIE	COR 23IA	EAD 3E	GAR 237H	HAI2 BER	KEI5 ALL	M49 KAY	MER 77L	ORA II6E	P2II NCE	SAII CES	T45 TER	VII0 LET
FRY IIP	4II TON	BHA 7I4A	CAI2 NSY	COT 73R	EAG 6I3S	G422 ATT	H428 OUR	K357 REL	M46 KEY	ME5I BOB	ORG 4N	PRII ZES	S4 ULS	747 LER	VIO YGR
MUR 70N	AII7 ONY	8I4 NCA	CAR 355S	COU 5IIN	EAR 2P	G42 VEY	H420 WRK	KII4 TUN	MAC I34N	M355 AGE	ORG 45M	P205 SER	SCII RER	T3I FER	W4 CKO
	AP55 LEY	BLA IIK	CAR I35S	COW 42D	EDII UND	GAT 7E	H4I2 KER	KII2 KUP	M46 RAE	MES 53R	ORG I85	PRY 6E	S34 GER	T324 NCE	WAII LET
	A26 ENT	8I END	CAR II3Y	COW 3IL	LEK 72IC	206 AWK	HAS 54IL	KII2 WAN	MAD 3I3Y	ME5I PUP	OSI3 ORN	PUB 80Y	5 ECT	TER 335A	WAL 90IE
	42I ANA	BLU IIE	C420 LAN	COW II3Y	ELII ZAZ	GEN 72Y	HAS 7E	KI76 HEN	M466 OTS	MON 44A	P4 CEY	PUG 5I3Y	SEW 42D	TEX 7	WAII DER
	ARI3 NES	BOG I0	CAI2 ROL	CI2 AGG	ELS 44A	GER I2Y	H47 DON	KII7 SON	MAH 6R	MOII DAY	PAD I3Y	PUT 7Y	SEY 3D	THA 76H	W4I2 NER
	A25 LAN	BOG 42T	C4I2 TON	CRE 3W	EIII WYN	GII LEN	HEA I6Y	KI7I BBS	MAJ 357Y	MOO 53Y	P444 GAN	PYK 3S	SHA 29E	THE 235E	WAS 5S
	ASC 607T	BOL 63R	C4I2 VER	C2I LLY	ESS 6X	GII HAM	HEA II3Y	KNO 6K	MAL I42D	MOR 3I2A	PAL 46E	RAB 8IE	SHE II4A	TIII CKY	W444 TCH
	ASH II6Y	BON 35Y	C474 LAN	CI20 OKS	EUS 746E	6I NN	H34 RSE	KNO 77T	MAM IIA	MOR 2I5H	PI4I MER	RAF 4L	SHE IIC	THO 2I3Y	W33 MAD
	AUI6 UST	BOII NAR	C47 HAL	CI20 WNE	EVE 270N	GI AND	HEA 27S	KUR 77IS	M4II SON	MOI2 ROW	PAM 5	R47 HOD	SHO 273N	THII MBS	W38 LTH
	AVE 2Y	BOII ZOS	CAT 72IN	CRY 57L	EWA 2T	GOA IS	H347 HER	KYT 7E	M4II TON	MOT 724M	PAII TRY	R477 RAY	SHO 273R	THU 2I0W	WEL II3R
	BAII LDY	B00 606K	C477 ELL	CUI5 HAW	EXE 73R	60I DEN	HEA 7I3Y	LAM 8E	MAR I33E	MOU IIID	P42 ESH	REI4 DER	SHU 7T	TI32 NAN	W357 ALL
	BAII TWO	BOR 220W	CAT 7IE	CUS 742D	EYE 84IL	GIO LDS	HEII LEY	LAM 832T	M42I AND	MOII LDS	PAR 22IS	REG IIIA	SI3 RRA	TIII KKA	W357 LEY
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	I3 ARD	BRA IR	CHA 77IN	DAII BER	FAN 6G	GOW 32S	HOR II8Y	LAV 32Y	MAS 7IF	MUL I3TT	PAT 2I6E	RHO I7A	SNII TCH	7 OUT	WHY 820W
	BAR 22IE	BRA 2I3R	CHII EER	D42 LEY	F4 RGO	G2I4 EME	HOW IL	LAV IIIN	MAII LDA	MUII ROE	PAT 73N	RI6 DLE	5 NUF	70 VEY	WOII BLE
	BAR 7I3Y	BRI3 EZE	CHE 3N	D422 OCH	FAR I4A	G247 TON	HII6 KLE	LAW 2IE	MAX 73D	MUR 70N	P47 YNE	ROA 55T	SON IIG	TOW 33L	WI00 RTH
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	BAS 2A	B23 WER	CHE 322Y	DAT 7A	F457 DOG	FA5I TVR	HUI8 ERT	LAY 3R	MCB 4IIN	MYII ARD	PEA 2S	ROC 6K	SOU 7H	T247 NOR	WOI2 TON
	BAS 570W	BRI4 ANS	CHI3 FFF	D3 BUT	F47 GUY	FGR 33D	HUM 83R	L3I4 NNE	MCC 4I3E	NAD IIIE	P342 SON	I20 GER	SOW 328Y	T234 NOR	YOU II6S
	84 TES	BI2I DES	CHO IIG	DEE 3I3Y			HUN 63R	L34 SED	MCC II0Y	NAG 6Y	PEA I2T	20 HAN	SPE 42S	TI2 OLL	YUL 3E









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4-5 AUG	ROUND 5	PRESCOTT SPEED HILL CLIMB
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8 SEPT	ROUND 7	LOTON PARK HILL CLIMB
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ROAD TESTS

THIS MONTH *MERCEDES-BENZ MARCO POLO • JAGUAR E-PACE • BMW M4 CS*

Motel with the mostest

Mobile home provides perfect accommodation – even at a blustery Welsh race circuit

Regulars will already have read on these pages of the adventures enjoyed by editor Nick Trott and me taking part in the annual Race of Remembrance at the Anglesey Circuit in November. I won't repeat the details, but what seemed at first like an excellent opportunity for some late-season racing in a good cause turned into one of the most memorable weekends of our lives. For those who missed the report, all I'll say is that there were many heroes over those few days - men and women who'd given more than they had to give in the service of their country, and to race with them was one of the greatest privileges of my life.





Beds both upstairs and down are surprisingly comfortable, making a perfect race base







Life on the road

One Marco Polo had a very hard time in 2017. Blame Motor Sport...

A number of air-cooled fans may disagree with this, but the ubiquitous early VW camper van does a disservice to the genre. Indeed, if you have ever had the misfortune to drive one regularly – as I have – you find yourself battling poor performance, heavy controls, terrible reliability and catastrophic rust. Sure, the front of a VW camper – especially the split-screen – resembles a smiley face, but look beyond cheery anthropomorphism and VW campers are a bit, well, rubbish.

For seven months *Motor Sport* had use of a Mercedes-Benz Marco Polo – a vehicle that completely rewrites the camper van rules. We slept in it, transported people across Europe in it, towed race cars with it and generally gave it a very hard time – which it took in its stride.

It attracted attention, too. From race paddocks to petrol stations, people were wowed by the idea of a Mercedes camper – and we were happy to report that the reality matches the idea. It's quick enough to cruise at 90mph (in Germany, of course), warm and quiet enough to sleep at a chilly Oulton Park and ours had all the mod-cons – heated seats, sat-nav and leather. Plus, being a camper, a built-in awning, a shower attachment, a sink, cooker, fridge and neatly stowed camping chairs.

It was a remarkable vehicle, and the more we used it the more we loved it. And here's the killer – unlike a motorhome it's compact enough to use every day.

We will miss it. *Nick Trott*





So while writing this, I'd been toying with various ways of segueing from them to the Mercedes-Benz Marco Polo that took me to Anglesey. And I'd be lying if I said the sentence "But it is the hero I parked in the paddock that I want to talk about this week" had not occurred to me. But then I thought that would be to compare the actions of soldiers blown up by IEDs in Afghanistan to those of a camper van and felt slightly sick. So I'll just accept the gulf is too big for even the most excruciating analogy to bridge and leave it at that.

The Marco Polo is not any kind of hero, but it is simply phenomenal at the job it is designed to do, and for those of you who regularly spend weekends camped out at race meetings, there may be some important stuff here.

It is not in any way ground-breaking. The traditional *arme de choix* for such events has always been the Volkswagen California which, like the Marco Polo, is based on an MPV/van platform (the Caravelle in the case of the VW, the V-Class for the Marco Polo). Both have sinks and gas hobs, plenty of storage space, water tanks and sleeping space for four, two downstairs and two on the reinforced base of the extendable roof.

However, in three distinct ways the Marco Polo proved itself to be a remarkable weapon for this very particular job. First and I guess most importantly, it's the most comfortable conveyance in which I've ever slept, and that includes every train, bus, boat and plane on which I've travelled. Inside the roof is a single-piece mattress resting on what I believe is called a Froli sprung base. Basically, instead of slats you get individual little springs – think of the difference between fully independent coil-sprung suspension and transverse leaf-sprung live axle and you'll get the idea – and as a result the only reason I was not as comfortable as I am at home is that some sod had nicked the blackout blinds for the windscreen downstairs. It even has two dimmable reading lights. At home I don't even have one.

Second, it just doesn't look or feel like a van, let alone one converted into living quarters. The quality of fit and finish are those of any other Mercedes-Benz and it comes with the full suite of safety systems, infotainment options and as many gadgets as your wallet will allow. I drove it up to Anglesey on the motorway network and back straight through the middle of Wales and whether I was enjoying radar-monitored active cruise control or watching it fling itself down the lanes with unlikely elan, it was never less than an entirely pleasant experience.

The final point is one of perception which may or may not over time prove correct, but the way the whole rig operated conveyed an extraordinary sense of strength and resolutely rattle-free solidity. I'd be disappointed if, 10 years and 100,000 miles down the road, it didn't seem just the same.

Is there a price – apart from the fact that it only carries four people (a fifth seat is an option) – to pay for all this? You bet, and it starts at just over £53,000 for the lower-powered version with the lesser of two available equipment levels. Add a few extras like an auxiliary heater and an awning and you'll be staring down the barrel of a £60,000 bill very quickly. A base-spec VW California – albeit with a far less powerful engine and a manual gearbox – starts below £40,000.

But I still think the Marco Polo makes sense if you're in it for the long term. If you're a regular race competitor, or just like cruising around Europe, going wherever the road takes you, it is a near-perfect partner.

I have a brother who, when explaining his priorities in life, once held that you can't drive a house but you can live in a car. He was, of course, talking rubbish, or at least I always thought so. But then I drove the Marco Polo and had to think again. I don't know whether it better represents driving a house or living in a car; what I do know is that it's damn good at both.

FACTFILE

Mercedes-Benz Marco Polo V250D AMG Line

Price **£58,875** ***Engine*** **2.1 litres, 4 cylinders, turbocharged** ***Power*** **187bhp@3800rpm** ***Torque*** **324lb ft@1400rpm** ***Weight*** **2440kg** ***Power to weight*** **77bhp per tonne** ***Transmission*** **seven-speed automatic, rear-wheel drive** ***0-60mph*** **9.8sec** ***Top speed*** **124mph** ***Economy*** **45.6mpg** ***CO_2*** **169g/km**



Light touchpaper and re-tyre

A potentially good car wrong-footed by rubber choice







One thing I enjoy about BMW's current range of M cars is that you never quite know what you're going to get. It makes life less easy to predict. Who'd have thought, for instance, that the highly specialised and expensive M4 GTS would be perhaps the worst M car I'd driven, or that the simple, no-frills M2 would turn out to be one of the best?

So it was anything but obvious to me what kind of car this new M4 CS would be. Would I love it, or hate it? In yet another surprising turn of events, the answer turned out to be both.

The CS sits in the gap between the standard M4 (which costs around £60,000) and the aforementioned and underwhelming GTS (which costs a staggering £120,000). It might be significantly less money than the GTS but don't bother trying to justify the near £90,000 list price in terms of kit added over the standard M4, because you'll get nowhere near.

It has an additional 30bhp, bespoke springs, dampers, bars, wheels and tyres and reprogrammed steering. It now has a carbon-fibre roof, splitter, rear spoiler and diffuser and a carbon-fibre reinforced plastic bonnet. With some interior trim removed it's 32kg lighter than a standard M4.

It's not as if it's even that quick: forgive me for wheeling out the now ubiquitous term of reference that is the Nürburgring lap time, but I find it instructive that its 7min 38sec is just six seconds quicker than that recorded by a Honda Civic Type R, despite the BMW having half as much power again and costing the thick end of three times as much. It will accelerate to 62mph in 3.9sec (against 4.2sec for a standard M4) and has a top speed of 174mph.

I first drove it on a track or, more accurately, a streaming wet and very bumpy track, and it was horrid.

True, its Michelin Cup 2 tyres are not suited to such conditions but I've driven plenty of others on the same tyres on equally awful surfaces and not felt an overwhelming desire to park up and go and find something less treacherous to do instead.

It wanted to oversteer everywhere, including in a straight line.

Yet when I drove out of the circuit gates, turned right and hoofed it up the road, it was like a different machine. Here I found a car that scared me not at all, but instead enchanted me with its incisive steering, excellent ride quality and linear power delivery.

It felt special in a way a standard M4 never has, providing a driving experience that was memorable for as many of the right reasons that on the track had been wrong.

And at once it occurred to be that if you had a set of normal Michelin tyres (which can be specified), then there might be a quite a special car here, and certainly the best M4 created to date.

If you're the sort of person who'd like something like a Porsche 911 Carrera S but needs rear seats worthy of the name, it's certainly worth a closer look.

FACTFILE

BMW M4 CS

Price **£89,130** ***Engine*** **3.0 litres, 6 cylinders, turbocharged** ***Power*** **454bhp@7000rpm** ***Torque*** **442lb ft@1850rpm** ***Weight*** **1580kg** ***Power to weight*** **287bhp per tonne** ***Transmission*** **eight-speed automatic, rear-wheel drive** ***0-62mph*** **3.9sec** ***Top speed*** **174mph** ***Economy*** **34mpg** ***CO_2*** **197g/km**



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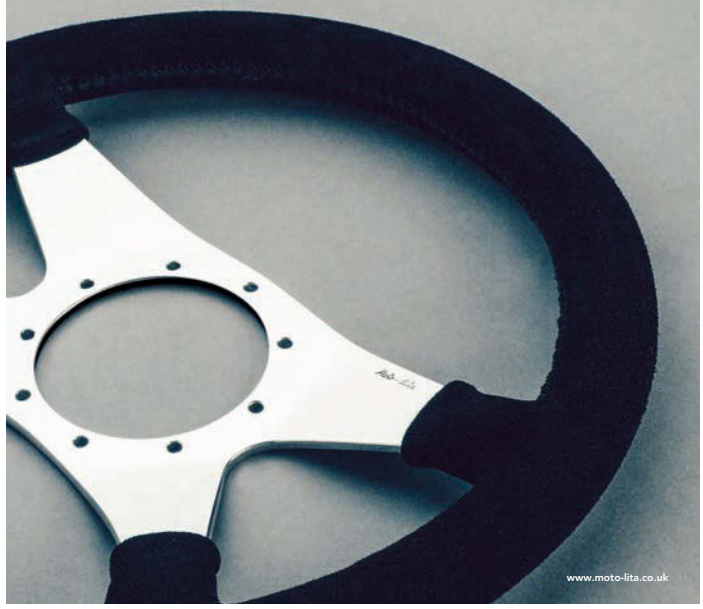
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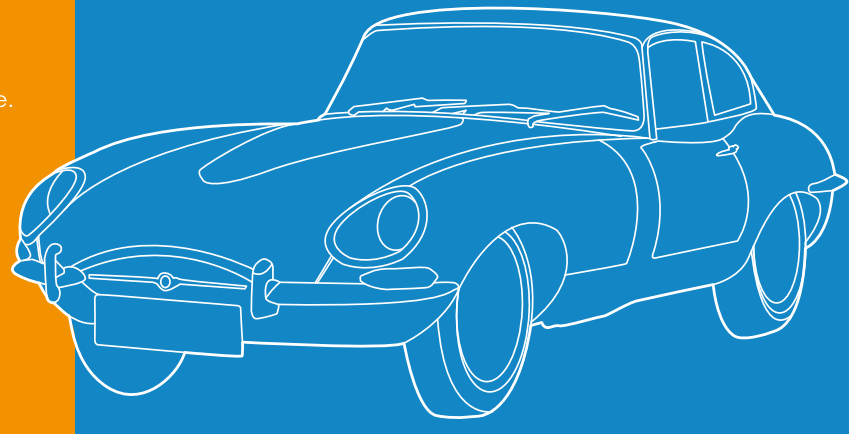
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Small but imperfectly formed

Shedding size but not weight, the E-Pace trails its sibling







As we know, appearances can be deceptive and, in the case of the Jaguar E-Pace, my strong sense is that Jaguar would be delighted if you thought it essentially a Mrs Pepperpot specification version of its strong-selling and quite excellent F-Pace SUV. It stands to reason: it looks like an abbreviated F-Pace, its name differs by just one letter, and if you look at the 'E' and 'F' badges worn by the XE and XF saloons, they do indeed denote little and large versions of essentially the same car. With the E-Pace and F-Pace, however, this is emphatically not the case.

While the F-Pace sits on a very new, state-of-the-art all-aluminium platform derived from that used by the XE, XF and, indeed, the Range Rover Velar, the E-Pace is of humbler stock altogether.

Its closest relative is the Land Rover Discovery Sport, itself is a development of the old Land Rover Freelander that was originally spun off a Ford global architecture platform whose co-users included the previous-generation Mondeo.

Now I'm not saying for a moment that today's E-Pace is yesterday's Mondeo in disguise for it is nothing of the sort. But that's its lineage and, frankly, it shows.

You can see it on paper just from the fact that, car for car, the E-Pace is more than 100kg heavier than the F-Pace despite being smaller in every significant dimension. This means that, engine for engine, it's also slower, more thirsty and produces more CO_2 than its bigger brother. Which sounds slightly crazy.

You can feel it on the road, too. Even with almost 300bhp the flagship model, the E-Pace never feels as rapid as its power output and dimensions suggest it should be. Unless you really wind it up, at which point its 2-litre 'Ingenium' engine becomes quite noisy. Overall, therefore, it is hard to avoid the conclusiion that its performance is barely adequate relative to what you might expect from a Jaguar that costs almost £50,000.

And you should be able to expect a Jaguar - any Jaguar - to handle superbly because that's the one factor common to every one of every size and shape on sale, F-Pace included. Not any more. The E-Pace handles better than the average of the frankly lame standards of the under-achieving class in which it sits, but while it's both secure and accurate, I would in no way call it fun.

Sad to say, the best way to enjoy this car is not to try to drive it fast, so rendering that 296bhp engine pointless. With a 177bhp diesel from a mid-range model doing the pulling, not only does the price drop by many thousands, but the incentive to drive fast is removed because it's simply not possible.

In this form the E-Pace is a much less frustrating place to pass the time. It's quiet, rides well and its cabin design is quite excellent. And, of course, your fuel bills will be slashed.

Even so, while the F-Pace far exceeded my expectations, the E-Pace fell short by a similar margin. For a car intended to be Jaguar's top-selling model, that has to be a worry.

FACTFILE

Jaguar E-Pace 2.0 HSE

Price **£48,410** ***Engine*** **2.0 litres, 4 cylinders, turbocharged** ***Power*** **296bhp@5500rpm** ***Torque*** **295lb ft@1500rpm** ***Weight*** **1984kg** ***Power to weight*** **156bhp per tonne** ***Transmission*** **eight-speed automatic, four-wheel drive** ***0-62mph*** **6.4sec** ***Top speed*** **151mph** ***Economy*** **35.3mpg** ***CO_2*** **181g/km**

GTC



1972 FERRARI 365 GTS/4-A DAYTONA SPYDER #15535

One of the 17 European version, LHD.
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SPEEDSHOP

***THIS MONTH** One of the most elegant of all Ferraris • Which Mercedes SL offers the best value? • The lure of a Parisian winter (Rétromobile is looming fast) • Auction trends and tips*



TOP STORY

1965 Ferrari 275 GTS

An underrated classic from Maranello

As a new generation of buyers progresses from modern supercars and eyes the attractions – physical and fiscal – of '50s and '60s Ferraris, the hunt goes on for those one might still consider affordable. All things are relative, of course, given that the 275 GTS you see here is £1.75m. Consider how much its 250 California predecessor sells for, however, and this looks a comparative bargain.

It's also a much more modern and sophisticated car than the California, the GTS carrying over much of the innovation introduced on the 275 GTB when it replaced the 250 Lusso in 1964. This included fully independent suspension by double wishbones all round, a technological leap from the traditional live axle of the 250. The 275 GTB also introduced a five-speed gearbox as standard, transaxle-mounted and connected to the 3.3-litre Colombo V12 by a rigid torque tube. Disc brakes replaced drums on all four wheels too.

Ferrari adopted a more relaxed character for the open-top GTS version seen here, keeping the fundamental mechanical layout but dropping the torque tube and retuning the engine to 256bhp, 20bhp down on the Berlinetta. Still respectable enough, mind, and the Spyder remains a true 150mph car.

The styling was also more mellow, the 275 GTS clearly inspired by the California but dropping the '50s fins for a smoother boat-tailed look and bridging the gap between the 250 era and that of the more modern-looking 330 and 365. Early examples

featured a widened passenger seat supposedly capable of carrying two people while a styling update in 1965 added a 330-inspired nose and replaced the 11-louvre side vents with the triple set-up seen here. Where GTBs often wore alloy wheels, more traditional Borrani wires were fitted to Spyders. By any standard it's a stunning-looking car with a perfectly judged balance of elegance and aggression, the refined proportions offset against clearly racy features like the wing vents and paired exhausts beneath the rear bumper. This was an age when only true exotica could boast such an arrangement, a distinction now corrupted to the point where even fast Golfs feature quad exhausts.

(1) 275 GTS had full restoration in the '90s, plus mechanical overhaul in 2008
(2) 3.3 V12 is in slightly milder state of tune than that in GTB
(3) Car has covered only 2500 miles during the past 10 years or so

This particular car is for sale with Tom Hartley Jr and is noteworthy for being one of just 19 right-hand-drive versions built out of a total production run of 200 cars. That's nearly double the number of Californias, perhaps contributing to the difference in value. Ferris Bueller can't be blamed for everything, after all.

"The car is not regarded as attractive as a California," Hartley Jr says, "nor are they as rare - hence the huge difference in value. However, they are some seven years newer and further developed, and benefiting from the five-speed gearbox and disc brakes really does increase the pleasure and ease to drive.



1


2


3

To tour there really is no better convertible Ferrari. The 330 is equally as desirable, if not even more so but people don't really like the 365 as much. It's not as pretty as the 330 without the side vents and not as aggressive or pure as the 275."

The blue over red leather combination is a classy feature on this car, Ferrari Classiche certification backing up its matching-numbers provenance and originality. Fully restored in the 1990s and with a major mechanical overhaul in 2008, it has covered just 2500 miles since. It would be a crime for the new owner not to use it just a little more than that.

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Forget the housing ladder, young engineers now need help to get them on the classic car ladder.

The value of many historic vehicles has risen so fast and so high that many younger enthusiasts simply can't afford to buy one to work on. The situation has become so worrying that a new charity has been launched to help source and pay for donor vehicles that it will lend to young restorers.

StarterMotor is dedicated to "enhancing the education experience of students in the maintenance and use of historic vehicles," by giving them first-hand experience of cars from its own fleet to work on and drive.



Plugging the skills gap

Charity aims to attract young people to the classic car world

The charity says it wants owners of classic cars which need some work to get in touch with a view to offering them to students to hone their skills on.

The aim is to address a skills gap and attract younger people to the classic car world. Research by the Federation of British Historic Vehicle Clubs identified that half of the 28,000 employees who worked in the vehicle renovation industry in 2011 were aged 45 or older. There are now 34,900, with an average age of 42. Businesses are expected to need 150 apprentices a year for the next five years in order to protect the future of an industry that is worth an estimated £5.5bn a year

Adrian Shooter, chairman of StarterMotor, said: "I was lucky enough to be able to persuade my father to buy me an old Morris 8 engine to tinker with when I was 11. That got me started on a lifetime of restoring old cars, which is why I am so enthusiastic about giving young people the same chance."

StarterMotor is based at Bicester Heritage, where it will team up with the Banbury and Bicester College's Historic Vehicle Restoration Apprenticeship Scheme for students.

DEALING



FOCUSED FIRMLY ON FERRARI

The ex-photographer who became a prestige car dealer

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Now in its 30th year, Talacrest was founded by former photojournalist John Collins. He made his name (and fortune) in the '70s, flitting between celebrity photoshoots and warzones. The money was good and in 1976 he was able to buy his first Ferrari, a 246 Dino. In the '80s, however, a stock market crash forced him to sell a Testarossa – and the dealer's subsequent mark-up inspired him to hang up his cameras and turn his love of Ferraris into a business.

At this level stock is more about quality than quantity, listings at the time of writing comprising a couple of early Inter Coupés, a 250 California Spyder and an ex-Chris Evans 250 Lusso.

"I love the cars," Collins says, "and it's much better for people to be buying something because they love it too, not just because it's an investment." He admits the business has got tougher, not least because the deal-making that once went on behind closed doors is now in the public domain. "It's like you've got a bug in your office now," he says, referring to the online scrutiny of classic Ferrari values. The distorting impact of high-profile auction sales also presents a challenge. In this febrile environment, Talacrest's expertise remains a significant benefit.

And Collins's favourite Ferrari? "I love the California Spyder," he says. "They're just one of the most beautiful cars ever."

www.talacrest.com



'49 166 Inter Coupé
£1,200,000
Desirable enough in its own right, the fact this Inter is among the very first run of cars built by Ferrari only adds to its allure



'59 250 California Spyder
£8,500,000
A favourite of Talacrest founder John Collins, this LWB Spyder is among the most prized (and valuable) classic Ferraris



'64 250 Lusso
£1,300,000
Once part of Chris Evans's collection of white Ferraris, this 250 Lusso's celebrity status reflects Talacrest's connections

California dreaming

Bruce Canepa and the love of making classic cars you can enjoy every day



For all the gleaming facilities, incredible array of road and race cars and the 70 people employed to prepare, restore and sell them, the overriding passion apparent from chatting to Bruce Canepa is his love of driving. Fast cars are his life, and the examples he sells are among the very best of their kind.

Canepa, his eponymous sports and race car restoration company, based in Scotts Valley, California, is a veritable Aladdin's cave for anyone interested in motor sport or classic cars. Not only is it brimming with the world's finest cars alongside the on-premise restoration facility, but there is also a vibrant motor sport museum, a workshop dedicated to the support of historic race cars, and an innovative custom vehicle design house.

As such it's a relief to hear that Bruce is fixated on the enjoyment of cars as driving machines, rather than purely as investment assets or status symbols. Little wonder given his background: his father ran a car dealership and Bruce took a keen interest in motor sport from a young age, eventually driving everything from Porsche 935s around Daytona to big rigs up Pikes Peak. Combining these influences, his business is about taking the very best cars in the market and preparing them so owners can appreciate them properly.

"I'm with Jay Leno on this one," he says of his approach. "Guys worry about taking restored cars and using them and I say, 'Look, start out with it perfect. If it's done properly it's like owning a new car - drive it as much as you want, go where you want and enjoy it. You can always restore it again!' "

Getting the right cars and preparing them to this level is, of course, where the hard work comes in. "People say 'you're an overnight sensation' but I've been doing it for 40 years and that's a lot of overnights!" he jokes. "I'm a control freak and if you want to maintain timelines, quality and costs you have to do it yourself. I'm a detail-oriented person and, while I don't micro-manage, you need to stay on top of detail. That's the difference between the best and less."

As such Canepa's workshops can handle anything from machining to carbon fibre prep and paintwork. And while trusted specialists like Jack Roush pick up certain jobs like Ford V8 rebuilds, as much of the work as possible is kept in-house - whether it's rebuilding a Colombo Ferrari V12 or preparing a Porsche 917 engine for historic racing.

Keeping to a strict restoration timetable is one important discipline Bruce enforces, no job taking longer than 24 months. "We had an alloy-bodied Ferrari 275 that was a mess," says Bruce. "By the time we were done that car had 4300 hours of work logged on it but we had it finished in 11 months. You can only do that if you've got complete control over the process."

Porsches remain Canepa's personal passion, his time racing the 935 sealing it as one of his all-time favourite cars. From road-going classic 911s to Group C 962s and his own in-house programme for upgrading 959s he's especially proud of this expertise, but the same rigour is applied to all projects. It could be improving the cooling on an original Cobra to make it more usable in modern traffic or a full 'outlaw' 300SL conversion but the goal is the same - make them drive properly and encourage the owners to enjoy them as much as possible.



SPEAKING TO BRUCE CANEPA

The company founder on how he brought the Porsche 959 to the US market

We've had more than 60 Porsche 959s go through our shop now. It kind of started in 1987 with me trying to figure out how to get them legal to drive here in the US [the cars did not meet US government regulations, including emissions limits]. We were looking at losing 100hp to make them compliant with emissions limits which led us onto a development programme to make 550hp emissions legal. We made a Gen 2 with 650hp and now we're at 800hp! We're now working on ground-up restorations and have done five or six cars - the reason they're popular is you can make them as fast as any modern supercar but they are just so usable too - you can drive them all day long.

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Paris in the winter

Forget all those galleries and gardens; it's the Rétromobile show that draws our crowd


LAT

The French capital is the only place to be in February, both for the unmatched Rétromobile gathering (February 7-11) and the auctions that cluster around it, beginning with RM Sotheby's on February 7.

Once upon a time a Grand Prix Bugatti, any Grand Prix Bugatti, was the pinnacle of desire, but here we have a Type 35 estimate at about one million euros... and being outstripped by a BMW 507 that's expected to make half a million more - a shift from race history to usability, boosted of course by the German car's beautiful lines and fine V8 power.

Even rarer is seeing a Maserati MC12 for sale. Only 50 were built so it's scarcer than a McLaren F1. Fully road-legal, this example of the Ferrari Enzo-based device has racked up only 12,000 kilometres in everyday traffic. Estimate: €2-2.4m.

The following day, under the soaring iron ribs of the Grand Palais, Bonhams too has a Bugatti, this time seething with race history. It's the Type 57 (below) that Earl Howe drove to third place in the 1935 TT, equipped with duralumin body and a reported 148bhp. It's also the car *Motor Sport* tested that year; we called it "eminently suited for fast touring" and it might make up to €1.3m.

Less suited to touring (even though there was a Stradale version) is a Lancia Delta S4 (est: €580-780,000). Though technological marvels, these rally rockets helped to extinguish Group B. Simpler and less controversial, Fiat's dinky X1/9 sprouted a Gp4 rally version and Sotheby's offers one with an estimate of €30-40,000, as well as a Fiat 124 Gp4 Abarth (est: €200-250,000). Alongside is a large array of Belgian marques - FN, Imperia, Minerva and even a very rare 1912 10/12hp tourer (€15-18,000) by Nagant, a firm better known for making pistols. And, to step aside from cars, Bonhams also brings Rafale V, the 1934 27ft hydroplane powered by an 800bhp V12 Hispano-Suiza engine. As well as breaking records in the Med, this also competed on the Seine outside the same Grand Palais where it is to be auctioned. Estimate: £600-800,000.



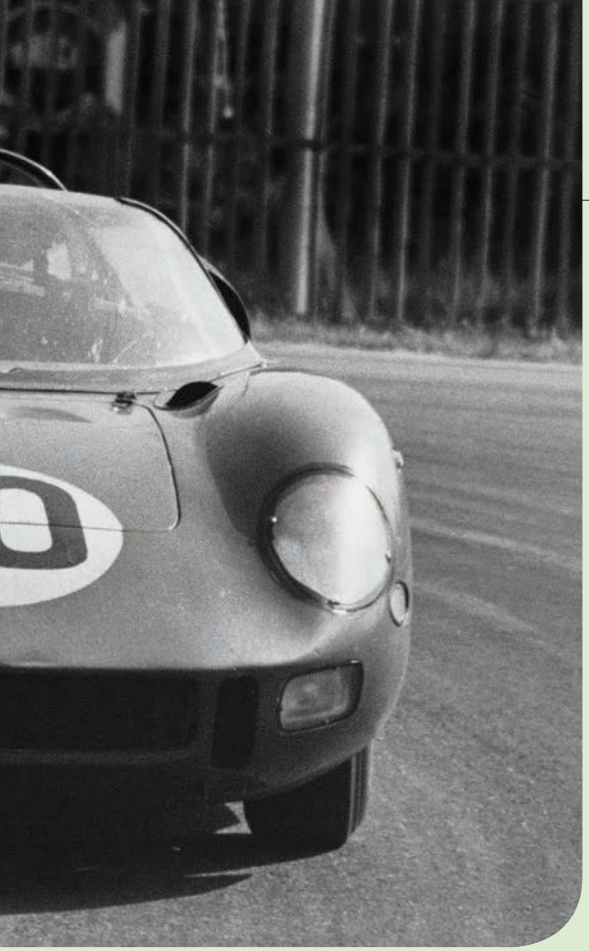
One of the most important racing cars of all comes up at Artcurial's Rétromobile sale - the Ferrari 275P which in 1964 won Le Mans in the hands of Jean Guichet and Nino Vaccarella (main picture). From the fabled Bardinon collection, this is the last works-entered Ferrari to have won the 24 Hours and likely to surpass the previous Artcurial/Bardinon record of £24m for a 1957 335S. There could be no finer centrepiece to any car collection.

> *The last works Ferrari to have won the 24 Hours is likely to surpass the previous record of £24m for a 335S*



More race history attaches to a Porsche 904GTS (above), which contested the Nürburgring 1000Kms and Tour de France Auto (€1.4-1.8m). Less storied is a very niche assembly of Vanvooren-bodied cars from an 1898 Gig through Voisin, Alvis and Bentley to a type 57 Bugatti used in WW2 by the Germans (€7-900,000) and the last car bodied by the French firm, a 1950 Delahaye 135M - estimate $300-410,000. You'll pay at least another million to capture the unique and curvaceous Alfa Romeo 6C 2500 that Pinin Farina parked ostentatiously outside the 1946 Paris motor show - because those from Axis countries were banned from exhibiting inside.

Meanwhile, looking back a bit further than *Yesterday*, Paul McCartney's Aston Martin DB5 hit a staggering £1.4m at Bonhams' December Bond Street sale, only about £400,000 short of a Ferrari 288 GTO at £1.88m. There was also celebrity attached to a Bentley S-type Continental, with the names Elton John and Alan Sugar in the logbook (£367,000), while a 1966 Mini Cooper S that once carted Brian Epstein and Ringo Starr sold for an amazing £102,000 to ex-Spice Girl Geri Horner, wife of



Red Bull team principal Christian. Even more remarkably, a short-chassis Alvis 4.3 made £505,000 – well into Bentley territory.

In California in November, the Grand Prix and Indianapolis Peugeot L45 achieved an impressive £5.4m at Bonhams' Bothwell sale, a hard one to predict for such a unique machine when it's also such a valuable historical artefact. At the same event, the thundering ex-Barney Oldfield 1908 Prince Henry Benz reached £1.4m.

RM Sotheby's December Icons event in New York drew a mix of art, wine and car – and produced a fierce battle over a Ferrari 250GT California with Le Mans track record, ending with a headline price of almost $18m, while the ex-Phil Hill Jaguar C-type achieved $5.3m.

Looking further ahead, the glittering Amelia island concours in Florida (March 8-11) is the next focus, with RM Sotheby's celebrating 20 years as the event's official auction, and Goodings also assembling a major lot list.

Preview & Calendar

FEBRUARY

1 ***Brightwells***
Leominster, UK
7 ***RM Sotheby's***
Paris, France
8 ***Bonhams***
Paris, France
9 ***Artcurial***
Paris, France
16 ***Mecum***
Los Angeles, USA
23 ***Silverstone Auctions***
Kenilworth, UK

MARCH

3 ***Historics at Brooklands***
Ascot, UK
9 ***Gooding & Co***
Amelia Island, USA
10 ***RM Sotheby's***
Amelia Island, USA
11 ***Motostalgia***
Amelia Island, USA
16 ***Mecum***
Kansas City, USA
21 ***H&H***
IWM Duxford, UK

APRIL

6 ***RM Sotheby's***
Fort Lauderdale, USA
21 ***CCA***
Silverstone, UK
21 ***Barons***
Sandown Park, UK



RM SOTHEBY'S

1967 Autobianchi Bianchina Cabrio ***Estimate: $25-30,000***
Tiny 'Eden Roc' model favoured by Brigitte Bardot and many other famous people for buzzing around the Riviera; based on Fiat 500 underpinnings with 25bhp two-cylinder motor giving 60mph



BONHAMS

Fiat X1/9 Group 4 competition car
Estimate: £26-35,000
Rare works version; 1300cc mid-engined motor in crisp Bertone body, with normally removable roof welded in



BRIGHTWELLS

Hillman Imp rally car
Sold for: £8800
Fully prepared for historic events; 998cc, big-valve head, twin DCOE carbs; close-ratio dog box; FIA papers



CLASSIC CAR AUCTIONS

1987 Volkswagen Golf GTI Cabriolet
Sold for: £17,800
Concours-winning example of 1980s compact favourite, previously owned by actor Sir David Jason



BONHAMS

Rafale V Hydroplane
Estimate: €6-800,000
Racing boat built in 1934, equipped with 36-litre Hispano-Suiza V12 engine; reached 131mph in 1936



THE EXPERT NICK WHALE

MD, Silverstone Auctions and Classic Car Auctions

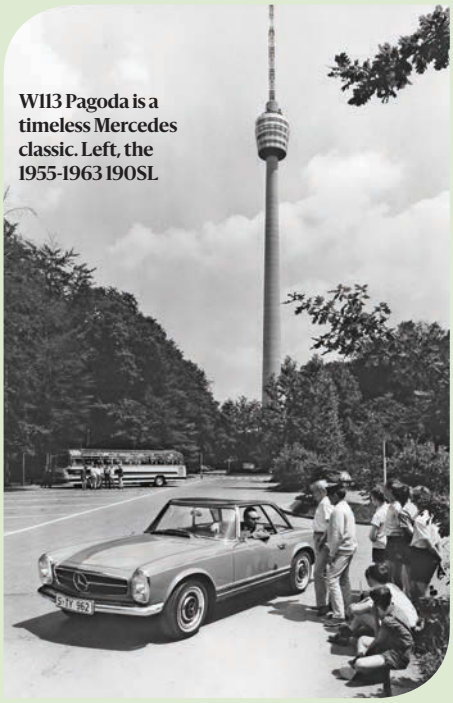
We have two areas of operation. Silverstone Auctions concentrates on cars from £50,000 and up, and here we're seeing a shift. Buyers are more selective: the right cars with good history continue to sell well but there is less interest in the average. However, the lesser end is flying. As Silverstone Auctions expanded I realised we were leaving the lower-priced cars behind, so three years ago I started Classic Car Auctions for vehicles from zero to £50,000 and it was an immediate success – we're selling 85 per cent of cars. We are also the official auction at Race Retro, which brings a specialised clientele; that's why we can have a very successful racing car sale, because we only pick 20 or 30 of the best machines.

1960s Mercedes SLs

From 300 and 190 to the Pagoda that merged the best of both...

Price new: £4651 (300SL Gullwing), £2734 (190SL), £2975 (Pagoda) ***Price now:*** £1.5m+ (300SL), £175K+ (190SL), £150K+ (Pagoda) ***Rivals:*** Ferrari 250 California (300SL), Austin Healey 100/4 (190SL), Jaguar E-type (Pagoda) ***Heritage:*** Road racer turned chromed cruiser, a definitive Mercedes model line





W113 Pagoda is a timeless Mercedes classic. Left, the 1955-1963 190SL

Mercedes was already well into its post-war resurgence by the time the 300SL Gullwing arrived in 1954, but few vehicles more neatly encapsulate German industry's restored self-confidence than this fast, glitzy and technologically advanced two-seater. But iconic or not, it was replaced in 1957 with the 300SL roadster that really set the mould for one of Mercedes' most enduring model lines.

While the Roadster had comparable performance and gained improvements to the Gullwing's sometimes scary swing-axle rear suspension, it was decidedly more luxurious than sporty. And that basic template for the SL remains true to this day.

From that first unveiling in 1954 it was clear the 300SL was going to be very expensive and exclusive, Mercedes presenting an early prototype of a more affordable version at the same time. This was the 190SL, a small roadster cashing in on the glamour and desirability but based on the more prosaic underpinnings of the four-cylinder 'Ponton' saloons. With more than 25,000 sales and a significant proportion of those in America, the 190SL was a commercial success and remains a beautiful car, if lacking somewhat in sporting stature.

The goal of the next SL was to combine the qualities of both into one model. Launched in 1963, the W113 shared much of its mechanical make-up with the contemporary saloon cars, but the delicate Paul Bracq design has a sense of style and proportion that still stands. Commonly known as the Pagoda SL, the W113 launched as the 230SL with a sweet and free-revving 148bhp 2.3-litre fuel-injected straight-six and four-speed manual gearbox. The option of an automatic rather underlined that Mercedes wasn't going after sports car buyers, the 250SL of 1967 introducing disc brakes all round and a more robust and torquey engine.

Accounting for nearly half the total production run of 48,912 cars, the 280SL introduced soon afterwards is considered by many the definitive model, the 2.8-litre engine delivering 168bhp and the automatic gearbox by now a near-default option. Sales were strong in America, where its easy-driving nature and chrome chintz worked well in combination with the SL's air of European sophistication and glamour. To this day there remain few more stylish and enjoyable ways to cruise around, the Pagoda SL's handling, performance and ease of use making it an easy classic to enjoy in modern traffic conditions.



SPEAKING TO HOWARD WISE

Dealer, 300SL owner and long-time Pagoda expert on the 1960s SLs that matter

190SLs have started to creep up, but they've taken their time because they're harder work to drive than Pagodas. I just sold one to Japan for £185,000 with a power-steering conversion. 300SLs are now knocking on £2m and Pagodas are in six figures, too. Right-hand-drive cars are hard to find and in Europe Mercedes is selling restored cars for €300,000; I've got a UK car, matching numbers, totally original and it'll be up for £150,000. If you study Pagodas in depth you realise they're one of the best Mercedes sports cars ever, the build quality is just amazing. There isn't a better car for quality, for touring ability, for luggage or performance - they're just gorgeous.

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2010 Aston Martin Vantage GT2 £299,950







The Vantage GT2 was launched in 2008 to compete in series such as the FIA GT Championship, ELMS, Asian and AMLS and of course, the Le Mans 24 Hours itself. Based heavily on the Vantage road car, just 10 Vantage GT2s were built before evolving to become the Vantage GTE in 2012.

The car we now offer, chassis GT2-007 was built by Aston Martin Racing in 2010 and raced in the 'GT Open' category in that year. GT2-007 sat out the 2011 season but was back in action in 2012 where it entered the AMR Festival event at Le Mans. It completed the race without incident to score a commanding victory, finishing more than a minute ahead of the next car.

Since acquisition in 2015 the current owner has had the car professionally prepared including a full engine rebuild by Prodrive and had a new gearbox. Vantage GT2-007's last outing was at Spa in September 2017 where it competed in the inaugural round of the Masters Endurance Legends, where it finished first in class.

Now offered in race ready condition with both engine and gearbox mileage being at a minimum having only been used for one day of testing and race win at Spa. The Vantage GT2 is eligible for the Masters Endurance Legends series, confirmed for 2018 and the 2018 AMR Festival at the Le Mans 24 hours.

All the equipment required to run the GT2 is supplied with the car, comprising of a laptop; data cable; air jack connector; and a water heater to warm the engine for starting from cold. Accompanying the car is a substantial spare parts package, the full details of which are available on request.



2000 Aston Martin Vantage Le Mans £475,000



2016 Aston Martin Vantage GT 12 £425,000

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Short-wheelbase Porsche 911

New dedicated race series set to make early 2.0-litre 911s even more attractive

Price new: *£3438 Is Id* ***Price now (racer):*** *£150-£200,000*
Rivals: *Alfa GTA, AC Cobra, Jaguar E-type, Healey 3000*
Heritage: *Iconic, nimble, tough – ideal for the track*



There are plenty of reasons to race an early 2.0-litre, short-wheelbase Porsche 911. And with an all-new 2.0L Cup for 2018, now could be the time to take the plunge.

Organised by Peter Auto, three rounds have been confirmed - at Spa Classic, the Grand Prix de l'Age d'Or at Dijon and Paul Ricard's Dix Mille Tours - with a fourth at a 'major international event' to be announced.

The input of British-based Porsche specialists like Lee Maxted-Page, Tuthill Porsche, Historika and the 2L Racing Group will hopefully lead to a British round being added for 2019.

"The inspiration came partially from the John Aldington Trophy race for pre-1967 911s at Goodwood, but probably more from Porsche's own fantastic Supercup races that have been entertaining Grand Prix crowds for almost 25 years," says James Turner of the 2L Racing Group. "I often talk with friends about what would make an ideal international race series for enthusiasts. The technical regulations will be an evolution of those that Peter Auto already uses in its Sixties Endurance series. Our aim is to a create events that every Porsche racer will want to compete in, on equal terms, and a series that is above all about the driver."

Whether starting with a road car to restore and convert into race trim, or buying a pre-prepared competition machine, the costs aren't to be sniffed at. Richard Tuthill says a donor car will now be a six-figure purchase - and you'll need the same again as a baseline to get the restoration and prep done properly.

Earlier versions and examples with matching-numbers provenance command premiums and might find it easier to get grid slots in popular series. But any car built up to the introduction of the 1968, long-wheelbase B-series can be built to comply with pre-66 regulations, these or less fashionable four-cylinder 912s potentially saving some money at point of purchase.

As Tuthill points out though, the more 'correct' the car is to begin with the more it'll be worth as and when you come to sell it on, upfront savings potentially a false economy if you're playing the long game.

With the hope for packed grids and enjoyable, closely matched racing throughout the field, the 2.0L Cup could well be the dream ticket for racing an old 911.

https://peterauto.peter.fr/en/peter-auto-launches-the-2l-cup/
http://www.tuthillporsche.com/product/custom-porsche-911-built-order/



SPEAKING TO RICHARD TUTHILL

Oxfordshire-based Porsche race and rally specialist on the enduring appeal of early 911s

The idea of seeing 30 to 40 identical 911s on track is pretty hard to beat - the short-wheelbase car is still the most fantastic thing to drive. They're not that complicated, either. We're now able to deliver quick and dependable cars that are totally legal - the FIA inspects our engines before the heads go on. We've been working away on them gently over the years and they go really well. I'm also adamant that cars should be the right weight and have the correct engine - it actually makes them much more special to drive.



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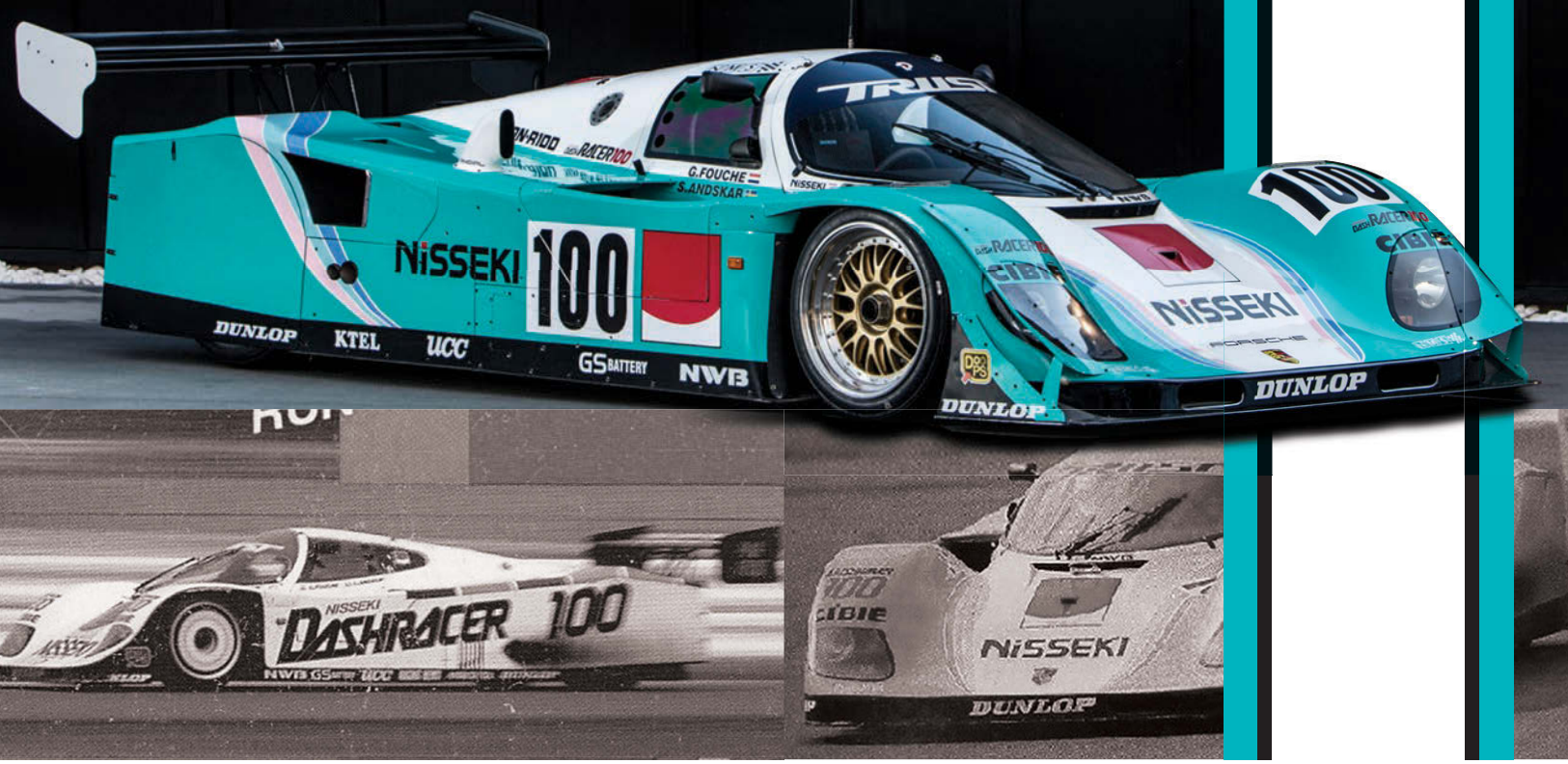
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62	**458 SPIDER** Grigio Silverstone/Sabia E/Seats, Sat Nav, Carbon S/Wheel With LEDs, Carbon Interior, Carbon Rear Moulding, 20" Forged Alloys, 20,000m FSH	**£159,950**
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03	**360 CHALLENGE STRADALE LHD** Bianco Avus/Blue & Black Alcantara Racing Seats, Carbon Interior, 12,000m FSH, Immaculate	**£164,950**
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63	**AVENTADOR ROADSTER LP700-4** Grigio Estoque/Black Leather, Full E/Seats, Grigio Alloys, Sat Nav, Orange Brake Calipers, 3,000m, As New	**£264,950**
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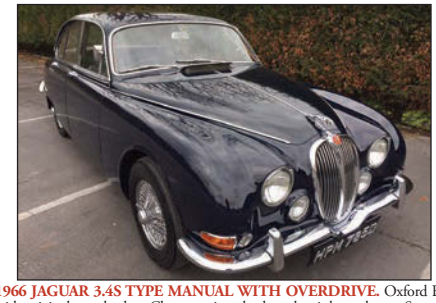
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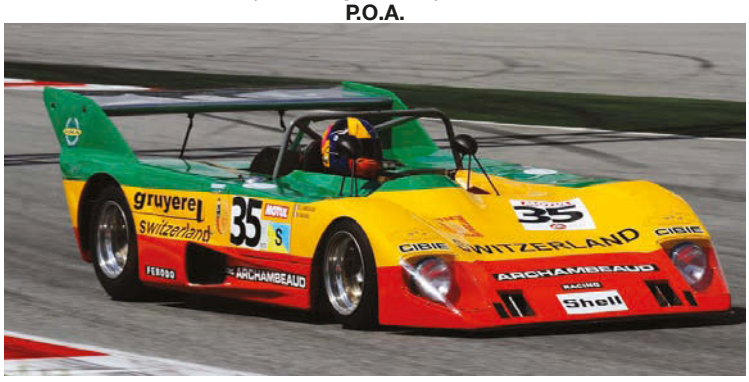
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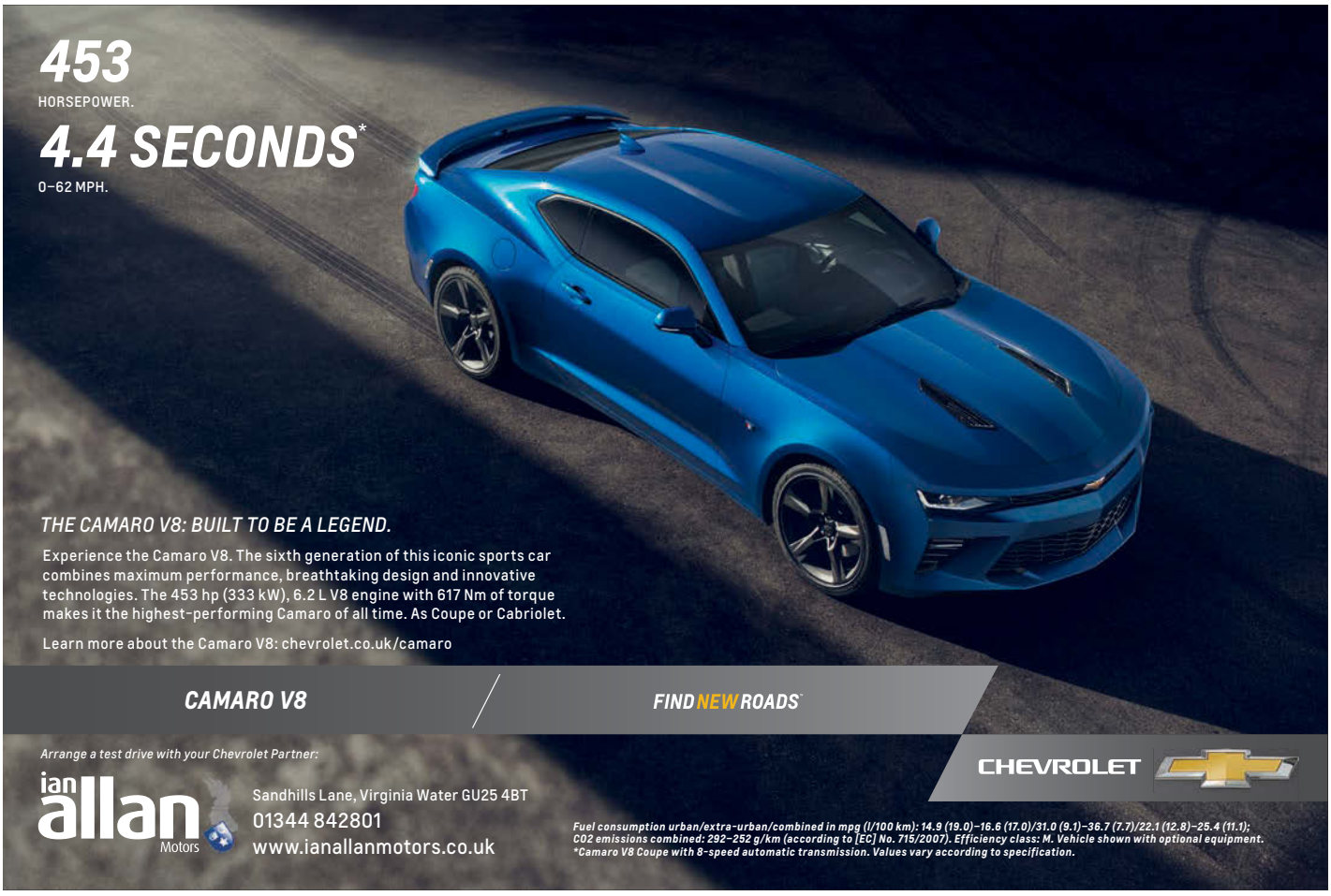
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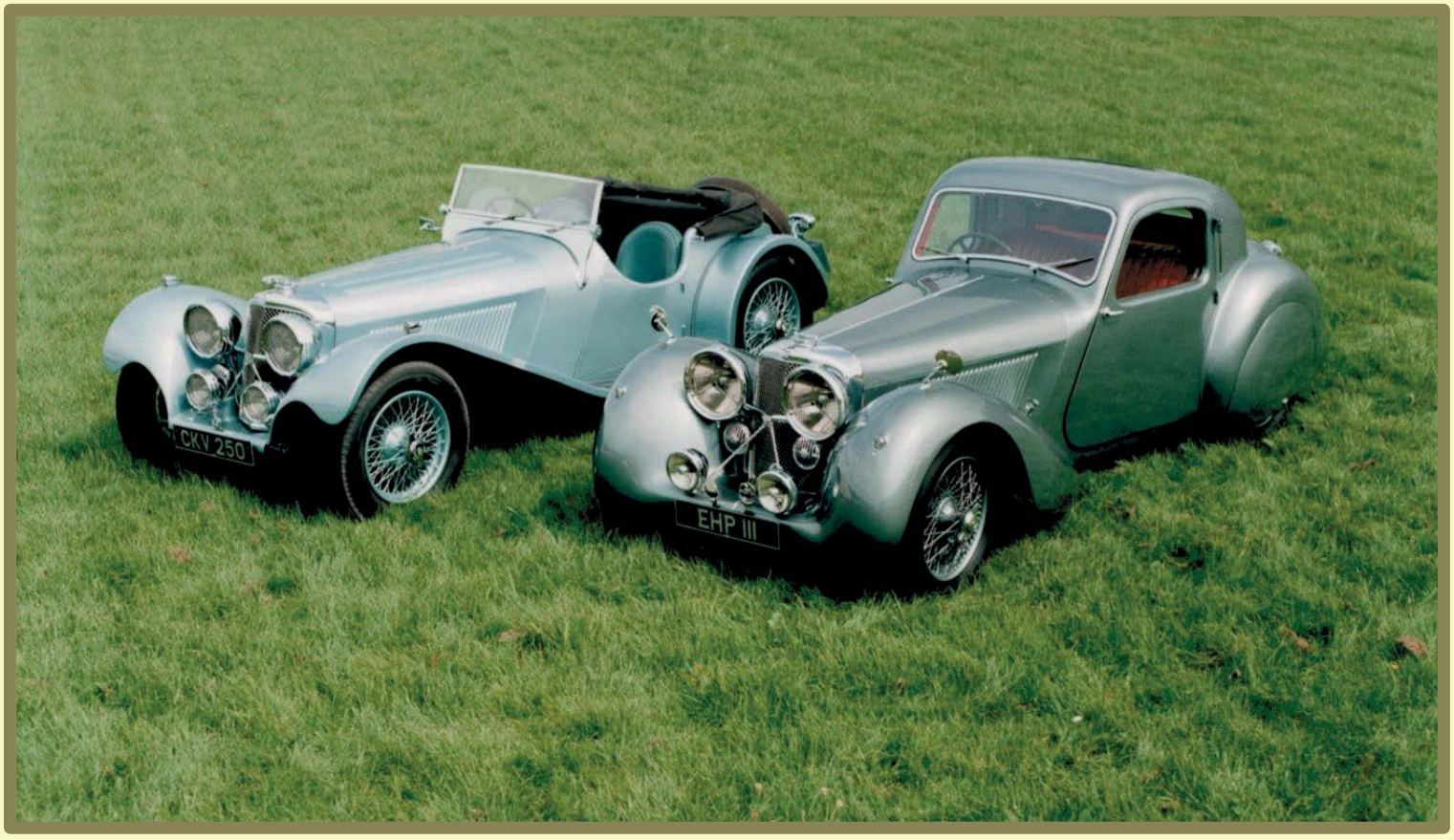
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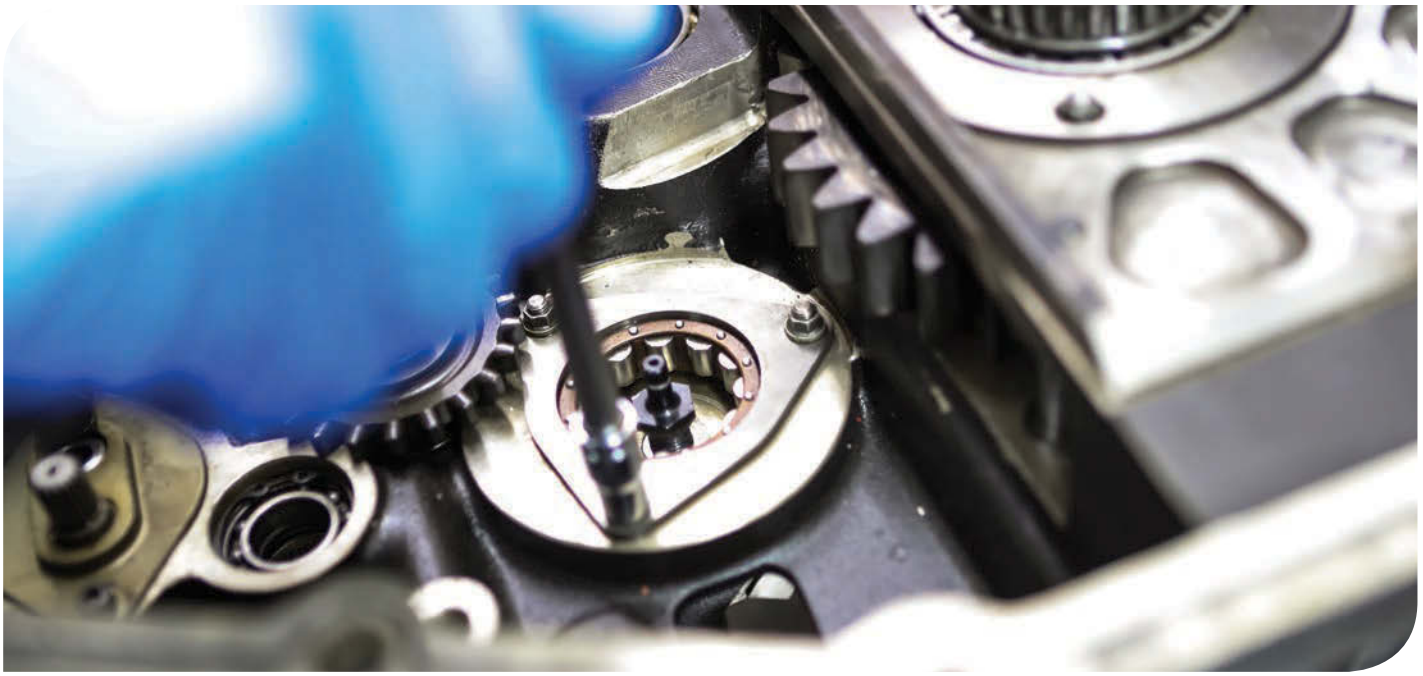


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Jordan 195

Warren Stean's gearbox required fresh internals, but there was a solution. Stoke-on-Trent isn't renowned as an F1 hotbed, but in this instance...

My Jordan-Peugeot 195 was sold to me with its original gearbox casing and some internals. I didn't have the chance to pull the 'box apart before buying it, which made it the largest area of potential concern I faced in restoring the vehicle. Transmissions are complex items on any racing car, and that is very much the case on Formula 1 machinery.

When restoring an F1 car to use, rather than simply as a static display, the gearbox generally provides the same, if not a greater, challenge than the engine. During my research, I was surprised to discover that the Jordan had the only seven-speed gearbox on the grid in 1995, and it was clearly important that it remained in this configuration.

Because we wanted to be able to run the Jordan in anger, it was important that we had a reliable supply of gearbox internals. Several components within the gearbox were missing and we had no history of the use of the parts that were there. That meant it made sense to design new internals that would allow us rapidly to produce spares as required and accurately gauge the life of components.

The redesign and manufacture of the internals has been undertaken by Elite Racing Transmissions in Stoke. The original magnesium gearbox casing, differential and driveshafts have all been retained, but Elite has designed a new crown wheel and pinion, barrel, shift forks, main shafts, dogrings and

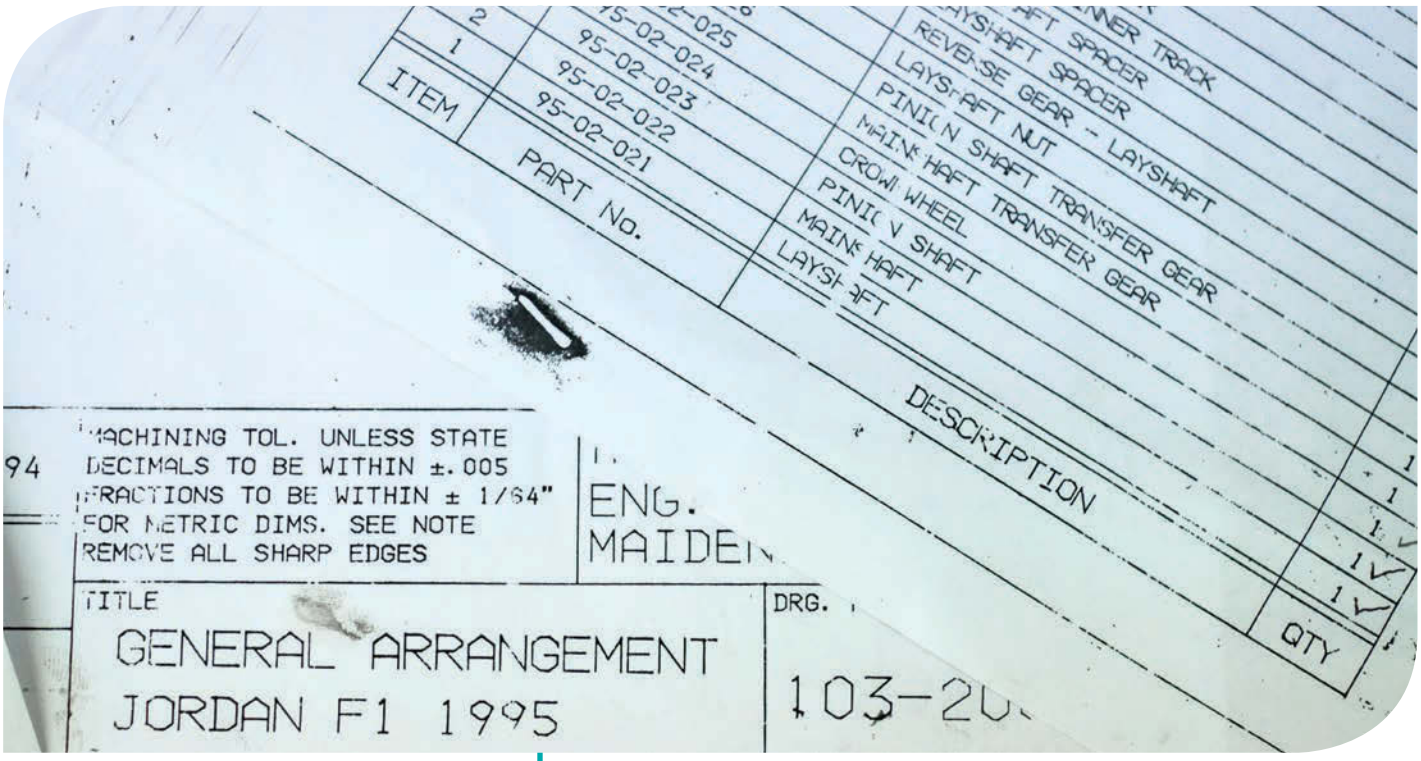

JORDAN











ratios from new. These have then been manufactured using the latest high-performance materials.

The original gear-selector mechanism has also been retained, including the shuttle and detent assembly. A new pneumatic actuator, which fits to the selector as per the original hydraulic example, has been designed to provide gearchange actuation. The performance and operation of the gearbox will be as per original with seven speeds and a paddleshift, but the consumable components within the 'box are now part numbered and can be ordered as and when required. This is going to greatly improves the serviceability and speed of repreparation.

"Because we wanted to run the Jordan in anger, it was important that we had a reliable supply of gearbox internals"

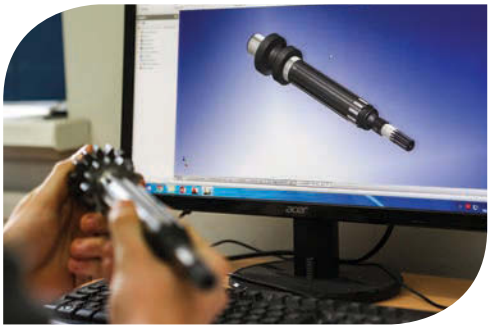
The use of modern materials and CAD in the design of the replacement components means it has been possible to help negate some common issues with this period of gearbox, which wouldn't have been possible using original components. It should perform better than it ever did in 1995.

Now that the gearbox is complete – and the fuel tank and pumps installed, the suspension components re-engineered and manufactured – the engine is being stripped, inspected and serviced. It is starting to feel as if, finally, there will be a beautifully restored, very loud V10 F1 car ready to take to the track very soon.

My thoughts are now turning to decisions such as where best to give the car its first shakedown test, what do I want to do with the car once it is finished and what is it going to feel like driving an F1 car? Not long now. I just hope there aren't any surprises inside the engine...

Restored Jordan fixtures a blend of original and replicated transmission parts, but will operate just like the original







Next month: ***Will there be any nasty surprises in the engine bay? And potential uses for a rebuilt mid-1990s F1 car***

Thanks to: ***Tour-de-Force Power Engineering, Bedford; Engine Developments, Rugby; Elite Transmissions, Stoke***

HISTORIC RACER

MGB Roadster

The team looks to have hit its stride until an over-exuberant manoeuvre threatens the entire race weekend. Nick Trott takes up the story...



"You need to see the clerk of the course," explained co-driver and BRX 855B owner Ed Foster after the race. Having felt drunk on the adrenaline and elation of a proper scrap - my first in historic racing - this news sobered me up instantly. The thing is, I couldn't understand why. I trudged over to the clerk's office, utterly baffled.

Rewind 24 hours. I had towed the MGB in its Moetefindt trailer to Oulton Park, and had settled down into a deep sleep in our Mercedes Marco Polo camper van with its auxiliary heater winning a battle against the cold Cheshire air. Ed had woken up freezing and damp from condensation having driven up from his workplace at Goodwood (a full 242 miles) and slept in a tent. One of us was more prepared than the other.

The Friday test went well. We chopped seconds from our lap times on every run, with me slightly quicker than Ed until normal service resumed at the end of the day and Ed produced some times that would have us within the top half in qualifying. With Roy of Chequered Flag Classics spannering the car and a new set of scrubbed tyres fitted, we felt more confident than ever of a good result.

Next day we lined up 14th of 35. I took the start, and once again I fluffed it (too few revs), losing four places. However, a rhythm came quickly and I clawed back to 15th. My pace hit a brick wall when I spotted David Russell-Wilks in another MGB ahead - I just couldn't catch him. Then we had a safety car. This was my chance.

I was determined to avoid getting mugged at the restart (like at Snetterton - see last month's report) and to find a way past David. Training my eye far ahead as we approached the last corner I saw the green flag and timed it perfectly. David had moved over to the right (I initially thought he was pitting, but he stayed out), so I zagged left and overtook. The next few laps defending against David until the mandatory pitstop driver change were my most thrilling in racing.

"Do you know why you're here?" asked the clerk of the course.

"No idea," I said.

"You overtook under the safety car."

"I did what?!"

"You overtook under the safety car."

With that, the clerk showed me the timing data. Sure enough, I'd overtaken 0.3sec before the safety car line. Gulping humble pie, I apologised, explained it was a case of mistiming rather than an overt cheat and accepted any penalty that might come my way.

As it turned out, David battled ahead of Ed shortly after the pitstop and retained the position. Justice had been served - which is how the clerk saw it. We finished where we started - 14th - but with Ed setting laps 0.6sec faster than our qualifying best.

For a full on-board video of the race, visit *motorsportmagazine.com* and search 'small screen highs'.



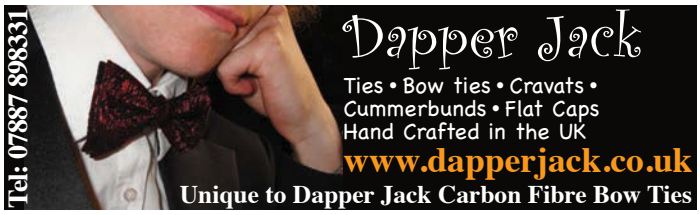
Next month: ***BRX goes for its winter refit, with some choice tweaks planned***

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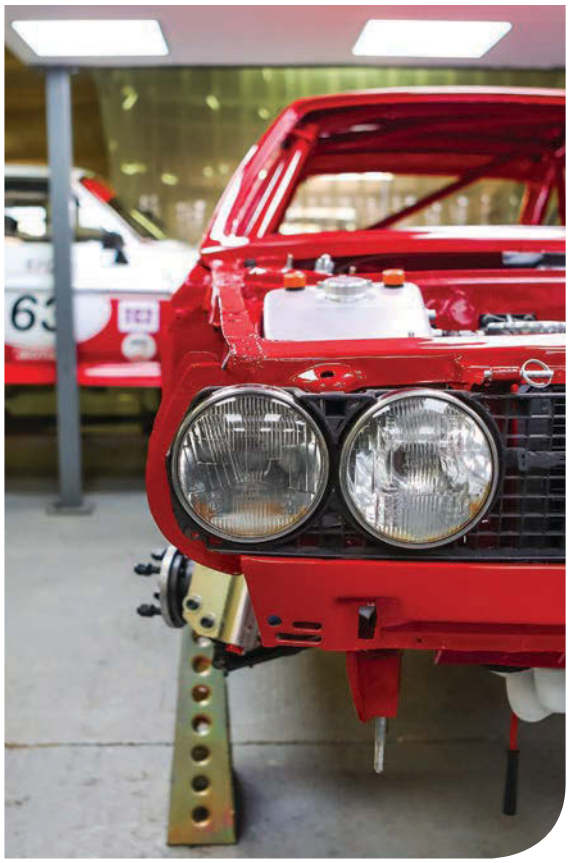
RACER REBUILD

Alfasud Sprint Veloce

Night races are on the menu for Geoff Gordon next season. His Alfa's dashboard is now in place, but does anybody have the correct lights?







Things have moved on apace since last I wrote about the Alfasud's progress. The car was due to fire up for the first time in mid-December, but first the guys at Raceworks Motorsport had to fit a few vital bits - not least the wiring loom, throttle linkage and dashboard.

That all went as planned and Dave Ashford came over from Brunswick Motorsport to check that everything lined up as it should and make sure there were no leaks. There was a small glitch with the dry-sump pump, but that was swiftly resolved. The team has done a lovely job and the 'Sud is starting to look more and more like a functioning racer.

There are still a few small details that need to be resolved - and at times like this you begin to appreciate the nuances of preparing a racing car that's almost 40 years old. It's the ancillary stuff, such as body seals - Mike Purse at Raceworks did finally manage to source some, in Germany, but the lead-time on those is about six weeks.

And then there's the small matter of the night-time races on Peter Auto's Heritage Touring Cup calendar in 2018. We obviously need decent headlights, but trying to find some to the correct size and specification - preferably with plastic bodies, to save weight - is not the work of a moment. We have looked at various alternatives, but it's important to get the details right and we'll press on until we find what we need. It will be out there, somewhere.

It was a source of great satisfaction that the car fired up on the button, first time, in the workshop. It was then taken to Brunswick's dyno in Ely, on which I'll be reporting next month. I reckon a shakedown track test might be feasible before January is out, but we might need a helping hand from the weather.



Next month: ***Sonic boon – 8000rpm... and counting***

Thanks to: ***Geoff Gordon, Raceworks Motorsport, Brunswick Motorsport***





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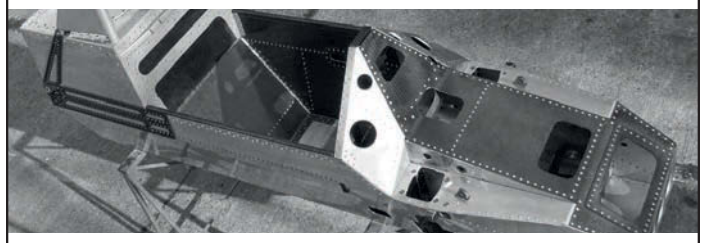
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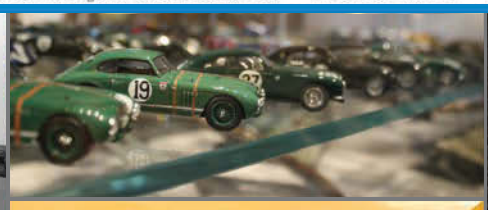
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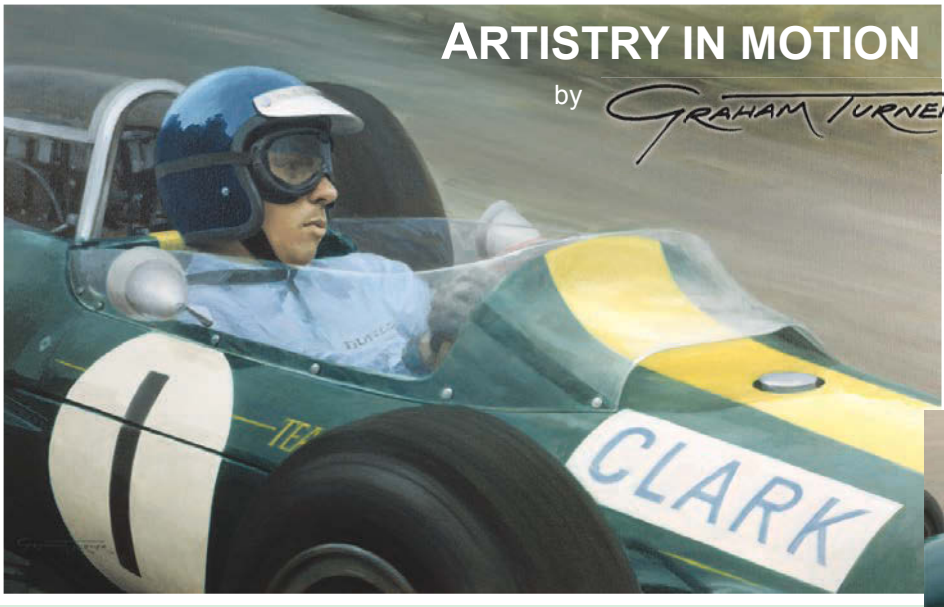
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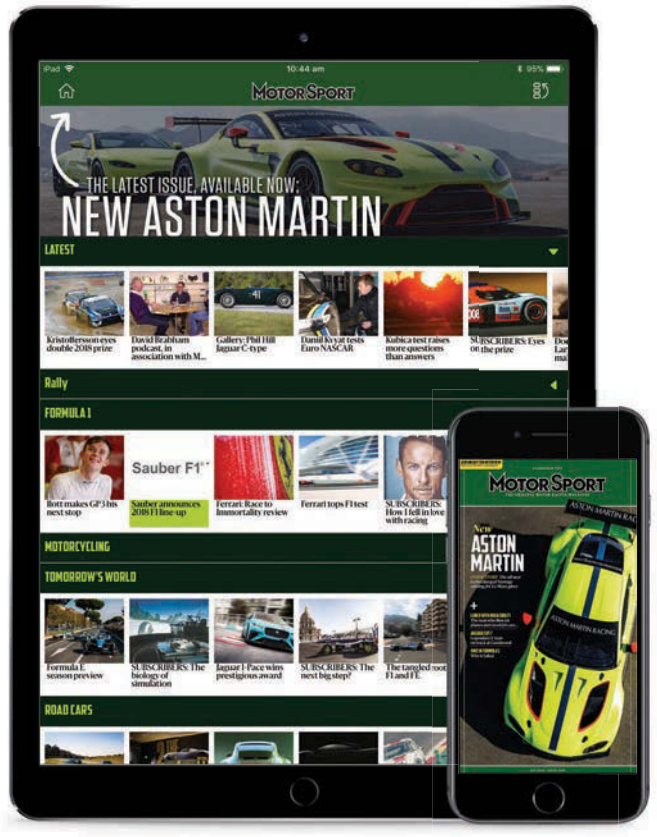




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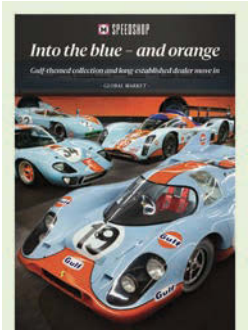
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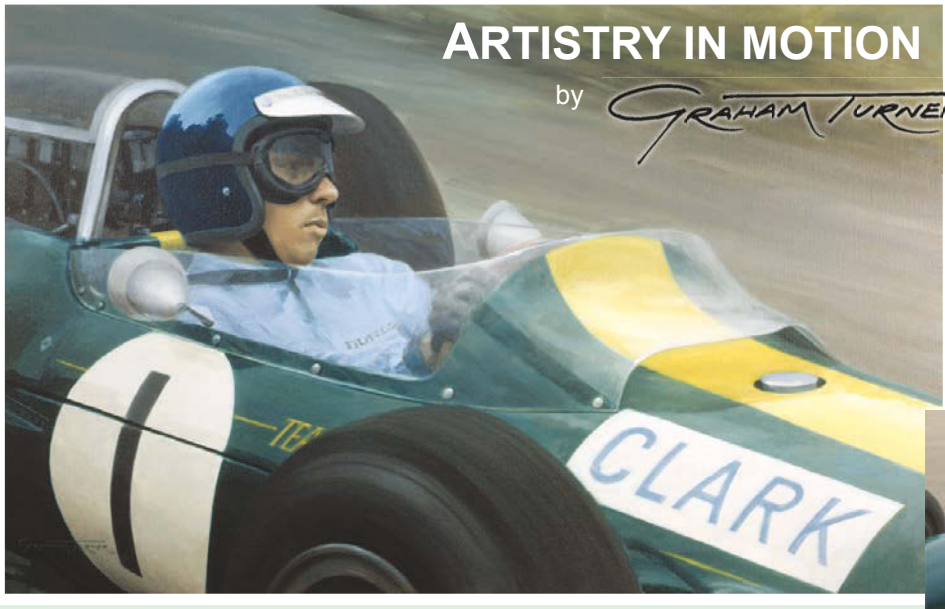
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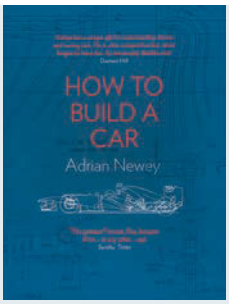


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How To Build A Car

Adrian Newey

Understanding Formula 1's technical nuances, of which there are many, tends to be reserved for those in a very high-walled club, but here Newey lets us inside. The dark arts of downforce, efficiency and grip are seldom explained this effectively.

Adrian Newey's autobiography/Formula 1 designers' manual comes impressively close to doing what it says on the jacket, distilling some of the most complex but essential components and mechanisms on some of his most successful cars - such as the Williams FW14 and Red Bull RB8 - into plain English.

That's not to say that this book is a mundane textbook, as Newey has managed to punctuate his explanations of rear-wing vortices and the like with hand-drawn diagrams to illustrate the point. It's rare to have such accessible insight into the technical features of an F1 car and, with Newey at the helm, the reader is incredibly fortunate.

What transforms this book is Newey's unflinching approach in detailing his mistakes and miscalculations - an essential part of anybody's success, it seems. For example, his expulsion from Repton and his complete lack of motivation to tick the academic boxes on his way to the paddock are laid out in honest, often hilarious, detail.

Newey manages to open up the secrets behind his most dominant F1 machines with ease here, but it's his admission and acceptance of mistakes and foibles that makes *How To Build A Car* inspirational. The only pitfall is that the next Formula 1 designer to write about their craft has a pretty high benchmark to hit. ***SK***

Published by HarperCollins - ISBN: 978-0008196806, £14

Mario Andretti

A Life In Pictures

Mario Donnini

In essence this is a pictorial overview of one of America's most distinguished racers - but that description rather undersells the whole. In common with other sumptuous photo documentaries issued recently by Nada, this is both beautifully produced and, by contemporary standards, represents excellent value.

There is bilingual text (English and Italian) to provide some biographical context, but the images - particularly those of a young Mario - remain the outstanding reason to purchase. ***SA***

Published by Giorgio Nada
ISBN: 978-88-79121-68204, £40

Memories of a Rally Champion

Chris Sclater with Jonathan Pulleyn

To anybody schooled on motor sport in the late 1960s and early 1970s, Chris Sclater's name was almost as prominent within the ink-stained pages of *Motoring News* as those of Emerson Fittipaldi or Jacky Ickx.

As a newcomer he caused a stir by finishing as top privateer on the 1968 Gulf London Rally. He lifted the British Rally Championship title in 1971 and spent much of the 1970s as a factory Vauxhall driver - notably in Chevettes - before fading from the spotlight.

Now, almost 40 years since last he competed, Sclater has committed his memories to paper, assisted by those who competed with (or against) him.

'Self-published' is often a euphemism for 'badly designed', but that's not the case in this instance. The cover shot of a sideways Chevette is a perfect symbol for what many consider to have been a golden era for rallying, particularly in the UK, and this is a pleasant jaunt through its core. ***SA***

Published by www.cjpublications.co.uk
ISBN: 978-1-5272-1725-6, £25



24 Hours of Le Mans

Official Review 2017

Everyone knows the drill with these Duke Video 24 Hours of Le Mans reviews by now: TV feed footage, Radio Le Mans commentary, and nothing but the drama. Gone are the days of the short one-hour films.

Arguably there should be room for both. For the YouTube generation four hours is a quite a commitment to sit down and reserve, though it's barely a sprint race for endurance fans. But the old Duke films used to capture the essence of that year's event, give context and take you to the town centre for scrutineering. Now it's four hours of race footage only, starting on the grid and ending on the podium. Granted, 2017 had enough drama to fill more than four hours.

It's a shame there have been no added insights, the bizarre story of why Kamui Kobayashi's clutch gave up, say. Regardless, this will slot into the collections of fans and start up the fizz of anticipation for 2018. Just be sure to head into the extras to watch Kobayashi's remarkable fastest average-speed lap, when he had the track all but to himself. ***JP***

Produced by Duke Video
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Das Buch zum Rennen

24 Stunden Nürburgring 2017

Jörg-Richard Ufer and Tim Upietz

Some official yearbooks are a touch homogenised and do their subject few favours, but this makes you want to jump in the car and set off for the Nordschleife yesterday.

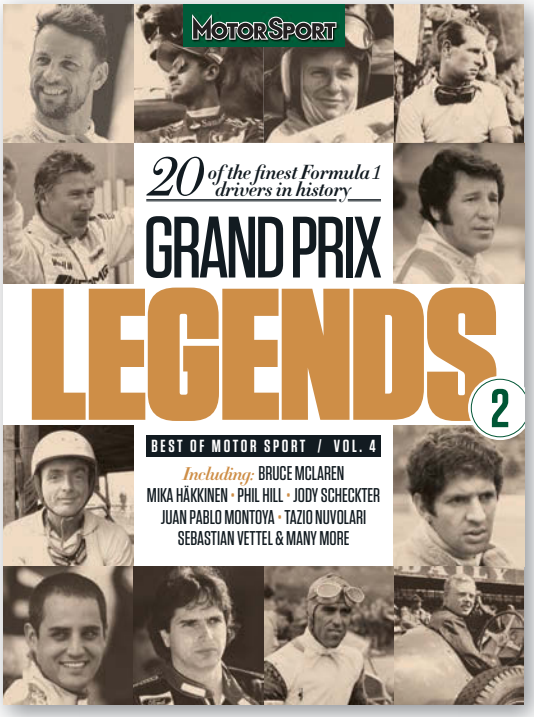
The notion of GT3 cars hurtling around the 'Ring is as sound a concept as any in racing, but this extended photo essay captures the ridiculously full flavour of the 24 Hours, with a blend of racing (including the three-hour ADAC Classic and all other supporting events), peripheral action (such as the Falken Drift Show) and, most importantly, the undiluted madness of the trackside festivities. You might have little interest in seeing a group of middle-aged blokes dressed as nuns, but that's by no means the weirdest thing you'll see at the N24 and it all contributes to making this an event unlike any other on the planet.

This captures the mood perfectly, features bilingual text (German and English) and, with more than 260 pages, represents something of a bargain. ***SA***

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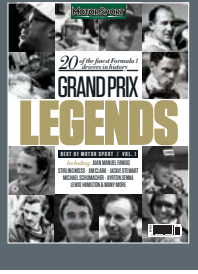
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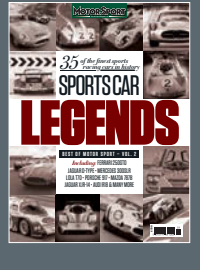






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ART



FEATURED ARTIST

Julian Thompson

When your day job is designing cars, guess what you do for a hobby?

When you look at one of Julian Thompson's Lotus Elise prints, you're getting something special. Because Julian is one of this country's top car designers, and while at Lotus he created the original Elise. Similarly, his multiple Jaguar images, adorned with comments about the design, carry unusual insight: Julian is now Jaguar's head of advanced design. But like any proper designer he loves drawing, and while he's not going to reveal the next F-type, you can imbibe his views of other beauties by Ferrari, Ford and Porsche. He's a big fan of classic racers.

"At Lotus and Jaguar my task has been to take the brand forwards, and an appreciation of the marques' earlier race cars feeds into that," he says. "I've been to every Goodwood and always take photos, from a designer's point of view. I love distinctive plan shapes – an E-type has a very distinctive tapering form. I like to draw cars which have these evocative forms from above – the GTO, GT40, Porsche Turbo." Hence his overhead drawings, an angle the onlooker rarely sees – simple, but with a dramatic slice of colour.





He doesn't work up highly finished art; his art is about capturing forms and lines. "All my drawings are loose, even doodly, just with pencil or biro, with what I call designer's notes on them."

He then combines these with his own photos and drawings overlaid with bold streaks of colour, conveying multiple views of the machine. "I admire the collage style of Warhol and Blake," he says.

But no single-seaters, surprisingly. He's related to Prince Bira, and his sister-in-law owned Bira's ERA 'Romulus'.

www.julianthomsondesign.com and *historiccarart.net*



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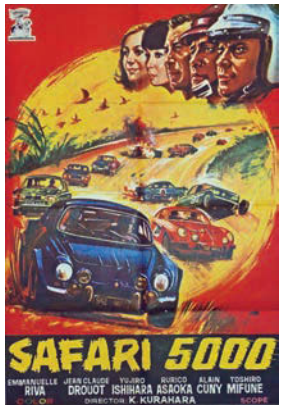


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FEATURED MODELMAKER

Amalgam

Marcus Nicholls explores the large-scale world of a Bristol based model maker



My first encounter with Amalgam cars came during visits to the model shop 'St Martins Accessories' in London's theatre-land. The narrow shopfront display was completely dominated by an example of the manufacturer's art, elevated on a Perspex shelf. Sometimes a Formula 1 car held the prime spot, at other times it could be a top-end road-going supercar. Whatever the subject, I couldn't help but stand and stare at it. A hyper-realistic, 1:8-scale model (approximately twenty-four inches in length) is hard to ignore.

Bristol-based Amalgam's beginnings can be traced back to the mid-1980s in the production of architectural and industrial models. Formula 1 teams located around Oxford required scaled-down replicas of their cars and turned to the company to make them, some in 1:8 and even huge 1:4 scale, a size that is truly spectacular when observed in the flesh. Customers include Ralph Lauren the fashion designer, Richard Mille the watch maker and Sebastian Vettel as well as former Ferrari chairman Luca di Montezemolo who requested a series of replicas of the brand's most famous cars.

The team at Amalgam takes around three months to research and create the master patterns for a 1:8-scale car and as you might suspect, these models are not cheap - the limited-edition Ferrari 333SP costs £8735. However, they represent a pinnacle of scale model car collecting and each is a work of art in its own right.

From my first observations of Amalgam's jaw-dropping models in a London shop window to more recent close-up encounters of their magnificent creations at the Nuremberg Toy Fair, I have long held an admiration for this British company and I think any petrolhead would have an Amalgam model quite high up on their list of 'things I would buy after winning the Lottery'. We can dream..

www.amalgamcollection.com

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MARTINI



Parting Shot

June 7, 1970

Spa-Francorchamps, Belgium

Pedro Rodríguez (BRM P153) all but skims the photographers' toes at La Source during the 1970 Belgian Grand Prix, with Chris Amon (March 701) in hot pursuit. The Mexican held on to win by little more than one second – and it would be the final F1 world championship race to take place on the full 14.1-kilometre version of Spa.

LAT





Clockwise from left: **Kiwi reader Denis Stanton sent this shot of Jo Bonnier – we think it's from the Silver City Trophy at Brands Hatch, 1961; Michael Edwards used his Brownie 127 (with fixed 65mm lens) to capture a pensive Jim Clark at Brands Hatch; at a Brands test in '84, Graham Gibbor sneaked into the pits while all was quiet and snapped Ayrton Senna**



You were there

Three images from as many contributors who weren't merely 'there' but had the provilege of getting closer than would nowadays be possible

Send us your images

If you have any photographs that might be suitable for *You Were There*, please send them to: *Motor Sport*, 18-20 Rosemont Road, London, NW3 6NE or e-mail them to: editorial@motorsportmagazine.co.uk

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