

GP RACING NOVEMBER 2023
WHY ALONSO JUST CAN'T GET ENOUGH OF F1
THE MORE DIS-SEMI-ING F1 MAGAZINE



INSIDE

TAKING THE MICK

Is Schumacher Jr ready to come off the bench?

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If you think **Fernando Alonso** is clinging on to grand prix racing in the increasingly forlorn hope of adding to his two world titles... you'd be wrong. Speaking exclusively to GP RACING, some of his closest associates explain what keeps this phenomenal competitor coming back for more – and why he's just as quick as ever

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ALONSO: THE DESIRE IS STILL THERE

JACK OF ALL TRADES

Perhaps it's not quite true to label the Red Bull RB19 a 'Jack of all trades, master of none'. Formula 1's top performer proved that the car is indeed lalala: the bumps and staccato corners of the Marina Bay street circuit finally pushed the current performance benchmark beyond its incredibly wide operating window.

MASTER OF WON

Despite shattering Formula 1's record book, Red Bull's RB19 isn't a groundbreakingly innovative car. So why can't F1's greatest brains replicate its success?

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THE RB19: DOMINATION BUT NO REAL REVOLUTION

DON'T SCHU FORGET ABOUT ME

Currently out of a race drive – temporarily, he hopes – **Mick Schumacher** is working the simulator at Mercedes and playing a key role in Lewis Hamilton and George Russell's race weekends. Will this provide a route back to?

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THE ROLE OF THE RESERVE

LIAM LAWSON

A MAN FOR ALL SEASONS?

Overtaken by Yuki Tsunoda in the Red Bull young driver queue on the way to Formula 1, Liam Lawson has become battle-hardened in an eclectic array of machinery while waiting for his F1 opportunity. Those close to Lawson, including a previous team boss, reckon the variety of experience has been the making of him...

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Stuart
Codling
Editor



The heat was well and truly on in Qatar

It's a good thing Max Verstappen got his well-deserved third world championship over the line in the Qatar GP weekend's Saturday sprint event, even if (unusually) he didn't win the race in question. For while Max returned to his customary position of being first to the chequered flag on Sunday, post-race the news agenda was dominated by hand-wringing over the circumstances that left several drivers checking in to the medical centre with symptoms of heatstroke and exhaustion.

F1 is no stranger to hot, humid environments – even before Singapore joined the calendar, Malaysia was a very challenging venue – but in Qatar the effects of the ambients were exacerbated by the frenetic nature of the racing around what is a much higher-tempo circuit. As early as Saturday it was becoming clear the Pirelli tyres' sidewalls were taking a beating from repetitive impacts with the recently resurfaced track's new 'pyramid kerbs'. The resulting 18-lap cap on tyre usage, an ugly but necessary compromise to keep the show on the road, as it were, dictated that the usual business of nursing the sensitive Pirelli tyres through long stints could be abandoned. Every racing lap had to be attacked like a qualifier.

All other factors being equal, this might have been a moment to point out a glaring irony. After years of moaning from many quarters that tyre management resulted in dull, slow and processional races, now the nattering nabobs had got what they wanted – flat-out thrashes between pitstops – and

still the complaints were rolling in. Some people are never satisfied, right?

Rather than indulge in snark, though, we should give thanks that nothing worse came to pass than a driver vomiting in the cockpit (and this, it must be said, is unpleasant not just for the individual but also for those charged with clearing up after 42 further racing laps have distributed said emission to the most distant nooks and crannies). The combination of ambients at the top end of the scale, a high-G circuit layout and a flat-out race with no chance of physical or mental respite pushed drivers to their limits and the result could have been a dangerous accident.

One driver who survived unscathed – despite a burning seat – was the oldest on the grid. At 42 years young, Fernando Alonso is as fit and committed as ever and shows absolutely no sign of slowing down.

This month we dig into what keeps Fernando coming back for more. If you thought he's motivated by frustration at missing out on his place in F1 history – just 11 points separate him from being a five-time champion – you'd be wrong. As you'll find out on page 32, from some of those closest to him, there's more to Alonso than that...

GP Racing has a podcast!

Search for 'Flat Chat with Codders' in your podcasting platform of choice

Contributors



OLEG KARPOV

Oleg talked to some of the people who know Fernando Alonso the best to find out exactly what makes the Spaniard tick (p32)



MATT KEW

Autosport's F1 Editor tries to decipher whether the Red Bull RB19 is a masterpiece or just simply a decent all-rounder (p44)



JAMES NEWBOLD

James delves into New Zealander Liam Lawson's tough journey to F1, and how he overcame a few bumps along the way (p60)



JAMES MANN

Yet another stunning photoshoot from James for our Now That Was A Car feature. This time it's the often derided Lotus 43 (p66)

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With a little help from my friends

This is a very rare shot from the inside looking out as a newly crowned world champion celebrates their achievement. I actually have Oscar Piastrì to thank for this because, as McLaren's official photographer, I was granted access to parc fermé after he won the race.

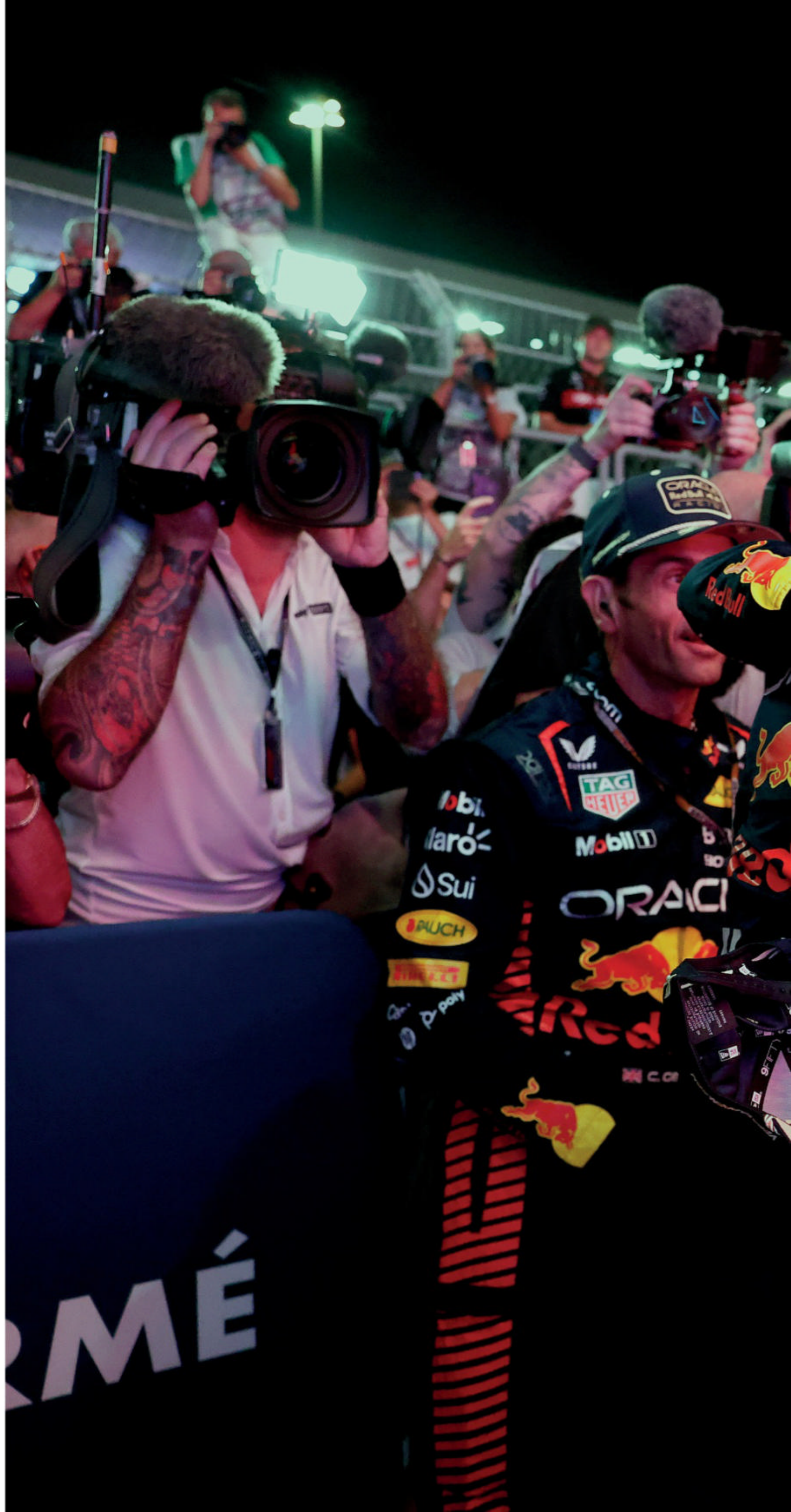
After taking care of business with Oscar – who was very pleased, naturally, with his win – I was in the right place to capture the eruption of joy in Red Bull's corner. Christian Horner and Adrian Newey were there looking like proud parents. It was fascinating to be on the other side of the barriers as my colleagues in the media were fighting to seize the moment.



Photographer
Steven Tee

Where Losail, Qatar
When 9:12pm, Saturday
7 October 2023

Details Canon EOS R3
24-70mm lens, 1/1300th @ F4









An immersive experience

While Formula 1 is among the world's most glamorous and high-tech sporting categories, sometimes it comes down to a repurposed waste bin... 15 years after the first Singapore Grand Prix, sports science practitioners are well versed in the means of coping with the Lion City's heat and humidity.

One such method is the ice bath and, while Kevin Magnussen wasn't actually very keen on the idea, his physio Nikolaj Madsen was determined the dunking should happen. This was after FP1 so just the first of many over the course of the weekend. They're only in for 20 seconds and it makes for an unusual image from a GP...



Photographer
Andy Hone

Where Marina Bay, Singapore

When 18:35pm, Friday
15 September 2023

Details Canon EOS-1DX MkIII
240mm lens, 1/1250th @ F1.4

Sparks fly at the restart

Having shot the start of the race from the Singapore Flyer I made way way to Turn 16 because I reckoned it would be a good overtaking spot – and, of course, was quickly reachable.

The circumstances of the race made this image fall into my lap. It's the restart after the Safety Car and, although Max Verstappen looks to have decent track position here, he gained it by not stopping for tyres. Qualifying 11th forced Red Bull onto a very different strategy. George Russell attacked hard off the restart and got by – statisticians tell me this was the first time Max had been overtaken on track this year. Unfortunately for Max there was more to come!

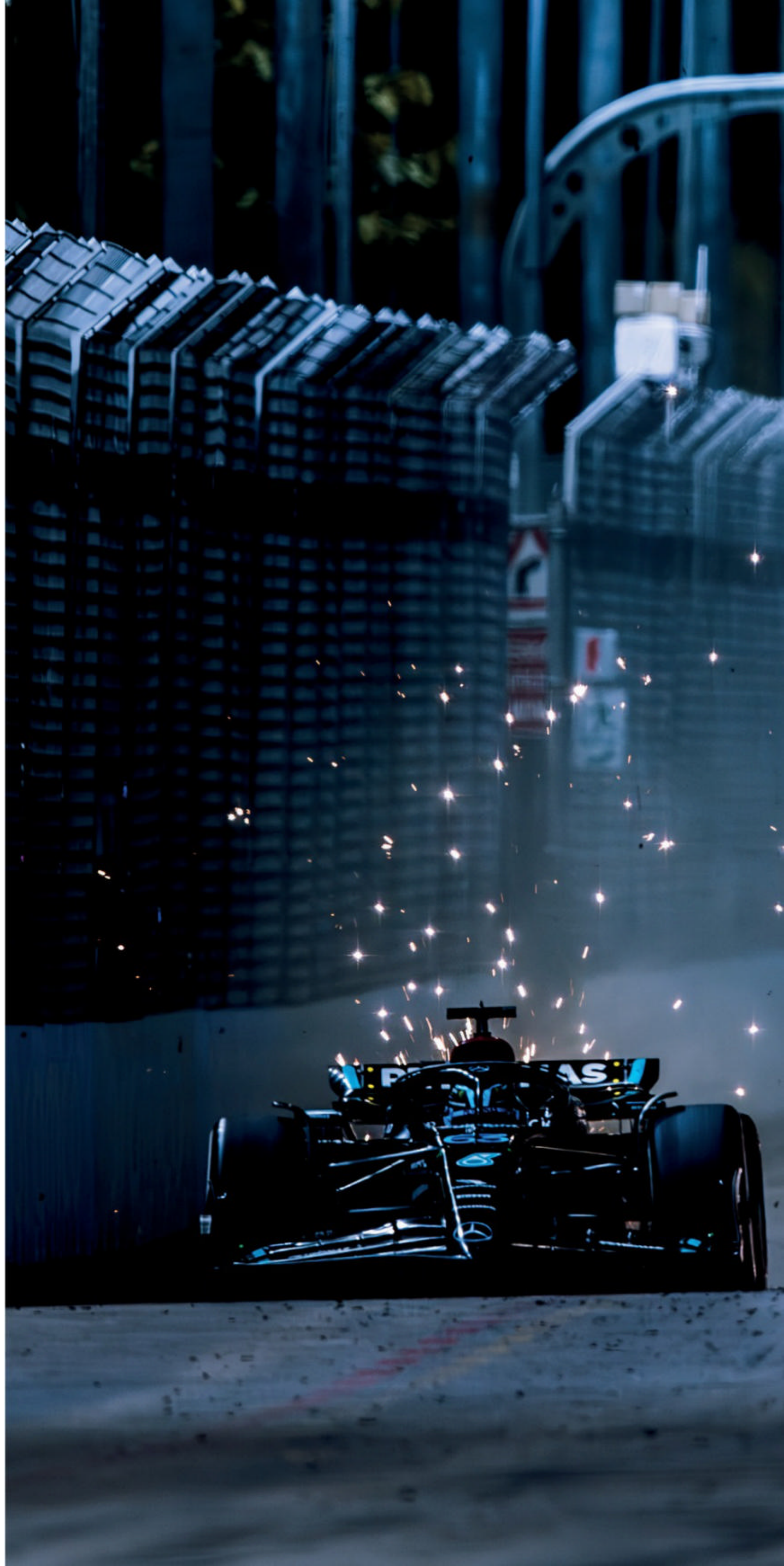


Photographer
 Zak Mauger

Where Marina Bay, Singapore

When 8:43pm, Sunday
 17 September 2023

Details Canon EOS R3
 600mm lens, 1/640th @ F4





The clouds part for Tsunoda

It was a funny old weekend weather-wise at Suzuka, with flat light and leaden grey skies for the most part. Then the sun suddenly came out in time for qualifying so of course you push to make the most of it.

I shamelessly raided the back catalogue for this angle. It's one I've used many times before because the big wheel in the background is striking combined with the low angle. I've got one of Ayrton Senna here after winning in 1993.

What really makes this shot is that Yuki Tsunoda has obligingly added a bit of drama by locking his wheels. He didn't need to use these tyres again so he was testing to see how late he could brake for the pit speed limit line.



Photographer
Steven Tee

Where Suzuka, Japan
When 3:35pm, Saturday
23 September 2023

Details Canon EOS R3
16-35mm lens, 1/16000th @ F4.5









Big wheel keeps on turning

Singapore is no longer F1's only night race but it still has several unique features, including the ability to get an overhead view from one of the largest observation wheels in the world. Standing at 165 metres, it opened just a few months before the first Singapore GP in 2008.

Normally a ticket costs a premium if you want to ride the wheel during a session (at 24cm per second, you orbit at a stately pace so it's not over too quickly), but the race organisers kindly let a select few photographers aboard. I captured this angle early in Q1 just as Carlos Sainz was gearing up for a lap. A four-pointed star filter helps make the floodlights ping.



Photographer
Zak Mauger

Where Marina Bay, Singapore
When 9:09pm, Saturday
16 September 2023

Details Canon EOS R3
24-70mm lens, 1/250th @ F2.8

ANDRETTI: CLOSE BUT NO CIGAR (YET)

01

The FIA has officially given Andretti Formula Racing the go-ahead to join Formula 1, but it's far from certain the number of teams in the world's premier racing championship will rise to 11 any time soon. For now, the prospects of a major brawl breaking out are greater than those of the grid expanding.

The process of inviting new teams was formally launched in February by FIA President Mohammed Ben Sulayem, who remains the main proponent of grid expansion and the most high-profile of the Andretti supporters. Seven projects eventually responded to the FIA's invitation but only one

bid was deemed viable after a seven-month vetting process. In theory, it could make its debut as early as 2025.

Details of the application process have been revealed by *GP Racing's* sister publication *Motorsport-Total.com*. Three

NONE OF THIS, HOWEVER, MEANS ANDRETTI WILL BE GUARANTEED A PLACE ON THE GRID

applicants were eliminated in the first round. Hong Kong businessman Calvin Lo's project, former BAR co-owner Craig Pollock's Formula Equal pitch (an F1 team where 50 percent of the staff would be women), and South Korea's Panthera dropped out when the FIA demanded a \$280,000 fee each to study the applications further. This was eventually paid by the remaining four contenders: LKYSUNZ, Rodin, Hitech and Andretti. In the end, after "rigorous financial and technical analysis", three were rejected. The reasons were not made public but, according to reports, were explained to the applicants by the FIA.

Aside from Andretti, the team closest to having its bid approved was Hitech, in which Russian billionaire Dmitry Mazepin (whose son Nikita drove for Haas in 2021) was formerly the main investor. Following the invasion of Ukraine, ties between Hitech and Mazepin's Uralkali company were severed, and it was Kazakh businessman Vladimir Kim who was to finance the proposed F1 campaign. Rumour has it that concerns over his willingness to make a long-term investment led to the rejection of what was otherwise a very strong bid.

The LKYSUNZ project was designed to operate with

The Andretti bid, with backing from major manufacturer General Motors through its Cadillac brand, has cleared one hurdle with FIA approval but the real battle is only just getting started

a base in Asia and attract engineers from the region, whose ability to find work in F1 is said to be limited. Apparently this selling point proved insufficiently appealing to the FIA.

Geography may also have been one of the main reasons for the rejection of Rodin. Its CEO, David Dicker, had envisioned an F1 team based in New Zealand, which would have been a huge logistical challenge. Nevertheless, Rodin's bid at least outshone its rivals in terms of media coverage, not least thanks to its willingness to offer a seat to a female driver. W Series champion Jamie Chadwick had even completed a test in a Rodin single-seater and was mentioned in the company's press release as its preferred candidate for a shot at F1. The FIA was not convinced, though.

It was clear from the outset that Michael Andretti and his team would be the strongest contender. The American's desire to enter F1 with his team has been known since the beginning of last year – and official approval from the FIA is a major milestone. The governing body has confirmed Andretti's project is sound financially and in all other respects. In fact, it's hard to imagine a stronger application. The legendary name is backed by the support of major manufacturer GM, which is willing to promote the Cadillac brand in F1; the team has a wealth of experience in a variety of top-level championships, from IndyCar to Formula E; and its F1 project has already begun. Without waiting for the outcome of the bidding process, Andretti hired former Renault technical director Nick Chester and set about expanding its facilities.



ANDRETTI

TI



PICTURES: SIMON GALLOWAY, MARK SUTTON, ANDRETTI

None of this, however, means Andretti will be guaranteed a place on the grid. The application must now be approved by FOM, which has been sceptical from the very beginning about the idea of expanding the list of participants.

The main concern is the stability of the current teams. Williams boss James Vowles was quick to point out that despite the recent growth in popularity of F1 and commercial appeal, with teams now valued at around a billion dollars each, the majority of them are still “losing money”. Expanding the grid will only delay the moment when they can become truly sustainable. Andretti’s arrival would mean that the championship’s prize money would be shared between 11 teams instead of 10.

“Obviously, money makes the world go round,” Red Bull boss Christian Horner told *Sky Sports*, echoing Vowles’ position. “That’s what every team will be acutely sensitive of, and the franchise value being diluted. Suddenly you go from

10 to 11. So, of course, the stakeholders, the shareholders of each individual team will have a concern about that.

“About six years ago there were four teams on the brink of leaving. I think the sport has turned itself around, it’s reinvented itself, and it’s in great shape now. And of course, those 10 teams are effectively now franchises. And they have a value. Their shareholders will be looking to protect their value in that investment. They’ve invested across the team billions and billions of dollars or pounds.”

Even the fact that F1 now has a formal price of admission for new teams is not helping the cause among current team bosses. Especially since it’s currently set at \$200 million, a figure many in the paddock believe should be at least three times higher. Another concern for the teams is the devaluation of existing sponsorship deals. After all, with the arrival of Andretti, they will have to share not only prize money but also screen time on F1 broadcasts with the new team. ►



Ben Sulayem pointed to Brad Pitt’s filming team (left) to repudiate any space concerns but he and Domenicali (right) remain on different sides of the 11th team argument



FOM chief Stefano Domenicali has long made his position clear: he supports the current teams. So the FIA's move has brought F1 to the brink of a major political confrontation. Insiders suggest Liberty Media bosses are still determined to reject Andretti's bid, but it will be difficult to do so without negative consequences for the championship, particularly in terms of image. Since there are no sporting grounds to reject the bid now, at least in light of the FIA's approval, the potential rejection would almost certainly be seen as driven by simple "greed" among existing teams.

Ben Sulayem, meanwhile, is ramping up the pressure. "Saying no to a team which has been approved by the FIA, it's very hard to say no," he told Reuters. "The FIA should be asking, begging OEMs to come in. We should not just say no to them."

He also mocked the attempts of individual team bosses to find additional reasons to deny Andretti an entry – Mercedes boss Toto Wolff in particular claimed over the summer that some circuits didn't have enough facilities to accommodate two more cars. His traditional antagonist Red Bull's Christian Horner backed Wolff up on this, citing the narrow pitlane at Zandvoort as an example "I think there are some operational issues to overcome," he noted. But the FIA President doesn't buy that.

"We are allowed to have 12 teams [according to the regulations]. Some of the teams said, 'Oh, it will be crowded'. Really? We are already running a Hollywood team with us," he said, referring to Apple's Brad Pitt-headlined F1 movie being filmed during some championship rounds.

Since the FIA announced the outcome of its review of the applications from potential new entrants, FOM has only issued a brief statement saying it will now carry out its "own assessment of the merits of the remaining application". There is currently no clear indication of how long this process will take. So far, however, there seems

The form of Piastri (above) has resulted in a new McLaren contract, and Ricciardo and Tsunoda (below) will be AlphaTauri's drivers in 2024



to be no scenario in which all parties will be satisfied. A potential rejection could also trigger the start of legal complications: there is even speculation that Andretti could still race in F1 without a commercial agreement with FOM. But that scenario, insiders indicate, is completely out of the question.

The choice Liberty will have to make will not be an easy one. As many observers point out, the decision will be about what F1 is seen as – a sport or a business.

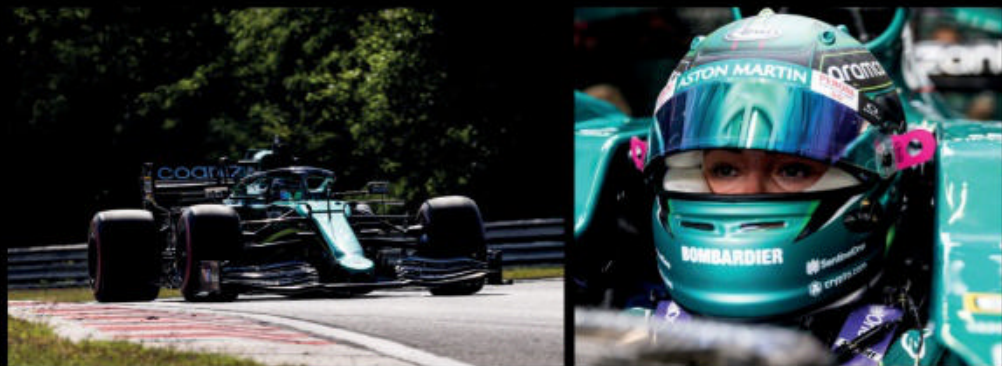
HOW PIASTRI PROVED HIS WORTH

02 It took just nine months for Oscar Piastri to not only convince McLaren that it had made the right choice in recruiting him last year, but for that conviction to translate into a desire to move quickly to protect itself against any attempts by rivals to lure him away. Piastri has extended his contract until the end of 2026, although his previous deal had been valid for another season and a half.

The contract was extended just days before Oscar finished third in Japan, his first GP podium, since there had been ample evidence from earlier in the season that he was delivering what McLaren expected of him. That highlights reel included fourth at Silverstone and second in the Spa sprint. And while it was clear Lando Norris is still the leading McLaren driver, the gap in points between

NEWS IN BRIEF... NEWS IN BRIEF...NEWS IN BRIEF...

DRIVERS



FORMER W SERIES AND occasional BTCC driver Jessica Hawkins became the first woman to test an F1 car since 2018, when she drove the Aston Martin AMR21 at the Hungaroring last month. The team's driver ambassador completed 26 laps.

WHEELS

In an effort to reduce the weight of F1 cars, a switch away from the current 18-inch wheels is being mooted for 2026. 18-inch wheels were only introduced in 2022 but it is believed a switch to 16-inch wheels would save somewhere between 20 and 50 kilograms.

MONEY

Mercedes and Alpine posted profits of £89m and £26.2m respectively for their F1 operations for 2022, while Aston Martin's F1 team posted a £52.9m loss for the same period.

TYRES

Pirelli has been confirmed as F1's tyre

supplier until at least 2027 with an option to extend for an additional season.

RIP

South African Basil van Rooyen, who won non-championship F1 races in his homeland, and raced in the 1968 and 1969 South African GPs, has died aged 84.



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the two has been exaggerated by the team's aggressive upgrade push this year: production limitations entailed some inertia in supply, and as senior partner Norris got new parts earlier.

Further proof of Piastri's potential came in Qatar, where he won the sprint from pole and came second in the main race.

"When McLaren so strongly wanted to sign Oscar, we looked at the results in the junior categories, and in the early days of the collaboration we could see what he achieved, there were good reasons for that to happen," explained team boss Andrea Stella. "We could see these in the natural speed. We even saw it on the first day of the simulator. The way he was assessing his own performance, saying: 'This is where I am, this is where I need to improve.' It was matching so well with what we could see from the data, it was quite impressive."

Piastri's camp also had no reason to delay the decision to extend. McLaren, despite a slow start, has now emerged as Red Bull's main rival – and is giving Oscar a car with which he can now fight for podiums in his debut season. McLaren's next target is to extend Norris's contract. His current deal runs until the end of 2025.

In other driver news, AlphaTauri has confirmed its 2024 line-up. The efforts of Liam Lawson, who replaced Daniel Ricciardo after the Australian's injury, fell short of moving Red Bull bosses to abandon their original plan. Lawson made a good impression in his five races and even scored two points in Singapore but Ricciardo and Yuki Tsunoda will represent the team at the start of 2024.

This decision leaves Red Bull with room to manoeuvre next season. The accelerated announcement of the junior team's line-up should help take some of the pressure off Sergio Pérez, who not only continues to struggle to match Max Verstappen's performances, but is now in danger of losing second place in the championship to Lewis Hamilton, despite driving the same car as Verstappen – who has won 14 of 17 grands prix so far. Pérez will continue to race for Red Bull Racing in 2024, but having Lawson on the bench could make it easier for Red Bull to make an early decision to part ways with the Mexican as the championship progresses next year, if he doesn't regain his former form.

AlphaTauri's decision means F1 is a step closer to having no line-up changes at all this off-season. With the exception of Williams, nine teams have already confirmed their line-ups will remain the same.

Judging by the signals emanating from Grove, Logan Sargeant's chances of a contract extension are looking rather good. The American has yet to score a point, but Williams boss James Vowles is prepared to give Sargeant, a product of the team's development programme, until at least the end of the season to demonstrate progress.

With Piastri now confirmed to the end of 2026, McLaren will be looking to extend team-mate Lando Norris's contract as soon as it can

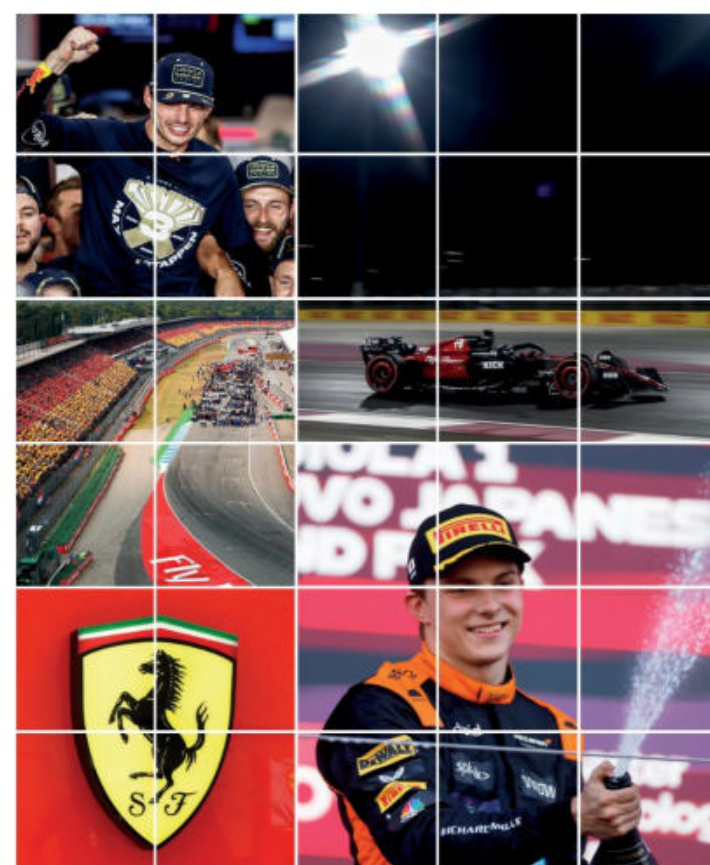


FURTHER PROOF OF PIASTRI'S POTENTIAL CAME IN QATAR, WHERE HE WON THE SPRINT FROM POLE AND CAME SECOND IN THE MAIN RACE

F1 MASTERMIND

Your chosen specialised subject: the world's greatest motorsport

- Q1** Before 2023 who was the last driver to win the first race of the season and go onto win the title?
- Q2** Who won their third world title in the fewest seasons: Max Verstappen or Lewis Hamilton?
- Q3** Who was the driver for all of Wolf's three F1 victories in 1977?
- Q4** In 1965 nine of the 10 world championship F1 races were won by British drivers. Who was the only non-British driver to win that year?
- Q5** How many victories did Jordan GP achieve in its time as an F1 constructor?
- Q6** Who am I? I started 95 GPs from 1972 to 1980 for Tyrrell, Ligier and Alfa Romeo, winning twice and claiming one pole position and four fastest laps.
- Q7** Oscar Piastri is the sixth Australian to claim an F1 podium. Who are the other five?
- Q8** Valtteri Bottas scored two points in Qatar, his first at the track, but how many of the 32 F1 circuits he has raced on has he not scored at?
- Q9** Which circuit, in any configuration, hosted more German GPs: Hockenheim or the Nürburgring?
- Q10** How many different drivers have won world championship F1 races for Ferrari: 27, 34 or 41?



1 Nico Rosberg, 2016 **2** They both won it in their ninth season **3** Jody Scheckter **4** Richie Ginther (Mexican GP) **5** 4 Patrick Depailler **7** Jack Brabham, Tim Schencken, Alan Jones, Mark Webber, Daniel Ricciardo **8** 2 (India and Korea) **9** Hockenheim (37 to 26) **10** 34

PICTURES: STEVEN TEE; SAM BLOXHAM; MARK SUTTON; ZAK MAUGER; ; MOTORSPORT IMAGES ARCHIVE

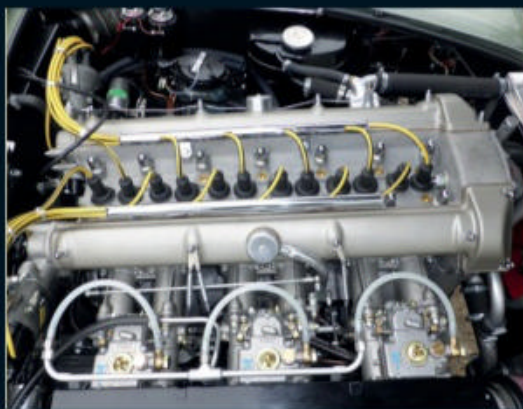
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THE F1 ANALYST

BEN EDWARDS

X @benedwardstv

PICTURES 

The first car drawn up along those lines was the Lotus 78. Sidepods were shaped underneath to suck the car down towards the track and it was a design Mario Andretti was already encouraging the team to follow as he was racing a car that wasn't generating grip in the dry. Yet Mario's wet-weather win in the 1976 season finale pumped Colin Chapman to throw himself into the development of the new car, understanding that he had a great opportunity to get back to the top.

The Lotus 78 proved to have the most grip through corners the following year and even though it wasn't the fastest in a straight line, it won numerous races; Mario would have had a chance to take the title but for engine unreliability. But Chapman pushed on; the Lotus 79 was all new, and ground effect became an even bigger part. He steered the team into designing a narrow central chassis with more space for the longer sidepods to create a venturi effect and it worked.

The 79 wasn't ready for the start of 1978 but the new car shone on its race debut in Belgium. Mario took pole and the race mechanics earned a joint bonus from Mario and Colin of \$1000 when it took victory. The fundamental advantage was similar to that seen by Red Bull this year: good downforce through corners while rapid in a

straight line. That led to a total of six wins for the 79 and seven consecutive pole positions in the latter part of the season. It also encouraged a great deal of analysis from other teams and many of them would reappear in much stronger form the following year.

Unlike Red Bull, Lotus was unable to repeat the success drawn from a clever design. There were flaws in other elements which began to surface when put under pressure; the chassis was flexible, the suspension was too soft and, when it was stiffened up, the chassis flex was even more noticeable. Part way through 1979 Lotus gave up on the 80 to revert to the 79.

Chapman was also very aware of the contribution Mario made and was full of praise for everything he did. Having a top driver with a top team is when the plan comes together and that's definitely the case at Red Bull.

The team's sporting director Jonathan Wheatley often attends Goodwood. He was there on the Friday of the meeting this year and could appreciate the joy of watching the Lotus 79. In his opinion there is definitely a link between the car Mario drove and the RB19 overseen by Adrian Newey which Max Verstappen has been shining in again this year.

"Both cars dominated their championship seasons," reflected Jonathan, "both exploited ground effects more successfully than their competitors and both cars were designed by teams headed by geniuses!" And in my opinion, both had relationships with top-level drivers which helped lift them even further...

AMERICA FIRST: 45 YEARS ON FROM A GROUND- EFFECT GREAT

F1 returns to the USA at a time when national interest in the sport is rapidly expanding, helped by having a US driver on the grid. Logan Sargeant will experience a new level of spectator passion as he attempts to consolidate his role at Williams. This hasn't always been the case in recent years as F1 struggled in the US; in fact it was a surprise a few weeks ago to realise I was attending an event on the 45th anniversary of the last time an American F1 driver became world champion.

September's Goodwood Revival corresponded with the weekend at Monza in 1978 when Mario Andretti took the title with Lotus, and the car which served him so well was being demonstrated in West Sussex. While the anniversary of that Italian GP always has the sad aspect of the loss of Ronnie Peterson, Andretti's team-mate, there's no doubt the Lotus 79 still captures the imagination. It was the last car to earn titles for Lotus but was the first



The Lotus 79 was at the recent Goodwood Revival meeting where it was driven by Karun Chandhok

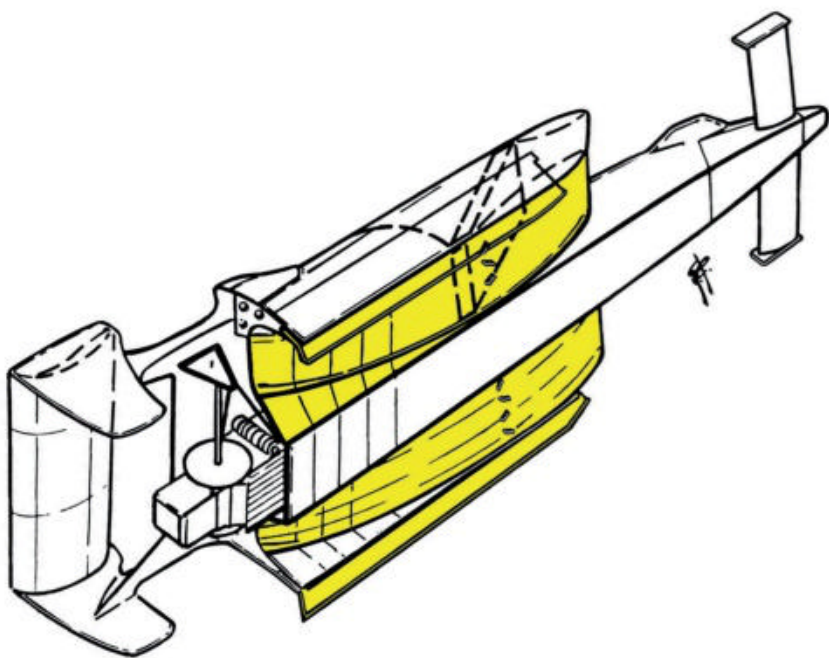
F1 car designed around the aspects of ground effect to win both the drivers' and constructors' titles.

Ground effect is a major part of current F1, having been reintroduced for 2022. In 1975 Lotus founder Colin Chapman was frustrated the team was uncompetitive and, while on holiday in Ibiza, came up with a list of design aspects he wanted the engineers to explore. One was how to improve aerodynamics and the crew spent late nights at Imperial College in London, where the quarter-scale wind tunnel proved useful. Especially since it had a rolling rubber belt that ran beneath the scaled model of the race car – because they quickly learned that lowering the front wing closer to the ground created greater downforce. As soon as they told Chapman, he was encouraging them to explore more aspects; not just the front wing but other parts of the chassis, to turn it into an upside-down wing. The basis of ground effect had begun.



Mario Andretti at the 1978 Italian GP, posing with the car which propelled him to his only world championship

The underside of the Lotus 79 with the large venturi tunnels in yellow. It was the first title-winning ground-effect car



Chapman and the Lotus 79 at the 1978 US GP. The car also raced for most of the 1979 season

The Lotus 78, a car that could have won a title, was just a precursor to the dominating 79



The Red Bull RB19 with Max Verstappen at the helm has, like the Lotus 79, dominated F1



UNDER THE HOOD

PAT SYMONDS

PICTURES **motorsport** IMAGES

IN THE FUTURE, LIFE WILL BE A GAS

As the world moves away from fossil fuels to alternative energy sources, hydrogen is often mentioned as a pathway to a low-carbon future. It's already making its presence felt in motorsport through Extreme H and various sportscar projects, but will it find its way to Formula 1?

Hydrogen is often thought of as a fuel but in reality it is, like electricity and synthetic fuels, an energy carrier. The difference being that naturally occurring hydrocarbons can be extracted from the earth and burned to release energy with a minimum of processing. It's true that the finer cuts of oil need considerable refining but crude oil, like coal or wood, is a naturally occurring fuel. Hydrogen on the other hand, although one of the most abundant molecules on the planet, doesn't exist in its singular form, preferring to react with other molecules to form compounds. The most common of these is when it combines with oxygen to form water – and it is from water that green hydrogen can be extracted.

We refer to sustainable hydrogen as 'green' but



Hydrogen as an energy source can be used in two ways: to feed a fuel cell or burned in an internal combustion engine

unfortunately, at present, less than 1% of available hydrogen is manufactured in a zero-carbon manner. Green hydrogen is made by passing electric current through water in a device known as an electrolyser which splits the water into its constituent parts of hydrogen and oxygen, which are then stored for subsequent use. If the electricity supply comes from a renewable source, then the product can be regarded as carbon neutral.

Most hydrogen is grey hydrogen, obtained by reforming methane gas to split off the hydrogen – but unfortunately allowing the carbon to escape to atmosphere. An interim type of hydrogen production is termed blue. This is manufactured

using the same reformers but the escaped carbon is sequestered underground, therefore not adding to atmospheric carbon.

The energy stored in hydrogen can be used in two ways for automotive power. It can either be used to feed a fuel cell or burned in an internal combustion engine (ICE) in a similar fashion to gasoline.

The fuel cell is effectively an electrolyser in reverse. It takes hydrogen and mixes it with atmospheric oxygen, generating electricity as it combines the two elements back to produce water. Fuel cells have disadvantages when it comes to racing. Firstly, they aren't particularly efficient, certainly not in the class of battery electric powertrains. This means that if a powerful fuel cell is required then it will also reject a

lot of heat. The problem is compounded by the fact that the fuel cell needs to operate at a relatively low temperature – maybe 50 or 60 degrees. This means that unlike a current Formula 1 power unit, where the water may run at 130 degrees and the oil at 120, there is a much smaller temperature difference between the fluid being cooled and the ambient air temperature. This then requires fuel cell vehicles to have much larger radiators than internal combustion-engined vehicles. The fuel cell is also rather slow to react to power demands and therefore a battery, albeit a smaller one, is still required to provide instantaneous energy to the electric motors.

Hydrogen can also be used as a fuel in an internal combustion engine and companies as diverse as Toyota and JCB are actively developing this for automotive and off-road use. When used in this way it doesn't release carbon compounds as products of combustion, although oxides of nitrogen are still produced. However, by running at very lean mixtures the production of NOx is practically eliminated as well as actually making the combustion better controlled.

Hydrogen also has an advantage in that for a given mass it contains a lot of energy, nearly three times as much as is in gasoline. Unfortunately, while petrol exists as a liquid at atmospheric temperatures and pressures, hydrogen exists as a gas and therefore would require an enormous tank if it were to be stored in this way. The answer, therefore, is either to cool the gas until it liquifies (which ►



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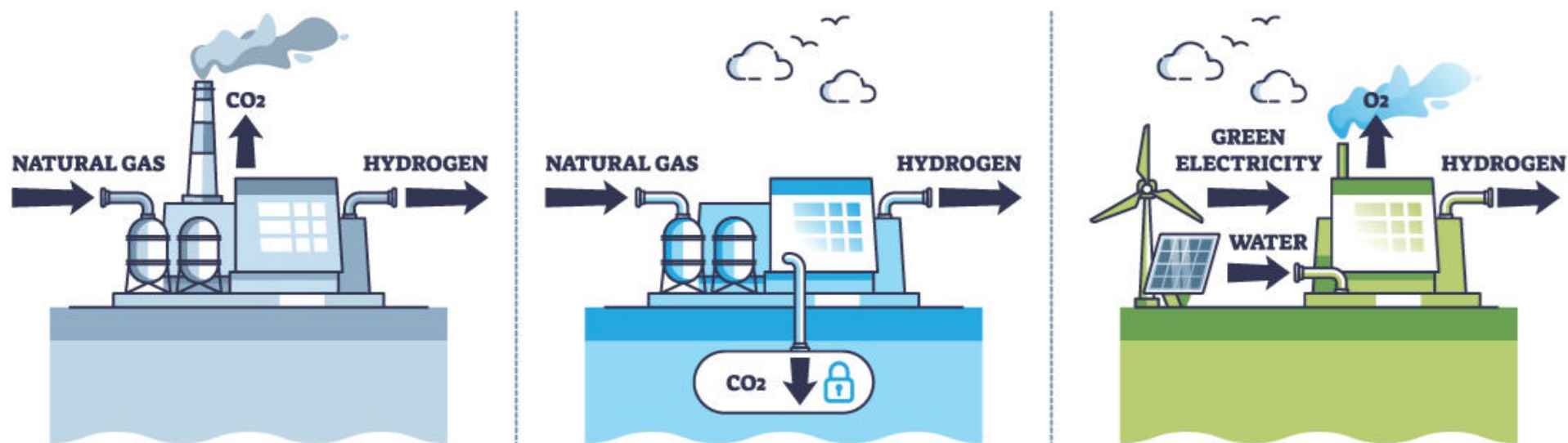
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There are three types of hydrogen 'fuel' ranging from grey (left), blue (centre) to green (right). Less than 1% of current hydrogen fuel is green



Hydrogen is already making its way into sportscars, but whether it ever ends up powering Formula 1 engines remains to be seen

is OK for spacecraft but not suitable for road vehicles), or to compress it to high pressures, which is the route taken by both fuel cell and hydrogen ICE vehicles. In theory this isn't a particular problem, other than the tanks need to be extremely robust to withstand the typically 700 bar pressure – but in being robust they're also heavy and this negates some of the mass advantage the fuel itself has.

The final problem with hydrogen is that it's the smallest molecule in existence and therefore it has a tendency to work its way through the intermolecular spaces of whatever tries to contain it. In practice this isn't a big problem unless you're leaving your vehicle parked for a very long time (or you're trying to pipe hydrogen to your central heating system through badly maintained pipes). One aspect of this propensity to permeate materials is something called hydrogen embrittlement. This is a real problem with high-strength steels that are exposed to

hydrogen. The hydrogen effectively attacks the steel, leading to failures at way below the expected stress levels.

So is hydrogen a viable energy source for racing engines? I think the answer is undoubtably yes but is it a better solution than, say, a blend of an advanced sustainable biofuel and e-fuel? That is a more difficult question to answer, since much will

THE PRODUCTION OF BOTH GREEN HYDROGEN AND E-FUELS MUST RAMP UP TO PROVIDE THE ECONOMIES OF SCALE NEEDED TO PROVIDE CONSUMERS WITH LOW-COST ENERGY

depend on how the infrastructures for transport fuels develop over the next decade or two. The production of both green hydrogen and e-fuels must ramp up to provide the economies of scale needed to provide consumers with low-cost energy. In Formula 1 we believe the answer lies in drop-in sustainable synthetic liquid fuels due to their versatility and ease of use. Time will be the judge.

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Over 30 years ago the tiny hamlet of Red Row Beamish became the unlikely home of Aston Martin restoration in the North. Starting with a DB5 restoration that took place in the farm outbuildings, Aston Workshop has grown, now employing 45 people within a 45,000 sq ft site encompassing sales, restoration, engine building, servicing, paint and bodywork facilities. On site we also have the Black Horse Beamish,

our 300-year-old gastropub, hotel and wedding venue, as well as the Car Barn, our sister company specialising in sports, prestige and classic cars. Aston Workshop offers everything from complete restorations of vintage, classic and heritage cars to servicing and diagnostics of the very latest models by our factory trained technicians.

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STRAIGHT TALK

MARK GALLAGHER
X @_markgallagher

more than sceptical about the prospect of yet another addition to the burgeoning F1 schedule when the event was confirmed last year.

My worst suspicions were that this would be a tacky, cynical add-on with revenue the only goal and the racing relegated in importance. The evidence on the ground says otherwise.

Yes, the tickets are super-expensive, but no one goes to Vegas to save money. The investment made by F1 is huge: Liberty's CEO Greg Maffei explained to Wall Street analysts that the capital expenditure on the permanent paddock building, race headquarters and track will reach £330 million.

The new buildings, pitlane complex and start-finish straight are situated on a 40-acre site acquired by F1 last year. This includes the main grandstand complex which winds its way through Turns 1 through 4 before heading straight down Koval Lane and into the sequence of five corners which will take the drivers around the stunning Sphere.

If you haven't already seen it on social media, check it out. The Sphere is something special. The world's largest spherical building, an

18,600 seat capacity venue wrapped in over half a million square feet of programmable lighting, it has cost £1.9 billion.

THE HEART OF THE AMERICAN DREAM

I don't often go hunting for motorsport films on long-haul flights but made an exception back in September when I noticed British Airways was showing *Monaco Grand Prix: The Legend*, the 2019 documentary directed by Franck Florino and written by Yann-Antony Noghès.

It was Noghès' grandfather Antony who founded the Monaco Grand Prix in 1929 and the documentary, narrated by Prince Albert, tells the story of how the race was conceived and funded. Ultimately it fell to René Léon of the Société des Bains de Mer, manager of the principality's major hotels and the Monte Carlo Casino, to come up with the money needed to transform the city streets into a racetrack.

I was watching this while flying to Formula 1's latest addition to the calendar, Las Vegas. Another seemingly unlikely street circuit, yet one which will also wind its way between the hotels and casinos which are the economic driving force behind Sin



The 18,600-seat Sphere, constructed at a cost of £1.9 billion, will definitely catch the eye when Formula 1 hits the streets of Las Vegas

City. The following morning I walked the circuit in searing heat, all 3.85 miles of it, and was left to ponder at yet another example of how Formula 1 has been transformed under Liberty Media.

Park your preconceptions, bury your biases and open your minds. I say that because I was

Whether Max, Lewis or Fernando will be able to keep their eyes on the track while navigating it remains to be seen, but there is no question the Sphere will provide a photogenic backdrop late on a Saturday night.

If this all sounds like a distraction from the racing, fear not, for the super-smooth circuit curves its way around to Las Vegas Boulevard, the famous Strip, which is long and quick, widening at its end, a likely overtaking opportunity as it turns

left into East Harmon Avenue. The Treasure Island, Venetian, Flamingo and Bellagio casinos will flash by.

So too will Caesars Palace, scene of the 1981 and 1982 GPs which were held in its car park and generally unloved by all who visited. As has often been the case, Bernie Ecclestone had the right idea but was ahead of his time. It's taken Liberty Media to create a Las Vegas Grand Prix worthy of the name.

I cannot wait to watch it.

THIS MONTH

Haider Rafique

Global Chief Marketing Officer, OKX

At the Singapore and Japanese GPs McLaren raced with a special ‘stealth mode’ livery in deference to its partnership with technology and software company OKX. Global chief marketing officer Haider Rafique explains the rationale behind this brand activation approach and how the crypto firm is engaging with F1 fans

CV

2021-present

Global Chief Marketing Officer, OKX

2020-present

Global Chief Marketing Officer, Okcoin

2018-2020

Head of Growth, Blockchain.com

2014-2018

Director of Product Marketing, CA Technologies

2011-2014

Head of Product Marketing/ Verticals, Microsoft

2009-2011

Account Director, J. Walter Thompson

2008-2009

Manager, McCann Worldgroup

GP Racing: Before we discuss the special livery McLaren competed with in the Asian leg of the calendar, tell us about your personal interest in Formula 1 and how you built the relationship between OKX and McLaren?

Haider Rafique: I grew up obsessively watching Formula 1 and MotoGP and was of the generation watching Mika Häkkinen and David Coulthard race. Then I remember Juan Pablo Montoya and Fernando Alonso coming onto the scene, although my hero before them was Ayrton Senna. I was fortunate to be in the role of chief marketing officer at OKX when we went through a phase where we decided we needed to rebrand our company. We were dominating in South East Asia and Asia Pacific and my job was to make the brand global.

After the rebrand I convinced our board we needed to align ourselves with properties that had competition in their DNA. As a result we worked with Manchester City FC and in parallel were exploring deals with F1. After initial talks with other teams, [McLaren CEO] Zak Brown and I hit it off and, as I had an affinity with this team, we became a primary partner with McLaren.

GPR: Why did you choose the two Asian races to work on what has been dubbed a ‘stealth mode’ livery?

HR: Since we partnered with McLaren, my obsession has been about one thing. I don’t want OKX to look like every other logo on the car. My intention is to bring my passion for the sport and do things that supercharge the fan experience. Ultimately I want to make it about the fans and if we do that well, we will build up equity with them. The reason for Singapore and Japan is firstly they sit next to each other in a double-header, but more importantly it’s about developer activity.

If you look back 10 or 20 years ago a lot of technology activity was in Silicon Valley. As software became more modular and tools became more accessible, you’re now seeing developers around the world. But there is one important thing, there’s now more of a concentration of

INTERVIEW JAMES ROBERTS

developers in South Asia and Asia Pacific — there’s a lot of innovation coming out of this region.

GPR: How successful was the fan zone activation you did in Singapore during the Grand Prix weekend?

HR: We took a big risk with the fan zones, as we didn’t know what the reaction would be with the public. But the basic intention behind doing them was back to the principle I said earlier. How can we as a company and a brand supercharge the fan experience and make the sport more accessible?

The OKX fan zones are open to the public and allow the fans to get closer to the team, the car, the livery, and also to have special appearances by the drivers and Zak. To our surprise when Lando Norris showed up there were about a thousand people there too.

We were overwhelmed at the amount of fans and how energetic they were. It was a huge success. We’ve done a few before, but we really cracked it with this one and we’ll continue to do more in the future.

GPR: Can you explain a little about OKX and the ideas behind developing Web3?

HR: If we think about our parents’ generation and how they would invest in open markets, they had to call a financial advisor and they would write on a piece of paper what stocks they wanted to purchase. They would then walk down to the stock exchange and place the order. Now everything is on your phone and that’s true of every other market, financial or otherwise. Crypto markets are interesting because what it has allowed the world to do is enter these new markets in a very democratic way.

Ultimately OKX is a software technology company. We create software that allows people to come in and access these markets. There are two sides, one is the centralised side, which means we operate like brokerage platform, the other side is Web3 and decentralised finance, in which the user has the full control. So imagine having the software to be your own bank — that’s essentially Web3.

PORTRAIT: STEVEN TEE



If you think **Fernando Alonso** is clinging on to grand prix racing in the increasingly forlorn hope of adding to his two world titles... you'd be wrong. Speaking exclusively to *GP Racing*, some of his closest associates explain what keeps this phenomenal competitor coming back for more – and why he's just as quick as ever

THE HUNGER GAME

WORDS OLEG KARPOV PICTURES  **motorsport** IMAGES FERNANDO ALONSO/INSTAGRAM AND ASTON MARTIN





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Alonso's love for racing aside, his early season podiums will have also helped with his motivation to continue in F1

HE COMPETES. IT'S WHAT HE DOES.

And at 42 years of age Fernando Alonso shows no signs of slowing down – or of forsaking his abiding passion.

“He loves it more than others.” Pedro de la Rosa – podium finisher with McLaren, Bahrain lap record holder, Aston Martin ambassador and Alonso's compatriot and friend – doesn't have to think too hard when *GP Racing* asks him what keeps Fernando in Formula 1, and why he's still ferociously quick.

“The thing is, if I knew exactly why he's so good, I'd be in that car,” Pedro laughs, nodding towards the Aston Martin garage. “But I don't think there's any other reason he's still here. He has a very strong love for motor racing. And I don't mean Formula 1. I mean any kind of racing.

“He calls me in December 2021 and says, ‘Why don't we go to Dubai and do the 24-hour kart race?’ When he called me for the first time, I said: ‘Man, aren't you tired? You just had a whole year of F1, and now you want to race go-karts?’ And he said, ‘Well, racing doesn't make me tired.’

“So, we go there and he ends up being the fastest of our team, by far. He ends up doing the maximum number of stints allowed, which is about eight hours in total, and the rest of us do the minimum we can. He also acts like a team manager. He's deciding the strategy. He brings his laptop, he's in charge of the run plan. And it's fantastic to see, because you realise the level of detail he goes into – in every type of racing – and how much he enjoys it and how much fun he has.

“And that's the main reason he's still at his peak, it's because he hasn't backed off. He's training as hard as when he was 20, if not harder. And that translates into this level of performance. Obviously, it's not enough, other drivers could do the same. But then you add a level of natural talent hardly equalled by anyone, and you get Fernando.”

NATURAL BORN WINNER

There's a clear trend running through the list of drivers with the longest F1 careers. Six of the top seven positions – with Rubens Barrichello as the outlier – are occupied by world champions with 300 or more grand prix entries. All six are from the current century: Alonso, at the top of that list by some margin, is joined by Kimi Räikkönen, Lewis Hamilton, Jenson Button, Michael Schumacher and Sebastian Vettel.

This is hardly a coincidence, given greater professionalism as well as calendar expansion. Today's drivers are athletes in a much broader



Even after a full season of F1 Alonso can't resist racing. In 2021, as he had done in other years, he took part in the 24-hour kart race in Dubai

sense than at least some of the individual heroes of the last century – contrast the likes of James Hunt or Keke Rosberg with today's clean-living, scientifically trained prodigies.

Today's drivers also start younger and the most talented ones generally stay longer at the top – partly because Formula 1 is a vocation rather than a job for them, but also because they remain in demand.

“There's absolutely no question about his natural talent,” says Rob Smedley, who observed Alonso during two phases of Fernando's career.

“I saw it in 2000 when I was his Formula 3000 engineer. He had kind of moved from Formula Nissan in Spain straight to Formula 3000, which was a big jump. He didn't speak any English, so it was difficult to communicate in the very beginning. But from the first test in Barcelona, he turned up with his helmet, no preparation, and almost immediately he was massively on the pace – unbelievably so. I was in my early 20s then, but I knew enough about racing drivers to know when you found a gem.

“Obviously he was learning – new cars, a lot of power, a lot more grip, a lot more downforce than he'd been used to. But by the end of the year he was dominating. I think he had the win with the biggest lead in Formula 3000 history at Spa. His team-mate was Marc Goossens and Fernando won by, I can't remember, something ridiculous [just over 14s]. He was just so good.

“Some people have natural talent, some people work hard. When you have the two things combined, the combination is incredible.

“He is unbelievably tenacious. He wants to get the best and the most out of every situation and ▶

doesn't stop thinking about it. It's not a weekend job for him. It's a vocation for him. And he's totally and utterly committed to it. That's the mentality of Fernando. 'Good enough' is never good enough for him. It has to be perfection. And it's a drug to him."

MONK MODE

Something sets Alonso apart even from his fellow greats. Schumacher and Räikkönen both kept racing into their 40s, but few would argue they were at their peak then. As family men, they had shifted their priorities towards home life long before retirement. The same can be said of Vettel.

"He just cannot have a family and this level of commitment," says de la Rosa. "And when he retires he will. We all want to have a family. But I don't think he's at a point in his life where he would like to compromise. He gives it all, no matter what he does. So whenever he has a family, which for sure he will, I'm sure he'll be a great husband and father."

Back in the McLaren-Honda days, when Alonso raced with Button, neither found competitive

success there. And for Button, who struggled to find motivation to continue fighting for lower points-scoring positions, this would lead into his new life – a move to the US, starting a family and racing in other categories with a more relaxed schedule. Alonso, though, stayed the course, ending Stoffel Vandoorne's F1 career in the process – including a qualifying head-to-head 21-0 in 2018 that wouldn't have been possible if Alonso had slowed down even a little bit.

It's the lack of any sign of Alonso's focus diminishing that came as the biggest surprise to his current team principal Mike Krack.

"You have the expectation of a driver that joins you," Krack tells *GP Racing*, "and who is, you know, 350 races, two world championships, 32 wins, moving from a team that on paper was fourth to a team that finished seventh... I had this before. We had Jacques Villeneuve at Sauber... I thought, 'Whoa, this is going to be really difficult.' But from day one it was positive energy, maximum determination. I was blown away by the approach and the level of energy."

This is what makes Alonso stand out. His last F1 title was in 2006, his last win in 2013 – and

since then he's driven some truly mediocre cars which matched neither his level nor his ambitions. But after a brief pause-and-recharge in other categories he returned with Alpine in 2021 and a couple of months in was already at his best again, ferociously defending against Lewis Hamilton in Hungary. His latest move, to Aston Martin, had been agreed when that team was stuttering in the back of the midfield and in need of some fresh impetus.

THIRD TIME UNLUCKY?

There's another fascinating Alonso stat. He's just a combined 11 points shy of being a five-time world champion, across his three last-race title defeats in 2007, 2010 and 2012. And that might also serve as strong motivation.

"I've asked him a few times about it," says Jesus Balseiro, reporter for *Diario AS*. "He insists the third title is the big motivation for him and the big goal. He wouldn't be here if a third title wasn't possible. But I think it's not the main focus he has now. He's enjoying the day-by-day routine, every race weekend, even a bad weekend."



Alonso's talent became obvious to Rob Smedley when he worked with him in F3000 (below) in 2000. At Spa (above) Alonso finished an unheard-of 14 seconds ahead of team-mate Marc Goossens



OLD DOG, NEW TRICKS?

Mark Arnall, former coach of Kimi Räikkönen, explains how drivers cope with the march of time

"The physical side of things was never really the issue with Kimi. Obviously when you're in your 40s you have to look at the way you train, but there's no doubt he could have continued in F1 for a few more years. There were other reasons for stopping."

"Certainly, the training routine is different. When you're working with a driver in his late 30s or early 40s, the focus is more on recovery. We had a cryotherapy chamber installed in Kimi's house, which he used a lot, and we focused a lot of our nutrition on the recovery side. We had a detailed blood and urine analysis done so that every year we had a complete overview of everything that was going on in his body. That way we could see all the different stress markers and we could tailor a lot of the supplementation to counteract that."

"We would focus a lot on sleep, which is a big part of the recovery side. A lot of the functional training and a lot of the stability work was just more important. When you're a younger athlete, you just bounce back better and recover faster."

"In terms of reaction, all the tests we've done, there's been no difference. As you get older, things like reaction and eyesight can start to deteriorate – but that can vary from athlete to athlete."



ALONSO'S REASON FOR RETURN WAS SIMPLE – HE JUST WANTED TO RACE IN F1 AGAIN. AS HE HIMSELF NOW SAYS, A TWO-YEAR PAUSE HELPED HIM APPRECIATE EVEN THOSE PARTS OF F1 HE HADN'T ENJOYED BEFORE

He doesn't look like he's stressed or sad, like maybe in the past. So, I don't think there *has* to be a third title. But of course, he's pushing for it."

De la Rosa, too, is convinced Alonso's motivation is different to that of a gambler chasing a losing streak.

"No, 100%, that's not what drives him," he says. "In all the time I've spent with him, he's never mentioned any bitterness of having lost the world championship in the last race. It's one of his strengths. Whenever he's had bad days, he puts them behind and moves on. There's no bitterness, no looking back. It would be difficult for me, or for someone else. I would look back and think, 'I want revenge'.

But that's not his attitude. And this is what I like about him. He doesn't have any baggage."

Alonso's reason for return was simple – he just wanted to race in F1 again. As he himself now says, a two-year pause helped him appreciate even those parts of F1 he hadn't enjoyed before.

"Maybe in the past, he didn't like that much all the surroundings of F1," says Balseiro, "the events and marketing and media. But now I feel he's having fun even with that. He knows this isn't going to last forever. So he's just enjoying every minute, sometimes even in spite of the results."

"He reflected a lot in these two years when he wasn't there," agrees Krack. "I think, this time out of F1 made him also a different person, compared to... you know, I think there are really two different personalities. Generally, I think he's a very friendly person. Very competitive, but very mature and very... integrating. Which probably, maybe if we had this interview 10 years ago, might not have been so right. Possibly."

CAREER CHOICES

Though Aston's form has petered out of late after a commanding start to the season, Alonso's 'bet on green' has resulted in more trophies and a long stint in third place in the title standings. For someone who has a reputation for making bad career choices, it's been a mostly positive move.

Those close to him see that reputation as ►

“I’M THE MASTER OF MY DESTINY”



unjustified. After all, he moved to McLaren and fought for the title straight away; at Ferrari he was the only one who challenged the mighty combination of Sebastian Vettel and Red Bull. Ultimately McLaren-Honda didn’t work – but at the time it seemed less of a gamble than, say, Hamilton committing to Mercedes in 2012.

“In life, and in F1, if you have no choice, no one will blame you for anything,” says de la Rosa. “But if you can choose and then fail, people will always say, ‘Why did you go there?’ I think that’s an unfair stamp he has. Had he won those two or three championships [with Ferrari and McLaren], we would be saying how great his decisions were.

“The bottom line is he’s having a fantastic career. And in many years he’s been fighting for the championship until the last race. How great is that to wake up on Sunday thinking, ‘If I have a good day, I can win the championship?’ And he’s been in a position to do that many times.”

Alonso choosing Aston wasn’t because he knew it’d be one of F1’s biggest surprises this year. That was simply a bonus. The move was an example of how Fernando prefers to be in control of his future rather than having terms dictated to him.

“I’m the master of my destiny”, he told Balseiro in an interview at the time.

“I was surprised when he left Alpine, I didn’t understand it at first,” says Balseiro. “Then, speaking with him, I started to realise his motivation. And I kind of like that way of

thinking: ‘If I decide myself, no one else can decide for me.’

“If he had kept waiting for Alpine, maybe he would have had to sign whatever they gave him. And maybe, one day, he would be out because someone else decided that.”

AGE IS JUST A NUMBER

But the hard truth can’t be ignored, even if Alonso’s Aston colleagues have done well to avoid

the topic of his age in the media. At 42, most of his career is in the rear-view mirror. For how much longer can he stay at this level?

“With the level that he’s operating at, I think [age] it’s just a number,” says Krack. “With the right discipline and motivation it works without a problem. You see Valentino Rossi, for example, or you see tennis players [like Roger] Federer, he went really long in his career. Maybe we have to change our approach – age these days, I think it’s massively overrated. ▶





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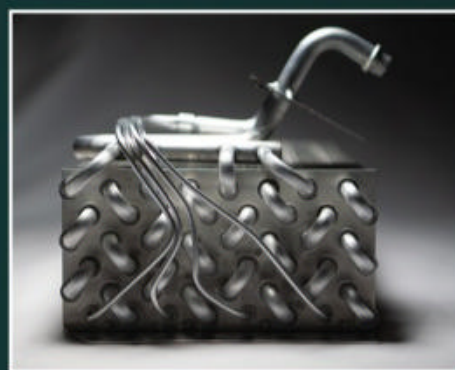
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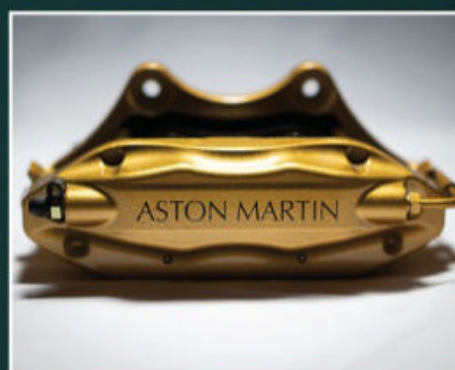
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“THE COMMON DENOMINATOR IS PASSION. THE MOMENT YOU DON’T HAVE PASSION, IT DOESN’T MATTER. BECAUSE THEN YOU DON’T FOLLOW YOUR ROUTINE, YOU DON’T TRAIN HARD ENOUGH, YOU DON’T DEDICATE THE TIME. AND THIS IS WHY FERNANDO IS SO STRONG AT HIS AGE AND WILL CONTINUE”

PEDRO DE LA ROSA

“When you see the desire... I had drivers that were not even 30 who were like, ‘I have achieved everything,’ even when they hadn’t achieved much. And then you have this example [of Alonso], with massive focus, massive determination.

“We aren’t even speaking about it [his age]. It’s you guys [the media]. That is the interesting bit. It was fortunate for us that his previous team was making quite a story out of it – that made it easier for us.”

Alonso with friend and former F1 driver de la Rosa, and Aston Martin team principal Mike Krack (right). Both de la Rosa and Krack think that Alonso can continue in F1 for a while yet

Time, of course, remains undefeated despite various attempts by wealthy individuals to turn the clock back (46-year-old US tech billionaire Bryan Johnson, for instance, famously mainlines his own son’s blood). There’s simply no knowing when Alonso will begin to feel the effects of age.

“It’s very individual,” says de la Rosa. “There are some drivers way over the peak at 40 years old. For some others, like Fernando, I don’t see an end. Why would you retire if you’re peaking?

“It’s not like he follows a different nutrition or training programme. The thing is that he’s done it all his life. You don’t go on a diet to suddenly extend your career until you’re 50. No, you need to have done it all your life.

“And you have to have the most important factor, the common denominator is passion. The moment you don’t have passion, it doesn’t matter. Because then you don’t follow your routine, you don’t train hard enough, you don’t dedicate the time. And this is why Fernando is so strong at his age and will continue.”


And this is the abiding truth of the matter. For



Alonso – to quote an old Steve McQueen movie – racing is life. He doesn’t need the money. He just has an unquenchable hunger to compete. And he loves doing it.

“I think the key to Fernando is that he doesn’t do this for the money or for the glory or for the success,” says Balseiro. “He’s here because he’s having fun. Because he loves being in F1. And he

wouldn’t have that much fun anywhere else.

“For how much longer can he stay? For sure, 2024 and 2025. My doubt would be 2026, I think, with the reg changes and the Honda engine. But that doubt is mine. If Fernando has a strong 2025, there will be no doubts for him – he will extend, for sure. If he’s still fast... And he probably will be.” 



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INSIDE THE TREE HOUSE

Tyre preparation is an art, and it needs to be performed in a special place as Aston Martin performance director Tom McCullough explains...

INTERVIEW OLEG KARPOV

PICTURE ZAK MAUGER

1

"What you see here is the tyre preparation area in what we call the Tree House, a space between two trucks behind the team garage. This is where we store all the tyres we get from Pirelli before the weekend. Firstly, it's a more consistent temperature compared with outside plus we don't want the sunlight on the tyres because the UV [ultraviolet] isn't good for the rubber. And it also keeps them from getting wet when it rains.

"These blankets are quite sophisticated. Over the years they've evolved a lot from the primary ones, with the main focus being to make sure they heat the tyre uniformly. The worst thing is to have an area of the tyre that isn't hot enough. That can cause all sorts of problems, so a lot of effort goes into designing the elements to make



sure you heat the tyre evenly. And obviously, with the change in regulations, you don't want it to take too long because you can only have them on for two hours. You also don't want them to overheat, because the FIA monitors it: it's illegal to go over the temperature, so we have to have the control software that heats them up as quickly as possible, but not too much, otherwise the FIA would get the alarm and you'd be in trouble.

"It's quite an art and, like everything in F1,

it is something that's constantly evolving. Now, in a cost-cap environment, you can't buy new blankets every year because they're also very expensive. But we're trying to develop new ones every two or three years."

2

"As you can see, we use two colours to distinguish our blankets. Blue is for Lance's tyres and yellow is

2

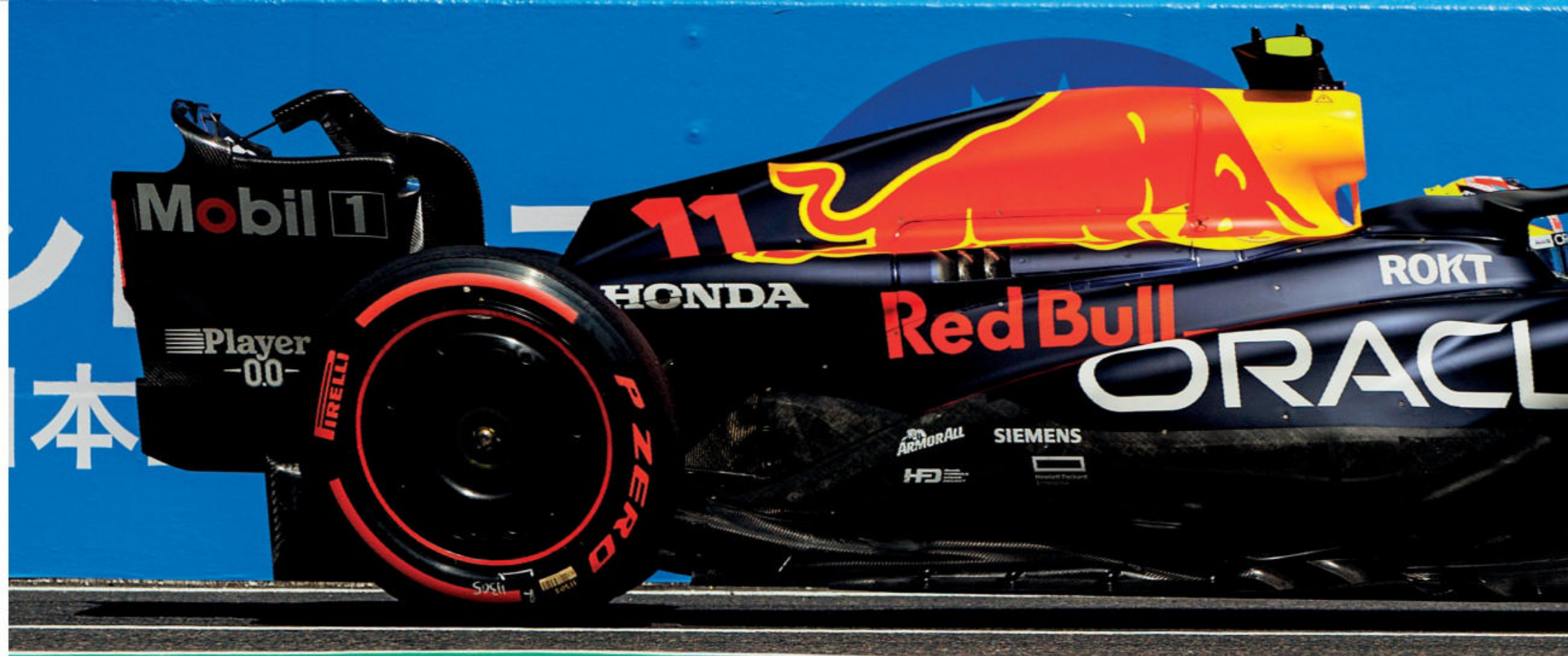
"We bring the tyres into the garage as we need them. Sometimes you can have up to five sets in there. When it comes to qualifying, that's the busiest because you need the most sets in the shortest amount of time. And some of the garages are small. So when we come to places like Zandvoort, for example, it's quite a challenge – to the point where we sometimes have to ask the guests not to be in there during qualifying because we just can't get the tyres in and out without knocking them over!"

4

"All the pressures on the tyres are done through these units. You see the coloured leads here? They're all connected to the valves of the four tyres. So the tyre technicians can just plug in their pressure gauge and do all four tyres without having to unpack them."

5

"It's just a last-minute check for the mechanics, so they can see if it's the right tyre before they actually put it on."



JACK OF ALL TRADES

Perhaps it's not *quite* true to label the Red Bull RB19 a 'Jack of all trades, master of none'. Formula 1's trip to Singapore proved that the car is indeed fallible: the bumps and staccato corners of the Marina Bay street circuit finally pushed the current performance benchmark beyond its incredibly wide operating window.

That weekend was unlike the end of the McLaren MP4/4's winning streak at Monza in 1988, which came about through bad luck and poor judgement – engine trouble eliminated Alain Prost before Ayrton Senna then stumbled over Williams substitute Jean-Louis Schlesser. In Singapore the RB19 lost its 100% record when its inherent shortcomings were exposed. But it's by zeroing in on

these scarce weak spots that the car's – for the most part – brilliance can be appreciated.

The Singapore lap is typified by short 90-degree corners and aggressive kerbs. To conquer these in a period of ground effect and spending restrictions, which compel protecting expensive and complex carbon floors, entails jacking up the ride height. The resulting loss in performance – Max Verstappen

recovered from 11th in qualifying to fifth as team-mate Sergio Pérez climbed from 13th to eighth – reinforced the notion that the RB19 doesn't like uneven surfaces. That's why Fernando Alonso could make Verstappen sweat in Q3 in Monaco, which eventually went the way of Max by a mere 0.118 seconds – with the caveat that Red Bull openly favours race pace at the expense of qualifying trim. It also emerged at Spa that the Red Bull drivers were backing off through Eau Rouge to avoid bottoming out.

However, this doesn't mean that for most snooker-table-smooth permanent circuits, engineers simply whack the RB19's suspension as low as it will go. Predictably,

it's a little more nuanced. When stationary the Red Bull still sits high enough. But once it's rolling, it markedly hunkers down as the passing air presses it into the asphalt. That the chassis has the capacity to sink into the surface points to a soft set-up, which helps Verstappen and Pérez nurse those precious Pirellis.

As the car runs increasingly slammed, the RB19 excels with an ability to maintain a predictable aerodynamic platform. This equals consistent behaviour through different corner profiles which, in turn, precedes a capacity to drop the rolling ride height further to maximise ground-effects and therefore downforce. Yet Red Bull can still escape the porpoising



MASTER OF WON

Despite shattering Formula 1's record book, Red Bull's RB19 isn't a groundbreakingly innovative car. So why can't F1's greatest brains replicate its success?

WORDS MATT KEW PICTURES  AND GIORGIO PIOLA

sensation that hobbled rivals so severely in the early part of 2022.

Not revolutionary, just "average good"

Brilliant? Undeniably. But hardly as exploitative of the rulebook as the double-diffuser from 2009. Nor as pioneering as the Lotus 72 rocking up with sidepod-mounted radiators and setting the template to which all future F1 cars would be designed. Despite it amassing 14 GP (and three sprint race) victories on the bounce, the RB19 isn't a gamechanger.

As team technical director Pierre Wache explains: "I don't think we understand more than the others. I think it's more we have a compromise maybe better than

others. Everybody understands, more or less, the weight of the mechanical grip starts to be higher than in the past; the stiffness has a big play on that. Then the link between the aero characteristic and how you have to run the car is bigger even than before.

"[The car] is average good for everything – that is creating a good car. It's not very good in one aspect. Fundamentally, I would say we didn't do a fantastic job. I was more surprised by others who didn't do as good a job."

When it comes to ride control, Red Bull hasn't relied on a silver bullet in the form of a trick damper that the FIA will imminently ban. Instead, success is owed to a less headline-grabbing thorough

understanding of the whole package. The same is true of the aerodynamics. The treatment given to the floor – designers estimate the current regulations place 60% of the emphasis on underbody aero and the rest on top surfaces – enables the RB19 to generate sufficient downforce that the rear and beam wings can then be backed off. This has contributed so greatly to the car's straight-line efficiency north of 180mph.

Whereas the acceleration curves of Mercedes and Ferrari tail off more quickly at the end of a straight as drag takes its toll, the Red Bulls keep marching on. Given the potency of the RB19's floor, mechanics can opt for a low-drag rear wing but still theoretically

inspire driver confidence. Verstappen, at least, puts that into practice. Alternatively, a chunky main body for the rear wing can be equipped so a larger flap will yawn open to exploit DRS. This is compensated for by fitting a slender single-tier beam wing that slices cleanly through the air. Again, very clever but not necessarily earth-shattering.

Red Bull has been tinkering with this set-up for the better part of two seasons now. The question is, why did it take until the 2023 Belgian GP and a major McLaren upgrade package for another team to try and properly replicate this success? Even Red Bull is surprised it has been so long. Wache adds: "What is crazy is that people speak about it ►

two years after we introduced that. We had hundreds of checks from the FIA to check if we had a trick. People don't understand why on the very high-downforce tracks, the advantage disappears. OK, so they still don't understand. That very much surprises us."

Deeper understanding

The answer begins in 2022 with the double championship-winning RB18

that reigned supreme in 17 out of 22 GPs. Given its supremacy, Red Bull naturally favoured evolution over revolution for this year's challenger. With a sound concept established, attention turned to putting the car on a diet, optimising weight distribution, learning just how stiff a set-up could be deployed, plus nailing the mandated 15mm rise in the floor edge and kick line devised to eradicate porpoising.

As Mercedes and Ferrari

continued down their developmental dead ends – the former eventually abandoning attempts to unlock the capricious 'zeropod' concept, the latter plateauing with the performance that could be extracted from its bathtub design – Red Bull gained ground by refining its downwash sidepod solution. Now, even though all teams have coalesced around this optimum, they are still playing catch-up to Red Bull, which arrived at it first and has

had to time to perfect the art.

While Pérez crashing out of Q1 in Monaco allowed well-positioned photographers to snap the treasure chest that is the Red Bull floor as the car was precariously craned, teams couldn't simply reach for the tracing paper. Unlike the previous-generation machines that responded to more and more downforce being bolted on in the form of an even fiddlier bargeboard, these ground-effect racers require a holistic approach. The aero platform, ride height, stiffness and tyre wear are all intrinsically linked. To hit the sweet spot means avoiding the temptation to pinch one design aspect from Aston Martin and marrying it to an element from Alpine. They were never conceived to work together.

What's more, the cost cap now prohibits teams from spending their way out of trouble and introducing 'B'-spec machines. They're much more locked into their existing architecture. This has helped Red Bull maintain its advantage

and offset the 10% reduction in windtunnel time and CFD simulations dealt by the FIA for exceeding the 2021 cost cap.

Excluding late red flags and Safety Cars (Australia, Great Britain and

the Netherlands) plus Verstappen pitting late for fresh tyres to nick a bonus point for fastest lap (Austria), and the average gap from the winner to the highest-placed non-Red Bull car stood at 21.928s. That was until the Singapore nadir, where Verstappen took the flag 21.441s adrift of Carlos Sainz. But seven days later, the defending champion crossed the line in Suzuka 19.387s clear of the chasing pack. The RB19 is still very much the yardstick. Granted, though, the static nature of the gap at the chequered flag has been partially



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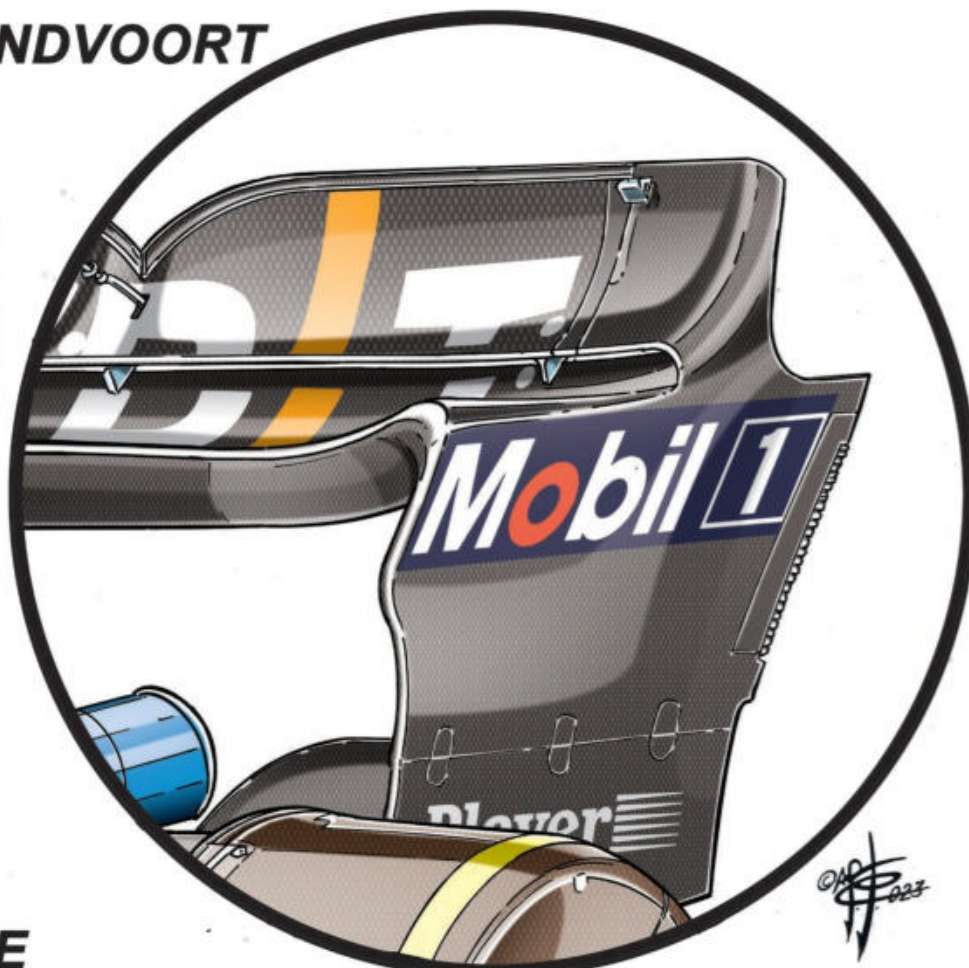


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ZANDVOORT



SINGAPORE

Red Bull has kept on refining the RB19 but even a different rear wing for the Singapore race (above) couldn't protect its winning run

enabled by the inability of Red Bull's rivals to decide who wants to finish runner-up; McLaren is now in the mix for second-best after the decline of early threat Aston.

No silver bullets

Bouncing back in Japan also indicated Red Bull boss Christian Horner was right to state that nothing on the car had changed as a result of two technical directives coming into force just in time for the Marina Bay blip. TD18 acted as a ban on flexi-wings, after some competitors had worked masterfully to conceal moveable mechanisms that rotated around the nose cone. TD39, originally an anti-porpoising intervention, was also tightened to banish floors flexing around the skid block holes and plank. Had Red Bull also struggled at Suzuka, there would have been mounting evidence to suggest the secret behind the RB19's success had been exposed – and outlawed.

Horner says: "There are no silver bullets in this business. I know all of you would love to blame the TD but unfortunately, we can't even




At Suzuka it was business as usual for Max, proving that the two pre-Singapore technical directives had not neutered the RB19

blame that. It's not changed a single component on our car." He clarified: "At Monaco, there were already signs that street circuits were a challenge for us. Azerbaijan as well. I think that there have been some short-corner circuits that have posed some issues for us. It's something that obviously we'll be looking to address going forward because you have to have a car that can compete across a broad spectrum of circuits. I think actually that's where RB19

has been pretty strong."

Finding a fix for short corners. Hardly a shopping list of problems to resolve for 2024. And that is the bottom line when it comes to determining the success of the RB19. The constructors' championship is more determined by how strong each car is when it's at its worst. Not how good it can be at its best. Red Bull's deep appreciation of ride control and aerodynamics helps the car remain stronger for longer.

Chief engineer Paul Monaghan sums it up: "Its weaknesses are less than those of our competitors. You could say that our ducks are lined up in a row presently. Ultimately, we're blessed with a very competent car, different circuits, different downforce levels, different speed ranges. Its weaknesses are not such that we can go to one track thinking we might get a win and other tracks we're going to struggle. We don't fear them." 



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DON'T SCHU FORGET ABOUT ME

Currently out of a race drive – temporarily, he hopes – **Mick Schumacher** is working the simulator at Mercedes and playing a key role in Lewis Hamilton and George Russell's race weekends. Will this provide a route back in?

WORDS OLEG KARPOV
PICTURES 
MERCEDES

Ever felt like taking a nap while watching the first practice session of a Formula 1 Grand Prix?

If so, you may as well apply for a job as reserve and simulator driver for an F1 team – provided, of course, you can handle 1000bhp four-wheelers and don't get dizzy from being bounced around inside a carbonfibre capsule on pneumatic rods for hours on end.

Mick Schumacher isn't bad at all of that. Although, he confesses to *GP Racing* as we sit down for a chat in Mercedes' enclave within the Singapore GP paddock, sleeping through FP1 isn't always easy. But it's also part of the job to be able to work well past midnight in that phase of a grand prix weekend...

"No, luckily I'm in a hotel," he laughs at the suggestion that he'd have to curl up on a bench somewhere in the engineering office on those long Fridays when he's on Mercedes sim duties. "It looks like a prison, though. Obviously, no windows, because you want to have as little light as possible, but... it's necessary."

This is a typical daily routine for someone with Mick's job description. As well as being the team's reserve, Mick is also Mercedes' full-time simulator driver, so he spent the start of each European round of the championship at the Brackley base – since setup work is virtually non-stop these days.

"Usually, on Thursday there's a simulator planning meeting for the overnight session, which is on Friday night," he says of his routine during the European season. "So during FP1 I'm sleeping, or trying to at least. And then, going into FP2, I'll start getting ready..."

During the second sessions, Schumacher's job is to make sure the simulator replicates what happened on track as accurately as possible, down to the smallest detail, from the car's behaviour on bumps to the

effect of wind direction. All this in order to extend FP2 for a few more hours and, if necessary, make changes to the setup that Lewis Hamilton and George Russell will then have at their disposal in FP3.

Life in a day

"It's quite advanced, very advanced," Schumacher says of the modern Formula 1 simulator. "All the data they have on track,

we can simulate it, so we have exactly the same conditions as we have on track. Then, once we're done with a correlation, I end up having dinner or getting ready for long stints."

These usually last until two in the morning.

"Then, depending on what time that is, I'll be able to go and have a nap for a few hours before I fly out to the event – or fly the same night.

"I do all the debriefs during driving that summarises what we were able to find, and they'll have a meeting where the engineers will be made aware of those. If there are more questions they'll come to me and ask. On a good day, setups won't be very different. On a bad day, they might be completely different. So it really depends on what the drivers want and need."

And while he makes no secret of the fact that he would rather be racing, Mick is also happy to point out this job does have its pleasures.

"I think Monaco counted as one of the most difficult ones," he recalls as an example. "It was my first one as well. And I felt like we made very good progress. It was a very good one – I felt like we got good results from it. And it was the longest one, too."

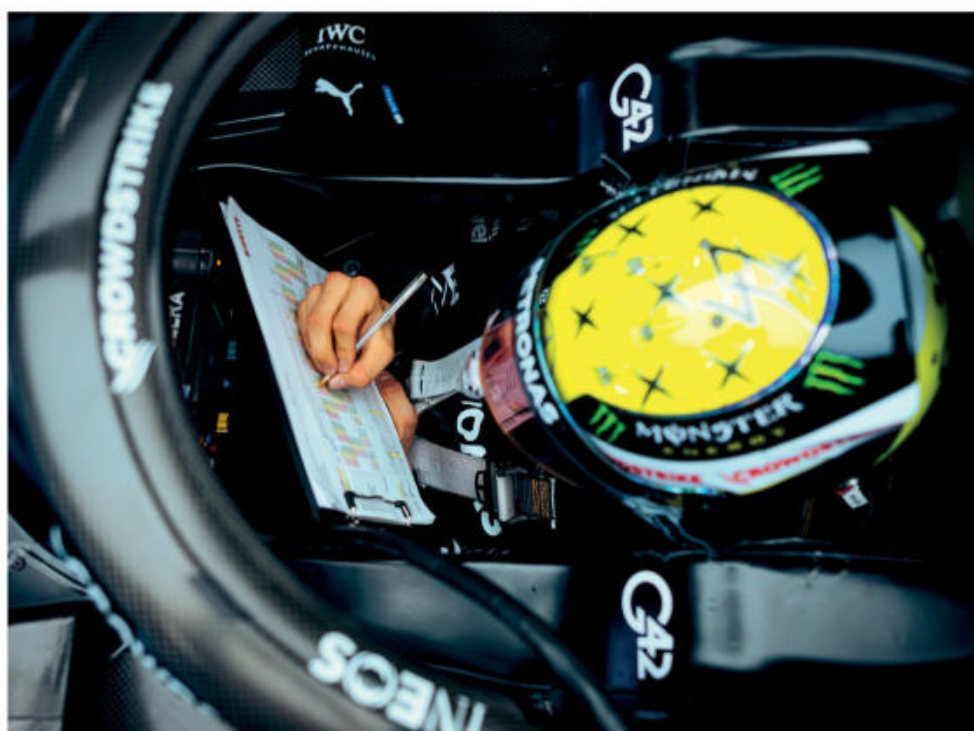
"I did, I think, 130 or 140 laps. And it was just past 2am – a long, long day. Especially also because that day I didn't sleep. I woke up at ►





Schumacher got to experience the W14 on track rather than in the simulator, on the second day of the Pirelli tyre test at Barcelona

At races such as Azerbaijan (above), Mick was with the team from start to finish. For European events he would start off in the sim



seven in the morning and watched the whole FP1 and stuff, and then was up that whole night.”

Now that that part of the championship is over, he spends entire race weekends with the team at the circuit in his role as reserve driver – because only in Europe is it possible to travel from the factory to the circuit in a matter of hours.

I travel

“Obviously, life is a bit different,” he says when asked to compare his current job with the one he had last year. “We still have a similar amount of travel... I would even go as far as saying there’s more travelling, actually, than before. Obviously, European races are a bit different since I do the race support stuff. But that’s now, with the flyaways, changed back to how it was at the beginning of the year, where I’m present at the event from basically Thursday to Sunday.

“It’s mainly just being on standby, ready, waiting to jump into the car,

being part of the meetings, being part of conversations that are to be held and needed. Otherwise, you have to try and learn from the team as it works, as it develops, and as it changes over the course of the year. So, it’s very interesting for me to just see that change, and how quickly the development parts come in, and how it’s communicated. It’s a very different perspective from how I had it last year. And in some ways, a perspective that gave me a lot of intel.” ▶

“I LOVED THE OUTING IN THE PIRELLI TEST. IT WAS A GREAT DRIVE. JUST FEELING THE DIFFERENCES BETWEEN THE [HAAS] CAR I PREVIOUSLY DROVE AND THE MERCEDES WAS HUGE. AND JUST THE FEELING OF BEING SO GOOD IN THE TEAM, IT WAS GREAT, TOO”



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He got a taste of the actual real-world W14, too, in June during the Pirelli test in Barcelona.

“I loved the outing in the Pirelli test,” he says. “It was a great drive. Just feeling the differences between the [Haas] car I previously drove and the Mercedes was huge. And just the feeling of being so good in the team it was great, too.”

Whether Mick will be able to put this year’s experience to good use on the track in F1 is still a big question mark, since it’s unlikely he’ll be back on the grid in 2024. But after a bumpy spell with Haas, at Mercedes he has at least had the opportunity to observe the inner workings of one of the best F1 teams – and drivers of the calibre of Hamilton and Russell.

“I think the fact that everyone is human has been the biggest lesson for me,” he says of his time at Mercedes so far. “Everybody cooks with water, and everybody does the same stuff as everybody else. So I think that for me was a very, very important one.

“Obviously, my main target is being back on the grid. That’s what I live for. Of course, I would prefer driving but still being part of it is also good. And if I can contribute, even if it’s only a little bit, to the team’s success, then I can be happy.”

Up on the catwalk

With the immediate options rapidly dwindling, Mick is prepared for the journey back to the F1 grid to take longer than he might have hoped

Although his F1 options for 2024 are somewhat limited, Schumacher is focused on getting back racing as soon as he can

when he signed with Mercedes in the winter. The reputational damage after a couple of crash-filled seasons with Haas was too substantial – and his work at Mercedes being outside the spotlight affords him fewer opportunities to change the minds of sceptics, including those of potential employers.

So, inevitably, he has to work on a backup plan.

“Well, the plan is to keep exploring the options, but also to be realistic in some ways,” he says. “That’s what we’re working on. We still have to look forward and try and see what possibilities there are.


“I know for a fact there’s still a lot more I can show and that I have potential in me that people [don’t see]. You know, if they look at the stats, yeah, okay, maybe it doesn’t look great. But, stats can also be changed within two or three races.

“At some point, you can only do so much. I’m not racing this year. So I can’t prove otherwise. It’s obviously a difficult position to be in, but it’s also a position which, hopefully, I’ll be able to grow through and it’ll make me stronger.”

If Toto Wolff is to be believed, Mick is very good at sim work. But as much as Mick enjoys looking at F1 from a different perspective, it’s still not his dream job – and it looks like his schedule will be even busier next year, since Schumacher is exploring the option of a race seat in some other category, while continuing to work with Mercedes in the same capacity, thus keeping the door open for a return to F1.

“Ideally, you want to go racing as soon as possible,” he says. “This year, for me, it was the decision that I don’t go racing, because I wanted to focus 100% on this [working with Mercedes]. But yeah, I think that, ideally, I’ll be back racing next year.

“I don’t think I need to close that chapter, Formula 1, anytime soon. Because you saw it in different scenarios where people came back even after more than three or four years.

“It’s not an easy period right now. But it’s a matter of really, keep fighting, and keep pushing and keep going for it. And that’s what I’m trying to do.” 

“I KNOW FOR A FACT THERE’S STILL A LOT MORE I CAN SHOW AND THAT I HAVE POTENTIAL IN ME THAT PEOPLE [DON’T SEE]”

On his first outing in the Mercedes W14 Mick clocked up an impressive 152 laps at the Pirelli test, all without the use of tyre blankets





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THIS MUCH I KNOW

INTERVIEW OLEG KARPOV PORTRAIT ALISTAIR THORPE



I am American. I was born in Romania – my father was of German descent, though his father was US-born, and my mother was Romanian. But I grew up in America, and most of my life lessons were learned there.

AMERICANS ARE GOOD AT NEVER GIVING UP. WORK HARD AND YOU CAN ACHIEVE ANYTHING.

«« »»

I believe you make your own luck.

IF YOU PUT YOURSELF IN THE RIGHT POSITIONS, THE PROBABILITY OF YOU GETTING LUCKY IS HIGHER. MY DAD, WHO WAS ALWAYS TRYING TO LEAVE THE COUNTRY, ONCE WON A CAR IN A LOTTERY. BUT HE DIDN'T THINK HE SIMPLY GOT LUCKY. HE WAS CONVINCED THAT THE DRAW WAS FIXED BY THE GOVERNMENT,

just to make him stay. Was he right? I guess we'll never find out. But if you think about it... How many cars were there in Romania in the 1960s? There were probably a couple in our village, and he won one in a lottery he didn't even know he was taking part in. It wasn't like he bought a lottery ticket! It had something to do with his bank account number matching some other number. So, maybe because he was always trying to leave, they thought, "Well, we'll placate him by making him win the lottery". But he still left.

«« »»

I'm not a gambler. When I was at university I went to Las Vegas for a friend's bachelor's party, and of course, I wanted to go to the

LIFE LESSONS WITH OTMAR SZAFNAUER

casinos, too. I had this theory that if I doubled my winnings in a fifty-fifty bet, I would almost never lose: if you lose, just double the bet until you win.

BUT BEFORE GOING I RAN A COMPUTER PROGRAM JUST TO SEE – IF YOU HAD A 50:50 SHOT OF HEADS OR TAILS – WHAT KIND OF STRINGS WOULD COME OUT. I REMEMBER THAT THE LONGEST STRING OF HEADS WAS 29. AND EVEN IF YOU START WITH \$1, AND THERE’S A RISK OF 29 CONSECUTIVE HEADS – YOU RUN OUT OF MONEY LONG BEFORE.

But I like blackjack. Because the rules are so that if you play perfect strategy, the house only has a half a percent better chance of winning than you do over time. And if you start counting cards – which I don’t! – you can swing that percentage in your favour.

Motorsport is expensive. My dad used to always say, “Just be cautious with your money, make sure you save for eventualities that you may not be able to predict”, so from a young age, when I started to

“THERE’S AN OLD AND SIMPLE RULE FOR A GOOD SPEECH. YOU NEED TO DO THREE THINGS: TELL THEM WHAT YOU’RE GOING TO TELL THEM, TELL THEM, AND THEN TELL THEM WHAT YOU TOLD THEM. SO, FIRST, ‘I’M GOING TO TALK ABOUT THESE THINGS TODAY’, THEN TALK ABOUT THOSE THINGS, AND THEN EXPLAIN WHAT THIS ALL MEANS.”

“DAD [A US CITIZEN] TRIED TO ESCAPE IN 1971 – WHEN I WAS ABOUT SEVEN YEARS OLD – AND GOT CAUGHT. I STILL VIVIDLY REMEMBER IT NOW. I WAS LEAVING FOR SCHOOL, AND I OPENED THE GATE TO THE GARDEN, AND THERE WERE POLICEMEN THERE. I DIDN’T KNOW WHY THEY WERE THERE. NOW I DO. THEY HAD JUST CAUGHT MY DAD AT THE BORDER. FORTUNATELY, HE DIDN’T GET SHOT.”

work for Ford Motor Company, **I USED TO TRY AND SAVE MORE THAN I SPENT. BUT THEN I STARTED MOTOR RACING. AND ALL THAT WENT OUT THE WINDOW.**

I raced under number 72. That was the year when we left Romania and moved to the United States. Not

that it was too symbolic, but **I HAD TO CHOOSE A NUMBER AND NO ONE ELSE HAD 72, SO I TOOK IT. AFTER ALL, THAT YEAR DID CHANGE MY LIFE SIGNIFICANTLY.**



A couple of ice hockey players did the same. Alexander Mogilny had number 89 because that’s when he escaped from the USSR, Sergei Fedorov had 91.

When I was a kid, I wanted to play ice hockey. I had a pair of skates in Romania and I started skating when I was probably four or five years old. And then when we moved to Detroit, I got a pair of skates and I used to skate when the water froze in Michigan. I would skate with some friends and there were some dads whose sons played ice hockey saying, “We should get you to play ice hockey.” But it was just unaffordable for my parents.

AND THERE WAS ZERO CHANCE FOR ME TO GO RACING – WHICH I LOVED – UNTIL I COULD AFFORD IT MYSELF. ►

MY RACING CAREER WAS SPONSORED BY RRP, WHICH STANDS FOR RIGHT REAR POCKET.

It did cost me a lot of money. Basically, I spent money I didn't have. So, by the time I finished, I had debt as well. I had to stop in 1995, my last race was the night before the Indy 500, the one that Jacques Villeneuve won. I crashed. It wasn't a big one, but it was significant from a financial perspective. I got up into the marbles, understeered into the wall and I broke the front and rear suspension. That was it. I had no money to keep going. I didn't even stay to watch the 500. It rained so much that night, and I thought it was just going to keep raining, so I drove home. And that was my last race ever.

I HAVE NO REGRETS. ZERO. I HAD FIVE YEARS OF GREAT FUN. I RACED ALL OVER THE UNITED STATES. I HAD A SMALL TEAM OF FIVE OR SIX OF US AND WE WENT RACING TOGETHER. IT WAS JUST THE BEST TIME.

The hardest decision I ever made was leaving Ford to join BAR in Formula 1. I was on a certain trajectory at Ford for my next steps in the management ranks, I was there for 12 years. My contemporaries – Raj Nair, for example, who made it to chief technical officer, the number two guy at Ford – had good careers. Could I have made it that high? Maybe. Maybe not. But I wouldn't have been far off. In F1, though, I WAS ABLE TO COMBINE MY ENGINEERING AND MANAGEMENT EXPERIENCES WITH MY PASSION FOR RACING. THAT WAS STRONGER THAN THE SAFETY NET OF STAYING WHERE I WAS – but moving to F1 had more

“WARREN BUFFETT IS A GENIUS OF A MAN. THAT'S A GUY I SUPREMELY RESPECT. HE IS SUPER INTELLIGENT BUT VERY PRAGMATIC. HIS QUOTES AND HIS PHILOSOPHIES ARE SIMPLE BUT USEFUL. YOU SHOULD LISTEN TO HIM.”

inherent risk in it. As a matter of fact, I was there for six months, and then I remember Adrian Reynard got us all together and said, “You cannot spend another penny, we're not paying any more invoices or purchase orders.” And I thought, “Okay, well, there goes the job.” We worked through it, and we got some more money from British American Tobacco but, in the end, in my first four years in F1, I went through three jobs!

I signed a contract with Jaguar Racing, which was owned by Ford at the time, but then the management changed two days before I was due to start and I received a phone call that I didn't need to bother coming in. I negotiated my exit over the next six months and ended up OK. If there is a moral in this story, it's that **YOU NEVER KNOW WHAT TOMORROW BRINGS. AND, IF YOU DON'T KNOW WHAT TOMORROW BRINGS, THEN MAKE SURE THAT THE DECISIONS YOU MAKE TODAY WILL PROTECT YOU FROM TOMORROW.**

I like to make Pareto-efficient decisions. It's when you can make somebody better off without making anybody else worse off. So, it's not a zero-sum game. **IF YOU CAN MAKE SOMETHING BETTER WITHOUT HAVING TO SUBTRACT FROM SOMETHING ELSE, THEN THAT'S WHAT YOU SHOULD BE DOING.** Sometimes people make poor decisions, just because of emotion, their ego ego says, “Oh, shit, they'll be better off and I won't.” And I keep thinking, why are you doing this? You're not worse off, you are where you are. So go ahead and make them better off. It may help you in the future. But even if it won't, you're not worse off.

THERE'S NOTHING WRONG WITH BEING STUBBORN, BUT YOU'VE GOT TO BE SURE YOU'RE RIGHT TO BE STUBBORN.

I've learned a couple of things from one professor at the university. The first one is about lone dissenters and whether you should listen to them or not... So, if there's one guy in the room saying, “No, no, we

shouldn't do this – we should do that,” why should you listen to him? And the answer is easy. You should listen to him because he might be right. So, do listen. But if you still think he's wrong, then you need to become stubborn. And the other thing the same professor taught me was that essentially there are only two things you can do in life: voice or exit. So, voice your opinion, argue, try, and convince people. But ultimately, if you know you can't, you always have the exit.

I LOVE IRONING AND MOWING MY LAWN, BOTH FOR THE VERY SAME REASON – YOU GET INSTANT GRATIFICATION FROM THE JOB THAT YOU DID.

But it's got to be right. I can't just mow the lawn. I have to do all the edges, I have to trim around all the bushes. I do like to make sure that even the smallest details are correct. I guess business is similar to ironing or mowing in some sense. There are a lot of details, but you have to start with the areas that have the biggest impact on performance first.

Choosing between a talented asshole and a talentless workaholic, always hire the former. Because **ASSHOLENESS CAN BE MANAGED.** And if you manage prickly people that are very talented, you take steps forward. A talentless workaholic is the worst you can have.

“KNOW YOUR AUDIENCE, FIRST AND FOREMOST, AND THEN TAILOR YOUR SPEECH TO YOUR AUDIENCE. AND ALSO, VERY IMPORTANT... PAUSE AT THE RIGHT TIME. SUCH THAT YOU KEEP THE AUDIENCE'S ATTENTION. YOU DON'T HAVE TO RAISE YOUR VOICE. IF THE PAUSES ARE AT A TIME WHEN THEY DON'T KNOW WHAT'S COMING NEXT, THEY'LL LISTEN. THAT'S IT.”




A driver must have an element of selfishness. But there are different levels. And there are some drivers that are more selfish than others, and I think the most successful have a good balance between being selfish and collaborative. Scientists say that **SELFISH SPECIES GO**

EXTINCT, AND THOSE THAT COLLABORATE SURVIVE.

So they should remember that.

“THERE ARE TIMES WHEN YOU HAVE TO SHUT UP. JUST DON'T SAY ANYTHING. AND THAT'S A SKILL, TOO. IT'S A SKILL TO KNOW WHEN NOT TO SAY SOMETHING.”

WHEN YOU'RE LEADING THE ORCHESTRA, IT'S IMPORTANT TO BE ABLE TO PLAY NOT EVERY INSTRUMENT, BUT AT LEAST ONE OR TWO.

And when you're leading a big group of very creative, strong, educated and intelligent engineers, it's good to have an engineering degree. Not that I spent a lot of time working as an engineer, I did four years at Ford, plus I studied engineering at university. That just gives you a grounding, so you have a good understanding of what you're saying, and therefore an understanding of what is the art of the possible. So, it's great if you're at least able to play the violin, and if you do it's OK if you can't play the bassoon. 

LIAM LAWSON



PICTURES: ALEXANDER TRIENITZ; MARK SUTTON

A MAN FOR ALL SEASONS?

Overtaken by Yuki Tsunoda in the Red Bull young driver queue on the way to Formula 1, Liam Lawson has become battle-hardened in an eclectic array of machinery while waiting for his F1 opportunity. Those close to Lawson, including a previous team boss, reckon the variety of experience has been the making of him...

WORDS JAMES NEWBOLD PICTURES  AND RED BULL

Liam Lawson's Formula 1 debut couldn't have come in much trickier circumstances. Dropped into an AlphaTauri at Zandvoort after Daniel Ricciardo shunted during second practice, breaking a bone in his left wrist, Lawson had a wet track to contend with in FP3 as he drove a ground-effect F1 car for the first time since last December's Young Driver Test in Abu Dhabi.

Matters didn't get much easier on race day when rain hit shortly after the start, making it difficult for Lawson to gain confidence with his unfamiliar machine. But the 21-year-old Kiwi didn't disgrace himself and kept it on the island in the late-race deluge when many more experienced drivers did not. Bringing the car home an undamaged 13th, he had every right to be "reasonably satisfied" with his day's work.

Adaptability is an important virtue for F1 rookies and Lawson has it in spades. That much is clear from his record of winning at the first attempt in the Toyota Racing Series, Euroformula Open, Formula 2, Super Formula and during his 2021 foray into sportscars with the Red Bull-branded AF Corse outfit in DTM. The team's sporting director Ron Reichert remembers that Lawson's propensity to learn quickly was evident from his first run in the Ferrari 488 GT3 at Hockenheim.

"It was very clear from that moment there's an incredible amount of talent behind the wheel," Reichert tells *GP Racing*. "That certainly changed the expectations."

COMING OF AGE

Lawson has packed a lot of racing into a short space of time. A native of Pukekohe, home of the classic (now, sadly, closed) circuit which once hosted the Tasman Series' New Zealand Grands Prix, he moved to Europe in 2018 at the age of just 16. Reichert notes that Lawson demonstrates a maturity beyond his years, which he believes is a result of the personal sacrifices involved with leaving home to pursue a career in Europe at such a young age.

"He was really long separated from his comfortable family environment," Reichert reflects. "Being so young away from the family in New Zealand isn't easy. You couldn't go back after every race. That made him mature quite a bit, much more than most people his age."

Second in ADAC F4, he then beat then-

Ferrari protégé Marcus Armstrong to win the 2019 Toyota Racing Series crown. This secured Lawson Red Bull Junior status and required him to make a big leap into FIA Formula 3 alongside a Euroformula programme in which he'd be compared with Yuki Tsunoda at Motopark.

Lawson shone brightest of the pair in Euroformula, finishing second in the points, but Tsunoda fared better on the F1 support bill. He'd earn an F2 berth for 2020 and overtake Lawson in the pecking order on his rapid ascent to F1, while Lawson returned to F3 and finished fifth as rookie Oscar Piastri swept to the crown.

Lawson graduated to F2 for 2021 and departed Bahrain's triple-header second in the standings to Zhou Guanyu after winning the curtain-raiser. But a few skirmishes, and disqualification from victory in Monaco for incorrect throttle map usage at the start, contributed to sliding back to ninth. However, it was in his parallel DTM programme that Lawson arguably came of age. In conversation with *GP Racing* in Singapore, Lawson says his DTM campaign "taught me a lot" as he relished "being part of a big team" and, on the other foot, discovered "how unfair motorsport can be".

The circumstances that cost Lawson the DTM title are widely known. Double pole for the Norisring finale set him up as the man to beat and, after surviving a Turn 1 fracas for third in the opener, he took an 18-point advantage into the decider. But when rival Kelvin van der Linde clattered into him at the first corner, crippling Lawson's Ferrari, the door was open for Mercedes to ruthlessly mobilise team orders and move aside its two leading cars for championship outsider Maxi Götz to snatch the crown from a "devastated" Lawson.

"Not just for me, but for the whole team, because they deserved it," Liam clarifies.

However, Reichert considers that there may be a benefit from what he hopes will be "the worst thing that happens to him in motorsport".

"It's always good if you have your worst experience fairly early," he says. "If something else negative happens, you can always tell yourself; 'Norisring was much worse'. Maybe other things will just hit you much less hard than if everything had always just gone smoothly. A lot of people arrive in F1 without having ever having to go through that kind of situation."

Knowledge that it wouldn't derail his efforts to reach F1 helped Lawson process his defeat, ►



Lawson's 2021 DTM campaign, run in parallel to his Formula 2 effort, so nearly ended in an unexpected title



A second stab at F2, this time with Carlin, garnered four race wins and third in the championship

although he acknowledges “it took a long time to get past”. Given his time all over again, would he exchange that experience for the title?

“I don’t know!” he admits. “I wish we could have been able to win it, I wish I’d been able to do it for them [AF Corse]. But for me, I wouldn’t change anything that’s got me to this point.”

LESSONS IN DEFEAT

Treated by AF Corse like a professional rather than a junior, and in an entirely different discipline where driving standards were on the robust side, meant this was a wholly different environment for Lawson. Team-mate Alex Albon, seeking to rebuild his career after losing his Red Bull F1 seat to Sergio Pérez, was in a similar position. With more weight, less aerodynamic influence, reduced visibility and ABS, the cars required a driving technique entirely different from single-seaters.

Notably, Lawson adapted faster. At 19 he became the DTM’s youngest-ever winner on debut at Monza, charging from seventh after Mercedes had dominated qualifying with five cars in the top six.

“It didn’t take a lot to get him fired up,” insists Reichert. “First of all, he doesn’t want to be involved in the politics, he doesn’t care about them and he doesn’t need any motivation. Every time he drives, he wants to win. Often enough he does it.”

Lawson learned a great deal from Albon in 2021. Reichert notes Alex “was a very good help for Liam on the weekends that didn’t go our way”.

“Alex did a great job in guiding Liam in a lot of moments, also how to handle the bad moments,” he says.

Lawson reckons Albon “probably got sick of” him asking “a lot of questions” about F1 and concedes Reichert’s comments are accurate. “This is a very tough sport, it can be very harsh sometimes,” he muses. “It was good for me, there was a lot I took away from that season.”

“None of us ever had a doubt Liam will be in F1, it was just a question when,” says Reichert.

Sharing a track with people who took a somewhat uncompromising approach to overtaking (“you cannot leave the smallest piece of space to anyone because people just went for every gap,” says Reichert, “even the gaps that didn’t exist”) helped turn Lawson into a hardened racer. But it didn’t change ►



Lawson reckons he learned a lot from Albon when they were DTM team-mates in 2021. Now they are F1 rivals...



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LISTA



After a year as AlphaTauri's reserve driver Lawson impressed in the Red Bull RB18 in the 2022 Abu Dhabi test

what his colleagues viewed as a "humble and normal" character.

"Fair racing was very important to him," Reichert says, "not being dirty in that kind of sense. He wanted to win races fair and square."

BIG IN JAPAN

Lawson made three F1 practice appearances in 2022, lapping within three tenths of Sergio Pérez upon taking over Max Verstappen's Red Bull in Abu Dhabi, and finished third in F2. With little to gain from another F2 season he moved to Japanese Super Formula, a path previously trodden by Pierre Gasly. Dallara's SF23 chassis is far closer to F1 than its 2018 F2 counterpart, with greater scope for development, though F2's new chassis and Super Formula's spec dampers move will shift this dynamic come 2024.

Lawson acknowledges that he "would definitely not" be as prepared for F1 without Super Formula, specifically explaining that he's gained "a lot more of an understanding of what's

In Singapore Lawson outqualified team-mate Tsunoda for the first time before going on to score his first points



actually going on with the car".

"One of the biggest steps is getting your head around how the car actually works, and what you need to do to make it faster," he explains. "Super Formula been really good. It's also faster, so driving a much quicker car, it's a lot closer to F1."

Outshining two-time defending champion Tomoki Nojiri at Team Mugen, Lawson stunned on his debut at Fuji, adding two more wins since to head into the season-ending double-header at Suzuka second in the standings.



Thrown in at the deep end in Zandvoort, following Ricciardo's practice shunt, Lawson coped well with the conditions

Those strong performances in Japan meant Lawson's name was touted in the F1 paddock as speculation swirled over Nyck de Vries. Though AlphaTauri initially chose the far more experienced Ricciardo when de Vries was dropped after Silverstone, Lawson got over his disappointment quickly and has seized his moment after Ricciardo's injury.

Lawson narrowly missed Q3 at Monza and finished 11th, feeling a bad start cost him a shot at points. But in Singapore he outqualified team-mate Tsunoda and bumped Verstappen from Q3 before scoring two points for ninth.

Reichert is in no doubt Lawson has what it takes to justify a full-time drive in F1, and believes his atypical path has served him well.

"It was a good thing to not directly make the step," he maintains. "He arrives with a massive amount of experience with a big variation of teams from different cultures. With this whole package, he's in the best condition to stay there."

What happens next is largely out of Liam's hands. But that Lawson has found himself in the conversation for a 2024 AlphaTauri seat at all is testament to not only being in the right place at the right time, but also his toolkit to make the best of his opportunity. You only get one chance at a first impression.

"I don't have the time to prove myself in F1," Lawson states. "I have this very short window now that I have to take advantage of."

Arguably, he's done just that. 





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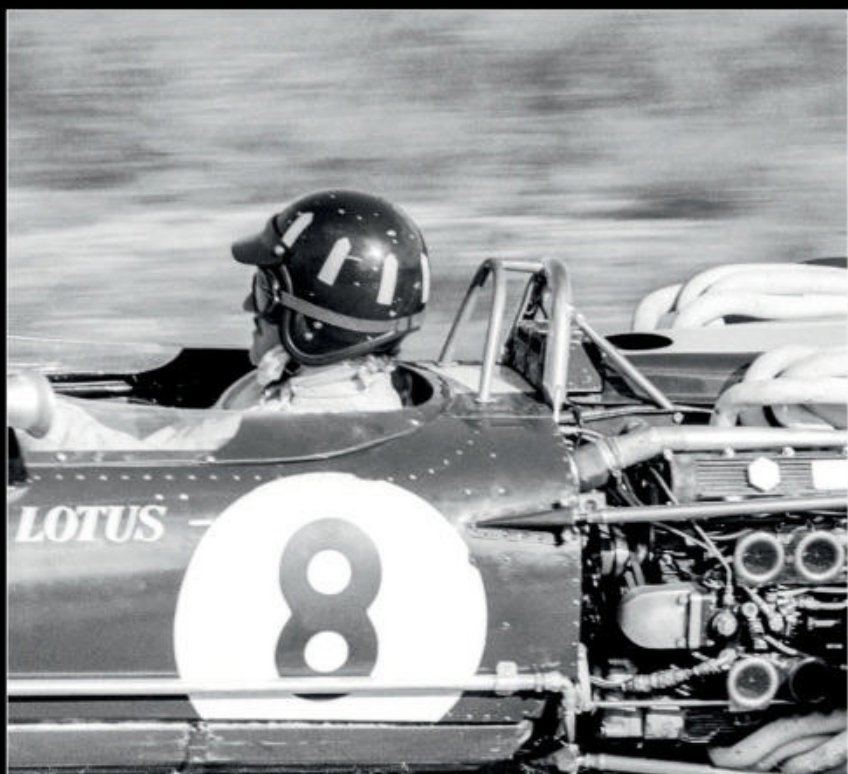


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JAMES MANN



Unfancied and overlooked –
but the winner of one of F1's
biggest cash prizes



In the pantheon of great Lotus racing cars – and there were plenty of them – there is no pedestal reserved for the 43, despite its status as a grand prix winner. Indeed, earlier this year *GP Racing's* sister magazine *Autosport* placed it third in a list of the 10 worst GP-winning racers. Rather a harsh judgement on a car which had so much in common with its successor, the seminal 49, including the then-radical use of the engine as a stressed element of the chassis – it's just that there's no getting past the reputation of *that* engine.

There's a popular dictum among engineers that there's no such thing as a problem, merely a solution waiting to be found. When Formula 1 made its much-vaunted 'return to power' in 1966 it left teams and manufacturers scrambling for any answer within reach – and BRM's proposition arrived with a container load of further solutions required. But Lotus, freshly in receipt of the 1965 drivers' and constructors' championships, desperately needed an engine for the new 3-litre era.

You might wonder why the team which finished second in the 1965 constructors' standings (and actually outscored Lotus, but only the best six results counted for the championship) should contemplate supplying a direct competitor. The answer lies in the complicated and rapidly changing picture of engine politics in the mid-1960s. F1 wasn't the globe-straddling mega-category it is today – sportscar racing was arguably more lucrative in terms of prize money. Aside from Ferrari, BRM and the recently arrived Honda, the only engines competitive at this level came from the workshops of Coventry Climax – and it had already signalled its intention to get out of the motor racing business even before its acquisition by Jaguar in late 1965.

Lotus founder Colin Chapman spent much of 1965 chasing options for the following season. Bob King's Racing Preparations Ltd – later to make junior single-seaters under the Royale name – acquired Coventry Climax's spares inventory, intellectual property and some of the tooling but the venerable FPF four-pot couldn't be stretched to three litres. Supercharging the 1.5-litre FWMV was too risky from a financial point of view. Coventry Climax had abandoned development of a 1.5-litre flat-16 which might also have been responsive to supercharging. Chapman went looking elsewhere, reached a landmark agreement with Walter Hayes and the Ford Motor Company to underwrite development of a new naturally aspirated, Cosworth-designed 3-litre V8, but this wouldn't be ready until 1967 at the earliest.



LOTUS 43

LOTUS
FOUNDER
COLIN
CHAPMAN
SPENT MUCH
OF 1965
CHASING
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FOR THE
FOLLOWING
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NOW
THAT
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A
CAR
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Meanwhile in Bourne, BRM had come close to breaking even on racing activities in 1965 thanks to supplier deals in F1 and F2. Parent group Rubery Owen was feeling the pinch as the British car industry it supplied slid towards the doldrums; company proprietor Sir Alfred Owen sniffed an opportunity to actually turn a profit with BRM. In his autobiography *It Was Fun*, chief engineer Tony Rudd described a meeting in which Chapman silkily charmed Sir Alfred, who closed proceedings sure in the knowledge that BRM's new engine must be best-in-class if the great Chapman was so desperate to bolt it into one of his serial championship-winning cars – and, indeed, would like an even bigger one with which to compete at Indianapolis.

But even great engineers have their particular follies and the



H16 would prove to be one of the highly respected Rudd's least successful projects. Bedevilled by development obstacles and cost over-runs, it never achieved the two key parameters set out for it. As racing historian Karl Ludvigsen put it in his book *Classic Racing Engines*, "Estimates were that it would weigh 380lbs and produce 500bhp – figures which, in the

event, were destined to be interchanged."

Rather than scaling up BRM's existing 1.5-litre V8 architecture, Rudd believed more potential could be unlocked – and a higher rev ceiling achieved – with a 16-cylinder engine. Since this would have been too long as a 'vee', he arrived at the 'H' format: in effect two of the 1.5-litre V8s with the vee flattened out, one on top of the other, with their crankshafts geared together and sharing a common case.

Posterity enshrines this as yet another over-reach by a team with a reputation for mingling buccaneering engineering with occasionally slapdash organisation (in 1960s, drivers Graham Hill and Dan Gurney had threatened to go on strike unless Rudd was given more authority over team operations). But in the context of the era it was an exciting new example of the aeronautical influence sweeping through motor racing, a phenomenon which had elevated grand prix cars from crude ladder-frame chassis with bolt-on bodywork to stressed-skin, aero-bodied missiles. In World War II, Napier & Sons had



developed the H24 Sabre engine for use in Hawker Tempest and Typhoon fighters so this configuration wasn't without precedent – though Rudd could perhaps have done more due diligence on the Sabre's troubled journey to production...

Although its cylinder banks were horizontally opposed, the H24 wasn't a 'boxer' engine in which the opposing pistons have individual crankpins and move inwards and outwards at the same time; it remained, essentially, like two flattened out vee engines uneasily cohabiting with shared facilities. The vibrations were immense, the gearing fragile. When parts broke under duress during development, they were replaced with stronger (and, therefore, heavier) equivalents until they stopped breaking. The plan to have three camshafts on each

side, with the central one actuating the inlet valves of both cylinder banks, had to be shelved when the port angles this setup required were sub-optimal for combustion. Moving to twin-cam heads added weight, complexity and internal friction as well as raising the centre of gravity – and incurring a delay of several months while BRM optimised design and materials.

As a result, the weight of the new engine ballooned far beyond initial estimates. As Rudd recalled, “We delivered an engine and gearbox to Lotus which nearly destroyed the small van they sent to fetch it. They were absolutely thunderstruck by its weight. With all the modifications the engine weighed 555lbs [252 kg] plus 118lb [53.5 kg] of gearbox and clutch.” Cosworth’s V8, when it was ready, came in at 166kg.

Maurice Phillippe, recently installed as Lotus chief designer after Len Terry’s departure, was horrified. But among the H16’s mitigating features was the facility to use that much-strengthened block as a structural element of the chassis, with the rear suspension bearing off it and the gearbox. Popular F1

TWO MORE MONTHS AND THREE CHAMPIONSHIP GRANDS PRIX WOULD PASS WHILE BRM REDESIGNED ITS GEARBOX

history anoints Phillippe’s Lotus 49 as the first GP car to use the engine as a fully stressed element of the chassis but his 43 design predated this by a year; in any case Ferrari’s Mauro Forghieri had got there first, with his 12-cylinder 1512 in 1964.

The Type 43 monocoque was based on Terry’s Type 38 Indycar design, a fully enclosed shape rather than a ‘bathtub’ type which would typically feature cosmetic body panels on top, trading stiffness for ease of access. Suspension followed similar layout and geometry to the Lotus 33 Clark had campaigned with such success in the 1.5-litre era. Concerned by the effect of turbulence induced by the rear wheels, Chapman and Phillippe



installed small fairings on each side of the engine to encourage cleaner airflow to the H16's induction trumpets.

Peter Arundell, returning to action after a long injury lay-off, was the guinea pig at Lotus as Jim Clark began the season in a Type 33 powered by a Coventry Climax V8 Chapman had persuaded the company to extend to two litres. At the first round, in Monaco, Arundell was a late withdrawal because the H16 didn't arrive; BRM had one for works drivers Graham Hill and Jackie Stewart to evaluate in practice but it was deemed too new to race. Clark set pole, while Stewart won in his 1965 car fitted with a 2-litre engine, but the rest of the season would be dominated by Jack Brabham's team with its Repco-fettled V8, the only competitive 3-litre in 1966. Budget constraints prompted Ferrari to run a sportscar-derived V12 which enraged John Surtees and set him on a path to walking out mid-season.

In Belgium Arundell didn't even get as far as practicing in his 43, when a distributor drive gear sheared on his way out of the paddock. Three weeks later, in early July, at the final French GP to be held at Reims, Arundell burned his clutch out after taking off in the wrong gear during practice, and qualified at the back of the grid. In the race he managed three laps with the car continuously jumping out of gear before retiring.

The works BRM drivers had also been troubled by the truculent six-speed 'box. Chapman identified the problem as a design fault which caused the hydraulically operated clutch to accelerate rather than slowing down during shifts, damaging the gear engagement mechanism.

Two more months and three championship grands prix would pass while BRM redesigned its gearbox and political pressure built within the company to get the 3-litre engine out there again as soon as possible, since Brabham – now an OBE – was clearing up in the title race. On the weekend Brabham's

LOTUS 43

NOW THAT WAS A CAR

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gong was announced, Stewart joked that he and Hill deserved a similar honour for persisting with the H16.

For the Italian GP at the beginning of September, BRM arrived with a gearbox fix and introduced a new engine into the works pool with a revised timing mechanism enabling it to fire cylinders individually rather than two at once. But neither of the factory entries got as far into the race as Clark, racing the 43 for the first time (and somewhat grudgingly, having spent some of practice lapping in the Climax-engined Lotus entered for Italian pay driver Giacomo 'Geki' Russo).

From third on the grid Clark made a slow getaway, distracted at the crucial moment by a jittery fuel pressure ►

reading. As Clark began a spectacular fight back towards the leaders, Hill's engine – the new one – failed on the opening lap. Clark reached fifth before vibrations from a partially deflated rear tyre sent him into the pits. Battery issues stymied him thereafter and, after another pitstop to examine the electrics, he stopped for good at the end of the 58th lap, the car stuck in gear. 53 more laps than Stewart, who halted with a fuel leak.

At the end of September the grand prix field reassembled in upstate New York for the US GP at Watkins Glen, where the promoter had instituted a new prize system in the hope of capturing the general public's imagination. Rather than the customary system of individually negotiating 'starting money' with teams – in effect an appearance fee based on box office value – the Watkins Glen Grand Prix Corporation was offering a prize purse totalling more than \$100,000, on a sliding scale with the winner taking \$20,000. Chicken feed by modern standards but, in period, a veritable jackpot.

Chapman initially entered Arundell in the 43 but Clark drove it briefly in practice before reverting to his own Climax-engined car – which was frustratingly slow before it stuck in gear. The stars aligned: Clark got back in the 43 and squeezed it for a lap time a tenth off polesitter Brabham. Chapman was overjoyed – until Clark reappeared from his slow-down lap with oil leaking from one exhaust bank. The engine had eaten itself again.

For PR purposes BRM 'lent' Lotus a spare H16 lump which had already seen plenty of action (according to Ludvigsen, the block was patched with metal plates and epoxy resin). Only after an all-nighter and working well into the day did the Lotus mechanics, led by Dick Scammell, finish the engine change – with minutes remaining until Clark had to take his place in second on the grid. Even then Scammell had to twiddle the

LOTUS 43

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spanners quickly once more to rectify an oil leak.

A substantial crowd – boosted by interest in John Frankenheimer's *Grand Prix* movie, which had been filming throughout the season – watched enthralled as Ferrari's Lorenzo Bandini vaulted into an immediate lead, chased by Clark and Brabham. Surtees, now in a Cooper after his Ferrari uncoupling, pipped Clark for third but came unstuck as the leaders came up

to lap Arundell in the Climax-engined Lotus. Brabham, now in the lead, got by, as did Bandini, but Arundell was less accommodating with Surtees and the pair ended up gyrating across the grass in the Esses. Both drivers pulled into the pits and stopped in Lotus's area: 'Big John' was on a mission to remonstrate with the Lotus number two.

Had Surtees not succumbed to the red mist he might conceivably have won the race, for he restarted in 13th and fought back to third at the flag, gaining a lap back on Clark in the process. Brabham and Bandini had both dropped out with engine failure around half distance, leaving a surprised Clark not only in the lead, but also in a position to baby the H16 to the flag as second-placed Jochen Rindt ran out of fuel.

Normal service was resumed in Mexico when the Glen-

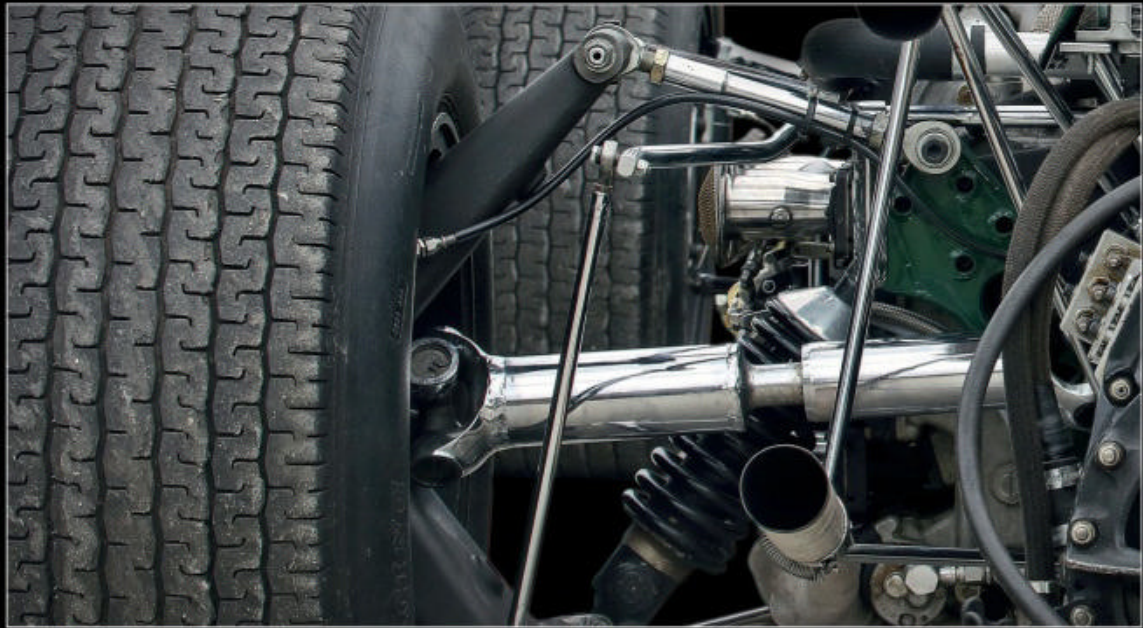
**A BALD
READING OF
THE STATISTICS
APPEARS TO
CONFIRM THE 43'S
UNDESERVING
REPUTATION
AS A TURKEY**




winning engine underwent what modern engineers call ‘rapid unexpected disassembly’ during practice. A crankshaft balance weight punched through the block, showering Clark with hot fluids and metal. From second on the grid he was running competitively when the replacement engine blew after 18 laps.

Chapman concluded that the H16 was good for no more than 300 miles between rebuilds and, accordingly, rationed mileage for the team’s final grand prix outing with the car, the 1967 season-opener in South Africa. Nevertheless Clark’s engine blew after 22 laps while new-team-mate Hill crashed out.

That concluded Lotus’s relationship with an engine Stewart reckoned would have been better used as a boat anchor. While the 43 informed the design of the much more successful 49, a bald reading of the statistics – five starts, one finish – appears to confirm the 43’s undeserving reputation as a turkey.



Still, that finish was also a win. Both 43 chassis were sold to Robs Lamplough, who converted them for use in hillclimbs (with different engines); Clark’s Watkins Glen winner went to Scottish racer Jock Russell and spent many years ‘in storage’ in a furniture truck before saloon car racer and Clark fan Andy Middlehurst acquired and restored it with help from Team Lotus mechanic Bob Dance.

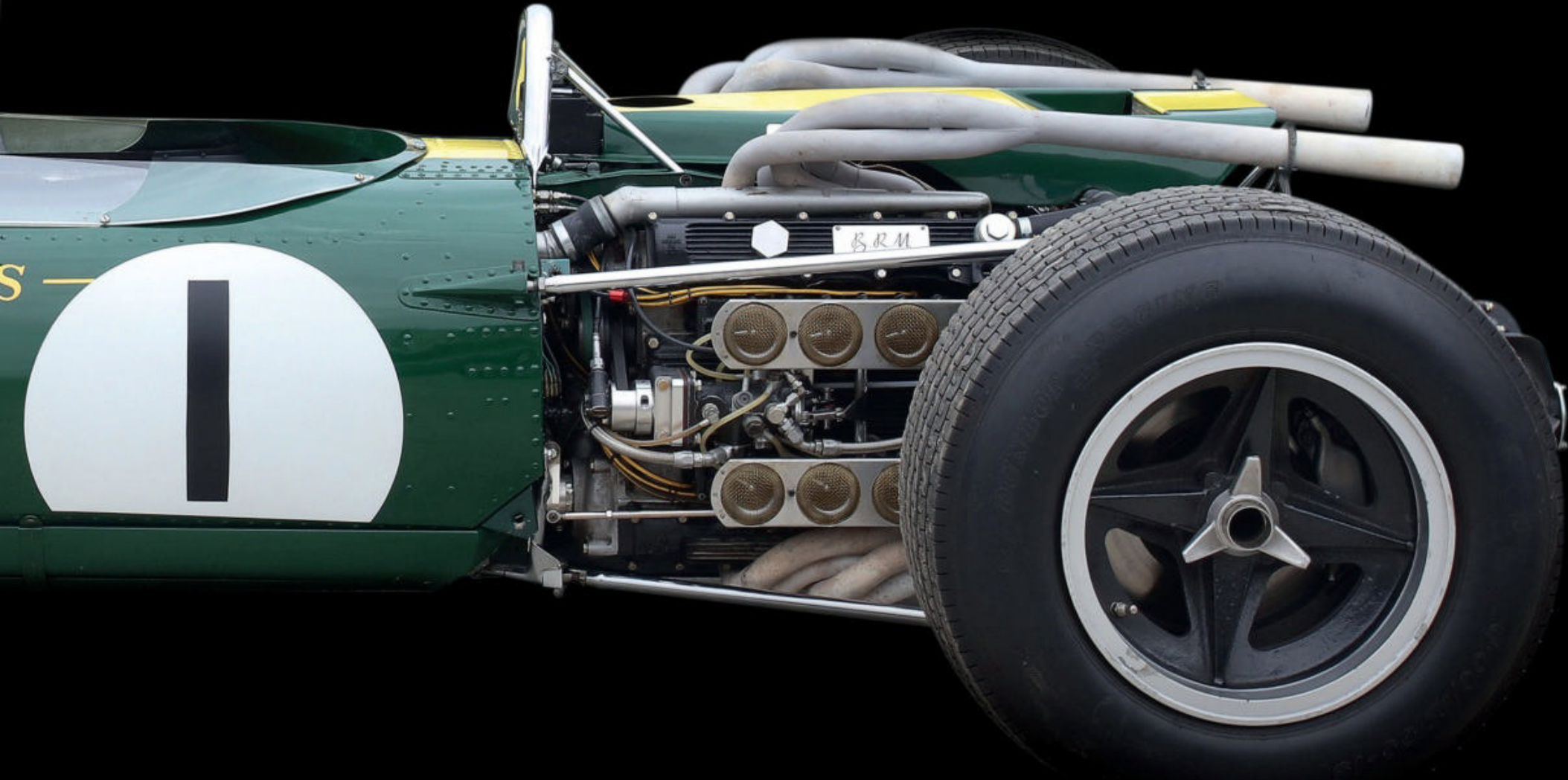
It will never race again, but this unlikely grand prix winner’s current owner remains happy to fire it up – carefully now – at selected events so fans can enjoy the singular blare of that bizarre, quixotic, ridiculous, unique engine. 

RACE RECORD

- Starts 5
- Wins 1
- Poles 0
- Fastest laps 0
- Podiums 0
- Championship points 9

SPECIFICATION

- Chassis Steel monocoque
- Suspension Rocker arms, lower wishbones, inboard coil springs/dampers (f); reversed lower wishbones, twin radius arms, outboard coil springs/dampers (r)
- Engine Naturally aspirated BRM P75 H16
- Engine capacity 2966cc
- Power 650bhp @ 13000 rpm
- Gearbox Six-speed manual
- Brakes Steel discs front and rear
- Tyres Firestone
- Weight 564kg
- Notable drivers Jim Clark, Graham Hill, Peter Arundell





JODY EGGINTON

10 THINGS I LOVE



AlphaTauri's technical director on his love of Coventry City Football Club and using The Stone Roses as a time machine



Family

I spend a lot of time away from home, not only at races but also in Italy since I'm in Faenza four days a week and my family live in the UK. With this job, you just can't be home at 6.30 every night. So when I do get home, we really focus on spending as much time together as possible and trying to make the most of it. And that's a big thing for me. I've got a wife and two kids, 14 and 18, and we really try to do things together when I'm back in the UK or when they come to visit me in Italy.

MotoGP

I have been a huge fan of MotoGP since the late 1990s but in recent years, as well as enjoying the racing spectacle, I've developed a keen interest in the design and engineering aspects of the sport. And it's something I'd probably like to be involved with when my Formula 1 career comes to an end.



PICTURES: SHUTTERSTOCK



Channel Islands

Guernsey, Jersey and Alderney are my favourite holiday destinations. Very slow pace of life, good weather compared with the UK mainland, fantastic countryside and coastline. It's really slow, my family say "there's not much going on". But I love it. The complete opposite of Formula 1. And I'd love to live there. But you need a lot of money!



Coventry City Football Club

Although I've probably seen Bologna play more than Coventry City in recent seasons, I was born in Coventry and have supported my local club for as long as I can remember. My greatest memory is of 1987 when they won the FA Cup. I had a season ticket that year and I went to every home game – it was a fantastic year!

Lee Evans

Even though I'm an engineer, I like comedy – and I'm a big fan of a comedian called Lee Evans. I find his observational comedy extremely funny, not only in terms of the topics he talks about, but also his physical performance and his ability to laugh at himself and everyday life. If he walked into the room, I guarantee you'd be laughing before he said a word.



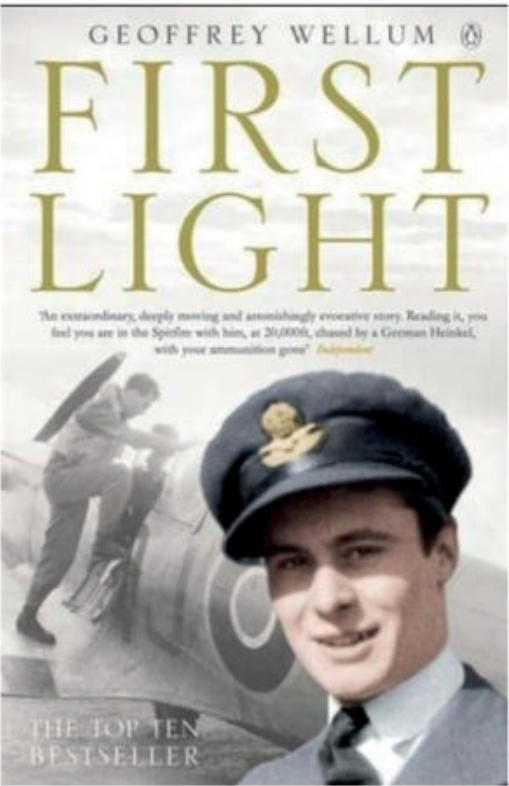
The Stone Roses

This band was my introduction to youth culture, not only their music but their art, fashion and attitude resonated with me throughout my teenage years. It's what I remember from growing up, the first thing that was important, the first music I was into. I can still listen to it now and bring those memories back, so it's my time machine of sorts.



First Light

It's a memoir written by Geoffrey Wellum, who was a Royal Air Force fighter pilot in the Second World War. He joined straight from school as a bit of an adventure. But he soon realised how terrible war was. He writes about fighting in the Battle of Britain and the effect it had on him, the toll of combat and the intensity and how it changed his life. It's a harrowing book in many ways, but also a celebration of life.

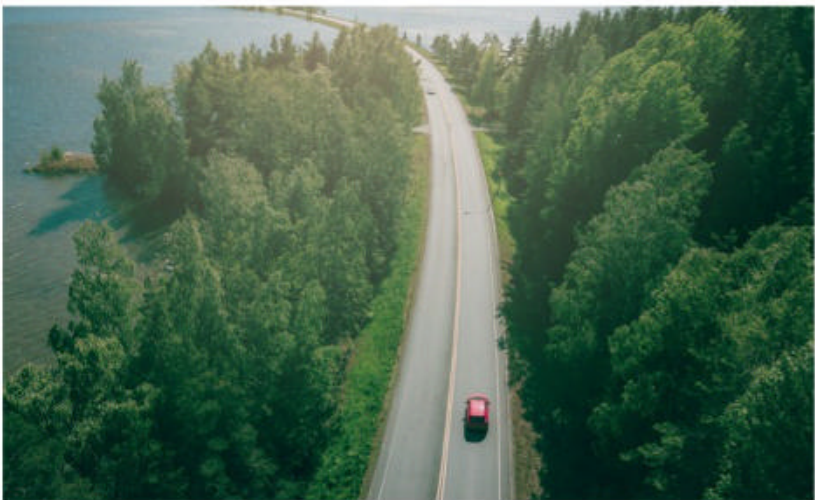


Enduro

I took it up a few years ago so I could ride with my son, who had recently started doing motocross. I'm not particularly fast, but I enjoy the challenge. It's one of those sad things: I love to do it but I'm not very good at it. But it's fantastic! And it's a very friendly sport. At least at the level I ride at...

Road trips

These have become quite common in my family since I started working in Italy. Of course, you can fly home every weekend, but somehow we've found ourselves doing more and more road trips with the family on different routes around Europe with stops in different countries and places. It's just fantastic. We get to spend a lot of time together and see a lot. A road trip around America is now on our bucket list.



Films with Burt Reynolds

Smokey and the Bandit and *The Cannonball Run* are two of my favourite movies. Outside of work, I'm perhaps not the most serious person. And I'm not the type of guy to watch a film with a deeper meaning. These two make me laugh the most. I can watch them endlessly. My kids cringe. But... the guy is so funny! I just keep laughing while I'm watching.



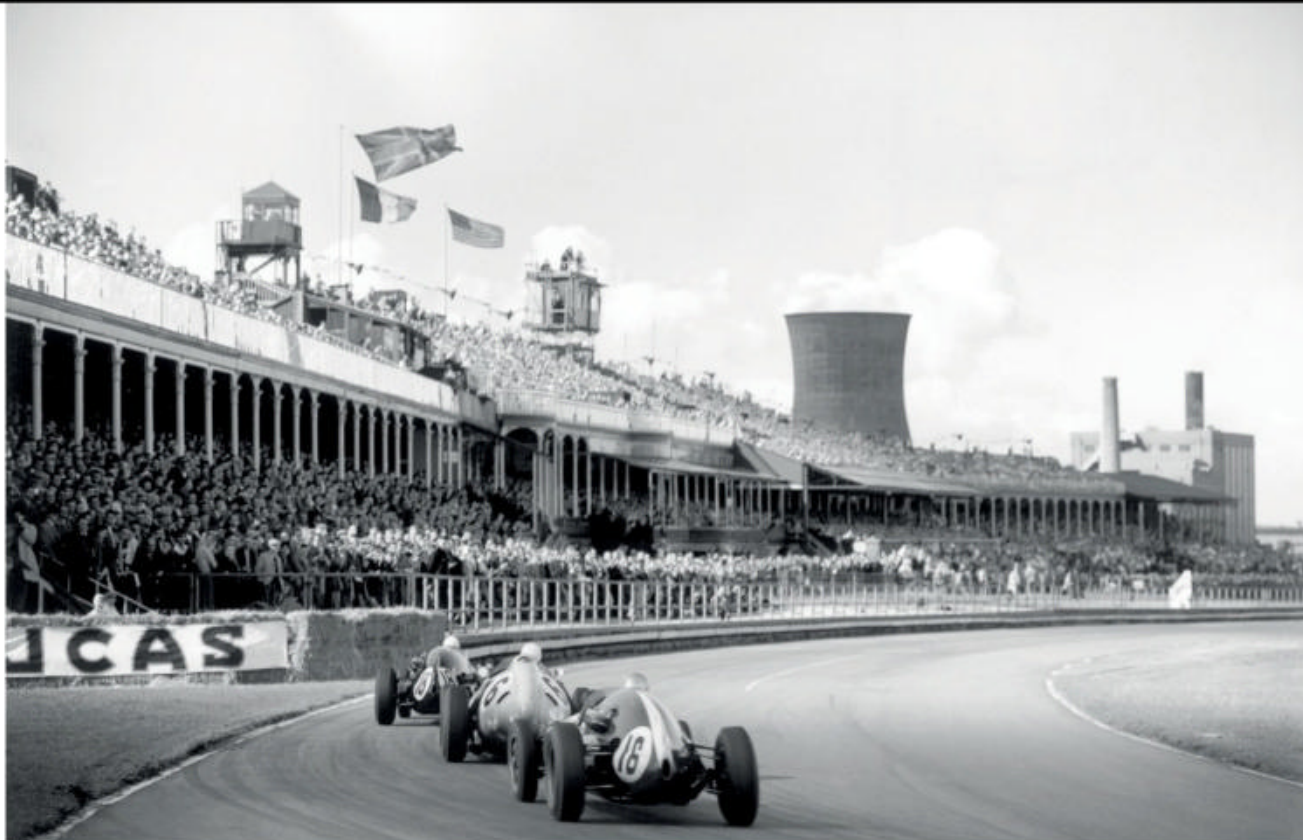
SHOWCASE

LOST CIRCUITS

A second look at racetracks that no longer hold Formula 1 grands prix

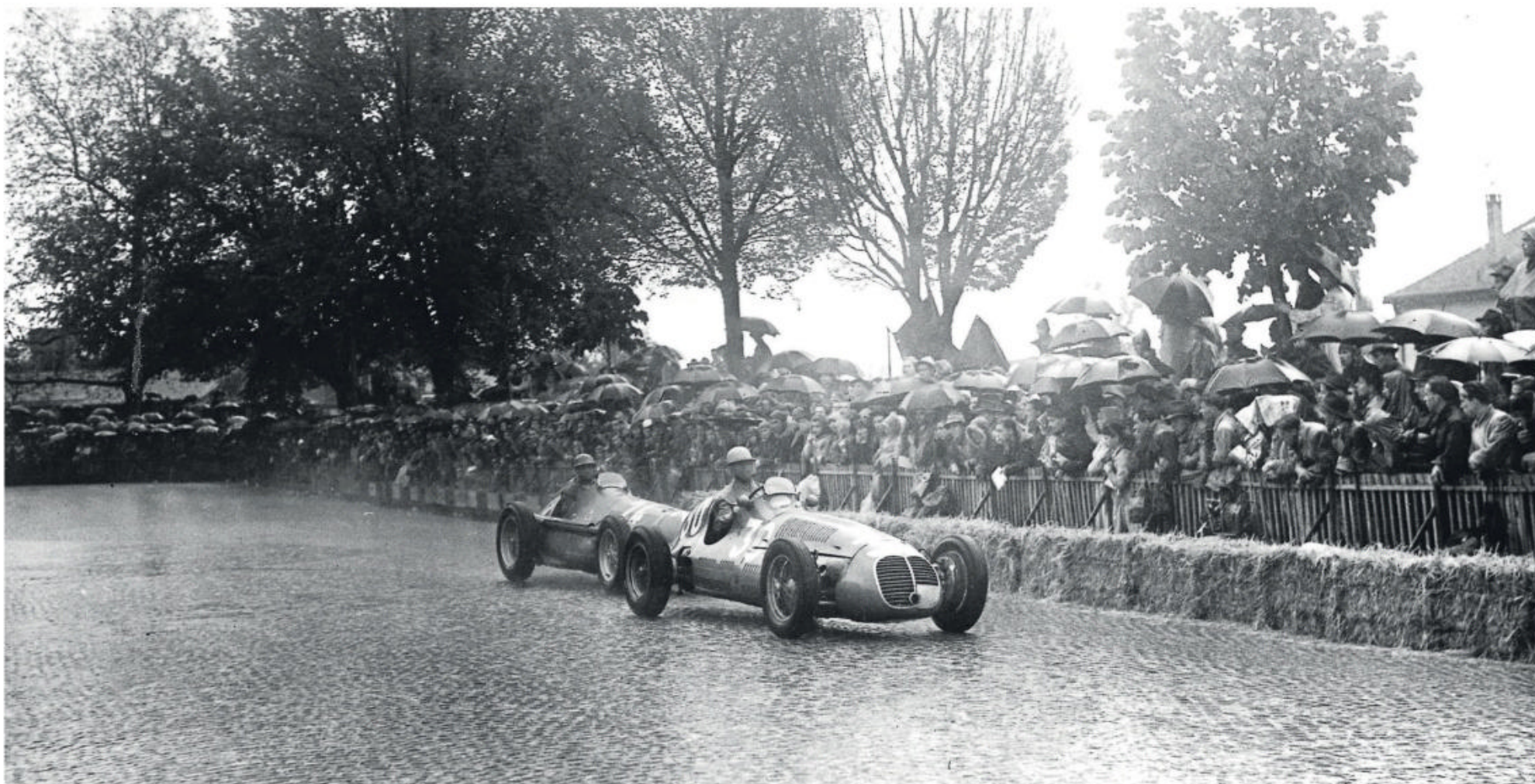
▼ *Formula 1's interest in the Asian market in the mid-1990s resulted in a second race in Japan, the Pacific GP, in 1994 and 1995. Held at the remote TI Circuit, near Aida, crowds were bussed in and the event never took off*





◀ Built in 1954 and dubbed the 'Goodwood of the North' because of similarities to the Sussex track, Aintree hosted the British GP in 1955, 1957, 1959, 1961 and 1962. Located within the confines of the racecourse used for the Grand National, the circuit used the same grandstands for both events

▼ Bremgarten had already hosted the Swiss GP in 1933 but in 1950 the track held its first world championship F1 race. A circuit with many tree-lined corners and changes of surface, it was last used in 1954, before motor racing was banned in Switzerland in 1955 after the Le Mans disaster



◀ All 20 Argentine GPs were held at a circuit just north of Buenos Aires. The Autódromo Oscar Alfredo Gálvez, renamed in 1955 after the overthrow of president Juan Perón, has a multitude of configurations and four different ones were used to host the GPs from 1953-1960, 1971-1973, 1974-1981 and 1995-1998

▶ You can't get any more French than Jacques Laffite, driving a Ligier, with a Gitanes hoarding in the background during the 1977 French GP at Dijon-Prenois. Host of five French and one Swiss GP, the undulating track in eastern France was last used for F1 in 1984





When Formula 1 returned to Spain in 1968, after a 14-year break, Jarama got the nod. The twisty circuit was designed by John Hugenholtz – he of Suzuka fame – and completed in 1967. It hosted the Spanish GP in rotation with Montjuïc until 1976 and then four more times until 1981



South Korea confirmed in 2006 that the first Korean GP would be run in 2010 at a circuit to be built near Yeongam. Despite fears the track would not be ready the first race, and three subsequent editions, did take place, but F1 never really took to the place and the costs became too high for the organisers



Recent talk of F1 returning to South Africa focused on Kyalami, but the first three South African GPs in 1962, 1963 and 1965 were held at the Prince George circuit in East London. Modified from the original 11-mile layout in 1959, the new 2.4-mile version was quickly deemed to be too small for Formula 1





In 1967, after three French GPs at three different circuits from 1964-1966, the race was moved to Le Mans. But not the 8.4-mile Circuit de la Sarthe that the classic 24-hour sportscar race is run on. Instead the permanent 2.7-mile Bugatti circuit got the nod. It was never used for F1 again



After Fernando Alonso's two titles in 2005-2006 F1 was huge in Spain, so it was no surprise that the country got a second race, around the streets and port area of Valencia in 2008. It only lasted until 2012, Alonso winning the last race there



Reims-Gueux was a circuit made up of public roads, first used as early as 1926. However, after it hosted the sixth round of the inaugural world championship in 1950, changes were made to the circuit to enable it to continue as an F1 venue. In 1952 Gueux was bypassed in a new configuration and Reims then held the majority of French GPs from 1953 to 1966



Although Magny-Cours was built in 1960, it fell into disrepair in the 1980s until it was bought by the local Nièvre department. The circuit hosted the French GP from 1991-2008 but always suffered from low crowds due to its location, poor access and lack of accommodation

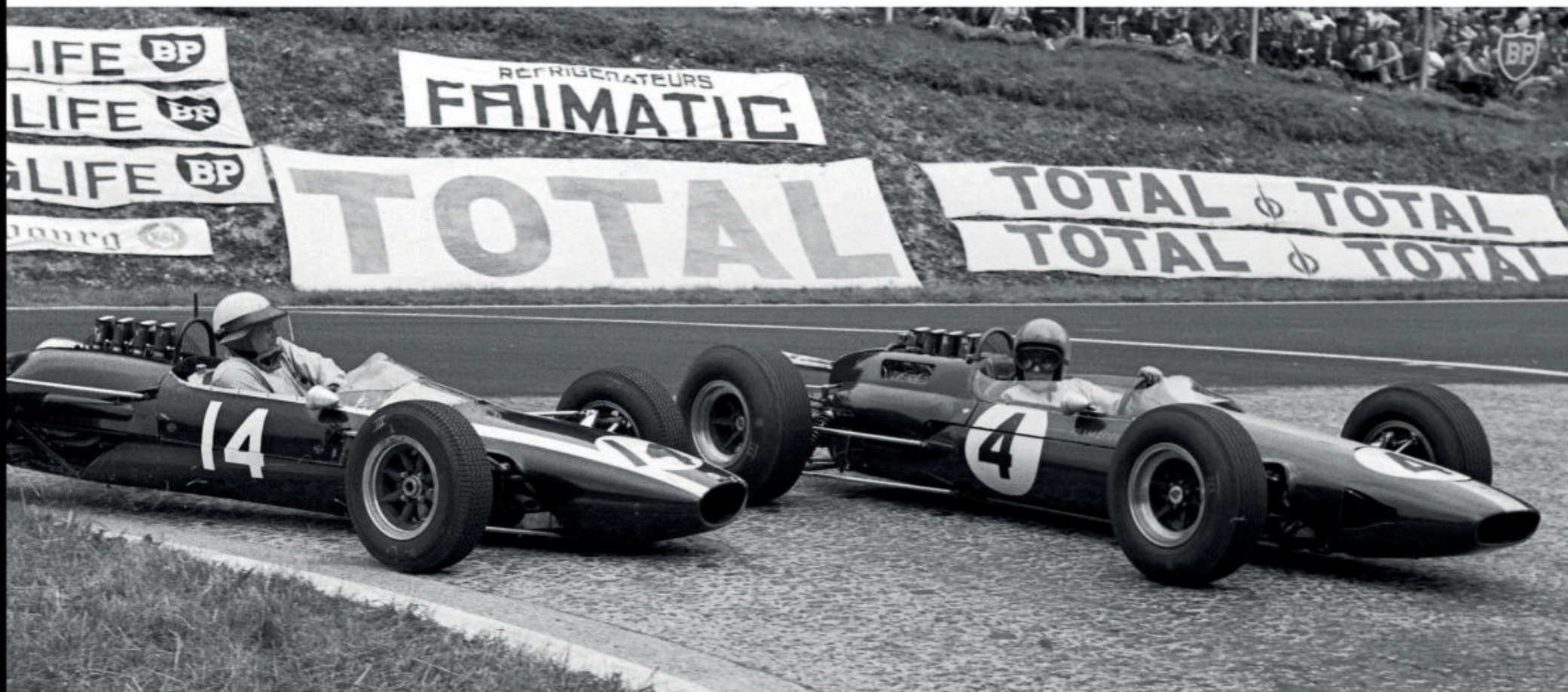




The Belgian GP needed a new home when Spa was dropped in 1971 because safety updates weren't made. The race was supposed to alternate between Walloon and Flemish circuits, with Zolder fitting the bill for the latter. It would eventually hold 10 GPs, from 1973 to 1984



When it was opened in 1950 Rouen-Les-Essarts was thought to be one of the best circuits in Europe due to its pits, grandstands and wide track, even though it was run on public roads. However, over a 16-year period from 1952 to 1968 it was the venue for only five French GPs





The Circuito da Boavista in Porto was the venue for two Portuguese GPs in 1958 and 1960. The first of those was the famous race when Stirling Moss persuaded the organisers not to disqualify Mike Hawthorn from second. Moss would go on to lose the championship to Hawthorn by a single point



Nivelles was supposed to be the Walloon venue to host the Belgian GP, in rotation with Flemish circuit Zolder, starting in 1972. However the track was bankrupt by 1974, only able to hold that year's race by roping in enough sponsors. By 1976 the surface had deteriorated and was never used for F1 again



The Circuit Mont-Tremblant was built to boost tourism, in the spring and summer, for the nearby ski resort. The second-oldest race track in Canada, it hosted two Canadian GPs, in 1968 and 1970, and from 2000 to 2022 was owned and redeveloped by Lawrence Stroll, the boss of the Aston Martin F1 team

MAURICE HAMILTON'S ALTERNATIVE VIEW

As the consequences of a 'calculated unsporting act' 15 years ago rumble on, our man ponders the wisdom of trying to determine alternative race outcomes long after the fact...

PICTURES  motorsport
IMAGES



Lewis Hamilton ahead of Timo Glock earlier in the 2008 Brazilian GP. It was Hamilton's move on the Toyota on the last lap for fifth that clinched the title for the British driver



Having momentarily been world champion Massa was very humble in defeat in Brazil. But he didn't know then what he knows now about the Singapore GP, and he's not happy

FELIPE MASSA CRANKED THE clock back 15 years when he came out of the Brazilian woodwork and claimed he had been robbed by the outcome of the 2008 world championship.

Massa wasn't referring to having the cup dashed from his lips when Lewis Hamilton passed Timo Glock at the final corner of the season to finish fifth and snatch the title. His belated grievance has been directed at the Singapore GP a few weeks before when so-called 'Crashgate' – a deliberate crash by Renault's Nelson Piquet Jr – dramatically changed the outcome of the race. Massa's Ferrari was leading at the time, but a Safety Car-inspired pitstop ended in a disaster that cost him a likely win. And, questionably, a championship which, Massa's lawyers claim,

would have earned their man millions.

The legal argument hinges on an alleged comment by Bernie Ecclestone that the FIA knew about Renault's misdemeanour – but didn't want to make waves. Massa's view is that the race should be declared null and void because of this.

In Holland this year, Ferrari said it didn't wish to comment on Crashgate. That's not surprising. Why would it want to be reminded of embarrassing pitstops on a weekend when its drivers were forced to wait while wet-weather tyres appeared to be brought from a spare parts department somewhere in downtown Zandvoort? Singapore 2008 was much worse than that.

For the previous 12 months, Ferrari had been among the first to switch from a man with a

'lollipop' to the beginnings of the traffic light system commonplace today. With an impatient Kimi Räikkönen queuing behind Massa in the pitlane, the light sensors had been turned off because they could not be recalibrated in time to deal with the second Ferrari.

In the heat of the moment, the person in charge of the lights hit the green button before the nozzle had been removed. Felipe was off, literally in a flash, tearing the fuel hose from its roots and knocking mechanics over like skittles. He pulled up, waiting for his mechanics to run the length of the pitlane, where they struggled to remove what remained of the fuel line. Massa rejoined at the back, his chance of points shot to pieces.

Meanwhile... Fernando Alonso, relegated to



Massa maintains that Alonso's 'Crashgate' 'win' in Singapore, along with the whole GP, should now be wiped from the record books after new evidence has apparently emerged



Had Massa not suffered this disastrous pitstop in Singapore when he pulled away with the fuel hose still attached, it is likely he would have at least scored points in the race

**MASSA WASN'T
REFERRING TO HAVING
THE CUP DASHED
FROM HIS LIPS WHEN
LEWIS HAMILTON
PASSED TIMO GLOCK**

15th on the grid by a problem during qualifying, ran light from the start, made an early stop and – would you believe – found himself in the lead thanks to Piquet's meeting with the wall. Had this not happened, Alonso wouldn't have scored his first win in 12 months.

The entire episode had an unpleasant aroma. Max Mosley, as president of the FIA and not a fan of Renault F1 boss Flavio Briatore, was soon on the case. Being a former barrister and a staunch advocate of the 'Rule of Law', Mosley – as recorded in his biography – could nevertheless find 'no concrete evidence of anything untoward'.

That changed when Piquet Jr, miffed at having been dropped by Renault, later admitted he had been instructed to crash. Knowing this continued

to be insufficient evidence, Mosley set up an enquiry run by an expert barrister and a senior former Scotland Yard detective. Contradictions in various stories led to disqualification for Renault from the 2009 championship and a ban for Briatore (and others). Briatore subsequently had the French courts declare the punishments were not legal.

This did not look like the FIA sweeping the affair under the carpet – as claimed by Massa and allegedly supported by Ecclestone's interview. Bernie says he can't remember making this claim. Retrospective judgements can be filled with such time-lapsed fudging as well interesting reflections on other unsporting acts. F1 is full of them.

The one that appeals most (in the sense of admiring a piece of astounding cheek) occurred during the final round of the 1959 championship at Sebring in the United States. During qualifying on the airfield circuit, Harry Schell pulled a move that seemed impossible at the time, never mind now when a driver can be monitored and reprimanded if he so much as changes his mind. Feigning a problem with his car, Schell pulled onto a service road within the airfield circuit and cut a corner before completing the lap. Schell was credited with a lap time good enough for the front row and six seconds under his previous best.

Incredible as it may seem, the time keepers would not be budged. Ferrari was outraged. Its title contender, Tony Brooks, had been pushed off the front row as the result of Schell's shortcut.

There would be a knock-on effect – literally – when Brooks was rammed from behind at the first corner. The subsequent precautionary pitstop cost the British driver what was universally considered to have been an otherwise certain championship (his rivals having either retired or, in the case of eventual champion, Jack Brabham, run out of fuel on the last lap before being classified fourth).

Brooks, being the gentleman that he was, merely said it was a "disappointing way to lose the championship". "Anyway," he continued in his autobiography, "the championship had really been lost earlier in the season." Brooks highlighted Ferrari's non-attendance at one race (unbelievable!) and a broken clutch foiling a front-row start and probable big points at Monza.

Felipe might wish to consider a similar reality check about the rest of his 2008 season before tainting what had been such a powerful example of dignity in defeat as he stood on the Interlagos podium all those years ago.



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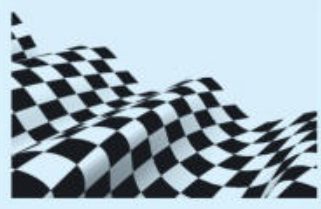
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FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 16

THE SINGAPORE GP IN 5 KEY MOMENTS

1 Sainz's tactical masterclass

While the final three laps of the 14th Singapore Grand Prix were a thrilling contest, it was in the dying moments of qualifying the day before when the course towards this outcome was set. And the margins could not have been finer.

On this year's shorter track layout Carlos Sainz set a time of 1m30.984s, just 0.072s quicker than



Sargeant's shunt brought out the Safety Car, but it was Ocon's retirement and subsequent VSC that allowed Mercedes to pit again

Mercedes' George Russell and a further 0.007s faster than Sainz's Ferrari team-mate. The red die was cast. Charles Leclerc duly became the only driver in the top 14 to start on the soft tyre and his mission was to wrestle second place from Russell at the start (which he accomplished before Turn 1) and sacrifice his own race to help Sainz manage the gap to the chasing pack.

It worked out perfectly. But the downside for the spectators was that the opening 19 laps were little more than a high-speed procession. Zhou Guanyu, running in last place, was matching the lap times of the leaders. Everyone was waiting for something to happen.

It did when Logan Sargeant drove his Williams into the Turn 8 wall. While Sargeant was able to trundle back to the pits with a large chunk of his front wing stuck under his car, the presence of debris on track led to the Safety Car's deployment on lap 20.

Virtually everyone dived into the pits except for the two out-of-position Red Bulls who had started on the hard compound. Forced to change rubber slightly earlier than was ideal, Sainz now had to nurse his new hard-compound tyres for 42 laps. Leclerc, delayed in his stop, was no longer in a position to play wingman. After 40 laps the Red

Bulls demonstrated the likely lifespan of the hards as Sergio Pérez pitted a lap before Verstappen, having dropped a number of positions on lap 39.

Up front Sainz led from Russell and the McLaren of Lando Norris. Lewis Hamilton was fourth, having cut straight across the Turn 1 chicane on the opening lap and briefly run second before conceding two places under instructions from race control.

Russell needed a way to pressurise the Ferrari ahead of him, which was still running conservatively to save tyres. An opportunity

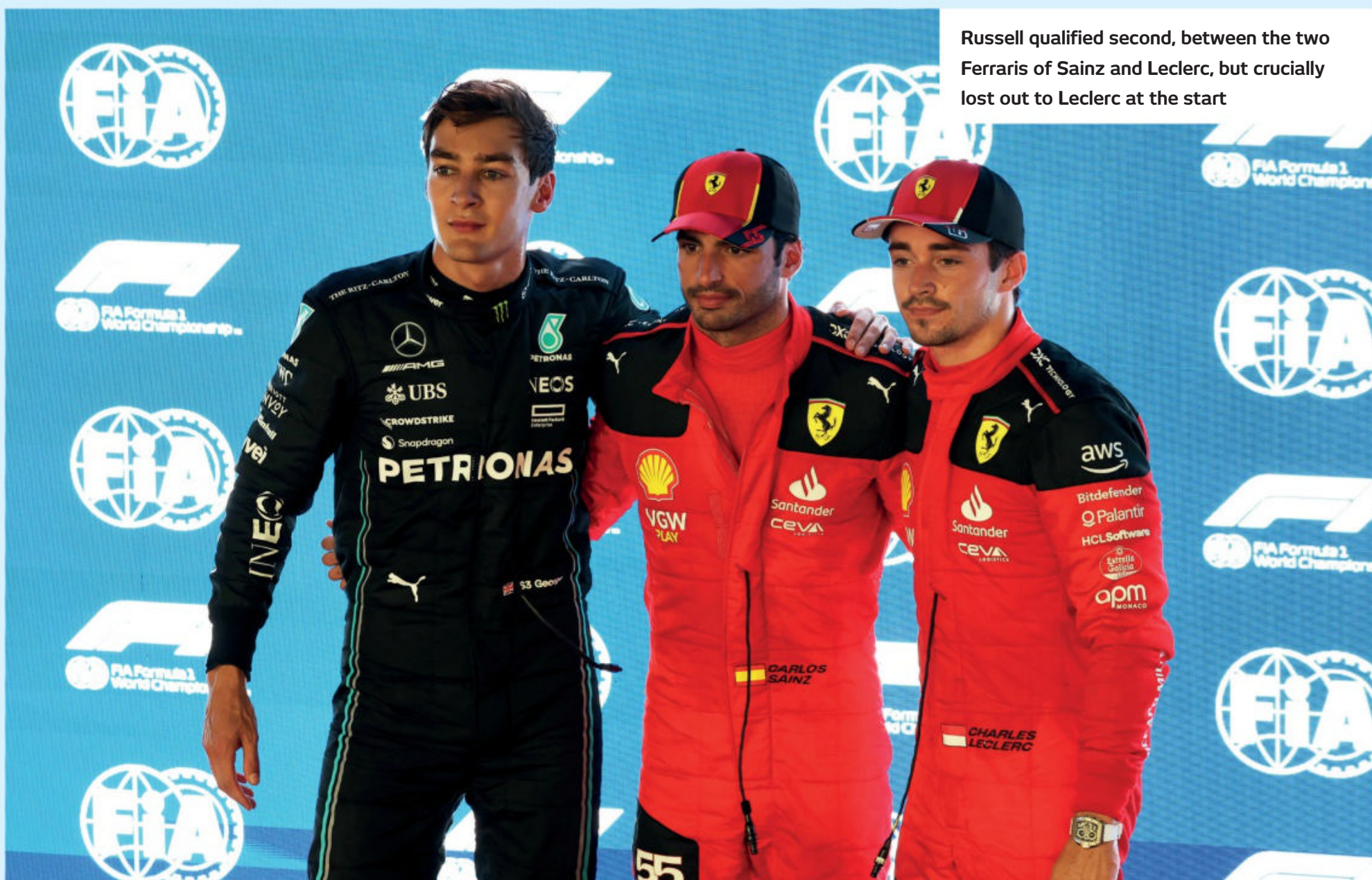


Sainz managed his tyres, and then the threat from Mercedes, superbly using Norris – and DRS – as his wingman in the closing stages



By qualifying on pole and leading away from the start, Sainz laid the groundwork for the first non-Red Bull victory of the season

PICTURES: STEVEN TEE; ZAK MAUGER; JAKE GRANT; STEVE ETHERINGTON



Russell qualified second, between the two Ferraris of Sainz and Leclerc, but crucially lost out to Leclerc at the start

presented itself on lap 44 when Esteban Ocon parked his stuck-in-sixth Alpine at the pitlane exit. Cue the Virtual Safety Car.

Mercedes went for a high-risk strategy it had held in reserve, having saved a set of medium tyres for each car during qualifying. Despite giving up track position, Russell and Hamilton gained prodigious speed. On lap 45 Russell had a 13.6s deficit to the leader. It came down to 8.6s on lap 51, 6.2s on lap 55 and with four to go Russell was right behind the leading duo.

This is where the top two were smart. Norris knew battling for the win would cost him time and they would both lose out to the Mercedes. Sainz knew his best chance of keeping Russell and Hamilton behind was to ensure Norris had DRS each lap. It was superb tactical driving and it worked as Sainz preserved his lead until the end.

"There was one lap where he [Norris] defended into T16-17 and I had to slow down a lot into Turns 1-2-3 to give him DRS," said Carlos. "I think that move saved my race and his P2. If they had got past Lando, they would have passed me pretty easily."

2 Missed opportunity for Russell

As the fastest man on track, especially with fresher tyres in the closing stages, Russell gave his all to get past Norris. But he also had to keep an eye on his Mercedes team-mate Hamilton,

who was positioned in his wheel tracks, waiting to pounce. The seven-time world champion could also smell victory.

The final laps with the top four all together, attacking, defending with the win on the line – under the floodlights – was box office. Something F1 has missed this year thanks to the all-conquering Red Bull RB19.

On lap 59 it looked as if Russell had finally got the measure of Norris, but the McLaren didn't yield, brilliantly keeping the Mercedes at bay. It was arguably that particular move which thwarted the Mercedes onslaught.

But in the heat and humidity of Singapore, maintaining the utmost concentration for nearly two hours is supremely challenging. On the final lap Norris approached Turn 10, formerly the location of the much-disliked 'Singapore Sling' chicane, and tapped the wall with his right-front. He bent his steering in the process.

Immediately behind him Russell hit the wall too, trying to open the bend for a quicker exit. The knock to the right-rear corner proved more severe and he suddenly careered straight on into the barriers in a shower of sparks. The win gone. And so too all points.

Despite the crushing disappointment, George spoke eloquently after the race to describe his last-lap misdemeanour.

"We were half a car's length away from winning the race, had I been able to overtake Lando with that one opportunity," said Russell. "Because Carlos did such a great job at dictating the pace

and giving Lando the DRS we couldn't get the chance to overtake Lando.

"As for the last lap, I don't know what the hell happened there... whether it was a lack of concentration, maybe frustration knowing that was our opportunity gone. A mistake of one or two centimetres has just put a shadow on the whole weekend.

"It would have been an amazing weekend too. The team did an amazing job, the car was great, the strategy was bang on. We were aggressive, we were bold and it was exciting. It's heart-breaking to be here with no points. And it definitely sums up the season I've been having."

3 "Worst-case scenario" adds to Red Bull woes

Sainz's victory not only ended Red Bull's incredible consecutive win record, it also dashed the opportunity for the team to whitewash the entire season. So what caused the all-dominant RB19 to be so far off the pace on the streets of the Lion City?

Paddock speculation pointed to the FIA's new technical directives that were issued prior to this race. While intended to limit the aero-elasticity of the front wings, they also addressed issues with the floor. Red Bull was quick to refute any correlation between the timing of the TD and this downswing in performance and seemed genuinely ▶



RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 16

baffled by the RB19's refusal to respond to setup changes, including a number of ride height permutations.

Max Verstappen lamented an "undriveable car" that was particularly skittish under braking and harsh while shifting through the gears. His tone of voice in a series of expletive-laden radio messages suggested frustration and, indeed, uncharacteristic errors followed. Verstappen was summoned to the stewards for three separate impeding misdemeanours, for which he was given a reprimand for two (holding up Yuki Tsunoda and waiting at the pit exit line with a queue of cars behind him) and no further action for the other (impeding Logan Sargeant in Q1). Apart from the mechanical issue in Jeddah, Singapore was the only time this season Verstappen had failed to make Q3.

Team-mate Pérez was equally out of sorts and could only manage 13th on the grid. Both Red Bulls started on hards and tried to offset their strategy in the hope that a late-race Safety Car could help steer them towards the sharp end. But even this Singapore dead cert arrived at the wrong time – tyre degradation forced Pérez and Verstappen to

stop at the end of laps 39 and 40 under green-flag conditions, four laps before the Virtual Safety Car triggered by Esteban Ocon's breakdown.

"Possibly the worst-case scenario," was how the world champion described the timing of the course neutralisations. And while Max was able to reach fifth place and Checo eighth from 11th and 13th on the grid, Pérez received a post-race 5s penalty and licence endorsement for a frustration-induced clash with the Williams of Alex Albon.



Red Bull was perplexed with a lack of pace in Singapore (above) and not even Verstappen (below) was able to drag the car to the front

4 Lawson continues to impress

While erstwhile AlphaTauri racer Nyck de Vries was struggling during the early rounds of the season, one of the reasons offered was that he was a "rookie." With track time limited, what chance did he have to learn the car or the circuits?

As a temporary course the Marina Bay layout is a prime location for experience – of the track and its demanding ambient conditions – to offer a significant advantage. Except nobody appeared to tell rookie Liam Lawson, who is looking increasingly impressive and is putting AlphaTauri in a quandry.

What was particularly bold was his assertiveness over the senior Red Bull duo. For it was Lawson who knocked Max Verstappen out of Q2 by putting in a lap just 0.007s quicker.

And late in the race, rather than simply yielding to the world champion-elect, who was marching through the field on fresher tyres, Lawson made Verstappen work hard to pass him. When Pérez



PICTURES: STEVEN TEE; GLENN DUNBAR; ANDY HONE; LIONEL NG



In only his third race Lawson managed to make Q3, knocking out Verstappen along the way, before going on to score his first points

attempted a move around the outside at Turn 7 in the final laps, Lawson defended robustly – to the extent of touching wheels. The reward for his enterprise was two world championship points for ninth place in only his third race.

“I would’ve liked a few more grands prix to prepare for this one, but obviously, when you get the opportunity, you have to take it with both hands,” said the 21-year old.

With his experience of racing in Japan, Lawson will continue to stand in for the injured Daniel Ricciardo at Suzuka. Thereafter the team faces a fascinating selection headache when Ricciardo becomes available once again. Is Lawson a better bet for the future of AlphaTauri? He’s also putting pressure on Yuki Tsunoda – who retired on the opening lap after picking up a puncture.

5 Single-car Aston goes pointless

It was at the end of Q1 qualifying that Lance Stroll rounded the final corner of the Marina Bay

circuit, went slightly wide onto the dust, corrected his Aston Martin and careered head-on into the perimeter barriers. The force and angle of the impact broke the left-front wheel from its tethers and Stroll came to halt in the middle of the track. In a weekend of relatively few mishaps, this was a significant shunt. Given the size of the repair job, the reduction of spare parts teams carry because of the cost cap, and Stroll’s bruised state, the team decided Lance should skip race day.

Publicly the team is standing by its man: team principal Mike Krack put the accident down to sheer commitment to setting a fast time after a preparatory lap disrupted by traffic. But the fact is that Fernando Alonso, on the other side of the garage, has been the team’s principal points-scoring engine and it is known that senior figures have approached Charles Leclerc and Lando Norris with a view to recruiting them.

And in Singapore it failed to score points for the first time this year. Alonso picked up a penalty for running wide at the pit entry on his first stop, then struggled on soft tyres after making a second stop in which the right-rear wheel was slow to engage. The highs of Bahrain seem a long time ago...

Stroll thankfully emerged unhurt from his huge Q1 shunt but it’s fair to say for Aston the weekend went downhill from there



RESULTS ROUND 16

MARINA BAY / 17.09.23 / 62 LAPS



1st	Carlos Sainz	Ferrari	1h46m37.418s
2nd	Lando Norris	McLaren	+0.812s
3rd	Lewis Hamilton	Mercedes	+1.269s
4th	Charles Leclerc	Ferrari	+21.177s
5th	Max Verstappen	Red Bull	+21.441s
6th	Pierre Gasly	Alpine	+38.441s
7th	Oscar Piastri	McLaren	+41.479s
8th	Sergio Pérez	Red Bull	+59.534s*
9th	Liam Lawson	AlphaTauri	+65.918s
10th	Kevin Magnussen	Haas	+72.116s
11th	Alex Albon	Williams	+73.417s
12th	Zhou Guanyu	Alfa Romeo	+83.649s
13th	Nico Hülkenberg	Haas	+86.201s
14th	Logan Sargeant	Williams	+86.889s
15th	Fernando Alonso	Aston Martin	+87.603s
16th	George Russell	Mercedes	+1 lap/accident

Retirements

Valtteri Bottas	Alfa Romeo	51 laps/gearshift
Esteban Ocon	Alpine	42 laps/gearbox
Yuki Tsunoda	AlphaTauri	0 laps/damage
Lance Stroll	Aston Martin	did not start/withdrawn

Fastest lap

Lewis Hamilton 1m35.867s on lap 47

TYRE COMPOUNDS USED



CLIMATE



AIR TEMP

30°C

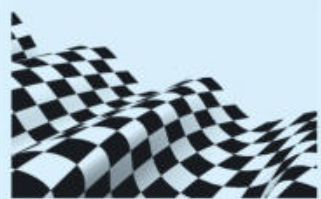
TRACK TEMP

34°C

DRIVERS' STANDINGS

1 Verstappen	374pts	12 Ocon	36pts
2 Pérez	223pts	13 Albon	21pts
3 Hamilton	180pts	14 Hülkenberg	9pts
4 Alonso	170pts	15 Bottas	6pts
5 Sainz	142pts	16 Guanyu	4pts
6 Leclerc	123pts	17 Tsunoda	3pts
7 Russell	109pts	18 Magnussen	3pts
8 Norris	97pts	19 Lawson	2pts
9 Stroll	47pts	20 Sargeant	0pts
10 Gasly	45pts	21 De Vries	0pts
11 Piastri	42pts	22 Ricciardo	0pts





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 17

THE JAPANESE GP IN 5 KEY MOMENTS



PICTURES: ANDY HONE; ZAK MAUGER; MARK SUTTON

1 Verstappen restores normal service

A polite ripple of applause emanated from the Suzuka grandstands to welcome the start of first free practice. Already waiting at the bottom of the pitlane on the Friday morning in Japan was Max Verstappen. He was absolutely determined to get out on track first and reassert his authority over the 2023 opposition. And guess what? His first flying lap was 1.2s quicker than anyone else — including team-mate Sergio Pérez.

Max's dominance continued across the three practice sessions and into qualifying. Onboard footage of his pole lap displayed inch-perfect precision. The harmony of RB19 and the high-speed Suzuka sweeps was a joy to behold and team boss Christian Horner described it as one of the best qualifying laps of all time. Singapore's performance was relegated to outlier status.

At the previous round, the bumpy Marina Bay circuit had complicated ride height requirements. Add to the mix slow corners that limited tyre temperatures and this did not play to the RB19's strengths. Rival teams had speculated — and Red

Verstappen proved emphatically that Singapore was just a minor blip in Red Bull's domination of 2023. The team claimed a sixth constructors' title thanks to Max's 13th win of the season



Suzuka was further confirmation that the McLaren MCL60 is working well. Piastri qualified second and Norris third, with the positions reversed at the flag for a first double podium since Monza 2021

Bull firmly denied — that the FIA Technical Directive on flexing floors and bodywork had played a role in humbling 2023's most dominant team. Correlation doesn't equal causation and events in Suzuka seemed to prove Red Bull's point.

Innuendo surrounding the TD had clearly irritated Verstappen and he was adamant the matter be closed. When queried after his brilliant pole lap, he had this to say: "Honestly, yeah,

[Singapore] we had a bad weekend; of course then people start saying it's all because of the technical directives. I think they can go suck on an egg. From my side, yeah, I was just very fired up to have a good weekend here and make sure we were strong."

The only threat to Max's dominance came at the start of the Japanese Grand Prix. Indeed, Lando Norris had his papaya McLaren briefly in



Japan was another poor race for Pérez with not one but two 'retirements', the second after returning to the track to serve a penalty

front as the pack roared into Turn 1. But as Norris said, "Max is Max" and by Turn 2 the Red Bull had reasserted its position at the head of the field. For Verstappen it was sayonara as he took his 13th victory of the year and led the team to its sixth constructors' championship.

Pacy in Singapore, and again in Suzuka, McLaren now has the MCL60 in a sweet spot. In the past eight races the team has amassed 155 points; in comparison Aston Martin has only scored 67.

Oscar Piastri continued to impress on his first visit to Japan, lining up on the front row of the grid and briefly challenging Verstappen into Turn 1 (before Norris swept around the outside of the pair of them). However, the Australian candidly admitted he struggled with managing his tyres over the race distance. With hotter than expected temperatures, degradation played a big factor across the 53 laps and Norris's experience ensured he finished second. Piastri picked up his first podium with third.

It was fitting Red Bull clinched the crown in Honda Land, the scene of so many celebrations in F1's past, and did so with another victory. "Coming into the season, I don't think we could have ever dreamed of having a year like this," said Horner. "To produce the kind of car we have and achieve these kind of results has been an incredible performance."

2 Has anyone seen the second Red Bull?

Max Verstappen reached the 400-point total for the year in Japan, taking him one step closer to his third world title. For all the talk about the RB19 being the car of the year, Max proved in Suzuka that the driver still plays a big role in that success. Just look at the current form of Sergio Pérez in the seat alongside and 177 points behind.

In qualifying Checo could only manage fifth on the grid, 0.773s behind his team-mate. Then off the start he twice banged wheels with Lewis Hamilton, which briefly put the Mercedes on the grass heading into Turn 1, damaging the Red Bull's front wing in the process. Additional debris from another collision further back led to the deployment of the Safety Car and Pérez dived into the pitlane at the end of the opening lap. Except that in his eagerness, he undertook Fernando Alonso (who had brilliantly made up four positions) before Safety Car Line 1. The result was a five-second time penalty.

On lap 12 Pérez was 12th and tried a wild lunge on Kevin Magnussen at the hairpin. He locked up and spun the Haas around, once again damaging his own wing. Pérez pitted, served his penalty and

headed back out, before retiring on lap 14. He then picked up another five-second penalty for the collision with Magnussen.

To avoid the sanction carrying over to Qatar, Checo got back aboard his Red Bull, rejoined the track 28 laps later, served the penalty and then retired for a second time on lap 42. Under the letter of the law, all perfectly fine, but there were those who felt the wording of the rules will need to be reviewed in order to prevent teams playing what was, in effect, a get-out-of-jail-free card.

One aspect of Pérez's infractions he hasn't escaped was the four points added to his licence, meaning he now has seven in a 12-month period.

"It was just a disastrous weekend," said Sergio. "It all started into Turn 1 with a really bad start. I was squeezed and was just a passenger in a sandwich and we carried a lot of damage in the car. That made it a lot harder for us."

3 Passions run high at Mercedes

The impact of a balmy Suzuka was a larger-than-expected rate of tyre degradation on race day. That meant drivers running slightly offset strategies ▶



FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 17

would find themselves quickly caught out by traffic on the narrow course.

It even led to the great warrior Fernando Alonso describing the decision to remove his soft-compound starting tyre early as the equivalent of being “fed to the lions.” But it was the strategies between team-mates which led to the many calls to their respective pitwalls for succour.

One of the most exciting intra-team duels on track was between the Mercedes pair. At the end of lap six George Russell dived past Hamilton at the chicane, only for his team-mate to riposte into Turn 1. 10 laps later Hamilton made a rare mistake on the exit of Degner 2 which gave Russell a chance into Spoon Curve — before he was rebuffed by the seven-time world champion.

The first call came in from Russell: “Who do we want to fight? Each other or the others?”

George’s one-stop strategy gave him track position over his team-mate and he was running fifth, ahead of Lewis, in the closing stages as Carlos Sainz cruised up behind them. With five laps left the message came to Russell to “invert positions.”

The reply from the number 63 cockpit was to “invert positions on the final lap” so that Hamilton could keep in Russell’s DRS range, in effect

mirroring Sainz’s strategy in the closing laps of Singapore. A no-nonsense rebuke came back from engineer Marcus Dudley: “It’s an instruction George. Let’s swap positions.”

When the move was done into Turn 1 on lap 49, Russell made his feelings known and wanted his team-mate to help his own cause against Sainz: “Does he want to play the team game? He pushed me off the track earlier... least he could do.”

“They’re using my trick against me,” tittered Sainz. In the end, the degradation for Russell was too much and, even with DRS, he was helpless to stop the Ferrari passing him three laps from the flag. In the final reckoning, Hamilton was fifth behind Charles Leclerc. Sainz was sixth one, place ahead of Russell and lion survivor Alonso.

4 Peak pique for Alpine

If the radio frequencies were combative at Mercedes, dialogue was even more tasty at Alpine where Pierre Gasly felt particularly hard done by come the chequered flag. Team-mate Esteban Ocon had been involved in the secondary startline skirmish and was forced to pit at the end of the first lap. This compromised his race, forcing him onto a one-stop strategy while Gasly enjoyed the optimal two-stopper.

In the final stages Gasly had fresher rubber and on lap 46 he moved ahead of Ocon to try



Mercedes’ attempt to replicate the DRS strategy Sainz used in Singapore to keep the Spaniard at bay would ultimately fail

The Merc pair battle hard. Russell dived past Hamilton at the chicane on lap six, only for Hamilton to grab the place back at Turn 1



Ocon in front of Gasly was how the two Alpines finished, but Gasly was annoyed at being ordered to swap places on the last lap



and challenge Alonso for eighth. Much to Gasly's surprise he was then ordered to swap positions with his team-mate on the final lap. While not originally broadcast on the global TV feed, the radio communications have entered the public domain and render Gasly's angst with total clarity.

"Wait, what the fuck?" he raged. "What are you saying? I was faster. I'm on fresher rubber. If he'd not let me pass, I would have overtaken him anyway."

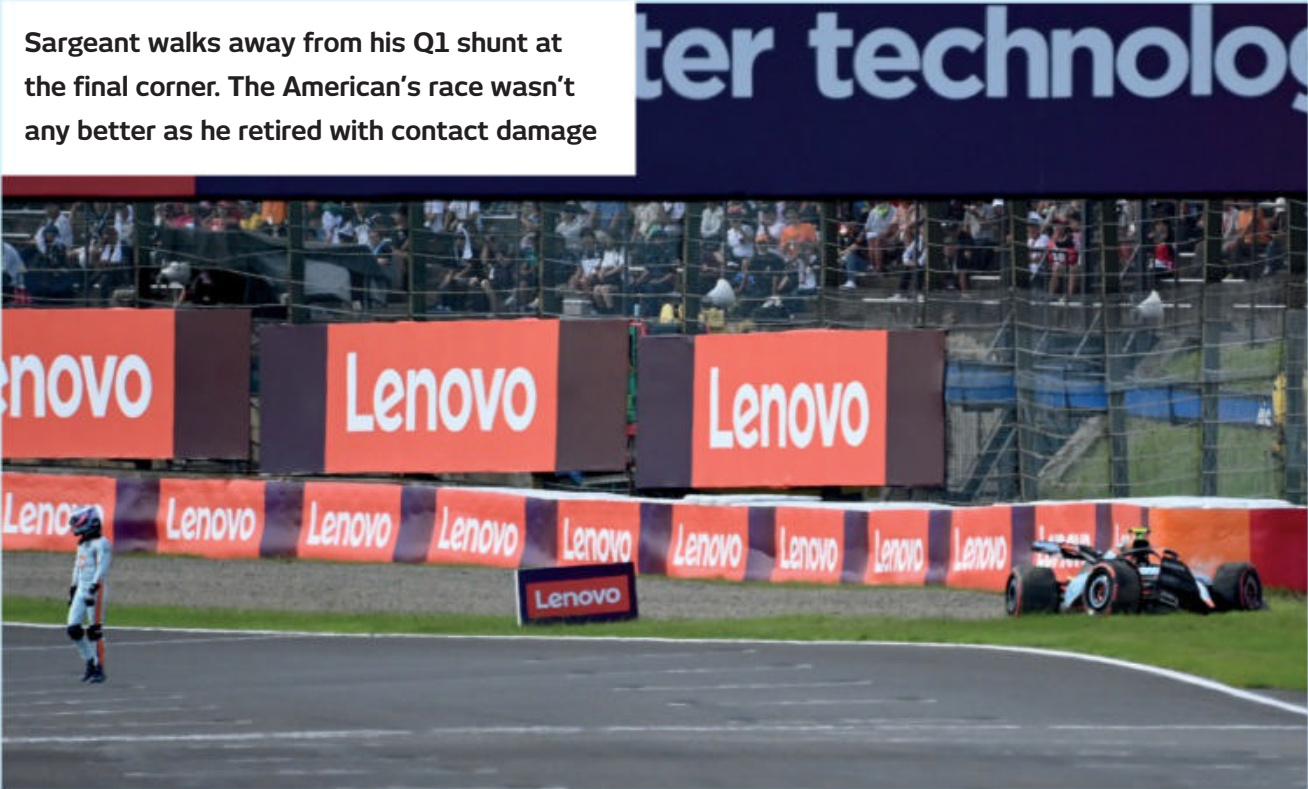
"We'll discuss it in the office. Switch around please," came the reply from the Alpine pitwall.

"You're being serious? Are you serious? I started in front, I was in front the whole race. You let him undercut me and then..."

Gasly, being the good team player, did slow at the final corner to allow Ocon to overtake for ninth place before making his feelings plain once more via the medium of gesticulations at the start of his slow-down lap.

Any words spoken at that moment remain under wraps and Gasly continued to be disgruntled during his post-race press commitments. Is this the first sign of a new schism between two drivers who have managed to put their previous frostiness on hold? A penny for the thoughts of former management figures Otmar Szafnauer and Alan Permane...

Sargeant walks away from his Q1 shunt at the final corner. The American's race wasn't any better as he retired with contact damage



5 Williams suffers double trouble

Suzuka's old-school nature means mistakes are usually costly, but this weekend of track action was relatively error-free. However, there were incidents and the biggest involved Logan Sargeant who lost control of his Williams coming out of the final corner in Q1.

His chassis was deemed "beyond repair" so the team reassembled what was left of the car around a new survival cell. But since the new elements were a different spec, the FIA considered the work to represent a "third car", which carried a 10s time penalty. Since the work was done under parc fermé conditions Sargeant started from the pitlane, but his race ended with damage suffered after he barged Valtteri Bottas into the gravel at Turn 11.

This was the second Williams Bottas had been in contact with – after being squeezed at the start by Esteban Ocon he drifted into Alex Albon. The impact sent Albon's car into the air and the damage to Albon's car eventually led to its retirement. It was Williams' first double DNF since Australia.

RESULTS ROUND 17

SUZUKA / 24.09.23 / 53 LAPS



1st	Max Verstappen	Red Bull	1h30m58.421s
2nd	Lando Norris	McLaren	+19.387s
3rd	Oscar Piastri	McLaren	+36.494s
4th	Charles Leclerc	Ferrari	+43.998s
5th	Lewis Hamilton	Mercedes	+49.376s
6th	Carlos Sainz	Ferrari	+50.221s
7th	George Russell	Mercedes	+57.659s
8th	Fernando Alonso	Aston Martin	+74.725s
9th	Esteban Ocon	Alpine	+79.678s
10th	Pierre Gasly	Alpine	+83.155s
11th	Liam Lawson	AlphaTauri	+1 lap
12th	Yuki Tsunoda	AlphaTauri	+1 lap
13th	Zhou Guanyu	Alfa Romeo	+1 lap
14th	Nico Hülkenberg	Haas	+1 lap
15th	Kevin Magnussen	Haas	+1 lap

Retirements

Alex Albon	Williams	26 laps/damage
Logan Sargeant	Williams	22 laps/accident
Lance Stroll	Aston Martin	20 laps/rear wing
Sergio Pérez	Red Bull	15 laps/damage
Valtteri Bottas	Alfa Romeo	7 laps/damage

Fastest lap

Max Verstappen 1m34.183s on lap 39

TYRE COMPOUNDS USED



CLIMATE

Sunny

AIR TEMP

30°C

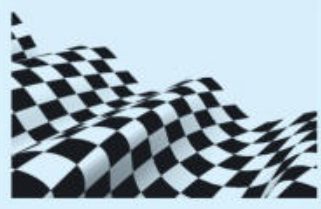
TRACK TEMP

41°C

DRIVERS' STANDINGS

1 Verstappen	400pts	12 Ocon	38pts
2 Pérez	223pts	13 Albon	21pts
3 Hamilton	190pts	14 Hülkenberg	9pts
4 Alonso	174pts	15 Bottas	6pts
5 Sainz	150pts	16 Guanyu	4pts
6 Leclerc	135pts	17 Tsunoda	3pts
7 Norris	115pts	18 Magnussen	3pts
8 Russell	115pts	19 Lawson	2pts
9 Piastri	57pts	20 Sargeant	0pts
10 Stroll	47pts	21 De Vries	0pts
11 Gasly	46pts	22 Ricciardo	0pts





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 18

THE QATAR GP IN 5 KEY MOMENTS

1 Flat-out racing takes its toll

There is a reason the Middle Eastern races are clustered at either end of the schedule. The window for temperate weather is a narrow one and, clearly, it's still too hot in early October to race in Qatar.

Daytime ambient temperatures in Doha were nudging 42°C. When the wind died down and the humidity rose to nearly 80% for the race, conditions in the cockpit quickly became marginal. It did not help that the race pace was ferocious, since the introduction of an 18-lap limit on tyre use on race day meant there was no need for the usual 'management' of degradation.

The first outward indication all was not well came on lap 35 when Logan Sargeant radioed in to say he wasn't feeling good. Stymied by flu-like symptoms earlier in the week, he wasn't coping with the intense conditions and battled on for a few more laps before being helped from his car once he'd pulled in to retire. Williams team-mate Alex Albon made it to the chequered flag but went immediately to the medical centre to be treated for acute heat exposure.

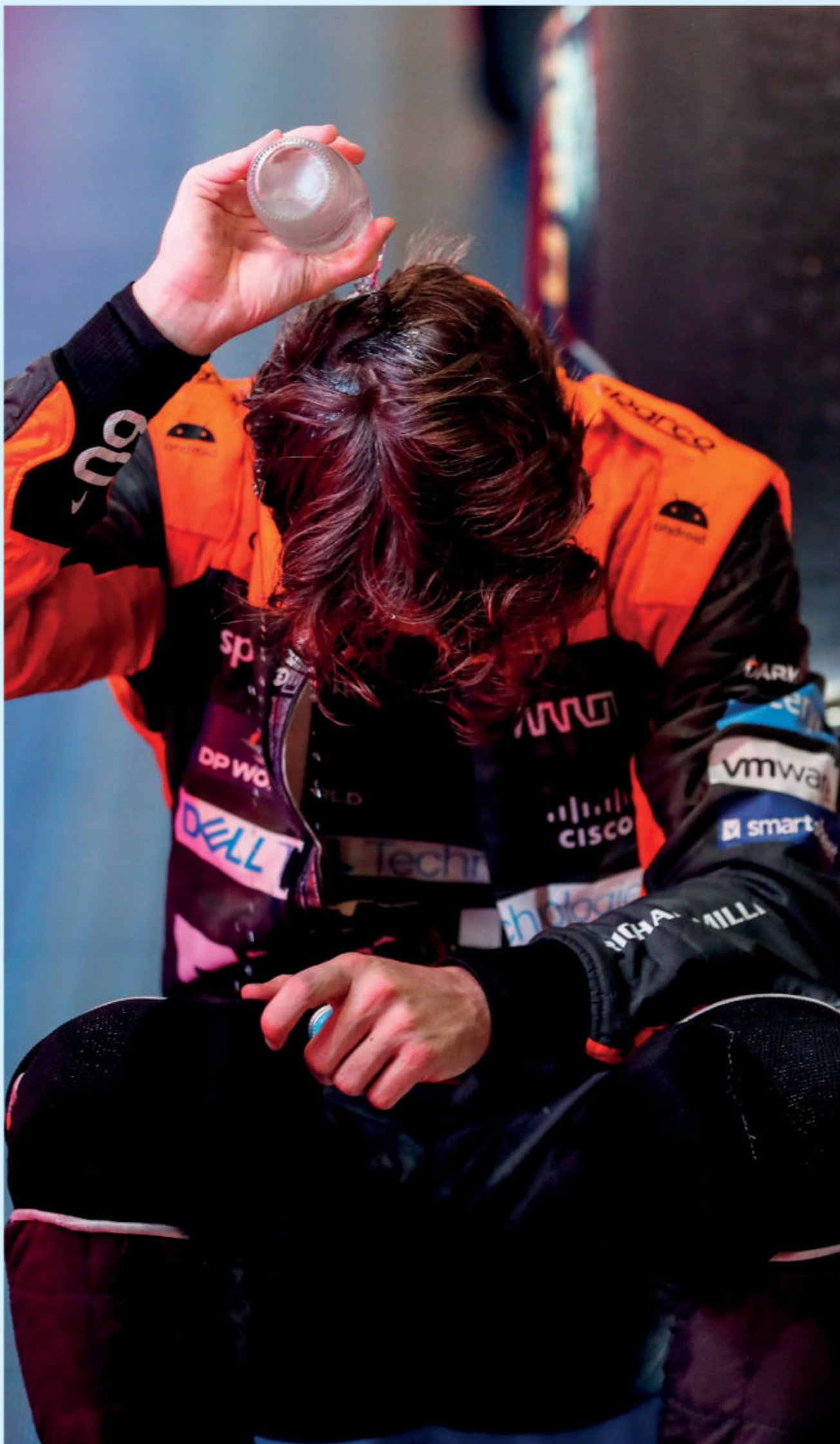
Alpine's Esteban Ocon later revealed he had been sick over the course of laps 15 and 16 and had to call on mind-management techniques to have any chance of reaching the finish. His reward was seventh place.

"I was not expecting the race to be that hard. Physically, I can normally do two race distances, but it was just like 80°C inside the cockpit," said Ocon.

After giving his Aston Martin trainer a shove following a disappointing qualifying, Lance Stroll was in need of Henry Howe's help post-race, after he struggled to get out of his car. Lance lost a points position when slapped with two five-second penalties for track limits, blamed on "passing out" in the high-speed corners. His team-mate Fernando Alonso (sixth) suffered burns from an extremely hot seat and even asked whether he could be doused with water at his pitstop.

The top three – Max Verstappen, Oscar Piastri and Lando Norris – were clearly exhausted afterwards and the newly crowned champion suggested the conditions were "on the limit of what should be allowed." It was remarkable no one lost consciousness, and several drivers had to resort to opening their visors or taking their hands off the wheel to channel more air into the cockpit.

"It's never a nice situation to be in, with some people ending up in the medical centre, or passing



The heat and humidity, combined with a mandated three-stop race, meant the drivers had to push for all 57 laps with no tyre management. It was an exhausting Sunday for all concerned

PICTURES: STEVEN TEE; ZAK MAUGER; MARK SUTTON



Second in the sprint race on Saturday (below) was enough to confirm a third consecutive world championship for Max Verstappen

out," said Norris. "It's pretty dangerous as in a closed car it gets extremely hot in a physical race."

"It was the most difficult race I've ever competed in," said fourth-placed George Russell. "It was insane how hot it was, it was like being inside an oven. Sometimes I train in saunas and you push your body to the limit. You get to the point where it's too hot and you want to get out. That was the feeling from lap 12. To be honest there were times where I thought I was going to faint during the race. It was a relief to see the chequered flag."

Next year Qatar will host the penultimate round of the season on 1 December, where ambient temperatures should be lower. Whether that will be enough for Valtteri Bottas is another matter.

When describing the conditions as sauna-like, his engineer told him he could enjoy a beer for his eighth. "Er, there is no beer in the hospitality," said the Finn. "Ah true, wrong country," came the reply...

2 Verstappen joins the Saturday champions club

On lap 11 of the Qatar weekend's sprint race, Sergio Pérez spun into retirement while battling for eighth place. While Pérez extracted himself from



his battered Red Bull cockpit, now buried in a dusty gravel trap, he also had to digest the fact that his exit had crowned his team-mate Max Verstappen world champion for a third time.

Checo was trying to overtake Nico Hülkenberg's Haas for ninth when they descended on Esteban Ocon's soft-shod Alpine at Turn 1. As they ran three abreast towards Turn 2, Hülkenberg was sandwiched between the pair and Ocon ricocheted off the Haas and spun into the side of Pérez, ending his very slim title hopes.

It was an ignominious end to a run of poor form for Pérez. His RB19 needed to be substantially rebuilt for the main 57-lap race the next day and he was forced to start from the pitlane. Caught

out three times for track limit infractions, he finished tenth in the Qatar Grand Prix, over a minute behind his team-mate.

While celebrating Verstappen's achievement of joining the likes of Ayrton Senna, Niki Lauda and Jackie Stewart as a three-time champion, Red Bull team boss Christian Horner admitted Pérez needs to rediscover his mojo.

"With a car like we have at the moment, he's probably putting that pressure on himself," said Horner. "We need to get Checo back to the best form that he's capable of."

Lewis Hamilton is just 30 points behind Pérez. Red Bull has never finished 1-2 in the drivers' championship before, one more target the team ▶



FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 18

wants to achieve to complete a historic year. Verstappen finished the sprint in second place and afterwards was lauded with acclaim and obligatory photo ops with both the FIA President Mohammed Ben Sulayem and F1 CEO Stefano Domenicali.

Verstappen enjoyed a small celebration with his team on grand prix eve as he joined the group of champions who had also won their title on a Saturday: Nelson Piquet, Keke Rosberg, Graham Hill, Jack Brabham and Juan Manuel Fangio.

3 Let the rookie win: Piastri's first F1 victory

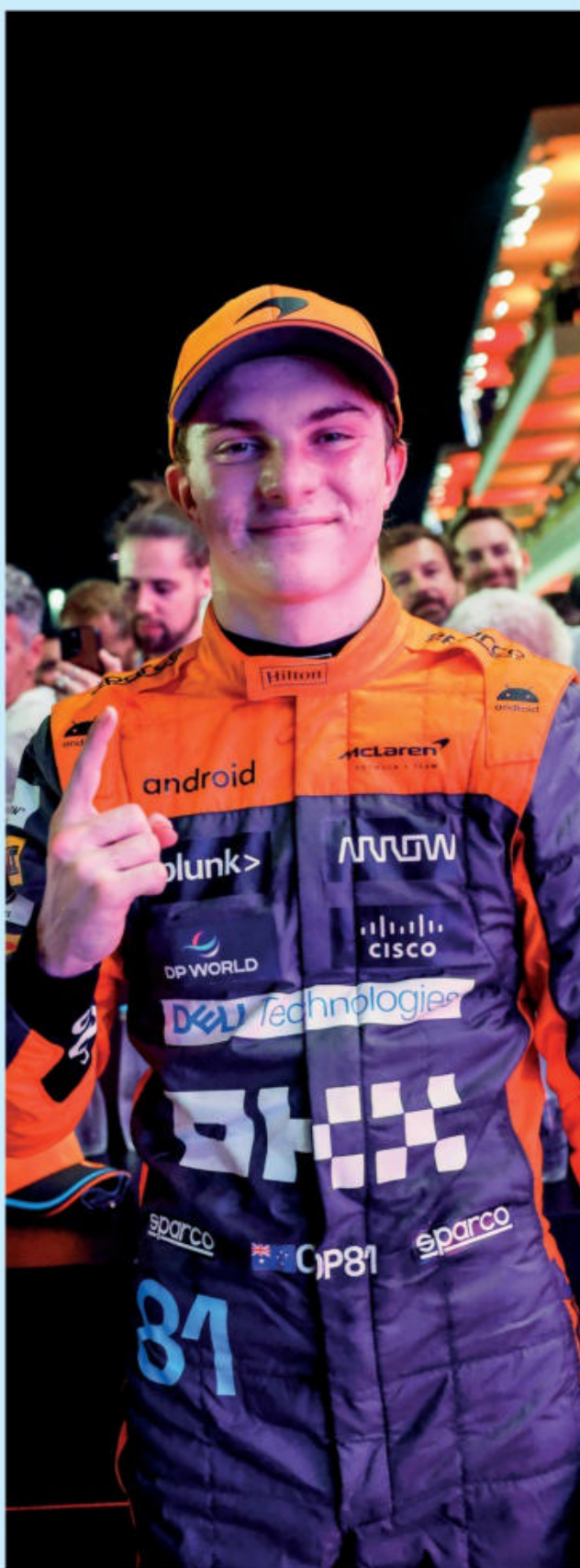
Although Max Verstappen ran to an ultimately comfortable win in the main race on Sunday, he was beaten into second place in Saturday's sprint by one of the stars of 2023 – Oscar Piastri. Mark Webber's protégé has developed well in his rookie season and his first Formula 1 win was a reward for consistency and tenacity throughout the 19-lap sprint event.

In a weekend freighted with perils – alterations to the layout, extreme heat and tyre issues, plus changeable track conditions owing to high winds blowing sand onto the surface – Piastri was unflappable. McLaren's good form in Japan continued in Qatar and the team had the second fastest car of the weekend. That's why both Piastri and Norris were frustrated with having their Q3 laps deleted for track-limit violations. Piastri thought he was third fastest before being informed he was demoted to sixth, while Norris was angry at himself for an oversteer correction that ultimately left him 10th on the grid.

While the pair made amends in the sprint shootout, Oscar was once again more consistent and ahead of his more experienced team-mate, calmly converting pole to a sprint win despite the threat from Verstappen and the soft-shod Mercedes of George Russell.

At the start of the grand prix Piastri gained four places just by holding the inside line at Turn 1 as Russell and Lewis Hamilton came together and Fernando Alonso checked up to avoid them. There was still some hard work to do: in Suzuka Piastri admitted he didn't manage his tyres particularly well and, once again, Norris was the faster McLaren driver over the course of the race.

From his lowly grid spot Norris was right on his team-mate's gearbox for the final stint and was frustrated when ordered to hold station.



In the last three races McLaren has scored 104 points to Aston Martin's 15 and is now just 11 behind in the battle for fourth. And the pit crew deserve credit too, breaking the record for the fastest pitstop time ever – servicing Norris on lap 27 in just 1.8 seconds.

4 A rare first-lap retirement for Hamilton

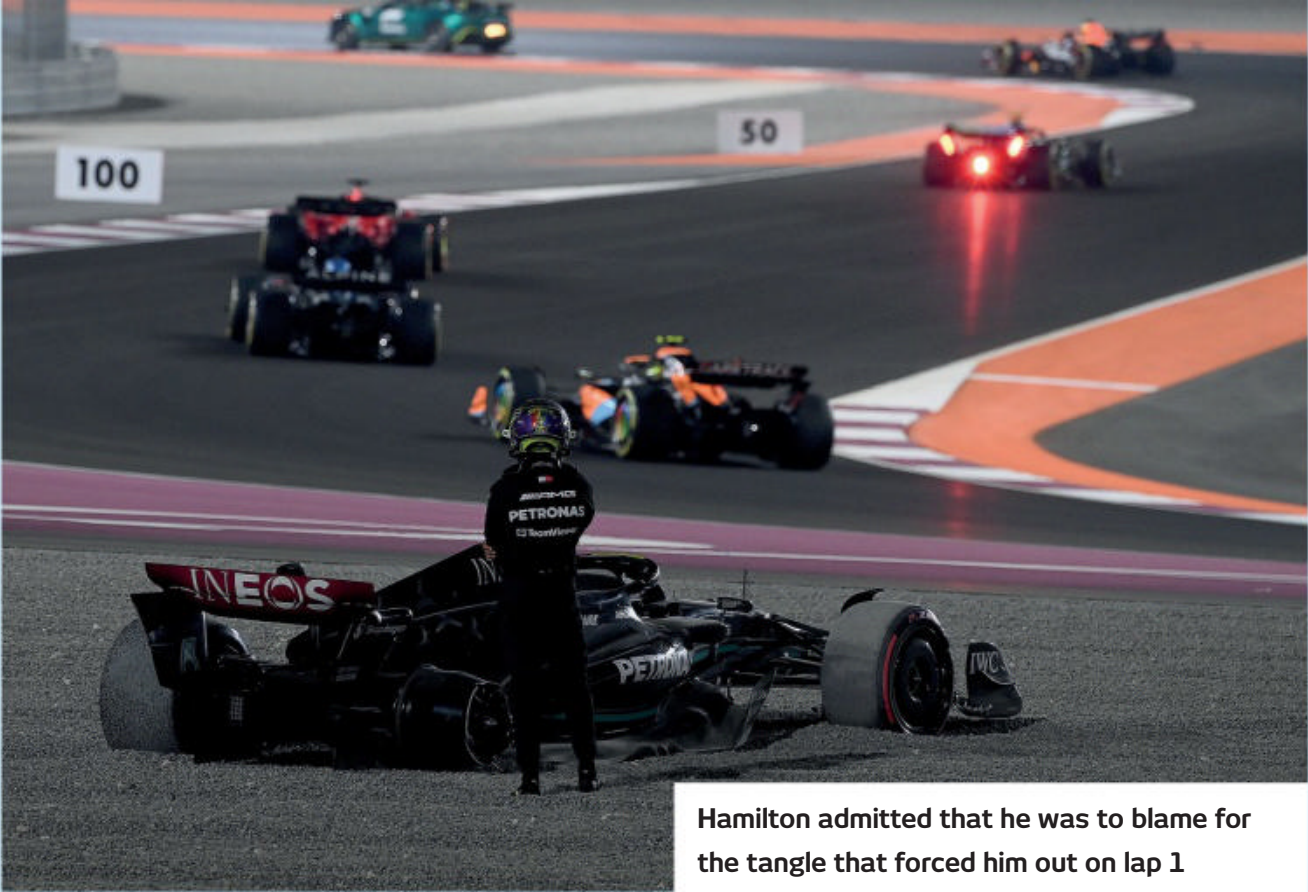
Lewis Hamilton's grand prix was compromised before the start by the 18-lap cap on tyre use, which forced him onto a different strategy in which he started on the soft tyre. This would likely give him a good start, but would it last the 18 laps?

The question was rendered academic within moments of the start. From third on the grid, Hamilton made good use of the extra grip and at Turn 1 he went around the outside of pole man Verstappen and his team-mate Russell. But he hadn't left his team-mate enough room and his right-rear clipped Russell's front-left.

The contact left Lewis beached in the gravel (for only the sixth first-lap retirement of his long career) while an irritated Russell, turning the airwaves blue, resumed in last place. Despite initially blaming Russell, Hamilton conceded it was his mistake, although the stewards decided it was a "typical lap 1, Turn 1 incident," and took no further action.

The officials were less impressed with Lewis crossing a live track, though, and he was fined €50,000 (with €25,000 suspended for the remainder of the season).

Piastri was imperious on Saturday, claiming pole for the sprint shootout then converting it into his first sprint race win (below)



Hamilton admitted that he was to blame for the tangle that forced him out on lap 1

5 A learning process in Losail

In the two years since Qatar first hosted its Grand Prix, a number of improvements were made the pits, paddock and the 3.36-mile Losail circuit itself. In addition to resurfacing, changes had been made to kerbs on the exit of the numerous high-speed corners to discourage track-limit dalliances.

During Pirelli's routine analysis of tyres after Friday practice it discovered a worrying "separation in the sidewall between the topping compound and the carcass cords", adding that "a significant number of additional laps on these tyres could result in circumferential damage of the tyre with subsequent air loss."

The reason for the risk of punctures was said, by the FIA, to be caused by the "high-frequency interference between the tyre sidewall and the 50mm 'pyramid' kerbs – aggravated by the propensity to ride the kerbs."

One of the solutions made on Friday night was to redraw the track-limit boundaries at the exit of Turns 12 and 13, bringing the edge of the track

inwards by 80cm. In an unusual move, drivers were then allowed an additional 10-minute familiarisation session ahead of the sprint shootout.

Three Safety Car interventions in the 19-lap sprint meant further tyre wear data was limited. As a result, Pirelli and the FIA met with the teams on Sunday morning and mandated that a set of tyres must only be used for a maximum of 18 laps, effectively forcing a three-stop race. Anyone who exceeded that 18-lap limit would be reported to the stewards for running in an unsafe condition.

Although perfectly understandable for safety reasons, this late change had a significant impact on teams which had run longer stints on their tyres earlier in the weekend

Lewis Hamilton for example, had two sets of mediums that could only do another 10 and 13 laps. In contrast, Verstappen had three medium sets available with 18, 17 and 17 laps of life left in them. It meant Lewis opted to start on softs – a decision that had a knock-on impact for his evening.

The other side-effect of the three stopper was that tyre management was no longer a factor, so the race was effectively 57 flat-out qualifying laps, adding to the physical strain for the drivers in the searing heat and humidity.



Pirelli revealed the issues with the tyres to the media on Saturday morning, ahead of a final decision after the sprint race

RESULTS ROUND 18

LOSAIL INTERNATIONAL CIRCUIT /
08.10.23 / 57 LAPS



1st	Max Verstappen	Red Bull	1h27m39.168s
2nd	Oscar Piastri	McLaren	+4.833s
3rd	Lando Norris	McLaren	+5.969s
4th	George Russell	Mercedes	+34.119s
5th	Charles Leclerc	Ferrari	+38.976s
6th	Fernando Alonso	Aston Martin	+49.032s
7th	Esteban Ocon	Alpine	+62.390s
8th	Valtteri Bottas	Alfa Romeo	+66.563s
9th	Zhou Guanyu	Alfa Romeo	+76.127s
10th	Sergio Pérez	Red Bull	+80.181*
11th	Lance Stroll	Aston Martin	+81.652*
12th	Pierre Gasly	Alpine	+82.300s**
13th	Alex Albon	Williams	+91.014s*
14th	Kevin Magnussen	Haas	+1 lap
15th	Yuki Tsunoda	AlphaTauri	+1 lap
16th	Nico Hülkenberg	Haas	+1 lap
17th	Liam Lawson	AlphaTauri	+1 lap

*includes 2x5s penalty for exceeding track limits
** includes 5s penalty for exceeding track limits

Retirements			
Logan Sargeant	Williams	40 laps/exhaustion	
Lewis Hamilton	Mercedes	0 laps/accident	
Carlos Sainz	Ferrari	did not start/fuel system	

Fastest lap	
Max Verstappen	1m24.319s on lap 56

F1 Sprint - 19 laps	
1st	Piastri
2nd	Verstappen
3rd	Norris
4th	Russell
5th	Hamilton
6th	Sainz
7th	Albon
8th	Alonso

TYRE COMPOUNDS USED				
Hard (C1)	Medium (C2)	Soft (C3)	Inter	Wet

CLIMATE		AIR TEMP	TRACK TEMP
Dry/night		33°C	38°C

DRIVERS' STANDINGS		11 Gasly	46pts
1 Verstappen	433pts	12 Ocon	44pts
2 Pérez	224pts	13 Albon	23pts
3 Hamilton	194pts	14 Bottas	10pts
4 Alonso	183pts	15 Hülkenberg	9pts
5 Sainz	153pts	16 Guanyu	6pts
7 Leclerc	145pts	17 Tsunoda	3pts
7 Norris	136pts	18 Magnussen	3pts
8 Russell	132pts	19 Lawson	2pts
9 Piastri	83pts	20 Sargeant	0pts
10 Stroll	47pts	21 De Vries	0pts
		22 Ricciardo	0pts





FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 19

UNITED STATES GP

20-22 October 2023
Circuit of The Americas

PICTURES: ANDY HONE; ZAK MAUGER; ILLUSTRATION: ALAN ELDRIDGE



RACE DATA

Venue Circuit of The Americas
First GP 2012
Number of laps 56
Circuit length 3.425 miles
Race distance 191.633 miles
Lap record 1m36.169s
Charles Leclerc (2019)
F1 races held 10
Winners from pole 5
Pirelli compounds C2, C3, C4

CAR PERFORMANCE

Downforce level Medium
Cooling requirement Medium
Full throttle 63%
Top speed 205mph
Average speed 121mph

TIMETABLE (UK TIME)

Friday 20 October
Practice 1 18:30-19:30
Qualifying 22:00-23:00
Saturday 21 October
Sprint shootout 18:30-19:14
Sprint 23:00-00:00
Sunday 22 October
Race 20:00
Live coverage Sky Sports F1
Highlights Channel 4

THE MAIN EVENT

11 years after its first appearance on the F1 calendar, the Circuit of The Americas remains a popular venue thanks to its challenging and distinctive layout, a full events programme and the track's proximity to the fascinating Texas state capital, Austin. Indeed, watch those clean-living F1 drivers sneak out into town to queue up for smoked brisket once the racing is done...

This track's signature feature is its climb up to the sharp first corner, followed by a quick descent and a snaking, downforce-dependent section inspired by Silverstone. New for this year is the addition of a sprint race to proceedings.

Another novel element to look out for is the first appearance on the grand prix support card of F1 Academy, the all-female series. Marta García has a healthy but not unbeatable lead going into this final round of three races.

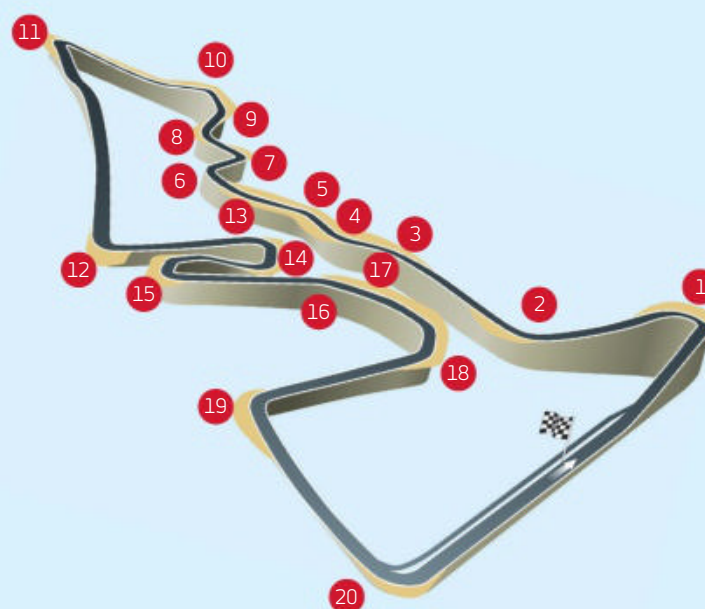
2022 RACE RECAP

Max Verstappen might have just won the championship at the previous round but he was no less motivated in the USA as he charged back from a slow pitstop to win from Mercedes' Lewis Hamilton. Max got a faster getaway from second on the grid than polesitter Carlos Sainz, who was then eliminated in a first-corner shunt with Hamilton's team-mate George Russell.

Verstappen's lead survived two Safety Car deployments but a wheelgun issue at his second stop cost 11 seconds and left him behind Hamilton and Charles Leclerc, who had started 12th after an engine-change penalty. Max fought his way by both of them to secure his 13th win of the season.

KEY CORNER: TURN 20

Renamed in honour of US racing legend Mario Andretti, this corner offers a marginal overtaking opportunity at best but getting it right is essential to attain peak speeds on the main straight.



THE PAST FIVE WINNERS HERE



2022

Max
Verstappen
Red Bull



2021

Max
Verstappen
Red Bull



2019

Valtteri
Bottas
Mercedes



2018

Kimi
Räikkönen
Ferrari



2017

Lewis
Hamilton
Mercedes



FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 20

MEXICO CITY GP

27-29 October 2023

Autódromo Hermanos Rodríguez



RACE DATA

Venue Autódromo Hermanos Rodríguez**First GP** 1963**Number of laps** 71**Circuit length** 2.674 miles**Race distance** 189.738 miles**Lap record** 1m17.774s

Valtteri Bottas (2021)

F1 races held 22**Winners from pole** 10**Pirelli compounds** C3, C4, C5

CAR PERFORMANCE

Downforce level High**Cooling requirement** High**Full throttle** 47%**Top speed** 227mph**Average speed** 115mph

TIMETABLE (UK TIME)

Friday 27 October**Practice 1** 19:30-20:30**Practice 2** 23:00-00:00**Saturday** 28 October**Practice 3** 18:30-19:30**Qualifying** 22:00-23:00**Sunday** 29 October**Race** 20:00**Live coverage** Sky Sports F1**Highlights** Channel 4

THE MAIN EVENT

Formula 1's highest race – Mexico City sits within the country's high central plateau at 2240 metres above sea level – is a unique event in so many respects. While the track itself is a watered-down version of a more challenging previous iteration, there are several overtaking opportunities and pinch points around the lap. More testing still is the effect of altitude on the cars: engines struggle to draw breath but teams can pile on more wing than they normally would at a track such as this.

The Autódromo Hermanos Rodríguez is also the only track on the F1 calendar to pass through a stadium. Foro Sol, which will have just hosted gigs by the likes of The Weeknd and Arctic Monkeys, as well as a three-night residency by Depeche Mode, seats over 20,000 on race day and has a pumping atmosphere.

2022 RACE RECAP

It was a virtually unopposed 14th win of 2022 for Max Verstappen as he led commandingly from pole position in an uneventful encounter. After Max had seen off the challenge of Mercedes' George Russell at Turn 1 it was a matter of how long he could stretch out the life of his soft tyres versus the mediums fitted to both Mercedes.

The anticipated drop-off in performance never came as Max retained his advantage and Merc's medium-hard strategy came to nothing – indeed, both Russell and Hamilton complained about the hard's performance as they dropped away, finishing second and fourth. A slow first stop pegged back Sergio Pérez, who finished third.

KEY CORNER: TURN 4

Often a major flashpoint, this sharp left-hander comes at the end of a short straight where drivers are often vigorously disputing matters arising from the opening sequence of corners.



THE PAST FIVE WINNERS HERE



2022

Max
Verstappen
Red Bull

2021

Max
Verstappen
Red Bull

2019

Lewis
Hamilton
Mercedes

2018

Max
Verstappen
Red Bull

2017

Max
Verstappen
Red Bull



FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 21

SÃO PAULO GP

3-5 November 2023
Autódromo José Carlos Pace

PICTURE: MARK SUTTON. ILLUSTRATION: ALAN ELDRIDGE



RACE DATA

Venue Autódromo José Carlos Pace
First GP 1973
Laps 71
Circuit length 2.677 miles
Race distance 190.064 miles
Lap record 1m10.540s
 Valtteri Bottas (2018)
F1 races held 38
Winners from pole 16
Pirelli compounds C2, C3, C4

CAR PERFORMANCE

Downforce level Medium
Cooling requirement Medium
Full throttle 60%
Top speed 202mph
Average speed 131mph

TIMETABLE (UK TIME)

Friday 3 November
Practice 1 14:30-15:30
Qualifying 18:00-19:00
Saturday 4 November
Sprint shootout 14:00-14:44
Sprint 18:30-19:30
Sunday 5 November
Race 17:00
Live coverage Sky Sports F1
Highlights Channel 4

THE MAIN EVENT

50 years ago the Brazilian Grand Prix joined the 'official' Formula 1 calendar after a successful non-championship test event in 1972. And what a time for the country to take its bow on the world stage, with the home hero Emerson Fittipaldi as the reigning world champion and Carlos Pace the hotly tipped newcomer (we'll draw a veil over the racing career of Emerson's older brother Wilson, though he was also on the grid and no doubt the object of excitement at the time, despite driving an uncompetitive Brabham BT37).

Former F1 'ringmaster' Bernie Ecclestone had well-placed chums in the local authorities so Interlagos retained an incongruous position on the calendar as other countries built glitzy and more modern facilities. Since Bernie was booted into retirement there have been improvements to the facilities but it's still a little basic in places.

2022 RACE RECAP

Last year's race took place against a background of civil unrest after disputed presidential election results. And on track it was anything but business as usual as Kevin Magnussen put his Haas on pole in a wet qualifying session and George Russell claimed victory in the sprint – Mercedes' first race win in 2022.

A day later George did it again from pole in the main event, his first GP victory, benefiting slightly from the previously dominant Max Verstappen requiring a new front wing after a knock with Lewis Hamilton. Late in the race, Hamilton passed Sergio Pérez to make it a Merc 1-2. Carlos Sainz also got by to put Ferrari in third place.

KEY CORNER: TURN 4

Coming at the end of the back straight, this slow-ish left is still an overtaking point best left to the bold – which is why it's been decisive on several occasions recently, including the 2021 championship run-in.



THE PAST FIVE WINNERS HERE



2022
George
Russell
Mercedes



2021
Lewis
Hamilton
Mercedes



2019
Max
Verstappen
Red Bull



2018
Lewis
Hamilton
Mercedes



2017
Sebastian
Vettel
Ferrari



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FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 22

LAS VEGAS GP

16-18 November 2023
Las Vegas

PICTURES: LAS VEGAS GP; TILKE; RED BULL CONTENT POOL; ILLUSTRATIONS: ALAN ELDREDGE



RACE DATA

Circuit name Las Vegas
First grand prix 2023
Number of laps 50
Circuit length 3.800 miles
Race distance 190.064 miles
Lap record N/A
F1 races held 0
Winners from pole N/A
Pirelli compounds TBA

CAR PERFORMANCE (ESTIMATED)

Downforce level N/A
Cooling requirement N/A
Full throttle N/A
Top speed 212mph
Average speed N/A

TIMETABLE (UK TIME)

Friday 17 November
Practice 1 04:30-05:30
Practice 2 08:00-09:30
Saturday 18 November
Practice 3 04:30-05:30
Qualifying 08:00-09:00
Sunday 19 November
Race 06:00
Live coverage Sky Sports F1
Highlights Channel 4

THE MAIN EVENT

Ronald Reagan and Margaret Thatcher were flirting with each other across the Atlantic and, in the UK record singles charts, Survivor were enjoying the last of their three-week stay at number one with Eye of the Tiger before being deposed by Musical Youth's *Pass the Dutchie*. Peacekeeping troops arrived in Lebanon. Russia conducted an underground nuclear test.

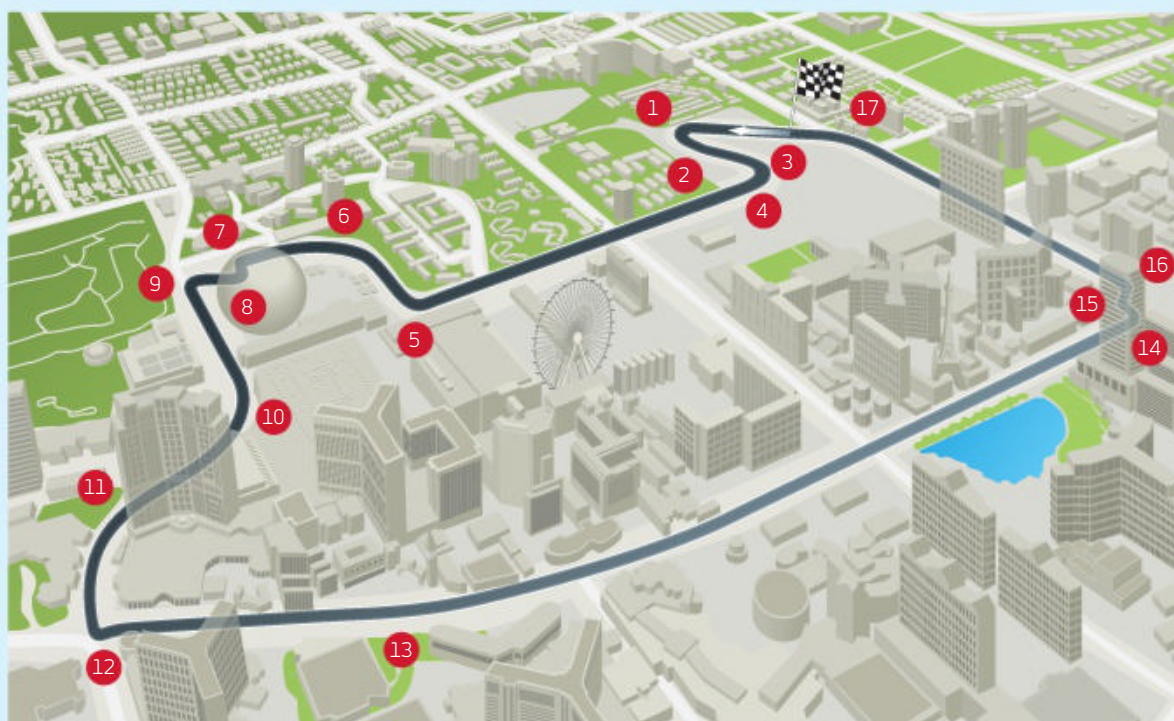
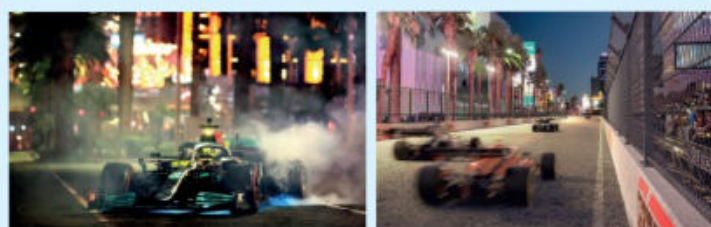
Amidst this swirl of significant international events in September 1982, on an inconsequential zig-zag track marked out with concrete barriers in the Caesars Palace casino car park, Michele Alboreto secured what would be Tyrrell's penultimate grand prix victory. History would enshrine an event the following day – *Knight Rider's* premiere on NBC – as a substantially more exciting car-based activity and Formula 1 left 'Sin City' imagining it would never return.

But now, after many years of being overlooked by the American public, F1 finds itself booming in the US thanks largely to – cliché alert – 'the Netflix effect'. The Las Vegas GP is now one of three US-based events on the calendar and F1 itself is a co-promoter, with skin in the game and a keen interest in making this latest expansion a success.

The layout itself is the work of Hermann Tilke's eponymous company, though his son Carsten is more hands-on with design and management these days. And what a challenging brief: make at least part of it happen on the iconic Strip without affecting the major businesses there. Turn 13 is outside Harrah's casino, whose late founder was an avid Ferrari collector.

KEY CORNER: TURN 14

Don't get distracted by the half-scale replica Eiffel Tower outside the Paris or the smell of burgers wafting from the McDonald's outside Planet Hollywood. In real life this is a gently sweeping left-hander onto East Harmon Avenue, but in F1 it's going to be a hard stop after the main straight before negotiating the rest of the junction.



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FINISHING STRAIGHT

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Danish luxury audio brand Bang & Olufsen is now a Ferrari partner and has bolstered its range with Ferrari-themed versions of some of its most popular items. At the pinnacle is the Beosound 2, a high-end semi-portable 360-degree speaker which can be floorstanding or positioned on a table or shelves. In this application its conical aluminium body is anodised in *rosso corsa*. Slightly further down the range, the Beoplay H95s are the company's flagship

headphones with custom titanium drivers, active noise cancellation and soft lambskin leather cups.

The Beosound Explore portable Bluetooth speaker is certified dustproof and waterproof and offers 27 hours of playing time, while the Beoplay EXs are wireless headphones with active noise cancellation, six microphones and a wireless charging case. A red anodised finish and laser-etched prancing horse logos make the Ferrari connection very clear.



TAG HEUER MONACO NIGHT DRIVER

Price £8,300

tagheuer.com

Launched the week of the Singapore Grand Prix, this new limited edition version of the iconic TAG Heuer Monaco watch aims to celebrate the romance of driving after dark. While many conventional timepieces feature small areas of luminous 'glow in the dark' paint on the dial and hands to enable owners to read the time in the dark, the Night Driver features TAG Heuer's Super-LumiNova covering over a much wider area. The effect is that the cool, light grey of the face turns

a glowing blue in low light

Powered by the venerable Heuer 02 movement, the Night Driver has an 80-hour power reserve. It's set in a square black DLC grade 5 titanium polished and fine-brushed 14.7mm case with a neat black leather strap and contrasting stitching. Numbers are strictly limited to 600 – but better make that 599 because Dwayne 'The Rock' Johnson has already been spotted wearing one while commentating on college football on US TV...

GULF X WILLIAMS RACING MERCHANDISE

Price £29-£71

williamsf1.com

Earlier this year Williams and Gulf invited fans worldwide to vote on a special livery which would be run on the team's FW45s in Singapore, Japan and Qatar. The winning design was certainly distinctive and now the team has developed its visual themes into a limited-edition four-piece merchandise collection.

The pure cotton short-sleeve polo shirt and T-shirt centre around the Gulf logo and blue and orange

colours, a classic combination which has adorned many evocative race cars including the iconic Porsche 917. A more contemporary glitch-style graphic adorns the cotton-blend crewneck and the brim of the embroidered cap.

Fans lucky enough to have visited the Singapore GP will have been able to see the new range in the Williams Fanzone, but it is also available on the team's website while stocks last.



ORIENT MAKO DIVER

Price £324.99

orient-watch.com

Japanese watchmaker Orient – part of the giant Epson corporation – has added a UK-exclusive green colourway to its latest model in the Mako Diver design series. Launched this August, the new chronograph is self-powered via three small solar panels housed within the sub-dials rather than a conventional mechanical charging system. Orient says it should hold a charge

for up to six months, even if housed in a dark place.

The screw-down crown and case back offer water resistance up to 200m, the face is covered by scratch-resistant sapphire crystal and the metal dial has a fine lustre finish. The sub-dials offer a stopwatch, 60-minute timer and a 24-hour indicator as well as providing the solar charging function.



FINISHING STRAIGHT

THE FINAL LAP

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FLAT
CHAT{ FULL THROTTLE
MUSINGS WITH
MATT KEW }

PICTURES

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LOSERS IN F1'S
POPULARITY
CONTEST

Given it was the FIA's idea to launch a formal entry process to potentially allow an 11th team into Formula 1, you might have expected governing body president Mohammed Ben Sulayem to welcome sole successful bidder Andretti with a rousing fanfare. Instead, it was abundantly clear he was having to walk a legal tightrope.

When the FIA finally announced that it had given the proposal the green light, the accompanying quote attributed to him read: "The FIA is obliged to approve applications that comply with the Expressions of Interest application requirements and we have adhered to that procedure in deciding that Andretti Formula Racing LLC's application would proceed to the next stage of the application process."



Andretti has cleared one hurdle in his attempt to enter F1 with the FIA's approval, but the difficult work is yet to come

Hardly a warm reception. But all sentiment and subjectivity had to go out the window since there's every chance his words will soon be studied by a band of lawyers. After that, Andretti and prospective partner Cadillac will release a damning statement blasting the championship for being a closed European shop to inflict massive reputational damage upon F1 and the FIA. That's how this new-team saga surely ends.

Throughout this application process, the 10 incumbent squads have never desired another

playmate. They don't want to slice their portion of the commercial pie by 10% to feed another hungry mouth. Even if Andretti can comfortably afford the current \$200million anti-dilution fee the Concorde Agreement mandates to mitigate this, it still won't be enough. The same contract also states F1 can house up to 12 teams...

A new figure of \$600m has been touted by the paddock as more appropriate to offset the financial pain of an additional entry. This would be written into the new Concorde Agreement which takes effect in 2026. But no matter how eye-watering the sum becomes, it seems it's the principle – not the price – that's the stumbling block.

In the short term, there's trepidation towards any unknown quantity that risks destabilising the current riches. Further down the line, should F1's popularity wane (social media figures already show the Red Bull domination in 2023 is turning people off), teams don't want a later arrival who they don't fully trust suddenly

getting itchy feet. There's also an underlying element that existing competitors feel they deserve that bit more for having stuck by F1 during its mid-2010s lull.

If those already loyally populating the pitlane don't want the grid to grow, by proxy rights holder FOM most likely won't allow it, regardless of whether CEO Stefano Domenicali then appears to have been strongarmed into his final decision. Thus, Andretti will not advance beyond the "next stage of the application process", even if it can demonstrate credible blue-chip sponsor interest, General Motors backing and an ability to engage a sizeable US audience.

When F1 tells Andretti there's no room at the inn – despite the bid having satisfied every financial, sustainability and societal criteria stipulated by the FIA – someone will need to take the blame for the loss of money, time and, worst of all, face. As such, the FIA's very deliberate wording is to try and spare it from being the party that forks out in an expensive settlement.

What a dismal outcome this will be for a process conceived not to boost the health of F1, but to essentially boast about it. The FIA wasn't motivated by any forecasted gains an 11th team might offer but instead to find out just how many companies really were ready to double down on their F1 interest. It's been a self-affirming popularity contest.

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