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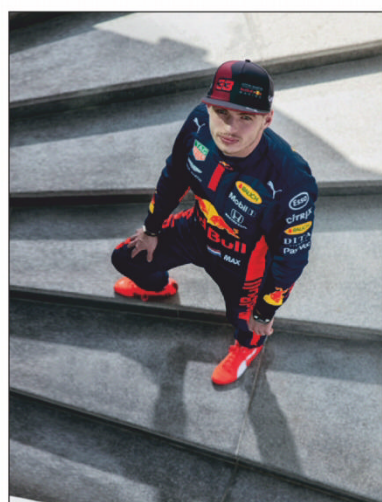


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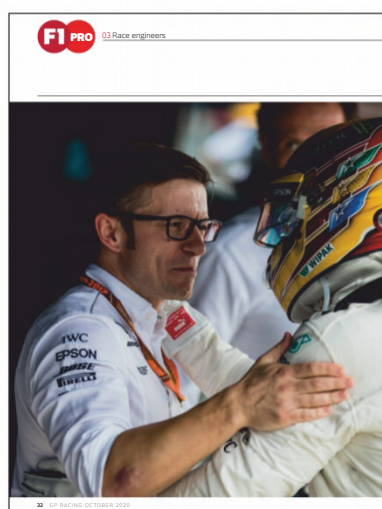


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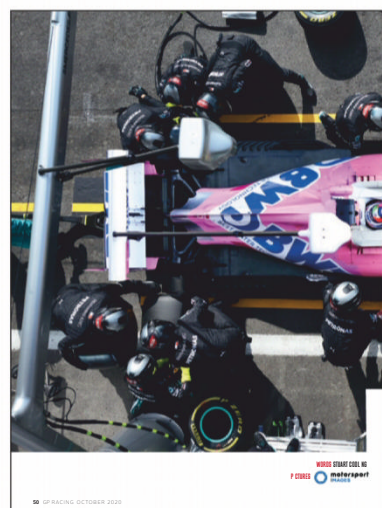


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CONSTRUCT OR COPY: THE CUSTOMER CARS DEBATE



Ben Anderson
@BenAndersonF1



Man still triumphs over machine in F1

I watched Monza qualifying with a friend of mine, who is a casual fan of Formula 1 and MotoGP. While Lewis Hamilton and Valtteri Bottas were smashing their 'opposition' to pieces, despite no 'party' engine modes, my friend began debating with me the influence of the rider in MotoGP versus the importance of the driver in F1.

My contention was that people consistently underestimate the impact the driver has in F1, because the cars are so complicated, but yet it's still apparent that drivers with similar machinery often achieve wildly differing levels of performance. The events of Monza's race showed how drivers can still make the difference.

Hamilton dropped way off the back after a stop-go penalty, but finished less than 11 seconds behind Bottas, who struggled to fifth after a terrible first lap despite driving what is clearly and unequivocally F1 2020's best car.

The way things panned out Lance Stroll was in prime position to claim his first win in F1. The Racing Point is in the top three or four of fastest cars in F1 this season, but Lance botched the restart horribly and blew his shot. Pierre Gasly was driving a slower car than Stroll's, but Pierre took his own chance to win with flawless composure.

We saw the human element of performance in F1 manifest: that mysterious mix of driving skill, feel, mental resilience, technical understanding

and emotional intelligence that allows one person to achieve substantially more than another with similar equipment or opportunity at their disposal.

Which brings us to someone who was absent from the fight at Monza but who has been consistently Lewis-esque in his ability to drag amazing results from the car underneath him. Max Verstappen has made the RB16 look like the second quickest car on the grid this season, and an occasional Mercedes-botherer, but if the Red Bull was unquestionably the second-best car, Alex Albon would be finishing inside the top four regularly. He finished fourth once in the first eight races, and not once did he qualify that car inside the top four...

This is not to disparage Albon's efforts in what is clearly a very difficult car to make work; more to highlight the exceptional work Verstappen is doing. Max is driving like a champion in waiting, but the car is not up to the job. Andrew Benson's feature on page 36 explores the reasons for this in more detail.

With the rules the way they are, F1's competitive order is unlikely to shift dramatically until 2022 at the earliest, which means Verstappen is likely locked into a losing cycle and will almost certainly miss his chance to achieve Red Bulls' stated target of making him F1's new youngest champion.

By the start of next season his moment will have passed. No matter how good Verstappen is or how well he drives, he simply can't work miracles.

Contributors



ANDREW BENSON
Why Max Verstappen's miracles aren't likely to bring him the title he so craves, is the focus of BBC Sport's chief F1 writer (p36)



RICHARD WILLIAMS
Richard's illuminating feature on the 70 most influential people in 70 years of Formula 1 has reached the 1990s (p56)



ALEX KALINAUCKAS
Alex analyses why the relationship between a Formula 1 driver and his race engineer is so crucial to success (p32)



STUART CODLING
'Coddors' aims his keyboard at the thorny question of customer cars (p50), and also has a chat with McLaren's Lando Norris (p44)

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AlphaTauri's sunny afternoon

Ordinarily there would be a genuine bunfight among the photographers and TV cameramen to get this shot. But circumstances are different at the moment: there are only eight photographers in the pits at rush hour, and this was pretty late in the day.

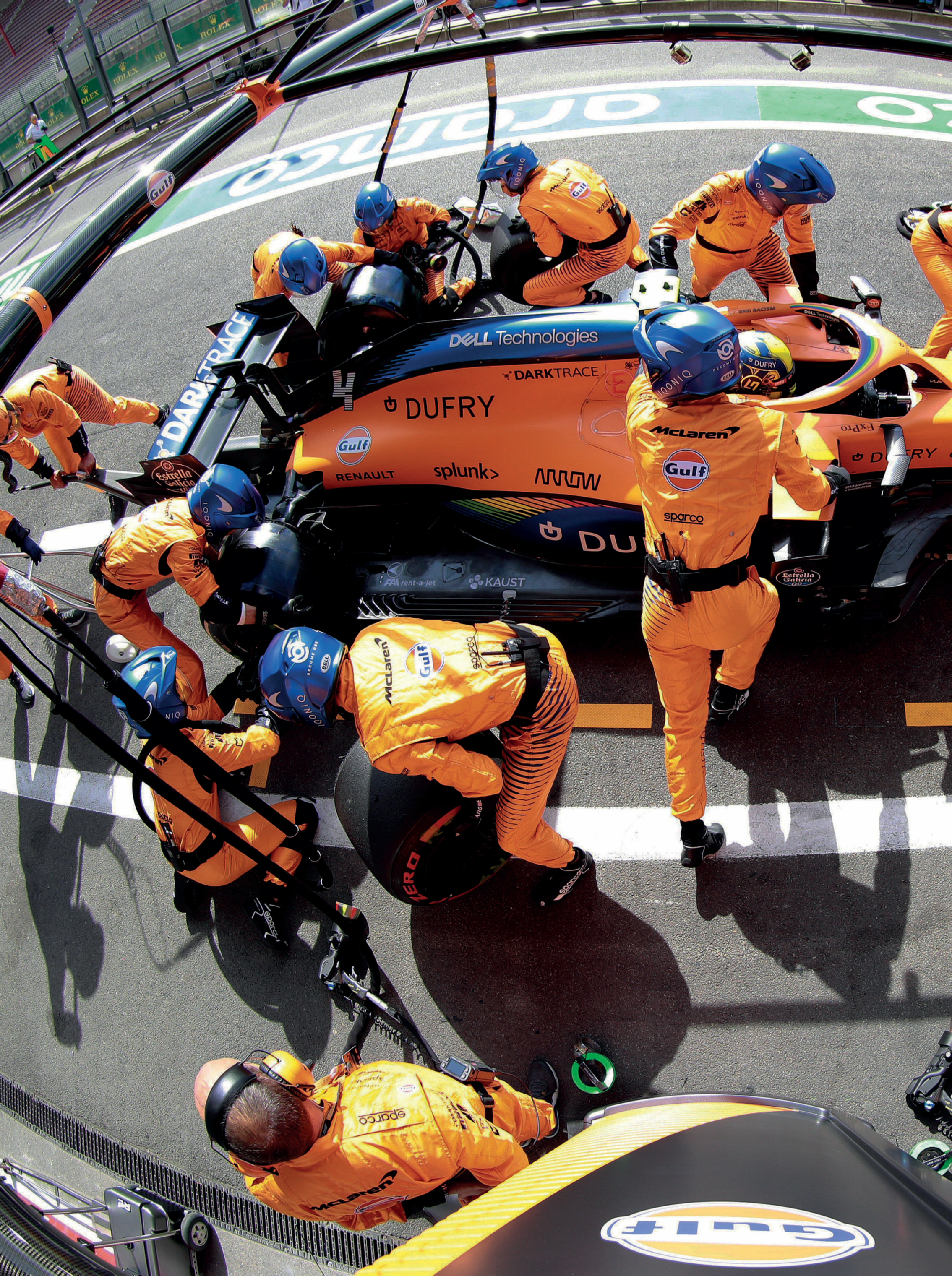
By the time Pierre Gasly came back from his various post-race duties it was quiet in the pitlane, with the exception of the AlphaTauri garage. It's been 12 years since this team last won a race and the joy was palpable. I just happened to be in the pitlane because we shoot on behalf of both Racing Point and Honda, so I got in there – from an appropriate social distance!



Photographer
Glenn Dunbar

Where Monza, Italy
When 6.47pm, Sunday
6 September 2020

Details Canon EOS-1DX MKII
12-24mm lens, 1/640 @ F4





Fish eye for the pit guys

I was embedded with McLaren for the Spa weekend, so I shot the race from the garage and decided to rig up a remote-activated camera with a fish-eye lens to capture the pitstops from a viewpoint on the gantry.

This is very much a shot where you press the button and hope that you've got it framed right. You never know exactly where people are going to be standing, or if your signal is going to be blocked by nearby electronic equipment. There's certainly a moment of trepidation when you collect the camera. It worked this time – shame I didn't get both cars, but of course Carlos Sainz didn't get to start the race...



Photographer
Steven Tee

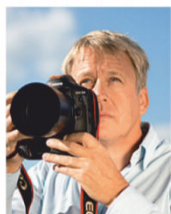
Where Spa, Belgium
When 3.34pm, Sunday
30 August 2020

Details Canon EOS-1DX MKII
8-15mm Fisheye, 1/500 @ F5.6

Professional drivers pictured

Capturing a scary-looking shunt like this is all about being in the right place at the right time – with the right lens fitted. The garage complex at Mugello is lower than at the majority of circuits F1 visits, because it's older and there's no requirement for Paddock Club. I decided to shoot the race from there because it afforded a different view of the grid and a good angle on the start.

I went for a wide-angle lens at the first start, then swapped it for a tighter one during the red-flag period. And that proved to be the right choice. In scenarios like this you just shoot – it's all smoke and detritus through the lens, and you only see what actually happened later.



Photographer
Steven Tee

Where Mugello, Italy
When 3.26pm, Sunday
13 September 2020

Details Canon EOS-1DX MKII
70-200mm lens, 1/1000 @ F9





Light and shade in Ferrari's 1000th

Charles Leclerc was running a one-off helmet livery at Mugello to mark Ferrari's 1000th world championship grand prix.

Getting anywhere near him to photograph it was another challenge entirely, given the current restrictions...

I'm in Racing Point's 'bubble' so that gives me clear boundaries between where I can and can't go. But I can shoot from the Racing Point 'prat perch' on the pitwall, and that's opposite where Charles ended up for one of the restarts. This angle came up as he put his gear on. You don't see him but you know it's him; and the way the light is falling, it gives a cool graphic effect to the background.



Photographer
Glenn Dunbar

Where Mugello, Italy
When 5.00pm, Sunday
13 September 2020

Details Canon EOS-1DX MKII
70-200mm lens, 1/160 @ F4.5





Kaspersky

100

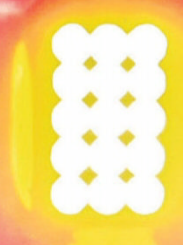
100

100 GP



JCB

TECHNOLOGY





Lighting up time in the pitlane

Sometimes photography is reactive, where you're just pointing a camera at something that's happening. But at other times it's proactive, in that some shots require planning.

Other teams 'lay rubber' on the pit apron regularly, Racing Point not so much. Hoping to capture one of these moments, I asked one of the engineers why. He revealed that it depends on the likelihood of rain, because when it's wet that layer of rubber gets very slippery rather than offering extra grip.

It was then just a matter of being ready for the moment. You can tell when they're going to do a burn-out because the pit-in procedure is subtly different...



Photographer
Glenn Dunbar

Where Monza, Italy

When 12.27pm, Saturday
5 September 2020

Details Canon EOS-1DX MKII
70-200mm lens, 1/1000 @ F2.8



NEW DAWN FOR WILLIAMS AS TEAM IS SOLD

01 Sir Frank Williams has been a fixture in Formula 1 since 1969, and the team that bears his name remains the second most successful of all time in terms of constructors' championships won. The name will remain but the Williams family has taken its leave, stepping away from management duties after selling the team to Dorilton Capital, an investment fund acting on behalf of a high-net-worth European family.

While Sir Frank had remained nominally in charge of the team, and held a majority shareholding of 52.25%, his daughter Claire superintended day-to-day operations in

her role as deputy team principal. Mike O'Driscoll, who has been Group CEO since 2013 and held a minority shareholding, announced that he would be retiring after the transition period. Managing director Simon Roberts, recently recruited from McLaren, will serve as acting team principal until a replacement can be found; the F1 rumour mill has already connected Andy Cowell, who is leaving Mercedes Benz High Performance Powertrains, with the role.

"Dorilton, I'd like to make it clear, wanted me to stay," said Claire Williams during the Italian Grand Prix weekend. "This was my decision. I felt it was the right choice for me to step away.

"There will be a period of transition. This is obviously going to be my last race weekend, but I am going to be working a few days per week over the course of the next few weeks in order to hand over, in order to talk to Dorilton about the team, the inner workings of the team, and the expertise they need to come in.



PICTURES: SIMON GALLOWAY; MOTORSPORT IMAGES ARCHIVE

“They’re in the business already, they’re doing their due diligence, they’re reviewing the capabilities, and they’re looking at what they can do in order to invest into the business. I will be helping them with that to advise that over the coming weeks.”

The sale brings to an end a period of financial turmoil. Diminishing competitive returns on track over the past five seasons has been accompanied by a fall in commercial revenues and declining share of the prize monies. The writing has been on the wall since 2017, when Williams undertook a round of refinancing, sold a neighbouring plot of land for £9m, and accepted an estimated \$35m to run Lance Stroll in a race seat. Having finished fifth in the constructors’ standings that season it slumped to 10th as completely new car concepts for 2018 and 2019 failed to deliver the goods. In recent months it sold its Advanced Engineering division but reported a £13m loss for the financial year – and was then forced into a fresh round of refinancing when a key sponsor defaulted on payments.

“THE WRITING HAS BEEN ON THE WALL SINCE 2017, WHEN IT UNDERTOOK A FRESH ROUND OF REFINANCING”

The Dorilton buy-out valued the assets of the company at £135m. After costs, and the discharge of a loan made by Canadian businessman Michael Latifi, the departing shareholders were left with £99m.

So who are the people behind Dorilton Capital? Chairman Matthew Savage and CEO Darren Fultz, who co-founded the investment fund in 2009, both had long careers at Rothschild & Co, one of the world’s largest financial advisory companies. They are now also two of the three individuals on Williams F1’s board of directors, the third man being James Matthews, co-founder and CEO of the Eden Rock Group, a financial advisory and venture capital company. Eden Rock is also the name of a luxury resort on the Caribbean island of Saint Barthélemy, acquired by Matthews’ father David in 1995.

David Matthews made his fortune in second-hand car sales and property development, and dabbled in motor racing. He competed in a Broadspeed Capri in the British Saloon Car Championship until a severe crash in

the support race for the 1973 British GP dissuaded him from further involvement. James was a promising single-seater racer – he won the Formula Renault Eurocup in 1994 – before turning his attention to the City. He enjoys a moderately prominent public profile in the tabloids by dint of his marriage to Pippa Middleton, sister of the Duchess of Cambridge.



Claire Williams was asked to stay on by Dorilton, but has chosen to step away from her role as deputy team principal

“The new Board recognises and appreciates the importance of retaining Williams’ heritage and culture and will continue to work with senior management to leverage its capabilities to return it to racing competitively,” said a team statement.

Completion of the sale followed swiftly in the wheeltracks of the successful signing of the Concorde Agreement by Formula 1 and all 10 teams. The terms of the new commercial contract are understood to have been vital to the sale: as well as a more equitable share of revenues among the teams, it also demands that new entrants pay \$200m (£155m) towards a prize-money “dilution fund” (see separate story) which is then shared between the existing teams.

In effect, therefore, for less than it would cost to lodge an entry, let alone assemble a factory, staff and equipment, Dorilton has acquired a turn-key race operation which is already entitled to a share of the commercial revenues. A smart move – if it can turn the team’s fortunes around.



VETTEL MAKES RACING POINT HIS NEW HOME



02 F1 is not a sport which runs on sentiment – and proof of that was delivered last month by Racing Point. Less than a year into a three-year contract it has dropped Sergio Pérez, the driver who set in motion the legal action which enabled Lawrence Stroll’s consortium to swoop in and buy the troubled team mid-way through 2018.

Four-time world champion Sebastian Vettel will take Pérez’s place, a move that has been the subject of speculation for some time. Vettel has been on the market since Ferrari announced in May it would not be renewing his contract next year. Racing Point, which will rebrand as Aston Martin (also owned by a consortium headed by Stroll) in 2021, was Vettel’s only realistic option given its ambitions – and its background of being a respectable midfield competitor on a fraction of the budget of its rivals.

Stroll will no doubt have found this difficult to resist:



Despite being instrumental in the legal action that helped save Racing Point in 2018, clauses in Sergio Pérez’s contract have enabled the team to ditch him for 2021

Lance Stroll (left) and his 2021 team-mate Sebastian Vettel chat at the Spanish Grand Prix

a multiple world champion (albeit one whose star has waned), still motivated given the right car, and with few credible other options on the table. *GP Racing* understands Vettel has agreed to a modest salary from the team, believed to be in the region of \$1.5m, with bonuses paid according to results. It’s believed he will be paid separately to the tune of around \$5m by the Aston Martin automobile company for acting as a product ambassador.

This deal makes Vettel relatively affordable, and was likely to be the clincher. Pérez is not only hugely popular within the team, for which he has driven since 2014, he brings sponsorship from the Mexican telecommunications giant Telmex as well as others. It was Pérez who in mid-2018 began the legal proceedings that triggered the administration process which enabled Stroll to acquire the team’s assets. Former primary shareholder Vijay Mallya had until that point been resisting offers to buy the team, despite the prospect of a winding-up order over unpaid debts.

It is believed that Stroll’s fellow shareholders in the Aston Martin road car business were keen to have a driver of Vettel’s pedigree and stature representing the brand. And while Pérez is only in the first year of a three-year contract signed last season, that document contained opt-out clauses which enabled the team to end it early. Since the other seat at Racing Point is occupied by Stroll’s son Lance, Pérez was always the likeliest candidate to go.

“Lance has been with us for a couple of years,” said team principal Otmar Szafnauer. “He’s a young man at 21 years old and, yes, his father does own the team, so when we looked to make a driver change, because Sebastian became available, it would have been Checo. There are options in his contract and those options didn’t exist for Lance.”

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NEXT MONTH*



SEBASTIAN VETTEL

Why the four-time champion has opted for Racing Point



RENAULT RESURGENT

How the Regie has upped its game in the midfield scrap

ON SALE

OCT 22

- > The final part of our history of Williams
- > F1’s 70 @ 70: part 6: the noughties
- > Now That Was A Car: the Ferrari 412T2
- > Kimi Räikkönen: now F1’s most experienced driver

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NEW CONCORDE AGREEMENT RING-FENCES F1

03 In the wake of the teams and Formula 1 announcing the signing of a new Concorde Agreement – the confidential commercial contract binding the competitors and the rights holder – a fascinating detail has emerged. The new contract includes a stipulation that new entrants must pay \$200m into a prize-money “dilution fund” shared between existing teams.

While many fans have railed against the terms, saying that it acts as a huge disincentive to new entrants, the competitors have spoken out in favour of it. Of course they would – because they pushed for it. As our feature on customer cars (see p50) explains, for years now existing teams have fought against the idea of newcomers to the grid because this would dilute the prize pot. This has put them in opposition to the FIA, which has pushed for more competitors, and recently also to F1, which under its present owners is open to the idea of new teams – provided they’re good enough. None of the new teams admitted into F1 in 2010 lasted beyond 2016, and in the most recent Concorde Agreement only the top 10 teams received a share of the prize fund, consigning newcomers to financial oblivion.

The new measure both compensates the existing competitors for any dilution of the prize fund and protects their value. Any serious prospective entrant now has an incentive to invest in a team already operating in F1.

“It sets a floor for team valuation,” said Mercedes team principal Toto Wolff. “Obviously it’s at the discretion of the commercial rights holder to decide if we are fewer than 10 teams, but I think such franchise value is completely normal. It should be limited to 10 teams. It is something special to have an entry into F1.”

Both Wolff and his team have been the subject of speculation after team-owner-turned-pundit Eddie Jordan claimed Mercedes would sell its team to sponsor Ineos, and Wolff would be leaving. It is likely this is a dot-connecting exercise given that Ineos has recently acquired cycling’s Team Sky, and Wolff has spoken of the personal toll his responsibilities are exacting upon him. What’s likely is that Wolff will move ‘upstairs’ to a less hands-on role next year. Separately from this, Ineos is understood to be acquiring the late Niki Lauda’s shareholding in the team.

“Daimler has no intent in giving up the team,” said Wolff. “Ineos has no interest in buying a majority of the team and I have no reason to depart from my shareholding. So plenty of things are made up.”

“THE NEW MEASURE BOTH COMPENSATES THE EXISTING COMPETITORS FOR ANY DILUTION OF THE PRIZE FUND AND PROTECTS THEIR VALUE”



Rumours that sponsor Ineos is about to buy Mercedes have been quashed by the team

F1 MASTERMIND

Your chosen specialist subject: the world’s greatest motorsport

- Q1** How many world championship F1 races did Chris Amon lead: seven, 12 or 14?
- Q2** Who is the only driver to have won the Turkish Grand Prix more than once?
- Q3** How many times has Kimi Räikkönen finished second in the world championship?
- Q4** When was the last Portuguese Grand Prix and who won it?
- Q5** In which race did Sebastian Vettel achieve his final victory with Red Bull?
- Q6** Who won more races driving for Williams: Ralf Schumacher or Keke Rosberg?
- Q7** Derek Warwick finished second twice in his F1 career, in Belgium and Britain in 1984, but he also led two other races. Which were they?
- Q8** Which three teams did Anthony Davidson start at least one world championship F1 race for?
- Q9** Indianapolis, Silverstone, Spa, Monza and which other circuit held races in each of the first five seasons of the world championship?
- Q10** True or false: Pierre Gasly is the first Frenchman to win a GP since Olivier Panis in 1996?



1 Seven 2 Felipe Massa (three times) 3 Twice (2003 and 2005) 4 1996, Jacques Villeneuve 5 2013 Brazilian GP 6 Schumacher (6 to 5) 7 Brazil 1984 and Canada 1989 8 Minardi, BAR and Super Aguri 9 Bremgarten 10 True

PICTURES: MARK SUTTON; CHARLES COATES; JERRY ANDRE; MOTORSPORT IMAGES ARCHIVE

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PICTURES 

PANDEMIC F1 IS TAKING A HUGE TOLL ON PEOPLE

Triplets are exhausting, and Formula 1 has nurtured a bunch of them this year. Three weekends in a row create a huge demand; back in 2018 there was a backlash against the first triple-header organised by Liberty, and a hope that it wouldn't happen again.

Coronavirus reactivated the plan – an entirely logical decision, yet the consequences are still to be fully felt. According to insiders, even the first sequence of three revealed some tricky moments. Martin Poole is Human Performance Coach at Racing Point and saw the strains developing as early as the initial run of two races in Austria followed by the trip to Budapest.

“Even by Hungary it was tough,” Poole says. “For our crew, I think it was fortunate that the second triple-header had the two Silverstone races as everyone got to sleep in their own beds; that really helped and we got a couple of days off after each race. The load is more mental than physical; I was dealing with minor physical injuries and we were getting through it, but you could see

the fatigue in the guys.”

Martin was impressed, however, at the level of fitness that lockdown had encouraged among team members. Once the season got under way, they were keen for him to push them further and to give them an outlet from all of the demands of working in such restricted ways.

“There was a lot of tension across the paddock as the season began,” Poole adds. “How was the travelling going to work, would crews get stuck somewhere, were we going to get ill? Being able to help our team focus on fitness goals and giving them something else to concentrate on outside their daily tasks did work really well.”

Martin is deeply embedded in Formula 1, having worked with eight of the current drivers on the grid and acted as Nico Hülkenberg's physio and trainer between 2016-2019. When Hülkenberg got the call to take over from Sergio Pérez at the first Silverstone event, their partnership was rapidly rekindled.

“That was a big challenge,” Poole says. “I did more physio on Nico than I'd ever done before in those two weeks. At the British Grand Prix, he arrived so late it really was a whirlwind. On Friday he ran into the paddock, I was waiting there with all his stuff laid out, he literally got changed, went into the garage, did his jump-out test and then got strapped in and drove out for first practice!”

The two of them had kept in touch during lockdown and Nico maintained a good level of aerobic training. He was pretty much at his ideal

weight which barely changed between the two Silverstone races. What did become an issue was the strain on his neck...

“Every year, pre-season training is more targeted and we arrive at winter testing in Barcelona in better shape than ever before, but on that first day in the car every driver is knackered,” Poole explains. “The British Grand Prix was a bit like Barcelona for Nico.”

As the weekend continued, neck strain became a limiting factor while the rapidly created new seat left Hülkenberg with two pressure points, one in his shoulder and the other in his leg which was referring into his gluteal muscles. As Nico pointed out on the radio during practice: “Mate, do you reckon I could have a quick breather? My right arse cheek is getting a bit numb.”

It was a full-on experience. During qualifying on the Saturday, Hülkenberg reported that the G-forces made his head feel as though he was being slapped in the face left and right and he was even struggling to see corner apexes in a couple of key areas.

Come Sunday, and an intense amount of preparation for the full race distance, suddenly it all turned to dust when the engine refused to fire up. As Martin told me, Nico was probably 99% disappointed and 1% relieved...

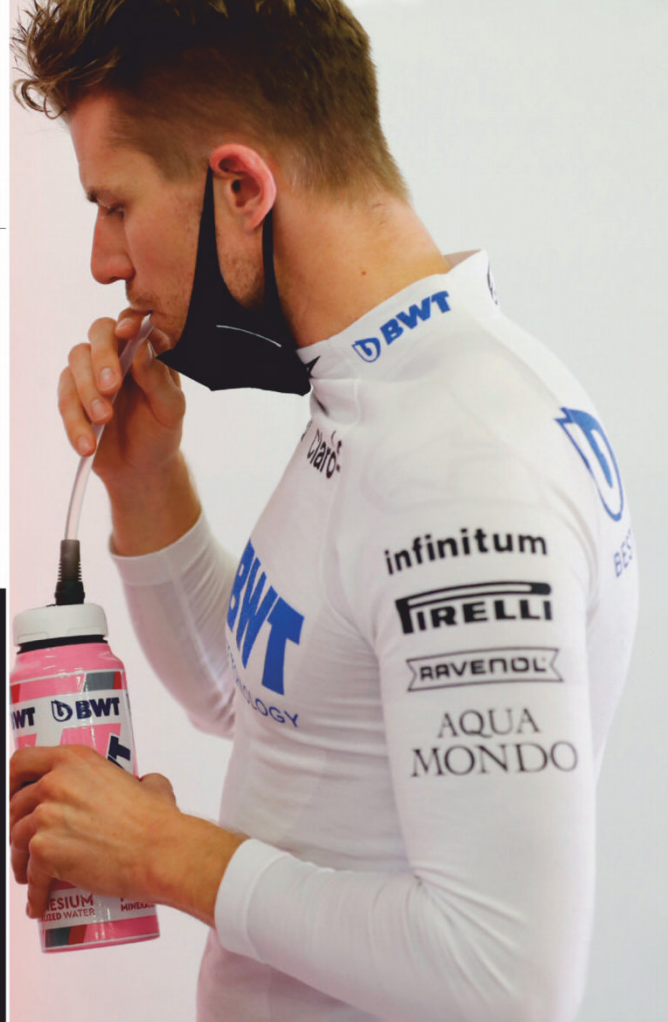
Yet just five days later, and with some slight modifications to the cockpit layout, Hülkenberg was completely in the groove – outqualifying team-mate Lance Stroll and completing a race distance 24 hours later to score valuable points for Racing Point. It was a Herculean effort, and much appreciated by the team. How was it possible?

“After that first Friday I did notice his neck wasn't as pumped up or as muscular as it is every year but already one week later, because of muscle memory and increased blood flow, it was almost like his old neck again,” Poole says. “His sternocleidomastoid, the big muscle down the front which supports the neck, is big and thick. That muscle I could feel was back to normal.”

Nico is rightly proud of his 'sterno' and it found its strength very quickly in the crisis. Just as the many Formula 1 crews who have had to throw themselves back into the paddock in such a concentrated fashion have also coped admirably.

“I have been so impressed with the resilience of the team through all of this, and Nico's efforts at Silverstone were just outstanding,” concludes Martin. “It has been a tough but inspirational time.”

It's a lesson to us all that the body and mind can adjust quickly when required, but the load at times is painful. Let's hope the remaining triple-headers don't pile too much extra pressure on everyone working at their peak.



At the two Silverstone races Hülkenberg experienced the equivalent of pre-season testing in the spotlight of race weekends and came through it well



The compressed nature of the 2020 season has meant a lot of extra work for the Formula 1 crews



Racing Point was overjoyed with Hülkenberg's efforts during both Silverstone races, and an increase in fitness helped Nico's performance during the second British event



By the second Silverstone weekend Hülkenberg was on top of his game and managed to qualify a superb third behind only the two Mercedes drivers



UNDER THE HOOD

PAT SYMONDS

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HOW DO YOU DEFINE A CONSTRUCTOR?

Formula 1 is unique in many ways, but perhaps none more so now than the fact all its competitors are also constructors. It is unfortunate for engineering creativity that there is no other professional single-seater, open-cockpit, series that does not use standard chassis, but equally with this distinction present it is imperative that an F1 car remains the ultimate racing machine.

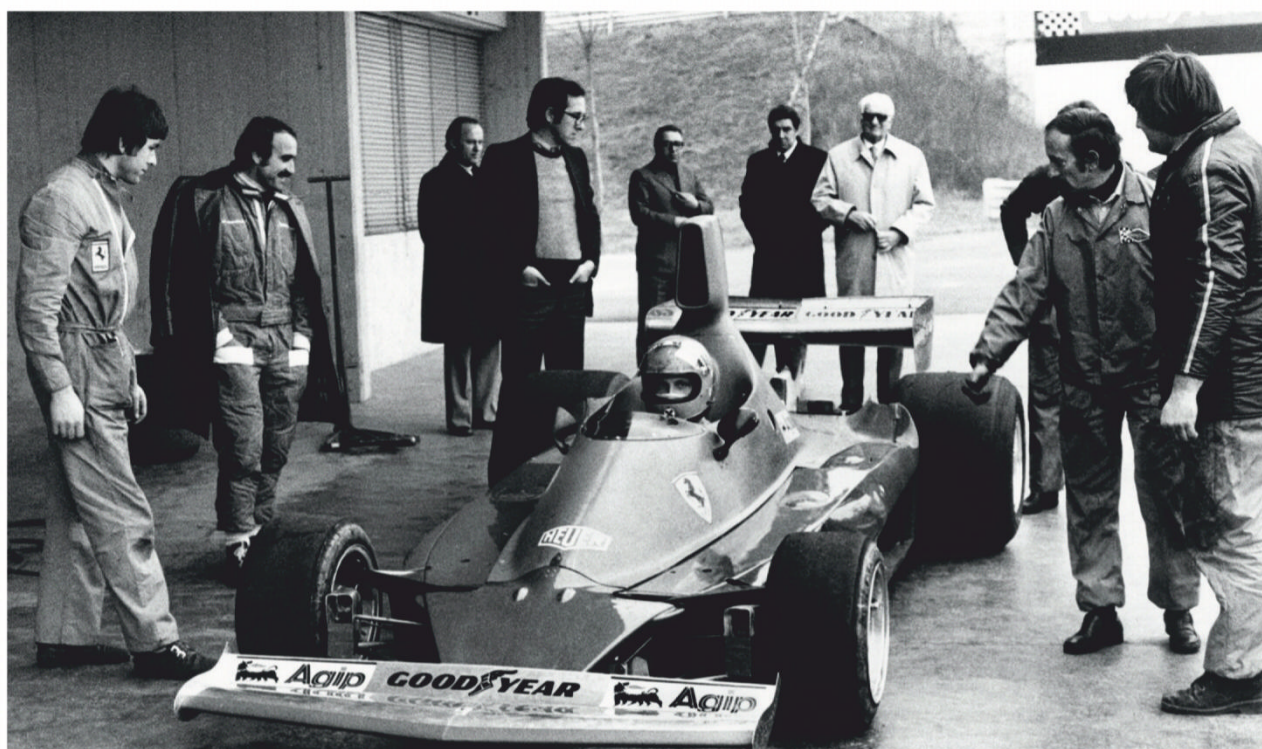
There have been many interpretations of this throughout F1's history, and in the 1970s it came to a head as the 'grandee' constructors held the 'garagistes' in contempt. Enzo Ferrari was the definitive constructor and felt the trend of buying a DFV engine from Cosworth and standard gearbox from Hewland and assembling them to a uniquely designed chassis was diluting the expertise he felt should drive the meritocracy of the competition. Indeed, it even went further than this at the time as there were entrants, some of them moderately successful, who bought complete cars.

By the early 1980s the Formula One Constructors Association (FOCA) found its place

alongside FISA (the forerunner of the current FIA) and it was agreed that the approach of the 'garagistes' was acceptable. Even so it took many years and the advent of the Concorde Agreement – the commercial arrangements between F1 and its various entrants – before the definition of a constructor began to be formalised.

Fast forward to the 2009 Concorde Agreement and the concept of listed parts first appears,

The 'definitive constructor' Enzo Ferrari, with distinctive dark glasses, watches the first test of the 312T in 1974



an attempt to specify just what a team had to hold the intellectual property rights for to be deemed a constructor. Even though I was personally involved in writing that list, by the time it had been through a number of committee meetings it was pretty dysfunctional even if, through gradual evolution, it managed to serve its purpose.

When I joined F1's technical team in 2017 I discussed with Ross Brawn how we would bring some logic to this for the next Concorde Agreement, which should have coincided with a complete new car for 2021. My view was we should define the performance differentiators and then, in effect, standardise many other parts to save costs.

The performance differentiators would be aerodynamics, vehicle

dynamics (and hence suspension systems) and the power unit. It was felt that the design of the first two should lie entirely with a team in order for them to claim to be constructors but it was rational to allow engines to be supplied to other teams. This would lead to certain classifications of parts which would be more comprehensive, but equally more logical, than had previously existed.

Unfortunately, many teams felt this too draconian and wanted to continue to buy gearboxes and suspensions, so the (now delayed) 2021 regulations allowed this while still standardising many more parts.

All this is context in which to discuss one of the most controversial and bitter disputes of recent years – that is the wholesale copying by Racing Point of the 2019 Mercedes and presenting it as Racing Point's

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This year's Racing Point is an 'older sibling' of the current Mercedes W11

PICTURES: MARK SUTTON; GIORGIO PIOLA

own entry for 2020. We can debate all day whether what that team did is right or wrong from a philosophical point of view, but it was clearly perfectly acceptable from a regulatory point of view. The only dispute was around the nuances involved in the fact that brake ducts moved categories from 2019 to 2020, and this gave rivals an opportunity to challenge what had happened.

Copying of other cars is not new. Every team employs professional photographers to take detailed images of rivals' cars which designers and aerodynamicists then pore over to try to understand what the opposition is thinking and where their success may lie. One also sees technical directors wandering around the grid before a race examining the detail of other cars.

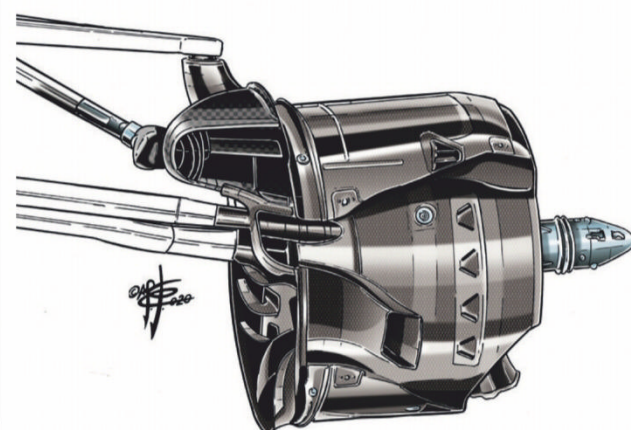
Reverse engineering is another matter. There are many ways of doing this. If one had access to another car it is possible to laser-scan it and use software to assemble the cloud of scanned points into accurate surfaces. Of course, it is unlikely that a team could ever get that sort of access to a contemporary car. Other methods involve 3D photogrammetry where two photographs taken from known locations can be interpreted with knowledge of some scaling, camera positions and lens characteristics to

“ COPYING OF OTHER CARS IS NOT NEW. EVERY TEAM EMPLOYS PROFESSIONAL PHOTOGRAPHERS TO TAKE DETAILED IMAGES OF RIVALS' CARS ”

construct a 3D model of the target object.

The method most widely used by teams is to take several simple photographs of a limited area of a car and then import those images into their CAD systems. It doesn't take too much to construct a few overlays which can be combined to give a pretty accurate model of the photographed surfaces. Of course, this does not design the part for you,

It was the change in the Listed Parts rules which caused Racing Point angst but the RP20's front brake ducts (below) are fine



it only gives the shape, so mechanical engineers still have to determine how to reproduce the component with acceptable stress and stiffness levels and using the appropriate materials.

So, the key question that teams challenging Racing Point are asking is not really whether what happened is legal but whether it is the correct future direction for F1. I think the answer is that it is definitely not desirable as it destroys the mystique associated with the fact that F1 entrants are (meant to be) true constructors. The current situation is arguably the worst of both worlds: if copying is acceptable, why not go one stage further and allow the purchase of previous seasons' cars?

The FIA will now resolve this by issuing some new regulations, and interpretations of existing regulations, that will limit what level of reverse engineering is acceptable, so to essentially bring it back to human rather than machine interpretation. I feel this is a correct and pragmatic outcome to a situation that could have fundamentally changed the face of F1 had it continued unchecked.

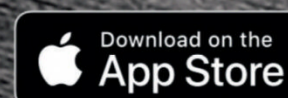
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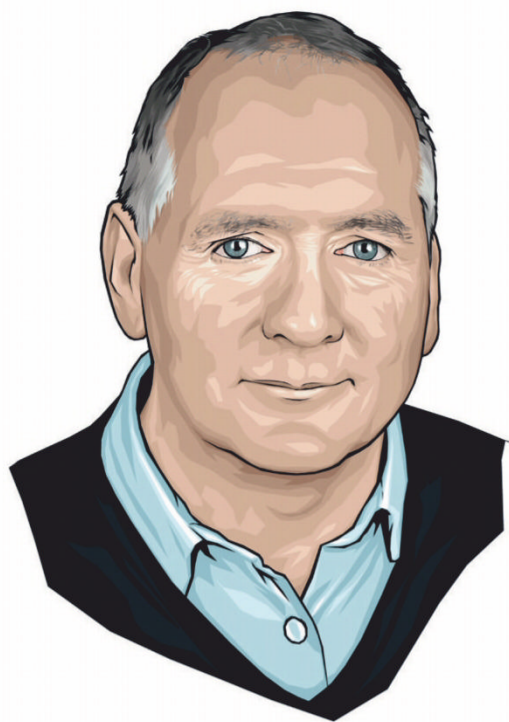
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STRAIGHT TALK

MARK GALLAGHER

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SELLING UP IS ANOTHER VITAL MOVE FOR FRANK

Late 2009, and a call came into Cosworth from Frank Williams' PA asking if I could attend a meeting. She added that this would be, "today, at 12pm," before continuing, "and Sir Frank will be coming to your offices. He would like to have a look around the factory and then have a meeting. Lunch won't be required."

Gulp.

In the two hours that followed floors were swept, benches cleared and socks pulled up in time for one of Formula 1's greatest team owners to receive a tour. Winner of 113 grands prix (this was pre-Pastor Maldonado of course), seven drivers' and nine constructors' titles, and the man who tackled tetraplegia with a determination which made the challenge of Formula 1 appear utterly inconsequential, was in quiet, polite, slightly terrifying form.

I recall a moment when, *Transformers* style, his wheelchair elevated him to full standing position. I sat there, looking up. Frank apologised: "I need to do this every 20 minutes or so. For the circulation."

Williams is now sold to BCE Limited, a fund

managed by the New York-based Dorilton Capital private investment company, for the sum of £137m in a transaction announced 12 weeks after the team hung out the 'For Sale' sign. While Claire Williams was happy to confirm that BCE has nothing to do with one Bernard Charles Ecclestone, Dorilton does represent the investment office of a well-connected European family.

Founded in 2009 by former Rothschild's bankers Matthew Savage and Darren Fultz, Dorilton invests its client's funds in medium-sized, profitable businesses. Williams ticked both those boxes until very recently, its losses the exception rather than the rule.

What does this mean for the team?

First off, it means that Williams will continue in Formula 1, Sir Frank's legacy intact. The press release was quick to state both the team name and car nomenclature would remain unchanged, as would the team's Oxfordshire location. Clearly the new owners understand the value of the name and the achievements associated with it.

Secondly, the announcement explained that some of the money would be used to pay off debts, leaving a shade over £100m to be

distributed among the team's shareholders, including majority owner Sir Frank, co-founder Patrick Head, American healthcare entrepreneur Brad Hollinger and Mercedes' Toto Wolff.

While some have suggested the sale price seems low, in simple terms Dorilton hit a number Frank, his family and shareholders were happy with. Change will follow (indeed it already has), as the new owners evaluate the people, facilities and opportunities for growth – a key characteristic of Dorilton's investments to date.

Attention will also be paid to Williams Advanced Engineering, the majority of which was sold last December to private equity company EMK Capital. That deal looked a little hasty, the family silver being sold off. As a result, EMK and Dorilton have some talking to do since they find themselves partners in the one bit of Williams that had been growing regardless.

The newly signed Concorde Agreement and budget cap have undoubtedly played their part in giving Dorilton the confidence to do this deal. Expect it to focus on making Williams a player once again, McLaren style, recognising that profitability and growth for any Formula 1 business is invariably linked to on-track performance.

Points means prizes, something Sir Frank knows only too well, and it would be good to see a return to competitiveness for the team that has been his life's work. The people behind the Dorilton deal will want that too.



Sir Frank's beloved F1 team sold for £137m, just three months after Williams announced that it was up for sale

THIS MONTH

Luca de Angelis

Senior track engineer,
EM Motorsport

EM Motorsport is the official marshalling system and flag panel provider for Formula 1. Its telemetry systems underpin much of the data used by the FIA, teams and broadcasters to work out where cars are on the track at any given moment, and its marshalling systems connect individual posts to race control in real time

CV

2018 – Present

EM Motorsport, deputy manager and senior track engineer for F1, F2 and F3 marshalling system project

2014 – 2018

EM Motorsport, senior track engineer for F1, GP2/F2 and GP3 marshalling system project

2010 – 2013

EM Motorsport, track engineer for F1 and GP2 Series marshalling system project

2008 – 2009

EM Motorsport, track engineer for A1GP marshalling system project

GP Racing: How long has your company been working in Formula 1 and what does it provide?

Luca de Angelis: EM Motorsport has been involved since 2006, which is when we started delivering the marshalling system. It's a constantly evolving project, like F1 itself – every year there's new technology. It's basically a system in several parts. One of those is the onboard part, which is the telemetry communication between the cars and race control – that's safety and condition information rather than performance data – and the GPS system which reports the position of the car on track. Then there are the panels: we have flag panels installed around the circuit, which are used for displaying slides and information to the drivers, and we also have what we call the info panel which is installed next to the starting line and provides additional information, informing the drivers about different situations on track, such as additional formation laps. For F1 we also provide the starting grid panels which tell each driver where to park on the grid ahead of the race start. The flag panels are controlled by the marshals locally, in communication with race control: if they see a problem they can display a yellow flag by pressing a button and that information is relayed instantly to race control and to approaching cars. The starting grid panels are operated in a similar way so that marshals can report whether a car has arrived in the right place, and if there's a problem with the car during the start procedure they can immediately trigger a yellow flag.

GPR: How do you set up all of this equipment? What does your race weekend look like?

LdA: Fortunately we're helped by F1 with the installation of equipment and laying cables around the track. We usually arrive on the Monday or Tuesday of a race weekend and we adapt the system to the individual circuit. On Thursday there's an official test to make sure all the connections are OK and the system is working as it should. From then on the FIA is running the system but we're there to ensure everything runs smoothly.

INTERVIEW STUART COOLING

GPR: This season we're visiting several venues which are either new or haven't been on the calendar for a long time. What are the challenges involved in setting up the system there?

LdA: There are quite a few parameters involved in where to install the panels to ensure optimum visibility, and the process begins a long time before the event with a visit from the FIA, usually the race director. They will decide the location of the panels and pass on that information to us. From there we generate a map based on GPS data and other information such as sector lines, and that's how we adapt our system to new locations.

GPR: What changes have been required to your existing circuit configurations to adapt to new COVID-19 social distancing protocols?

LdA: There have been quite a few places where we have had to change the position of the panel controller to enable the operators to stand by themselves. The key thing is that they still have to be standing in a safe place and with good visibility over the area of the track for which they are responsible. They also need a line of sight to adjacent marshal posts.

GPR: How have your systems evolved over the years?

LdA: We're on the sixth generation of panels so a lot has changed. Last year we underwent a homologation process with the FIA, which was a big push because the FIA was very strict with the criteria. We now have select panels homologated for grade one and grade two circuits. The radio communication has been an ongoing process because it's safety-critical, so we need to guarantee a continuous signal regardless of circuit configuration – and we don't just visit wide-open spaces like in Barcelona, we have to work in built-up environments such as Singapore and Baku. But we can now transmit and receive a lot more information from the cars.







Peter 'Bono' Bonnington became Lewis Hamilton's race engineer at the start of Hamilton's Mercedes career, and the pair have built up a strong relationship

THE HUMAN FACTOR

Formula 1 might be a high-tech endeavour, but the human relationship between the driver and their race engineer is a make-or-break element of it. And this is one aspect of F1 which can't be optimised with a computer...

WORDS ALEX KALINAUCKAS

PICTURES  motorsport IMAGES

A Formula 1 driver is the sole occupant of the cockpit. But they are far from alone.

The radio connects them to their engineers – chiefly, their race and performance engineers – but also a wider selection of senior personnel if a situation requires further input. These voices are key to every driver's session – and some of them, such as Peter Bonnington (Lewis Hamilton's Mercedes race engineer) – or Rob Smedley, who made a famous connection with Felipe Massa at Ferrari, become well-known as a result.

There are other engineers that make up the vital team-within-a-team for every driver – tyre specialists, aerodynamicists, controls engineers, engine engineers, and on it goes. An F1 driver can really never succeed alone.

But the role of race engineer is a pivotal link between what the driver is encountering on track and everything else in a grand prix event. Whether that's how best to set up the car in the garage or change its settings while on-track – where the performance engineer role dovetails – or managing an unfolding session: what other cars are doing, where traffic is a factor, incidents and strategy calls.

Simply put, it is vital that a driver and race engineer work well together. Performance and results aside, at 200mph safety is a critical factor – which adds another dimension to the trust that must exist. If this is correctly established, success can happen, but if it is not then things will go wrong fast – or they may never go right in the first place.

From time to time these relationships are changed forever. An engineer could be switched to new responsibilities or leave for another team. Some drivers have imported particular engineers with them at new squads – such as Jacques Villeneuve bringing Jock Clear with him from Williams to BAR.

But sometimes these changes stem from a particular problem – underperformance. Ahead of the 2020 British GP, Red Bull revealed that Simon Rennie, who had worked with Mark Webber and Daniel Ricciardo, and whose decision to step back to a factory role was a factor in Ricciardo's decision to leave the team, would be brought back to be Alex Albon's race engineer, while Mike Lugg went in the opposite direction.

This is far from the first example of such a move – a helpful historical example is Smedley replacing Gabriele delli Colli to work with Massa five races into the start of the Brazilian's long stint as a Ferrari race driver in 2006. The chemistry between Smedley and Massa was obvious – but that relationship-defining characteristic is important when it comes to a driver-race engineer partnership succeeding.

And it takes time to build. Some drivers arrive at a team with years of experience, while others will be on the first steps of their F1 journey. This variation can have a key impact. While some younger drivers may be headstrong and confident, it's not for nothing the most successful squads emphasise the importance of being humble and willing to learn – even after years where victories pile up. But as they develop, drivers can see the difference in quality engineers for themselves.

“IF THINGS ARE NOT IMPROVING AFTER ENOUGH TIME HAS PASSED, A BIG CALL MAY BECOME NECESSARY. CHANGING A RACE ENGINEER IS NOT DONE LIGHTLY – IT’S A VERY PUBLIC MOVE”

“When I started racing with Rubens, he was testing [me],” says *GP Racing’s* technical consultant Rodi Basso – Rubens Barrichello’s race performance engineer at Ferrari between 2002-2005. “He was leading the relationship a bit in the beginning. When he could see he could trust me, then everything went a bit more horizontal. We were then evolving together – both the performance and the relationship.”

If that chemistry is correct, the race engineer can bring a driver to their ultimate potential, but also help them recover ground if things are amiss. Motorsport is as much a human test as an engineering endeavour – the best drivers dedicate themselves to perfecting their fitness, diet, sleep and psychological state. It doesn’t stop with them, either: the teams know the value of happy and healthy engineers and mechanics.

Then there’s how this relationship can impact actual engineering.

Taking an example of snap oversteer on corner exit, often this is actually caused by high-speed understeer on turn-in. So, a driver may report alarming oversteer, but the race engineer must use data to reveal this is a symptom rather than a cause.

“This is all finesse that you build by educating each other,” says Basso, who feels that the competence element a driver is searching for in their race engineer relationship is roughly “20-30% of what makes the best chemistry”.

Teams have their own methods to ensure these relationships work as they must. At Williams, head of vehicle performance Dave Robson explains that the squad employs various training camps in the off-season, as well as specific communications

courses during the year. Then there’s testing and the many simulator sessions the drivers complete throughout a year.

“We do other activities as well as we can,” says Robson. “It’s not easy this year. And that’s difficult for Nicholas [Latifi], with the general state of play around the world.”

Carlos Sainz – who says he has no plans “at the moment” to bring his race engineer Tom Stallard or his performance engineer Adrian Goodwin with him to Ferrari in 2021 – utilised his time living away from his friends by substituting in his engineers after finishing work at the McLaren factory. “In the past before Corona[virus], we could socialise a bit,” he explains.

But the key element that cannot be understated is the time it takes to build and perfect any relationship – and this one is no different.


“It’s just something that’s evolving all the way, still doing so now, and will continue to happen over the years,” says Lando Norris, who is working with a second performance engineer in two years in F1, Jose Manuel López García, alongside race engineer Will Joseph. But if things are not improving after enough time has passed, a big call may become necessary. Changing a race engineer is not done lightly – it’s a very public move which impacts both parties.

“In general, the driver doesn’t get more than two chances to change the team just to justify underperformance,” says Basso. So, if the problem remains, it will be up to a team’s leadership to look deeper and make further changes – for good or bad.

A key aspect to consider is drivers are both leaders at a team and ‘customers’ of the product it produces – the car. Criticism must be delivered with consideration of all consequences, but at the same time harsh feedback can fix a problem.

Drivers wield enormous power, but must do so with care. If they use it incorrectly or at the wrong time it can have serious negative consequences for both themselves and the team. For this reason, Red Bull will be watching every detail of Albon’s performance now that the most important bond a driver needs has been changed.

With Lugg, at the opening three races of 2020, Albon’s average qualifying gap to team-mate Max Verstappen was 0.551s. Excluding the first Silverstone race, where Rennie took up his old role, over the next three races the average gap increased slightly to 0.572s, coming down to 0.503s after Monza. Albon, who had previously worked with Rennie in Red Bull’s simulator, says things are “falling in pretty smoothly – it’s been going well”.

Ultimately the buck stops with the driver, who must pay careful attention to the most human values of their work to triumph as part of a team. It’s up to them to realise that they cannot succeed alone. 

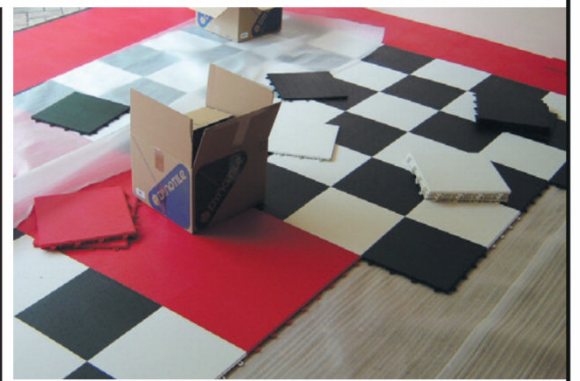


Top: Alex Albon with his previous race engineer, Mike Lugg (right). **Above:** Carlos Sainz with Tom Stallard (left), whom Sainz doesn’t plan on taking with him to Ferrari “at the moment”. **Right:** Felipe Massa switched Ferrari for Williams in 2014 and was reunited with Rob Smedley (left), although Smedley was now in a wider team role

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OUR TIME IS RUNNING OUT...

Red Bull promoted young hotshot Max Verstappen to the upper echelons of Formula 1 with the express target of making him the category's youngest ever world champion, but as the Dutch phenomenon gets ready to turn 23, and Red Bull once again falls short in its quest to produce a car capable of challenging Mercedes, time is short to complete the mission

WORDS ANDREW BENSON

PICTURES RED BULL & SHUTTERSTOCK



Red Bull

Mobil 1

HONDA

ASTON MARTIN



HUNGARY MAX



SIX MONTHS AGO – IN WHAT NOW SEEMS LIKE A DIFFERENT WORLD, ALMOST A DIFFERENT LIFE – MAX VERSTAPPEN AND CHRISTIAN HORNER SAT IN RED BULL’S TRENDY UK

HEADQUARTERS IN LONDON’S COVENT GARDEN AND TALKED UP THEIR CHANCES FOR THE NEW SEASON.

Horner described Red Bull being “in a position to challenge Mercedes”; Verstappen said: “We really want to mount a challenge to Mercedes and I think we can do that.” Now, in a championship and world turned upside down by coronavirus, Red Bull’s prospects look very different.

There had been eight grands prix this year at the time of writing, after the Italian Grand Prix. Mercedes had won six of them, Lewis Hamilton five. Leaving aside Monza – madcap and influenced by Safety Car and red flag and won by Pierre Gasly for Red Bull’s junior team – Verstappen had been the only driver to pose even the vaguest sort of challenge to Mercedes. And he had won a race. It was done, as Horner points out, “on merit”.

But the Dutchman’s sole victory was also the result of Mercedes being exposed by F1’s choice to mix things up at the second Silverstone race with softer tyres, and a day that turned out to be unexpectedly hot. So far, so hybrid-era Formula 1: Mercedes out in front; Red Bull pushing, snapping at the heels, snatching the odd win, but ultimately falling short.

But there’s another dimension to this story of unfulfilled ambition. Red Bull motorsport adviser Helmut Marko has set the company the target of making Verstappen the youngest champion in Formula 1’s history, describing it on the eve of this season as “our big goal for Max”.

That record was set by another driver in a Red Bull. Sebastian Vettel was 23 years and 134 days old when he won the first of his titles with the team, in 2010. Verstappen was born on 30 September, 1997, so if he is going to break it, Red Bull will have to somehow dominate the final part of this season.

Even in normal circumstances, that would seem unlikely. As it is, it looks all but impossible.

The coronavirus crisis has led to a series of rule changes, and there are severe restrictions on the alterations that can be made to cars and engines through this season and next.

There is still some potential for development, but Mercedes has a head start of such magnitude that it will, on past evidence, take some overhauling.

So where does that leave Red Bull and its ambitions?

And what does its failure to live up to its own expectations say about not only the team, but the future of its biggest asset – Verstappen?

WHAT’S GONE WRONG?

The warning signs about this year’s Red Bull were there in pre-season testing. Verstappen and team-mate Alex Albon kept spinning, and they kept doing it in the same way, mid-corner.

At the time, the team and drivers played it down, saying it was normal, a function of exploring the limits of the new car. But observers questioned whether the spins were evidence of a fundamental instability issue with the car, and once the season started, it was apparent that’s exactly what it had.

“The car’s not behaving as predicted at the moment,” Horner admitted at the Spanish Grand Prix. “It is quite variable. We have been changing a lot of stuff on the car as we have been searching to sort out its issues.”

Red Bull had planned three major upgrade phases for the start of the year – for Melbourne, Spain and Austria.

All were combined for the delayed start of the season at the Red Bull Ring, and something did not quite go to plan.

“Going from a race one update to a mid-season update without those intermediary steps you would receive track data from,” says Horner, “perhaps the circuit hasn’t replicated what we expected to see from our tools, because you’d have had that track data along the way to verify between each incremental step. But that’s just needed a little bit of unpicking and I think we’ve understood that and everything we’ve introduced has remained on the car.”

At the same time, as Horner says, “Mercedes made a big step over the winter, particularly on the power unit. It has been very impressive and they have done a good job with their car as well. They haven’t won the previous six world championships by mistake and they’ve had continuity and they are a very big machine.”

In fact, Mercedes ascribes about two-thirds of its own progress to the chassis, and only one-third to the engine. And the combination of these factors has been frightening for anyone who is not a Mercedes employee or fan.

On average, the Mercedes is 0.875s quicker than the Red Bull in qualifying (excluding the wet Styria qualifying) – up from 0.387s over 2019. Monza apart, the Red Bull has been comfortably quicker than anything else (in Verstappen’s hands at least), but in the context of the Mercedes it is, as Max described it after qualifying in Italy, “just not a very fast car”.

“We know that Mercedes are the target,” Horner says. “They’re doing a very, very good job at the moment. They are setting the benchmark very high and we have to take on that challenge. Everybody in the team and Honda is extremely motivated to do that and obviously Max in particular as well. “It isn’t going to be easy; F1 isn’t easy. But I believe in the people we have, in the capacity and capability we have, and I think that we will eventually be

able to mount a challenge and really take the fight to them. They've turned up with a very good car this year and we have a big regulation change for 2022, but I think before that there is plenty of opportunity."

All of this underlines the quality of Verstappen's driving this year. Not only is he the only driver to beat the Mercedes in a straight fight on a Sunday, he is also the only one to get among them on a Saturday, when he used the wet qualifying at the second Austrian race to slip between Hamilton and Valtteri Bottas. And until Verstappen's retirement in Italy, he was also between them in the championship. This was also on merit, as both he and Bottas had one zero score each up to that point: Verstappen an engine-related retirement in Austria; Bottas a puncture that dropped him out of the points at Silverstone.

Horner is unequivocal in his praise of Verstappen: "It's a phenomenal performance. He's driven brilliantly this year. He's very rounded. He has all the speed and car control and flair and tenaciousness that he's always had but he has coupled that with experience. That makes him hugely competitive."

Despite that, it has been notable how relaxed Verstappen is, given Red Bull's competitive situation. There has as yet been no sense of annoyance or frustration.

"I'm not frustrated," he insisted in Belgium. "I've accepted the situation I'm in. A lot of people would like to be in my car. We are still fighting for podiums. It is a great position to be in. We keep trying to make it better, but Mercedes just did an incredible job and you have to accept that. It doesn't mean I don't want to beat them. Every chance I get, I will go for it.

"On pure pace, both should be ahead of me in the championship. Overall, to be second in a few races where Mercedes had more pace, we overachieved a bit and besides that we always maximised what we could.

Very happy with that, but as a team we are not here to be second or third. We want to fight for the championship, but you also have to accept the situation we are in that we are not really able to challenge. Yes, it looks like it on paper, but if you look at the pure pace, we are too slow and relying a bit on an off day for Mercedes or a bit of luck. So there is still a lot of work to do."

Horner says he is not surprised about the equanimity with which Verstappen has dealt with the reality of this season.

"He hasn't let anything get to him," Horner says.

"Max is driving with an attitude of, 'I'm certainly not the favourite - I didn't expect to be the favourite coming in.' And he's treating every race like a cup final, and he's been tremendously mature in the way he's dealt with that.

"In the last couple of years, since Daniel [Ricciardo] left the team and he became the team leader, he's really stepped up to that, and he's taken that responsibility quite seriously. He's done a really super job in that respect."

WHAT DOES THIS SAY ABOUT RED BULL?

Red Bull's repeated failure to get into a position to challenge Mercedes over a season inevitably leads to questions about what's missing in the team. Mercedes' dominant start to this year, combined with Red Bull's struggles, and the startling leap forward made by Racing Point with its 2019 Mercedes copy has led some to wonder whether Red Bull's design philosophy is wrong.

Mercedes and Red Bull pursue very different approaches to aerodynamic design. Red Bull uses what is known as "high rake"; Mercedes "low rake". This refers to the angle between the front and rear of the car – greater on the Red Bull, the rear floor of which is further off the ground than Mercedes'.

These are two different methods of trying to achieve the same thing. To generate downforce, teams want to create a low-pressure area under the car by speeding up the airflow.

High rake does this by increasing the mass flow of air; low rake by reducing the area that air is forced through - to take a hosepipe as an example, the difference between opening the tap or squeezing the end.

Red Bull design chief Adrian Newey has pursued high rake for decades. The idea is that the increased distance between the diffuser and the track pulls lots of air through the floor. What's interesting about this in the context of this year is that Red Bull has changed philosophy at the front of the car, which sets up the airflow to the rear.

For years, Red Bull had used what are known as J-vanes - vertical slats under the nose - to control the airflow off the front wing. But this year it has adopted what is known as a 'cape', a shaped horizontal piece of bodywork under the nose, a device pioneered by Mercedes.

For whatever reason, Red Bull started this year with a car marginally slower than it had in 2019. It took six races - the Spanish Grand Prix - before the 2020 Red Bull set a faster time in qualifying than its predecessor. On average over the year so far, the Red Bull is only 0.309s quicker than last year at the same circuits. The Mercedes, by contrast, is 0.761s faster.

Horner, though, rejects the idea that Red Bull is on the wrong train. He admits that the change in frontal aero philosophy has "given some anomalies" ▶



“

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“

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that we need to understand". But says he "disagrees" with the idea that high rake is dead – and points out Mercedes has also been raising its rear ride-height in recent seasons (which is true, but doesn't alter the fact that there is still a distinct difference between the two cars).

"These cars are incredibly complex aerodynamically," Horner adds. "You've only got to look at the components that make up a barge board, a front wing, the underside of a front wing. And sometimes you can get things that don't work in perfect harmony or in different conditions.

"We have a decent understanding of what hasn't been behaving on the car and have some hopefully good, positive steps in the pipeline. The car has not been happy in some conditions and I think the guys are now understanding what's causing that unhappiness and they are working hard to address it."

WHAT'S NEXT?

Cyril Abiteboul, boss of Red Bull's previous engine partner Renault, believes Red Bull has "missed a trick" in modern Formula 1 and is too "distinct" from its engine partner.

"You really need to be one group of people, one team," Abiteboul says, "with one mindset and we have failed to do that altogether. It looks like they are not able to do much better with Honda and it just shows the level of complexity and perfection that is required in Formula 1 in order to win, and in particular to beat Mercedes."

Horner rejects that, saying: "The difference with Honda is that rather than paying for engines, it's a true partnership. Their facilities in the UK are geographically closer to us in Milton Keynes than [Renault's engine base at] Viry Châtillon is to [its chassis base in] Enstone, so I would have to – not for the first time – disagree with Cyril, [and say] that his observations are a little wide of the mark.

"Between Honda, in the UK and Japan, it is fully integrated in the manner you would expect an engine department and a chassis group to work. Of course, there were communication issues sometimes in the early days but that's just got better and better.

"It's going to take time. There are no chinks in Mercedes' armour under the current set-up. Nothing lasts forever and we just have to keep plugging away and keep pushing and do everything we can to keep them under pressure and keep improving ourselves.

"The relationship with Honda has only grown stronger and better these past 12 months and hopefully that puts us in good shape for the future as well."

Over the winter between the 2019 and 2020 seasons, Verstappen signed a new contract with Red Bull to the end of 2023. It was a move instigated by the driver himself, and demonstrated a bold vote of confidence in the team and Honda.

For now, Verstappen is relaxed about the position. "I don't understand why people think I wouldn't be motivated," he says. "I have one of the best jobs in the world, I am driving third or second. Why wouldn't I be motivated? I love driving the car. I of course want to challenge them [Mercedes], but if it is not possible I settle for the best result in the car I have and I am still enjoying it."


On paper, everything looks to be in place for Red Bull and Honda to build together to a point where they can live up to their own ambitions, with stability in the team and arguably the best driver of the new generation in the car. But there are inevitable questions. Firstly, Honda. It, too, signed a new contract with Red Bull last year – but it was an extension of only one year to the end of 2021, not exactly a powerful statement of commitment. At the time, that was to be the end of the first year of the new regulations. Now, it runs out before they come in. When – and if – will Honda commit to staying longer in Formula 1?

Then, Verstappen. For now, there is nowhere else he could go. Ferrari is committed to Charles Leclerc as its number one until the end of 2024, and in any case is hardly a very appealing prospect following such a dramatic slump in form. And Mercedes is expected to sign a new deal with Hamilton for at least the next two seasons.

But then what? Hamilton will be 36 before the start of next season, and Mercedes is known to be interested in Verstappen as a replacement. By the end of 2022, Verstappen's contract with Red Bull will have only a year to run, and it will be the driver who is in control of negotiations, not the team.

Does Verstappen still have confidence he can win the title with Red Bull and Honda?

"I do believe in it," he says. "Of course, for next year it might get a bit complicated because the rules are still the same, but then there are new rules coming in and it's a new opportunity for everyone."

"Max is a young guy," adds Horner, "he's full of talent, there is only one other car that's ahead of us at the moment. I don't know what Lewis Hamilton is going to do over the next few weeks. But Max shares a determination with us that they are ultimately beatable. We would love to win a championship with him and I think vice versa. And that remains absolutely our focus and attention." 

Andrew Benson is BBC Sport's chief F1 writer

TIME TO TAKE LANDO SERIOUSLY



Lando Norris is perhaps better known for his antics on social media than for his heroics on track – but he’s determined to change that, and he appears to be succeeding...

WORDS STUART CODLING

PICTURES  AND MCLAREN

When Lewis Hamilton essayed his maiden grand prix at the age of 22 there were those who thought him awfully young for an F1 driver. Now, after a succession of teens launching into the category via the fast track of manufacturer development programmes, a debutant of that age would be deemed something of a late bloomer.

Not that it would have mattered particularly, except that the latest generation of drivers have grown up with social media and are accustomed to sharing facets of their lives which would previously have been off-limits. We know enough about many of them to make future biographers redundant. And yet – what are we actually seeing through this newly opened window? Often it’s just... boys being boys.

Inevitably, then, there are those who opine that the most recent intake of young drivers into Formula 1 aren’t taking it seriously enough, hence some of the rapid ‘churn’ of young talent in recent seasons. At *GP Racing* we’re not so

certain that a readiness to stream yourself playing racing games in costume on Twitch equates to lack of application in the Formula 1 milieu. Why, after years of sportspeople almost deliberately being boring, should we not celebrate F1’s exuberant youth boosting its box office potential?

Lando Norris is one of those drivers who has generated far more traction – both among fans and the mainstream audience – than many new names who arrive from the feeder formulae and spend their first season labouring in a midfield car. During F1’s post-Melbourne hiatus this year it was notable how he led many of his contemporaries into the streamed eSports scene – something which remains polarising for many fans but which undoubtedly filled an entertainment gap.

“I guess we just want to kind of explore and do more things that we just would normally do,” explains Norris. “Rather than sticking to the ‘This is what an F1 driver should do’ kind of

thing. Growing up, you see F1 drivers and they're amazing, but you never see them apart from getting into the car and driving. So we're probably a bit more willing to be ourselves and be more normal in some ways, and to show a different side of us, than some previous generations.

"And I think more people around us are also accepting change. Everything flows through that: the drivers change a bit, the teams change a bit, and F1 changes a bit. And I think that's how we're getting to the new style and new atmosphere that we have in F1 nowadays."

When Norris won the Formula 3 championship in 2017 he uncorked his champagne by leaping from the podium and theatrically bouncing the base of the bottle off the ground (he concedes it wasn't his idea in the first place, and that his old MSA Formula rival James Pull was the originator). Repeating it when Lando secured his first F1 podium finish in Austria this year brought the trick to a global audience and it's since been copied with varying degrees of success by other racers.

It's clear that Norris and his contemporaries are building a momentum for change. Until recently many drivers eschewed publicity; Michael Schumacher guarded his privacy carefully, as does Sebastian Vettel. Nico Rosberg was among the first to recognise the potential for social media as a personal brand-building tool, employing a professional photographer to run his Instagram. The pace of change has been rapid: Norris and his ilk now superintend their own profiles rather than delegating such tasks.

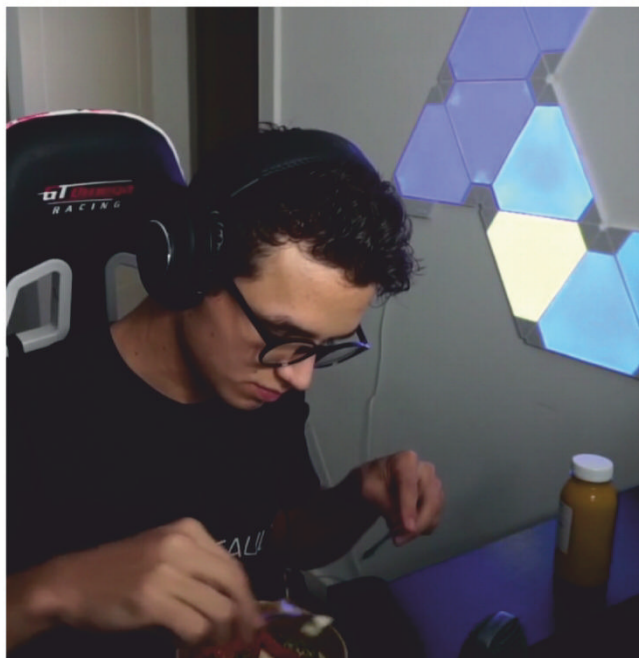
"WE'RE PROBABLY A BIT MORE WILLING TO BE OURSELVES AND BE MORE NORMAL IN SOME WAYS, AND TO SHOW A DIFFERENT SIDE"

But the pinnacle of motor racing remains a demanding and unforgiving environment. Many young drivers struggle when they reach F1 because they fail to grasp an essential truth that the likes of Lewis Hamilton have long understood: staying in F1 requires a skillset extension and a different mindset from that required to get there. The job isn't over and done with once you've qualified for a superlicence. ▶

Lando doesn't delegate his social media and is regularly on streaming platform Twitch, either chatting to his followers or when he is taking part in eSports



PICTURES: ANDY HONE; SCREENSHOTS FROM LANDO NORRIS'S TWITCH STREAM



Norris's open attitude to social media means fans get to see more of him than just what he gets up to at the track



Norris is completely focused on becoming the best Formula 1 driver he can be, but still wants to have fun along the way. He admits he didn't quite get the balance right in 2019



This state of affairs has prevailed since before the advent of social media, but it's easy to see why critics of the present crop of new drivers instinctively divine a lack of seriousness and professionalism beneath all that public levity. But does less reserve really equate to less application?

"Everyone's entitled to their own opinions, and people come out with their own theories," says Norris, "but that's something I've adapted to for this year.

"I'm still enjoying myself and I think I'm showing that side, but I just have to get the balance right, of focusing on F1 and doing what I have to do to be the best driver I can be – and do the job I'm paid to do. But at the same time, you need to still have fun and enjoy yourself, and just be yourself. You don't have to be the person who just comes in and never jokes or laughs.

"I think you just have to get the right mixture and last year I didn't. It's something I've changed around a little bit."

That's a fascinating admission because, viewed objectively, Norris's debut season in F1 was pretty successful. He qualified inside the top 10 for his first race, and outqualified his far more experienced team-mate Carlos Sainz 11 times in 21 races – though that statistic is skewed by Sainz being unlucky with engine failures. Norris was only fractionally off Sainz's average race pace throughout the year despite the gulf in their top-level experience.

Conversely, it was Sainz who was McLaren's biggest points earner, scoring almost double Norris's tally. Though McLaren convincingly won the battle to be 'best of the rest' behind the big three in the constructors' championship, 2019 proved to be relatively unusual in that fourth place wasn't as hotly disputed as it had been in previous years.

Norris's performances in the first and last races neatly sum up many aspects of his season: in Australia he qualified well but started poorly, then got stuck behind Antonio Giovinazzi's Alfa Romeo after his first pitstop, neutralising any chance of a top-10 finish; and in Abu Dhabi Norris was too easily bullied out of seventh place by Sergio Pérez on the last lap in an attack Lando didn't see coming.

Other results went south purely through bad luck, poor reliability, or McLaren's strategists having unusual off-days. And surely nobody could listen to Norris's primal scream of rage and frustration on the radio in Belgium, where a late engine failure cost him fifth place, and think he's not taking the business of F1 seriously?

Frustrating as the protracted off-season was, it furnished Norris with more time and

2020 started in fantastic fashion for Norris as he claimed his first F1 podium in the season-opener in Austria



PICTURES: STEVEN TEE; MARK SUTTON; McLAREN

opportunity to review what he did right and wrong on track last season, and to feel his way towards a better approach.

“A lot of it was just reflecting on last year,” he says, “and having that bit more time off I could go through things and not only pick out the weaknesses, but also understand and look into more depth of why they were weaknesses and how to go about fixing them.

“With the time off, you’re more able to do those things rather than between race weekends - sometimes there’s too much to go through in that way, so you might say ‘This is where we were weak,’ and try random things to improve that, because you don’t have the time to go into enough depth.

“I’ve had more time to look into many things I needed to improve on and understand what I was good at. Some things I could do last year

but maybe I was a bit reluctant to - such as at the start and the first lap of races. It was my first season in F1 and I wasn’t taking the risks that maybe someone would do after two or three years. I never wanted to take the risk of being too

close to someone and crashing - I just wanted to finish the race.

“Sometimes that was a benefit when others crashed and I ended up in a better place. And sometimes I lost one or two positions because I didn’t take a risk which might have paid off, but I was thinking, ‘I’ll give up these one or two positions and go from there.’


“Over the winter and into this year I was working on understanding that risk/reward a little bit more - knowing

when to take those risks. And then there were other aspects like the race pace and qualifying consistency - because qualifying was good,

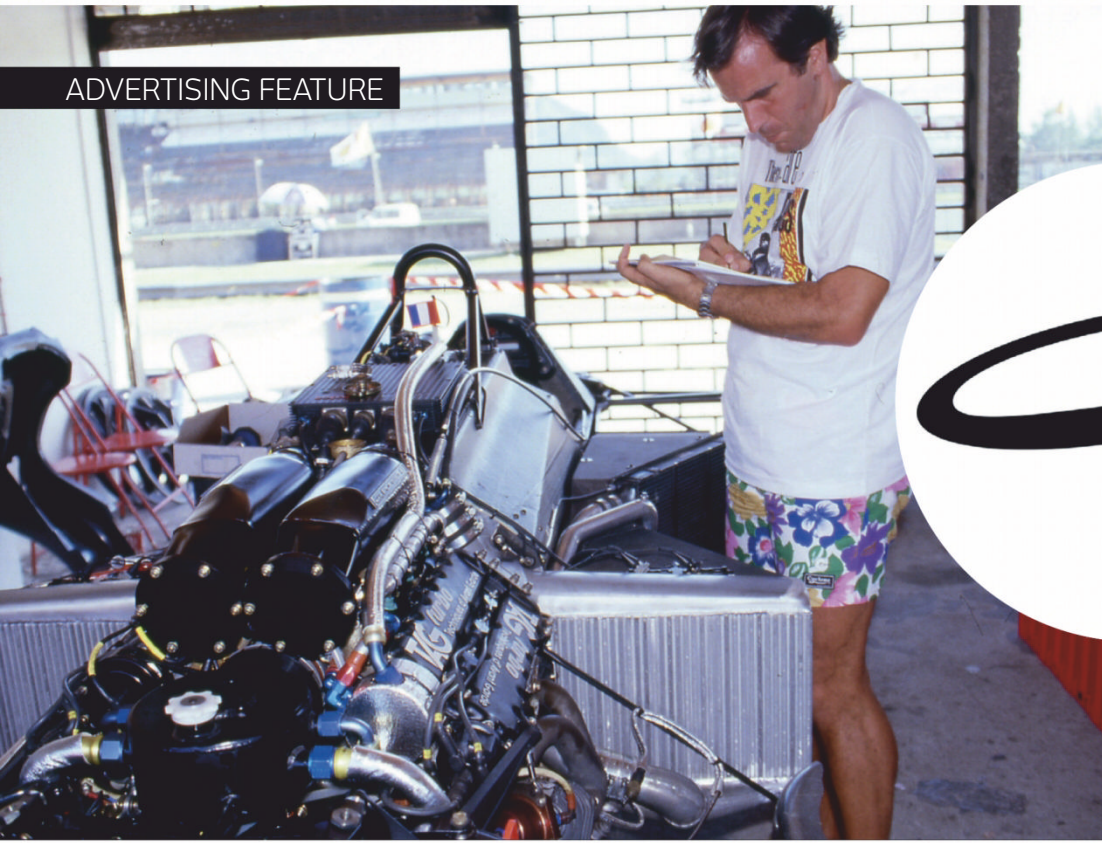
and is still one of my strongest suits, but the consistency was maybe not so good.

“So there’s been a lot of areas I’ve been trying to improve, even if I was strong in them. Having that chance to go through everything in detail and then coming back and trying to put it into practice is why I feel like I’ve been able to do a better job this year so far.”

It’s clear from his 2020 performances that Norris has taken the step forward he wanted, though he’s still been prone to conservatism on opening laps. Until Monza he was well ahead of his team-mate in terms of points, though that was more a consequence of Sainz bearing the brunt of external factors.

Ferrari’s plunge from competitiveness means that McLaren, even after losing some prime points-scoring opportunities to Sainz’s various misfortunes, is in the frame for third in the constructors’ standings. The pressure is now even more on Norris and his newly rebalanced professional equilibrium to keep delivering the points. Can he carry on getting the balance right? 

“YOU DON’T HAVE TO BE THE PERSON WHO JUST COMES IN AND NEVER JOKES OR LAUGHS. YOU JUST HAVE TO GET THE RIGHT MIXTURE ”

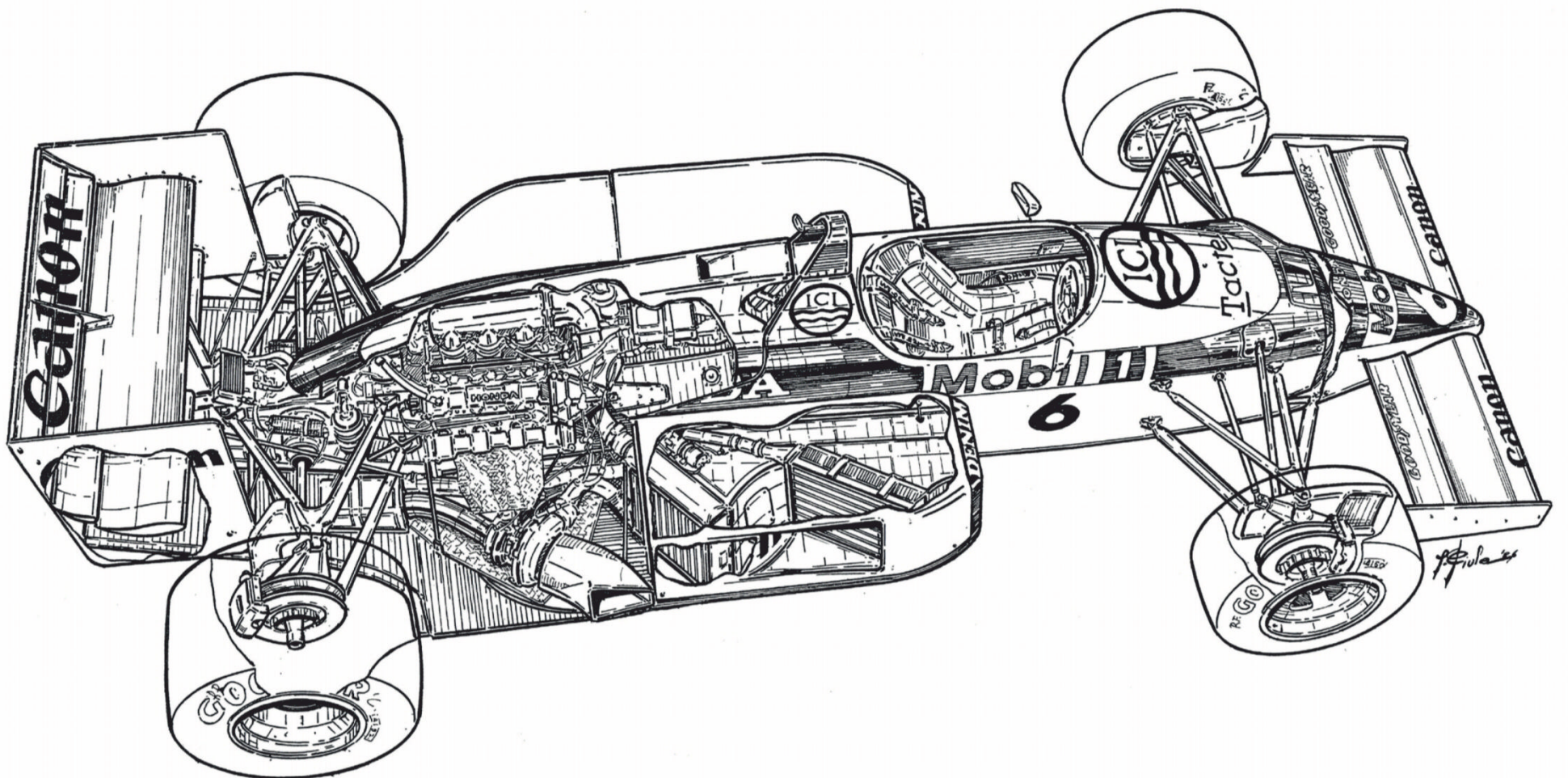


GIORGIO PIOLA

For the last 40 years, Giorgio has profiled every change in design and engineering for every car on the grid. Here we take a look at his incredible career.

Giorgio Piola is a much-celebrated figure within the Formula 1 paddock, famous for his technical artworks that span over 50 years of the championship's history. Having first attended the 1969 Monaco Grand Prix, Piola continued to document the evolution of F1 car design over the next five decades, and continues to illustrate technical developments today in his own inimitable style.

"I was always passionate in making drawings of everything," remembers Piola, "but from 14 years old, I concentrated on cars, especially Formula 1 cars. I was always making drawings even at school, listening to the teacher, but making the drawing in the same time. And this way, I could teach my eyes to be able to see like a wide angle view and to see in two opposite directions, so my drawing on the table, and the teacher on the desk, and this helped me a lot in Formula 1 because I'm able to spot any little detail, even without the people are really thinking that I'm looking at it." »



Piola's formative days of drawing in school laid the foundations for a career in motorsport, producing vast, sprawling illustrations of some of the most iconic cars in F1's history. One of his most famous drawings is of the Lotus 72, one of the most technologically advanced cars of the early 1970s and still influences the design of modern F1 machinery, and the original drawing was two metres in length and took Piola 40 days to complete.

Today, Piola's work has taken on more modern techniques, but he still remains faithful to his roots and produces the original drawing by hand before making any further modifications digitally.

"At the time in the 70s, and even in the 80s, the job was completely different," Piola says. "I had totally free access to the garages and there are some pictures that show me in Rio de Janeiro in swimming clothes beside Alain Prost's world championship-winning McLaren, taking sketches and nobody was interfering with me.

"Now the work is totally different. There is a lot of security. There is a lot more electronics and parts that are more difficult to do, and also my way of drawing is changing. Before I was doing big cutaways, bigger than one metre, 40 days of work with the Rapidograph 03 all by hand, and was a huge amount of work. Now, with the computer everything is easier, and we use it to retrace pictures." »



The new SPEEDTRAP collection of timepieces, designed by Giorgio Piola and inspired by Formula 1, are now available to purchase via Kickstarter for as little as \$400. Available in five different colours and made in Switzerland, the SPEEDTRAP collection is a sleek and elegant watch that will make a perfect fit for any motorsport or watch enthusiast.

Search 'Piola SPEEDTRAP' at [kickstarter.com](https://www.kickstarter.com) for more.

Another aspect of his work that Piola remembers fondly is of being able to speak openly with the engineers of the cars he drew - although relationships sometimes became strained when Piola discovered new designs and devices that the designers wished to keep secret. He once provoked the ire of Ligier designer Gerard Ducarouge, having come across a hidden valve system on the Ligier JS11 - known as the "clapet" - at Watkins Glen which stalled the ground effects to improve top speed - but Piola celebrates other feted technical personnel for being willing to talk about their innovations with him.

"Another wonderful aspect of the first 30 years of my career," Piola adds, "was the human relationship between myself and the engineer, were completely open. There was no block, there was not PR, there was no press people that were blocking the engineer, and we could talk - even at dinner, or even at breakfast - and it was wonderful.

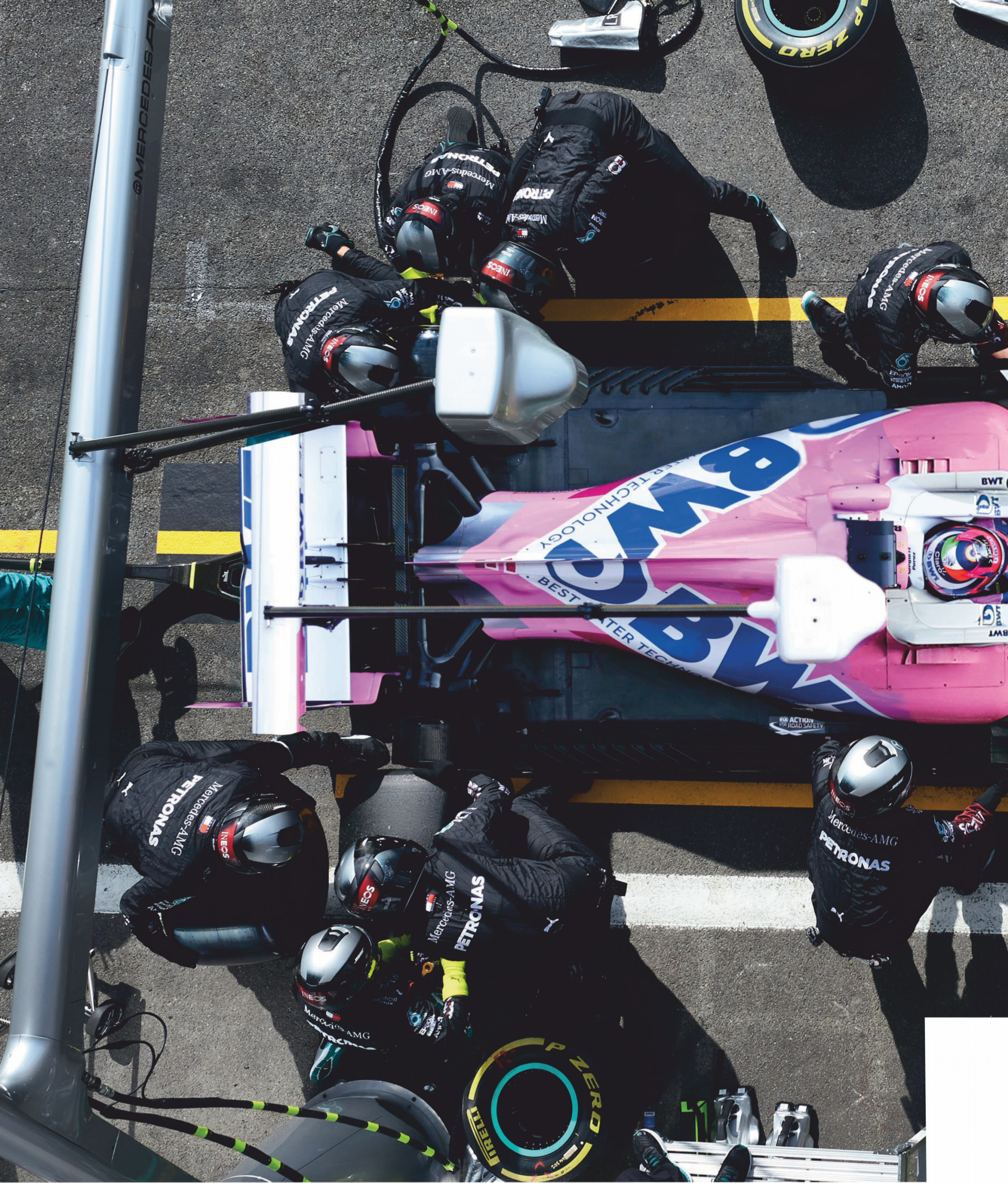
"I have very good relationship with geniuses that I adore like Patrick Head, Gordon Murray, John Barnard, Adrian Newey and all these people we could talk freely - for hours, even!"

Today, his illustrations concentrate on the race-by-race upgrades produced by teams across the grid, bringing life to the new innovations that modern F1 teams can often develop. This eye for detail and innovation now also extends to his passion for designing high-end Swiss watches, works of art which he is proud to present to his fans and the motorsport community.

Having started out with black and white line drawings, wielding his trusty Rapidograph 03 for shading in minute detail - to the point where he could sometimes become numb in his fingers after drawing for hours on end - Piola now uses modern techniques to add colour to his drawings.

"I still have the black and white trace. And the very important thing, is now it's easier because with the computer I have to scan that drawing, so I can split the image into pieces to make the difficult detail bigger. Even if I do a mistake, I can correct easily as I scan the drawing. At the end that is very nice to see, if you want something a little bit technical, the black and white trace - but everybody likes now to have a colour drawing."

If you would like to own a piece of F1 history and marvel at the striking technical details of some of Formula 1's most iconic cars, prints of Giorgio Piola's original artworks and his collection of watches are available for purchase at [giorgiopiola.com](https://www.giorgiopiola.com).



WORDS STUART CODLING

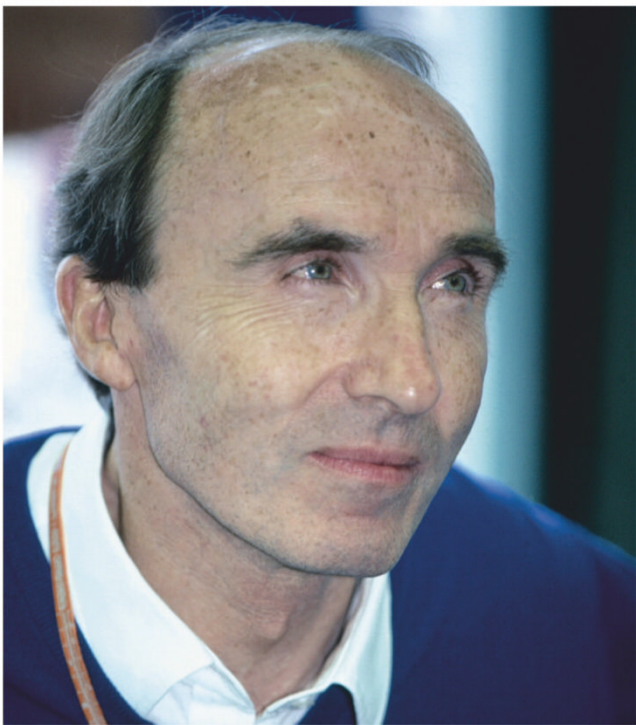
PICTURES  motorsport
IMAGES



GAME OF CLONES

Formula 1 teams have been cherry-picking their rivals' best ideas throughout the history of the world championship. But sharing or copying complete cars has proved to be a step too far...

“We are what you might call a traditionalist racing team which believes that we are out there competing for two world championships, one for the best driver in the world and one for the constructor who builds the best car in the world. As far as I’m concerned it is absolutely in the regulations, in black and white, that every team must make its own chassis.”



In 2007 Sir Frank Williams was willing to go to court to ensure all F1 teams made their own cars

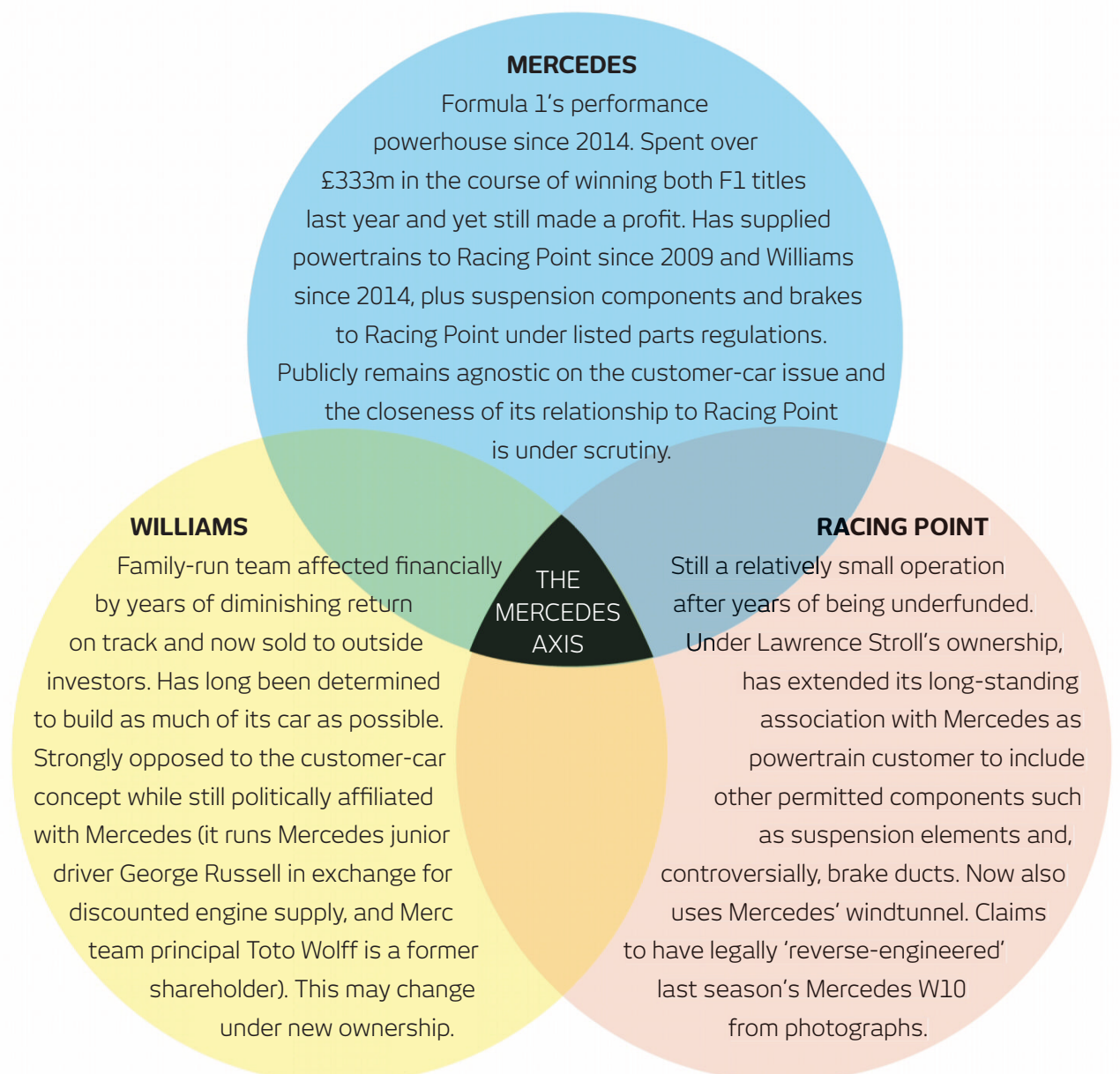
These are the words of Sir Frank Williams – in 2007. Thirteen years ago Formula 1 was in the grip of an identity crisis thanks to the audacity of a carbonated drinks company fielding four broadly identical cars, and Williams was prepared to go to court to preserve the status quo.

Since then an argument has been simmering – sometimes gently, often threatening to boil over – about a philosophical question that cuts to the very essence of what it means to be a competitor in Formula 1. It’s not a debate about speed or performance, what fuels should be used, how big the engines should be, though all these matters and more have been thrown in to muddy the waters. It’s simpler and yet, at the same time, far more complex: it’s a question of identity, of authorship.

Simply put – what does it mean to be a ‘constructor’? Should F1 continue to honour its heritage as the pinnacle of technology in motorsport, of individual craftsmanship and design, a world where the ‘brand’ is not simply the iconography by the factory gate but a fundamental statement, a set of values, an integral part of a championship now completing its 70th year? Or should it, for the sake of financial expediency and administrative convenience, gradually become an identikit category where teams are little more than franchisees, buying in components from a menu as if choosing a fantasy football team?



Racing Point’s success in 2020 with a ‘clone’ of the 2019 Mercedes has caused controversy



“TEAMS HAVE STOLEN IDEAS FROM ONE ANOTHER THROUGH HISTORY, YES, BUT THE TECH IS PART OF THE INTRIGUE. AN F1 CAR SHOULDN'T JUST BE AN OFF-THE-SHELF CARBONFIBRE TUB WITH A BESPOKE PAINT JOB...”

For the fans, those with a long emotional investment in F1, and probably with particular attachments to one or more of the teams within it, there's surely no question at all. The car is the on-track personification of the team: its quality and ingenuity, its quirks and its failings, are part of the tapestry of F1's ongoing narrative. Teams have stolen ideas from one another through history, yes, but the tech is part of the intrigue. An F1 car shouldn't just be an off-the-shelf carbonfibre tub with a bespoke paint job...

But this is Formula 1, where vast sums of money are now at play, fortunes can be made and lost, and big-picture decisions are shaped by politics and expediency rather than emotion.

HOW RACING POINT REIGNITED AN OLD ARGUMENT

Racing Point's bold but controversial decision to 'clone' last year's championship-winning Mercedes W10 brought the idea of intellectual property to the fore – and reopened many old wounds – at a crucial time in F1, just as the stakeholders were in the final throes of negotiating the next Concorde Agreement.

Inevitably the issue became a sticking point just as the commercial rights holder was trying to maintain the value of its property by tying in the competitors for another five years. For while fans might cherish the emotional attachment they have to particular teams, if you're running a multi-million-pound business you have to look through different optics.

Racing Point's occasionally patchy on-track performance this season has proved that while copying a winning car is one thing, winning with it is quite another. On pure pace, though, the RP20 car is well clear of its former midfield rivals on many circuits.

Clear, too, of Ferrari and even, sometimes, of Red Bull. There's no doubt the team has achieved the performance uplift it was looking for, even if it often falls short of unlocking that potential. And it's doing this while still operating on a much lower budget, and with fewer staff, than any other team bar Haas.

For all the high-minded rhetoric about copying (and the off-the-record briefings alleging that the relationship between Mercedes and Racing Point is cosier than permitted), it's this which has infuriated rivals most. This and the unanticipated free gift from COVID-19: a design freeze which means this year's cars will carry through almost unchanged to the end of next season. For Racing Point that means a baked-in advantage, for others a disadvantage.

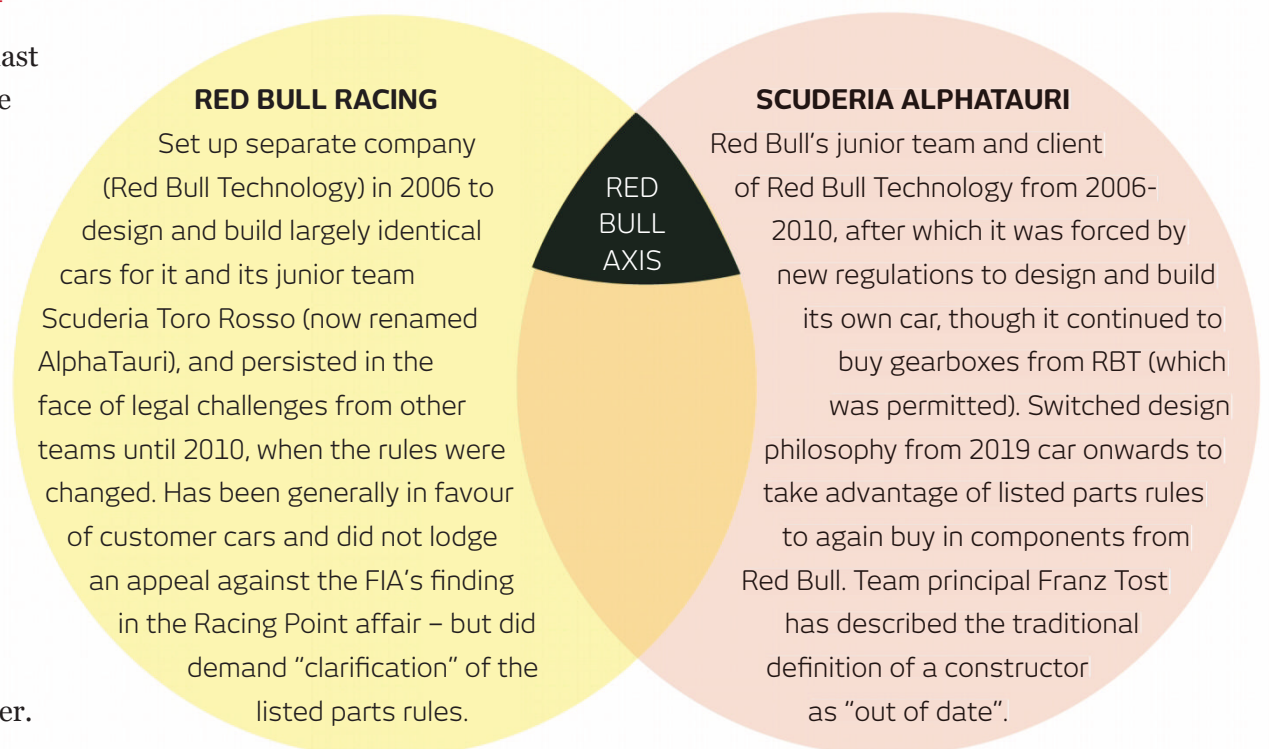
FOLLOW THE MONEY

Despite many attempts to change the direction of travel in the past two decades, F1 is an expensive business to be involved in. Design and build of the cars represents a huge fixed capital cost, and this is why design and intellectual property remains a contentious issue. To shortcut that investment, particularly that which would flow into R&D and innovation, is to undermine the business models of many of the participants.

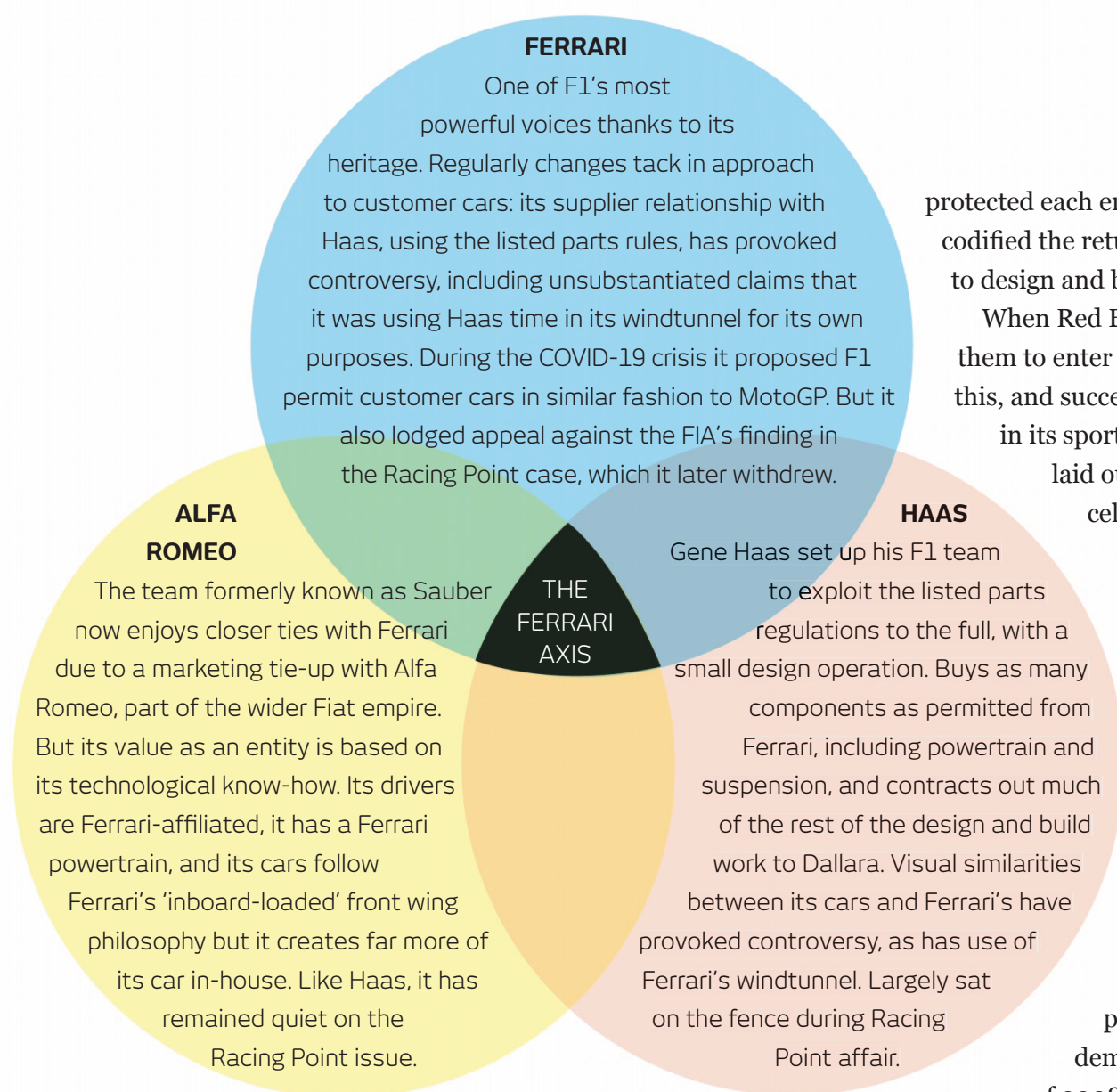
It's for this reason that for many years the principle of authorship, of each constructor having to design its own cars, was enshrined not in F1's technical regulations but in the wording of the Concorde Agreement, the confidential commercial contract which binds the participants, governing body and commercial rights holder.

Until the 1980s Formula 1 grids were more diverse and there was nothing to stop a private team buying, say, a March or a second-hand McLaren or Williams (McLaren started out building customer cars to subsidise its racing efforts). As Bernie Ecclestone moved in on the TV rights and secured global TV deals, grids became more uniform and entrants were contractually obliged to attend every round – and build their own cars – for the sake of the spectacle.

Having the status of constructor defined within F1's binding commercial contract ▶



Red Bull's Dietrich Mateschitz with Franz Tost in 2005. Tost would later lead Toro Rosso, Red Bull's junior team



protected each entrant's investment, just as the share of the prize money codified the returns on those investments. As cars became more complex to design and build, they also became vastly more expensive.

When Red Bull entered F1 in 2005, buying two teams, its vision was for them to enter fundamentally the same cars. Rivals pushed back against this, and succeeded when the FIA adopted the definition of a constructor in its sporting regulations in 2010. Appendix 6 of the new rulebook laid out so-called 'listed parts' of the cars, from the survival cell to the impact structures, aerodynamic surfaces and suspension components, which had to be bespoke designs by each constructor.

That ought to have laid the matter to rest for good, but the lingering effects of global recession, combined with ongoing power plays between F1's stakeholders, meant these hard-and-fast rules were soon diluted.

THE LEGACY OF DIVIDE-AND-RULE

An influx of big-spending manufacturers during the early 2000s cushioned the effects of bans on tobacco advertising, so F1 never weaned itself off its spending habit. Worse – if you were Ecclestone or his chum, FIA president Max Mosley – these manufacturers were uppity, demanding a greater voice in the running of F1. The recession of 2008 chased many of them out, but now the teams banded together to argue for a better deal.

Throughout the decade Mosley had pushed through cost-cutting ideas which weren't universally popular. In response to the financial crisis he proposed a budget cap which would enable new teams to enter in 2010, taking advantage of a low-cost common powertrain supplied by Cosworth and Hewland.

None of those new teams exist today because Mosley was out of office by the time they turned wheels, abandoned by Ecclestone as Bernie desperately sought to make a new Concorde Agreement with the existing entrants. They had no interest in budget caps, were furious about the potential dilution of prize money, and they wanted Mosley's head on a plate. Ecclestone served it up to them presently and then set about destroying their unity.

That Concorde Agreement, which expires this year, was a tapestry of bipartite deals Ecclestone cut with individual teams, giving the bigger ones what they wanted – a bigger share of the prizes and a seat at the rule-making table. Red Bull was the first to sign up with Ecclestone and quit the teams' union, followed by Ferrari.

F1 has been living with the consequences of this ever since. Ferrari, Red Bull, Mercedes and McLaren were handed sweeteners in the form of the annual "constructors' championship bonus", and McLaren and Williams receive 'heritage' bonuses on account of their longevity. Ferrari gets an even bigger one. Those teams outside this exclusive club therefore took a much smaller proportion of the prize fund than before.

Ferrari, Mercedes, Red Bull, McLaren and Williams, together with the highest-finishing team outside that clan, also gained votes in the newly formed Strategy Group, which was given sole responsibility for proposing rule changes and new ideas. Politics between those teams, the FIA and Ecclestone ensured this body remained dysfunctional throughout its existence. Those teams without voting rights – one of which, for a long time, was Force India, now known as Racing Point – had no say in how F1 was run.

Over the course of the past decade the Strategy Group has diluted the listed parts regulations for a number of reasons. There was pressure from the FIA and the commercial rights holder to lower the financial barriers to entry; the manufacturer teams saw an opportunity to open up revenue streams by selling designs and whole components to teams further down the food chain, and to extend their political influence. So long as the 'unlisted' parts were relatively generic, and conferred no performance advantage, where was the harm? And if the customer felt bound to be politically aligned with its supplier, so much the better.

“NOBODY HAD EXPECTED A NEW TEAM [HAAS] TO SHOW UP WITH THAT MUCH MANUFACTURER IP ATTACHED TO ITS CAR. THE CONTROVERSY NATURALLY INTENSIFIED WHEN THAT CAR PROVED COMPETITIVE “



Ecclestone managed to divide and conquer the teams using the 2013 Concorde Agreement

The shock came in 2016, when Haas entered F1 with a car which featured not only a complete Ferrari powertrain, but also as many other Ferrari components as Haas could legally obtain under the listed parts rules. Here was the unintended consequence of the list's dilution. Nobody had expected a new team to show up with that much manufacturer IP attached to its car. The controversy naturally intensified when that car proved competitive.

As successive Haas cars arrived bearing strong aerodynamic similarities to the equivalent Ferraris, momentum built to tighten the list once more. Brake ducts, once considered fair game for a customer supply, were now identified as performance differentiators because of their aerodynamic influence. This is what caught out Racing Point; it had previously bought its suspension and brake assemblies from Mercedes, but only used the designs for the front end because it was following a different aerodynamic philosophy. When it copied the Mercedes W10, adopting that car's low-rake aero map, Racing Point based its rear brake designs on those previously obtained from Mercedes – and which were now on the list of designs which had to be bespoke.

PEACE IN OUR TIME?

Racing Point avoided a tougher sanction because the FIA's own technical department had failed to spot the issue when examining the car in February, and because it conceded that the wording of the rules was too vague. Other teams – Renault, which had filed the initial protests against Racing Point, along with Ferrari, McLaren and Williams – thought the punishment toothless and said they would appeal it.

They have all now withdrawn or declined to lodge those appeals. Why? Quietly and behind the scenes, in order to expedite the signing of the new Concorde Agreement, for which the deadline was rapidly approaching. F1 and the FIA moved to settle the argument with as much mutual satisfaction as could be obtained.


It required compromise on all sides. F1 managing director of motorsports Ross Brawn has been a vocal supporter of the Haas model because it lowers the financial barrier to entry. More than anything else, F1 needs to attract and retain a healthy field of competitors.

It also wants to level that playing field, which is why the new financial settlement is more equitable and a new governance structure will replace the much-loathed Strategy Group. The FIA has committed to changing the rules – to outlaw wholesale copying or reverse engineering, whether that is done from photographs or by underhand co-operation between teams.

Renault said it lodged its protest because it saw this issue as vitally important for the future of F1. It also wanted to protect its ongoing investment in new design and manufacturing facilities at its UK base near Enstone.

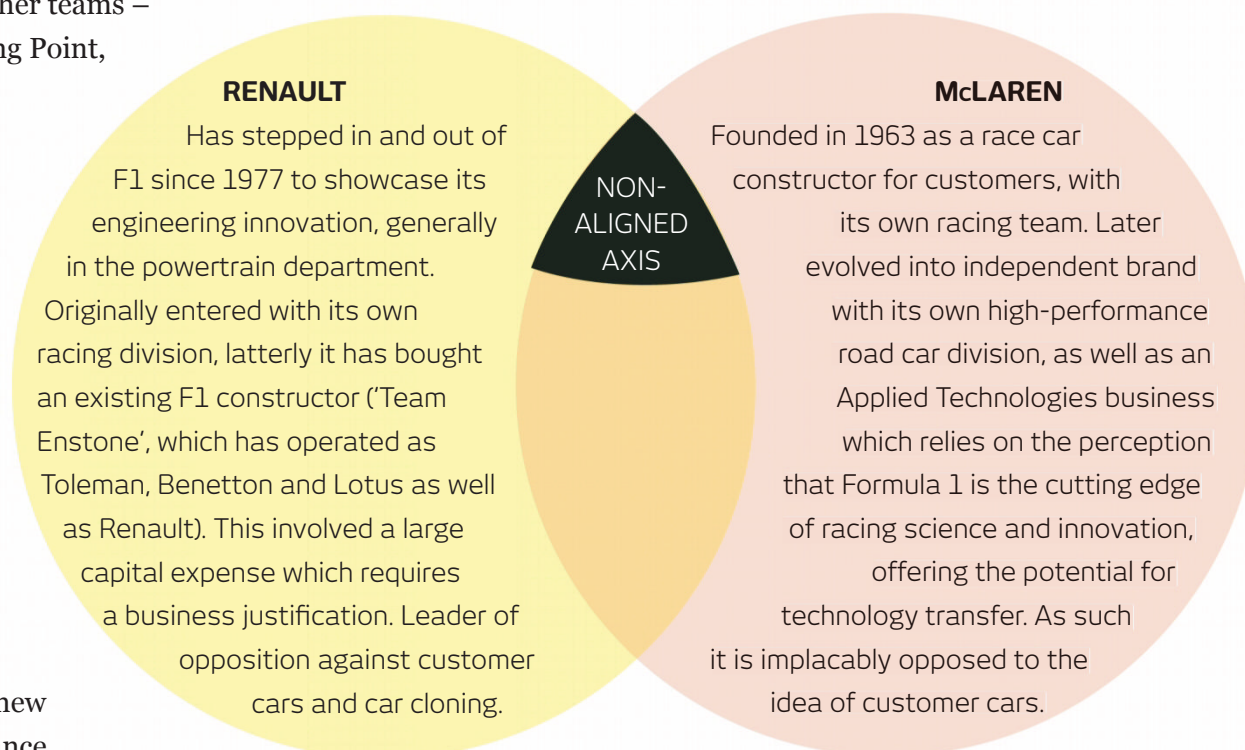
Williams remains a fiercely independent team for all its recent political alignment with Mercedes, and a staunch believer in designing and building as much of its own car as possible. Since it was in grave financial trouble and up for sale, it needed assurances that its business model wouldn't be rendered defunct by any further shifts in favour of customer cars. Some may find this a bit rich since the first constructors' trophy in the Williams cabinet was delivered by a car which was a clever copy of the Lotus 79...

McLaren, too, had been highly critical of Racing Point, and CEO Zak Brown publicly described the claim that the RP20 was designed solely via photography as "BS". The team – which, like Williams, has also required outside investment to continue this season – has now parked its complaints. Essentially, all parties involved in this case had compelling reasons *not* to go to court.

So, it's a win all round – for now. A grey area will surely exist in the new regulations surrounding copying, and then it will be up to someone to answer a vital question: how much is too much? 



Gene Haas surprised everyone when he entered F1 in 2016 using as many Ferrari parts as possible



Renault is anxious that its huge F1 investment, backed by president Jérôme Stoll, is protected

100





FORMULA 1'S SEVENTY GREATEST INFLUENCERS



PART 5 THE 1990s

SID WATKINS
MAX MOSLEY
HERMANN TILKE
PATRICK HEAD
NIGEL MANSELL
EDDIE JORDAN

FLAVIO BRIATORE
MICHAEL
SCHUMACHER
MIKA HÄKKINEN
MARIO ILLIEN

IF YOU THOUGHT THE DECADE OF EXCESS WAS OVER, THINK AGAIN. IN THE 1990s FORMULA 1 BECAME AN EVEN BIGGER BUSINESS, BUT WITH MORE MONEY AND POWER CAME MORE RISKS

WORDS RICHARD WILLIAMS

PICTURES



F1'S 70 GREATEST INFLUENCERS: THE 1990s

The death of Formula 1's most compelling performer on a bleak weekend at Imola overshadowed practically everything else that happened in grand prix racing during the 1990s. Ayrton Senna's appeal transcended nationality, reaching multitudes otherwise indifferent to motor racing, and the mystery of his fatal accident attracted worldwide attention.

The removal of the Brazilian's body from the wrecked Williams FW16 was supervised by **Sid Watkins**, F1's safety and medical delegate. Sixteen years earlier, Watkins had been the head of neurosurgery at the London Hospital when Bernie Ecclestone offered him a job through which attitudes to driver safety would be transformed. The unnecessary death of Ronnie Peterson following a first-lap crash at Monza in Watkins' first year accelerated the creation of new protocols that ensured expert medical treatment could arrive at the scene of an accident immediately and without obstruction. A medical car and a fully equipped helicopter became part of the grand prix scenery.

Fondly and gratefully known throughout the grand prix world as 'Prof', Watkins had become particularly close to Senna. At Imola, affected by Rubens Barrichello's heavy crash and the accident that took Roland Ratzenberger's life, Senna told Prof he didn't want to race the next day. "Give it up and let's go fishing," Watkins replied.



Professor Sid Watkins was responsible for many of the necessary medical protocols in F1 that are now taken for granted

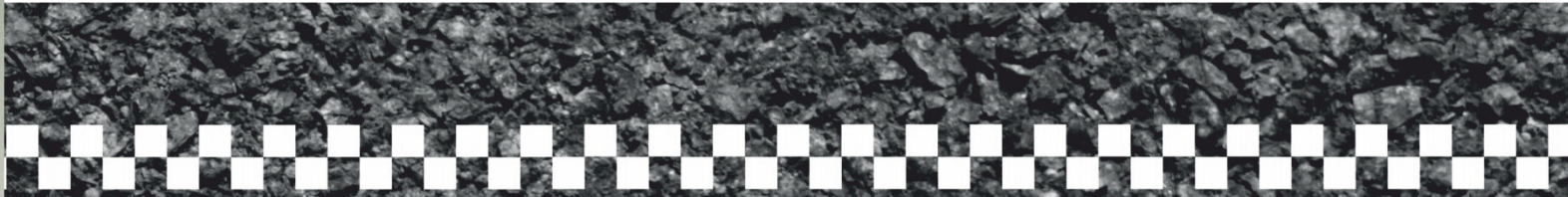


That was a decision beyond his mandate, but one reason the double fatality so shocked the world was that his work over the years had turned death on the track – once a regular feature of grand prix racing – into a rarity.

As the president of the FIA, Formula 1's governing body, and a long-time strategic adviser to Bernie Ecclestone, **Max Mosley** was a target of some of the outside world's criticism for the accidents at Imola. Neither man felt able to attend Senna's funeral. Many things they had done in F1 had irritated participants and enthusiasts alike, and now there seemed to be a chance to make them pay.

Mosley had driven in Formula 2 in the 1960s, but gave it up to become a partner in the new March company. That brought him into contact with Ecclestone, and together they guided the Formula One Constructors' Association through its long and ultimately successful battle with the FISA for control of F1, and specifically its commercial rights, which would eventually make many people very rich, including Ecclestone and Mosley.

In response to the tragedies at Imola, Mosley went to work on making it less likely that such terrible events would be repeated, introducing measures that included higher cockpit sides and safer circuits. After that Max turned his attention to safety on the public roads, enforcing stringent crash-test standards on reluctant and sometimes litigious manufacturers. Just as he had done when helping Ecclestone to see off potential schisms, Mosley used his training as a barrister to deflect and disarm contrary arguments. In recognition of this work, the French government made Mosley a member of the Légion d'Honneur. In 2009 he resigned the presidency following an exposé in the *News of the World* of his



Max Mosley (left) with FIA president Jean-Marie Balestre – the man he would eventually replace at the top of motorsport’s governing body – in 1981. Then they were on opposite sides of the FISA-FOCA war...

“A LONG-TIME STRATEGIC ADVISER TO BERNIE ECCLESTONE, MAX MOSLEY WAS A TARGET OF SOME OF THE OUTSIDE WORLD’S CRITICISM FOR THE ACCIDENTS AT IMOLA”

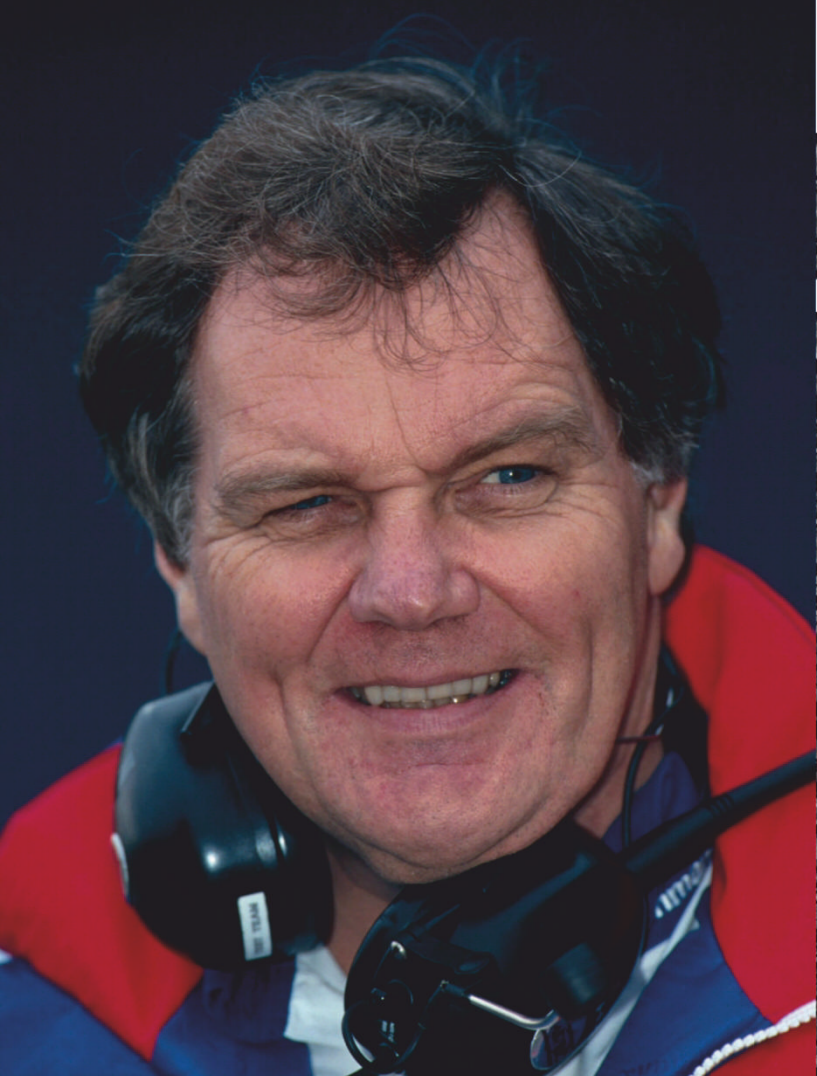
alleged sexual escapades and threw himself into another battle: against newspaper mogul Rupert Murdoch.

In the wake of the Senna accident, someone had to take on the job of making circuits more suitable for modern F1. **Hermann Tilke**, a German civil engineer, was commissioned by Ecclestone to modernise some tracks and design others from scratch. Tilke was on to a loser as far as purists were concerned. Over the years, however, his former critics have come to recognise his successes as well as those venues where the spectacle had clearly been devalued.

For all the tracks where racing is often neutered by a bland layout – Bahrain, Sochi, Abu Dhabi – there are others offering an interesting challenge, including the picturesque streets of Baku and the mix-and-match jigsaw of Austin. But acres of painted asphalt run-off are an offence to the eye and to the spirit of motorsport’s highest category. And it remains the case that the most treasured venues remain those with a heritage and an atmosphere going way ▶

His designs haven’t been to everyone’s liking, but not all of Hermann Tilke’s layouts are bland, featureless, copycat circuits





Patrick Head penned successful Williams cars and encouraged a raft of young designers



Following near misses with the team in 1986 and 1987, and a subsequent dalliance with Ferrari, 'Our Nige' returned to Williams to claim a much-deserved world championship in 1992

back beyond Tilke's arrival: Monza, Spa, Monaco, even the disfigured Silverstone. Criticising the commitment to award Tilke a virtual monopoly is easy, but it was not his decision to make the circuits fit the cars, rather than vice versa.

Senna had made the ill-fated switch to a new team in 1994 because he had watched the work done by **Patrick Head** at Williams, ushering Nigel Mansell and Alain Prost to successive titles in 1992 and 1993 in cars that seemed unbeatable. The son of a naval officer who had raced sportscars in the fifties, Head studied engineering before gaining his first experience of building racing cars with Eric Broadley at Lola. In 1977 Head joined Frank Williams' new team.

After working his way up through the lower formulae, Eddie Jordan arrived in F1 in 1991 with the beautiful Jordan 191. His team did win, but not until 1998, and by the end of 2005 Jordan had sold up



PATRICK HEAD
Innovative engineer and Williams co-founder

EDDIE JORDAN
Enigmatic team owner

NIGEL MANSELL
1992 champion adored by British fans



F1'S 70 GREATEST INFLUENCERS: THE 1990s

“DURING A PARTICULARLY COMPETITIVE ERA IN FORMULA 1, “RED 5” HAD PROVED THAT, EVEN IN THE ULTRA-CONFORMIST WORLD OF F1, BEING CUT FROM A MORE COARSELY WOVEN CLOTH THAN MOST OF HIS CONTEMPORARIES WAS NO BARRIER TO GREATNESS”

While Frank hustled, Patrick drew. In 1980 they won the first of nine constructors' championships and, with Alan Jones, the first of seven drivers' titles.

When Keke Rosberg and Nelson Piquet became their second and third champions in 1982 and 1987, Williams had established itself among the big teams of Formula 1. And in the early nineties, with Renault engines and help for Head in the shape of a young designer named Adrian Newey, they took the championship by the throat, thanks to the creative exploitation of new electronic aids, including highly sophisticated active suspension and traction control systems. Head was on the brink of adding a continuously variable transmission system when all such aids were banned for 1994.

Recovering from the loss of Senna, Head supervised the production of the cars in which Damon Hill and Jacques Villeneuve became champions in 1996 and 1997. Head's engineering expertise inspired the company's diversification into battery technology for electric vehicles and advanced military aircraft. After retiring in 2012, he was knighted in 2015 and returned to the team as a consultant in 2019. Head's legacy to Formula 1 can be seen in his fruitful mentoring of a generation of future technical directors, including Newey, Ross Brawn, Frank Dernie, Neil Oatley and Paddy Lowe.

No driver derived greater benefit from Head's work at Williams than **Nigel Mansell**. The rough-hewn Brummie had fought his way up through Formula Ford and F3 before getting his initial chance in F1 with Lotus in 1980, and then as number two to Elio De Angelis at the team from 1981-84.

Frank Williams hired Mansell in 1985 to drive alongside Keke Rosberg. Those who believed Mansell's lack of social graces was matched by a crude approach in the cockpit were confounded during his first season with the team when he took the spectacular FW10 to his first win, on his 72nd start, at Brands Hatch in the European GP.

Five wins in 1986 narrowly failed to bring Nigel the title, and six the following year – including a victory at Silverstone after which he was mobbed on the lap of honour – still left him 12 points behind his team-mate Nelson Piquet, who took his third world title.

For 1989 Nigel moved to Ferrari, where his fighting spirit was equally cherished by the Italian fans. But the arrival of Prost at Maranello in 1990 worked against his interests, and the following season Mansell rejoined Williams, sending his supporters into delirium when he finally clawed his way to the title with nine wins in 1992.

During a particularly competitive era in Formula 1, “Red 5” had proved that, even in the ultra-conformist world of F1, being cut from a more coarsely woven cloth than most of his contemporaries was no barrier to greatness.

Membership of the Piranha Club – as the Formula 1 team principals were known in the 1990s – must have seemed a doddle to **Eddie Jordan**, whose education had come at a Christian Brothers school in Dublin, where corporal punishment was a regular feature. In the 1970s he arrived in British racing – already with a short career as a bank clerk behind him – as a confident and ambitious figure, driving in Formula Atlantic and Formula 3 before hanging up his helmet to found his own team.

His talents included attracting sponsors and spotting emerging talent. The team hit its stride in 1983, when Martin Brundle finished a close second to Senna in the British F3 championship. Four years later Johnny Herbert won the title at the wheel of one of Jordan's cars. A move up to F3000 saw Jean Alesi crowned champion in 1989.

Jordan arrived in Formula 1 in 1991, with a singularly beautiful 7 Up-sponsored car designed by Gary Anderson. The 22-year-old Michael Schumacher made his grand prix debut with the team at Spa, creating a stir when he qualified seventh, but his clutch failed at the start. Before the grid formed up for the next race a fortnight later, Schumacher had been snatched by another team.

Several seasons of struggle failed to damage Jordan's optimism. His team's first victory came in 1998, when Damon Hill led Ralf Schumacher home at Spa, with the cars now decked in Benson & Hedges yellow. Heinz-Harald Frentzen would win two more races for the team in 1999. That, and Giancarlo Fisichella's win in a truncated Brazilian GP in 2003, would be as good as it got before Jordan banked a cheque for \$60m and the team became Midland in 2006. ▶

F1'S 70 GREATEST INFLUENCERS: THE 1990s

Controversy often stalked Flavio Briatore in F1 but success – such as Fernando Alonso's titles when Briatore was in charge at Renault – was never far away either



Schumacher's F1 debut came with Jordan in 1991. There were two titles for Benetton but it was with Ferrari that Michael soared to record heights



Without wishing to descend to cultural stereotyping, it can be said that Jordan's most obvious contribution to the paddock, apart from his colourful wardrobe and his drumming at Silverstone's post-race rock and roll concert, was the powerful stream of blarney that amply qualified him for a transition to the role of TV pundit. There must have been rare entertainment at FOCA meetings when the membership included not just the Irishman but his Italian equivalent, **Flavio Briatore** – the man who had snatched Michael Schumacher from under Jordan's nose in 1991.

That was the year after Briatore arrived in F1, brought in by Luciano Benetton, for whom he had been working after a somewhat murky early history as a ski instructor, restaurant manager, stockbroker and gambling syndicate member. Ignorant of almost every aspect of motorsport, 'Flav' formed an early friendship with Ecclestone, who spotted a kindred spirit. Briatore was never reluctant to suggest ways of jazzing up the spectacle – by reversing the grid, for instance – which seemed scandalous to those who cherished Formula 1's traditions.

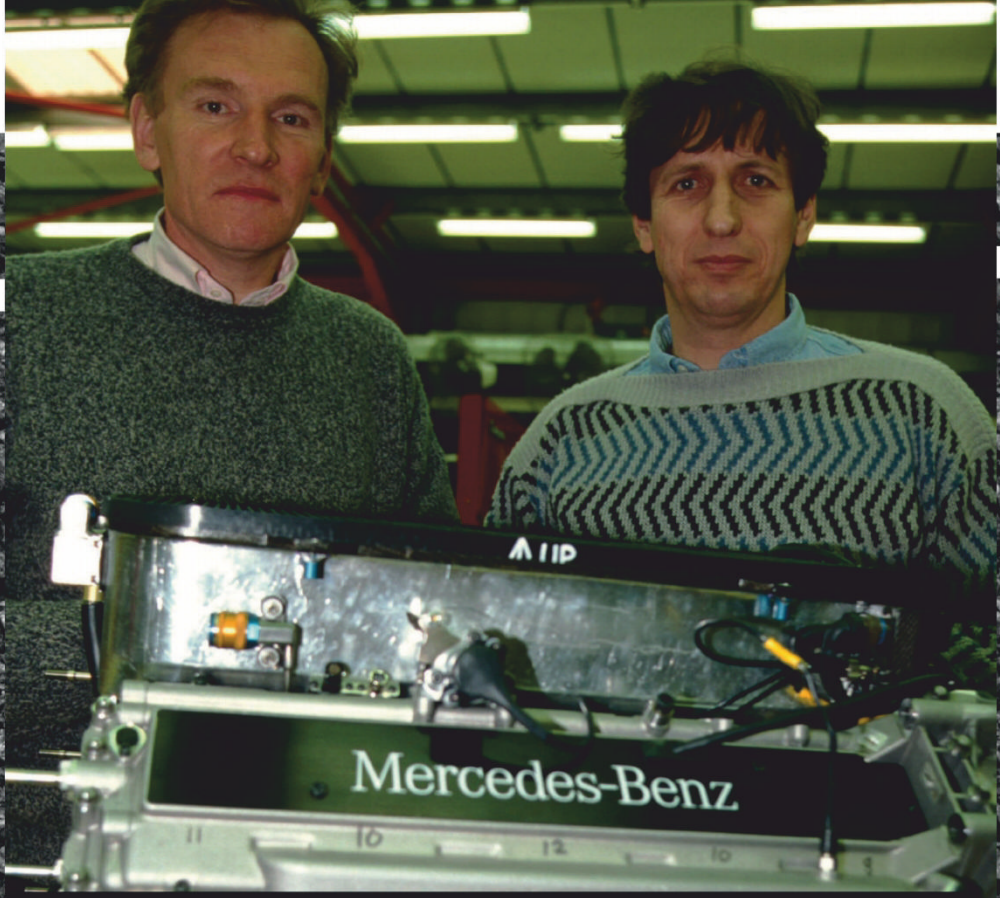
Often at the centre of controversy, Briatore supervised Schumacher's first two championships with Benetton in 1994 and 1995, left in 1997, and returned when the team was sold to Renault three years later. Flavio was in charge in 2008 when Nelson Piquet Jr crashed on purpose in Singapore in order to fix a win for Fernando Alonso, the team's number-one driver and Briatore's

protégé. Although an indefinite ban from Formula 1 was lifted on a technicality, Briatore limited his subsequent involvement in F1 to criticisms from the sidelines while running his night clubs, restaurants, boutiques and other enterprises, happy to be living life among the super-rich.

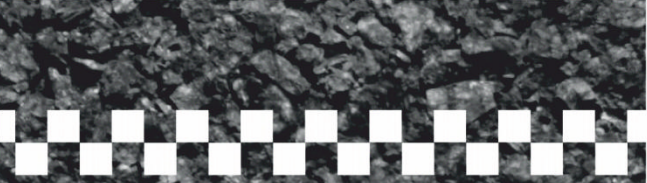
After an apprenticeship in karting, **Michael Schumacher** had come to prominence as a member of the Mercedes-Benz junior team in the World Sportscar Championship. He took his first grand prix victory with Briatore's Benetton team at Spa in 1992, his second season in F1, an early demonstration of Michael's skill in wet conditions. Two years later Schumacher took his first championship, winning six of the first seven races and enduring controversies over suspicions that his car was using banned traction control systems and over the contrived collision with Damon Hill, his rival for the title, during the final round in Adelaide.

There was less controversy over Schumacher's second title, in 1995; a coming-together with Hill at Silverstone was definitely the Englishman's fault. But in 1997 Schumacher's blatant attempt to run Jacques Villeneuve's Williams off the track could not prevent the French-Canadian from taking the championship.

A switch to Ferrari in 1996 would bring Schumacher record-shattering success. To achieve it, however, he had to show patience while the team was rebuilt over a period of four years. It was there that the best of him was to be seen: a man who stayed late at the



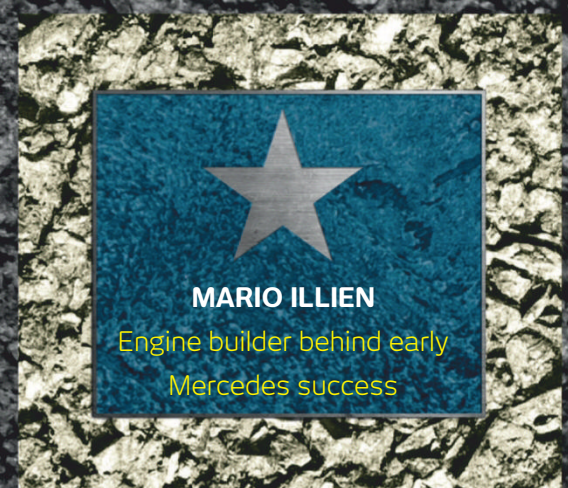
Mario Illien (right) with Paul Morgan, founders of Ilmor Engineering, which eventually became Mercedes High Performance Powertrains



MIKA HÄKKINEN
Double champion and
Schumacher's nemesis



Mika Häkkinen had many a great tussle with Schumacher in the late nineties, then took a sabbatical in 2002 and, despite numerous talks, surprisingly never returned to F1



MARIO ILLIEN
Engine builder behind early
Mercedes success


track watching his car being prepared by mechanics who knew that for every extra hour they put in, Schumacher would find a fraction of a second in speed on the track.

And that, through 100% commitment, was how those career statistics were built: seven world titles, 91 wins and 68 pole positions. It was a record that nothing – neither an unsuccessful F1 comeback with Mercedes nor a tragic skiing accident in 2013 – could begin to dim.

Schumacher might have had at least one more title to his name had **Mika Häkkinen** not delayed the Ferrari renaissance by winning the last two championships of the 20th century. After graduating from karting, winning the British F3 title and putting in two seasons in F1 with the struggling Team Lotus, the Finn joined McLaren as a test driver in 1993. He became a favourite of Ron Dennis and, after the termination of Michael Andretti's short, unhappy stay, was promoted to the race team at the 1993 Portuguese GP. Häkkinen's first victory came at Jerez at the end of 1997, a McLaren one-two (with David Coulthard) repeated in Melbourne at the start of 1998, the first of eight wins that took Mika to his first title in the Mercedes-powered MP4/13. Schumacher was that year's runner-up, but the German's challenge the following year ended midway through the season with a broken leg in an accident at Silverstone, at a moment when Häkkinen was ahead by three wins to two. Two further wins gave Mika his second title.

Two years later, with Schumacher and Ferrari well into a run of five consecutive titles, Häkkinen announced his intention to leave McLaren at the end of 2001 and take a sabbatical from F1. He had won his penultimate GP, at Indianapolis, but never returned to the top flight, despite talks with BAR, Williams, and, eventually, McLaren again. Three seasons in DTM and a handful of rallies were the last that would be seen of a driver who, in true Finnish style, always loved a tail-happy car.

Before forming its partnership with McLaren, Mercedes' return to F1 had come as the engine supplier to Sauber. The 3.5-litre V10 was designed by Ilmor Engineering, a company formed by **Mario Illien**, a Swiss engineer, and Paul Morgan, initially as a project to build an Indycar engine with the help of Roger Penske and General Motors.

Illien and Morgan had met while working on racing engines at Cosworth, and by 1991 they were supplying F1 engines to Leyton House. In 1993, with Mercedes as their new partner, they were seeing the beginnings of success in Europe and America, where their engines won the Indy 500 in 1994. Ilmor's first F1 win came with David Coulthard's McLaren-Mercedes in Australia in 1997, followed by Häkkinen's successes. After Morgan was killed in a plane crash in 2001 and Mercedes took over the whole of the company in 2005, Illien moved on to other projects, but his DNA is in the engines that have propelled Lewis Hamilton to every one of his victories, carrying a project that began at the start of the nineties into the 21st century. 



WHAT

THE HISTORY OF WILLIAMS

GOES

PART 6: 2006-13

UP...

Despite flashes of potential, even of brilliance, in the seasons immediately after the BMW divorce, at the turn of the decade Williams fell into a trough of underachievement from which it has struggled to extract itself...

WORDS DAMIEN SMITH

PICTURES



motorsport
IMAGES



After two seasons with Williams with little to show for it, Webber decided that it was time to move on and jumped ship to Red Bull for 2007

Independence is a wonderful thing. To control your own destiny and enjoy the freedom that comes with self-sufficiency – it's a blessing to be your own master. But in F1, independence can also mean weakness: 'indie' teams lack the cushion of manufacturer support and tend to pay for everything themselves (or at least through sponsors, if they can find them), including the biggest outlay: engines. Such teams tend to lack power – both metaphorically and literally – to compete at the sharp end, on the track and in boardrooms. It's an unequal struggle, a tough, on-the-edge existence. In F1, sometimes independent freedom isn't all it's cracked up to be.

Frank Williams understands the indie life because it's all he's really known. Even when blessed with manufacturer engine power, from Honda in the 1980s, Renault in the 1990s and BMW in the 2000s, Williams still went its own way, calling the shots on its own terms – which perhaps explains why its last manufacturer relationship, with BMW 15 long years ago, withered away. Old habits die hard when you've battled like hell just to exist, never mind make the grid, which was the Williams way through the 1970s when Frank was starting out.



Rosberg junior (left) partnered Webber for 2006 as Williams started life without BMW. The early signs were promising for the team

In 2006, in the wake of a damaging BMW divorce as the German car maker took a leaf, chose its own way and bought Sauber, Frank Williams and his partner Patrick Head found themselves going back to basics. But Formula 1 had come on a few yards since 1977 when they'd run a customer March for Patrick Nève, and so had their business which had moved from Didcot to a bigger facility in Grove, Oxfordshire back in 1996. As F1 downsized from 3-litre V10s to 2.4-litre V8s in a bid to cut speeds and costs,

Williams looked to a faithful supplier from the past to provide its thrust. Cosworth's V10 had won just two grands prix in the V10 era – Johnny Herbert in a Stewart at the Nürburgring in 1999 and Giancarlo Fisichella in a Jordan in Brazil in 2003 – after its last V8 had powered Michael Schumacher's Benetton to the title in 1994. The new regulations invigorated its hopes of a meaningful return to the front line, in harness with one of the 'grande' teams that had first made its way with the venerable DFV in the back of an FW06 all those years before.

But a tide of goodwill from paddock insiders and fans alike wouldn't be enough to carry the new Williams-Cosworth accord to race-winning heights. Still, these two special organisations had their moments, as GP2 champion Nico Rosberg made his F1 graduation beside Williams sophomore Mark Webber. A chip off the old block? Not really. From the start, Nico was a smooth, precise operator far removed from the jazzy, free-wheeling troubadour that had made old man Keke an all-time Williams favourite. Hell, he didn't even have a 'moose-tache'.

The lad was quick though. Fastest lap on his debut in Bahrain set an early marker, as Webber and Rosberg racked up points in sixth and seventh. Promising – but ultimately



A deal to use Toyota power from 2007 onwards was confirmed at the end of 2006 and did result in some improvement in Williams' on-track fortunes

misleading. They lined up an impressive third and fourth at Sepang, Nico ahead of Mark, but both were out by lap 15, Rosberg with an engine failure, Webber with faulty hydraulics. This was the real story of a season dogged by unreliability. Indie cottage-industry charm was only ever going to stretch so far and financial reality began to bite with Cosworth engines to pay for and the loss of a big blue-chip sponsor in Hewlett-Packard.

Webber was soon on his way to Red Bull for 2007, frustrated by the failures. At home in Australia he'd briefly led during the pitstops before the gearbox broke, and was even a genuine contender in Monaco until flames from the exhausts ended his hopes. Closer in character to Alan Jones than Nico ever was to Keke, Webber could have been another Williams great – had he been given a competitive car.

The Cosworth year proved little more than a stop-gap, as Williams embarked on three seasons of stability with Toyota V8 power. There was new promise in 2007 as technical director Sam Michael, chief designer Ed Wood and aerodynamics chief Loïc Bigois produced the purposeful FW29 for Rosberg and new team-mate Alex Wurz. The combination was good enough for a much-improved fourth in the constructors' standings (after McLaren's disqualification

following the 'spygate' affair), with Rosberg making by far the more significant contribution with seven points finishes, including a fourth in Brazil. Wurz did at least land an unlikely podium in Canada, one-stopping from 19th on the grid, but before the season was finished the lanky Austrian admitted the game was up as he struggled to get to grips with Bridgestone's control tyre, in the wake of Michelin's F1 withdrawal. By the Japanese GP, this year held at Fuji, he'd stepped down, destined for sportscars and a more successful Indian summer during which he'd win Le Mans for a second time, with Peugeot.

The man who replaced him was a Toyota protégé – and the son of the Honda protégé Williams had rejected 20 years earlier, thus triggering the end of its first Japanese engine partnership. Compared with father Satoru, Kazuki Nakajima showed genuine long-term promise and would fit easily into Williams for two full seasons. The first, in 2008, netted five points finishes, but he raced in the shadow of Rosberg who was showing the kind of potential that would eventually prick Mercedes' interest. Nico would score a pair of podium finishes, one in Australia and a best-yet second place at the first F1 night race in Singapore – scene of a suspicious crash by Nelson Piquet Jr which just happened to gift team-mate Fernando ▶



A return to Cosworth engines was never likely to rekindle the glory days of the early 1980s and was only ever a stop-gap move



Monaco in 2006, when Webber was in with a chance of a great result, was one of 11 retirements he endured that season

Alex Wurz scored a surprise podium at the Canadian GP in 2007, but it was the highlight of a disappointing final season in F1 for him



**“WILLIAMS
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SO DID BRAWN GP,
ONLY BRAWN
DID IT BETTER”**



Alonso a surprise victory. In 2009, when the truth of ‘crashgate’ emerged, it was deemed too late to strip Alonso of his ill-gotten win – even if medals are ripped from Olympians’ necks if drug offences are discovered years later... Singapore 2008 should have been Rosberg’s first victory.

F1 was in turmoil back then, caught between a crashing economy, a malevolent FIA president ‘tied up’ in a tabloid sex-scandal sting which embarrassed F1 (if not a Teflon-coated Max Mosley himself), and the manufacturer-led teams determined to grab power and money from the

faceless owners of a sport effectively sold down the river by Bernie Ecclestone. Frank Williams, ever alert to the best possible deal for his team, weighed up his options. Back in 2006, he’d already pulled in a smooth-talking CEO to help guide the company through F1’s increasingly shark-infested waters. Ex-Eton and Cambridge with a history in law, investment banking and the Rio Tinto Group, one of the world’s largest mining corporations, Adam Parr wasn’t very ‘F1’ – at all. But Frank was impressed. And now a quietly imposing Austrian called Toto Wolff took a minority company share, dipping his

Rosberg showed promise at Williams and when Mercedes decided to re-enter F1 in 2010 he was snapped up by the German team





Rosberg's second at the 2008 Singapore GP *could* have been his first F1 win had Fernando Alonso been stripped of the victory following 'crashgate'

toe into those potentially deadly F1 waters for the first time. We'd soon see more of him.

On track in 2009, a wholesale technical rules overhaul, the biggest in a generation, stripped

After his qualifying heroics in Brazil, Hülkenberg dropped down the order during the race, although he had an interesting tussle with Lewis Hamilton

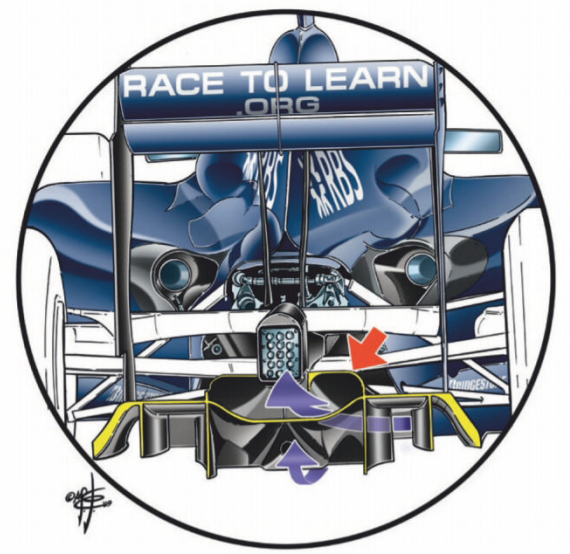
away downforce (at least until the teams quickly clawed it back) and reintroduced slick tyres in the hope improved mechanical grip would revive a stale sporting spectacle. Here, Williams proved it could still be canny, designing a double diffuser into its new-look FW31. So did Williams' engine supplier Toyota, so did Brawn GP, newly risen from Honda's ashes – only Brawn did it better. Much better. The team that would become Mercedes swept to a famous drivers' and constructors' double, courtesy of Williams old boy Jenson Button (buying himself out of his contract to return to the team in 2006 had patently been money well spent). As for Williams, it laboured as the seventh-best team of the year, Rosberg proving consistent while Nakajima failed to trouble the scoreboard. Like Wurz, he'd reinvent himself as a brilliant sportscar racer, with Toyota, while Rosberg would sign up for the emerging Mercedes super-team, his four-year Williams stint at an end. A stretch identical in length to his dad's back in the 1980s might not have garnered the same wins and title success – but it certainly achieved what Nico needed to make the crucial next step.

So Williams featured an all-new line-up for 2010 – and once again, it called on Cosworth for power. The Toyota supply had worked well – until the manufacturer pulled the plug on F1 completely in the wake of the credit crunch. It would leave grand prix racing winless and as something of a forgotten entity; strange given is status as one of the world's largest and most influential car makers.

Buoyed by his return to race-winning form at Brawn, loveable veteran Rubens Barrichello now joined a team he had always admired and respected, beside a promising rookie tipped by some to be the next Michael Schumacher (who was also back on the grid in 2010, in a Mercedes). Nico Hülkenberg seemed to have all the right ingredients – even down to Schumi's manager, ▶



Hülkenberg impressed against team-mate Barrichello in 2010 and claimed his only pole to date in his single season with Williams



Williams was another of the teams to run a double diffuser in 2009, but the FW31 still failed to sparkle





Parr, Head, Wolff and Sir Frank at the 2011 stock exchange announcement, but by year's end Head had stepped down from the Williams board

Willi Weber. What could he do in the new Williams FW32?

The answer was seven points finishes and what is still (at least at the time of writing) his greatest F1 achievement: a rain-affected pole position at the season-ending Brazilian GP. Nico had no way of knowing that it would never get any better as he headed for Force India and a decade of midfield toil. As for Barrichello, he scored 10 times that season, including a pleasing fourth place at Valencia's European GP – and survived a nasty but all too familiar chop in Hungary from his old Ferrari mucker Schumacher. The team took a respectable sixth in the constructors' table, lagging behind Renault but a point ahead of Force India. Then the wheels fell off.

The 2011 season was nothing short of disastrous on track, even if Parr would report a positive financial year thanks to newly minted sponsorship dollars from Venezuelan oil giant PDVSA, who pushed the new GP2 champion into a Williams seat. It had taken Pastor Maldonado four seasons to conquer the F1 breeding ground, but now he was ready for the premier league –



Maldonado's unexpected 2012 Spanish GP win was the team's first since 2004 but the later pit fire took some of the gloss off the celebrations

Maldonado brought welcome funds from PDVSA for 2011 and showed a decent turn of pace but also gained a reputation for crashing

wasn't he? Parr bristled at the pay-driver jibes, but given the state of the team out on track it was no wonder Maldonado was made most welcome.

Williams finished ninth in the table, with just five points – four from Barrichello, one from the new boy. Desperately, it was the worst performance in the team's hallowed history. Tech boss Sam Michael duly fell on his sword, while a new broom swept in Mike Coughlan – rehabilitating from his four-year ban for the McLaren/Ferrari 'spygate' scandal. Jason Somerville was promoted to head of aero and Mark Gillan named chief operations engineer. And in a season when Parr publicly floated Williams on the stock exchange, Patrick Head finally stepped down from the board.

By now it had been some time since Patrick had been on the F1 front line, but in partnership with Frank he'd personified what Williams stood for over three decades. He'd given and achieved so much, no one could begrudge him a life away from the claustrophobic paddock. But he sure would be missed.

Barrichello too would be gone at season's end, but his sign-off was abrupt and lacked the respect he deserved after 19 seasons on the road in F1. Always a sensitive soul, he was unsettled by his friend Sam Michael's departure and Rubens knew only too well how bad an F1 car he'd been



saddled with in the FW33. He'd later admit Adam Parr wasn't much to his tastes either, and he knew what was coming. The call came from Frank himself, Rubens recalling that the tone was business-like, more than a little chilly. What a shame it came to this – although Barrichello, being the man he is, holds no grudges.

What next? The new technical team set to work on regeneration in harness with Renault customer power. A revival of 1990s dominance was clearly a stretch... but still, a happy – and let's face it, utterly shocking – surprise was around the corner. And there was more upheaval in the boardroom. Now nearing his 70th birthday, Sir Frank – a proud knight of the realm since 1999 – followed his friend Patrick by stepping back from the front line, his daughter Claire answering the call to maintain the family interest. Also, Parr was gone. In the midst of convoluted Concorde Agreement negotiations with Ecclestone, the CEO didn't exactly win favour with F1's tsar, and internal friction with the board led to Parr's resignation. Some people pass through F1, never quite looking at home in this closed-off, strange little world that even now has its own specific way of doing things. Parr was always one of those.


Then, six weeks after Parr's departure, Williams won a race. Maldonado had been showing signs of improvement in a refreshingly unpredictable 2012 season in which four different drivers won the first four races. The Venezuelan stretched that run to five on

**“MALDONADO
WOULD NEVER
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STILL, HE'LL ALWAYS
HAVE SPAIN 2012”**

an unforgettable weekend in Spain. First he inherited pole from Lewis Hamilton after the McLaren was relegated to the back for running out of fuel after its Q3 run. Surely Maldonado would fade in the race though, wouldn't he? He would not. Instead, he drew inspiration from lord knows where to regain a lead he'd lost to Fernando Alonso at Turn 1 and parry every attack from Ferrari's warrior to shock not only

the partisan crowd, but also the whole F1 world. No ifs, no buts, he drove beautifully that day to deliver a first Williams win since Brazil 2004 – and to date it remains the team's 114th and most recent victory.

Ninety minutes after the race, as the team deservedly soaked in that sweet winning feeling, a fire swept through the team garage, fortunately without causing serious injury. Somehow, it summed up Williams in this period: even when on the up, something unexpected and difficult would floor it. Over the course of the season, Bruno Senna – nephew to Ayrton – added consistent points, but Maldonado would never come close to matching his day of days. Still, he'll always have Spain 2012.

Once again, reality bit hard in 2013 as the team slumped back to equal its nadir of two years earlier, as a promising young Finn called Valtteri Bottas stepped in for Senna. Wolff quit his position for a chance to head Mercedes' F1 team and finally the Venezuelan oil dollars began to run dry. But yet another new dawn promised hope. Jean Todt's more measured approach to the FIA presidency since winning his mandate to rule back in 2009 now ushered in a new, high-tech hybrid era that promised to make F1 more 'relevant' to a fast-changing world. Williams had taken a battering during the V8 era, but now, armed with a Mercedes powertrain that simply embarrassed Ferrari and Renault, indie freedom would no longer equate to weakness. It was time for 'happy hour'. Martini cocktail, anyone? 

NIGEL ROEBUCK'S FORMULA ONE HEROES

JAMES HUNT

PICTURES  motorsport
IMAGES

IT WAS
IN JUNE
1993 - TWO
DAYS AFTER...

the Canadian Grand Prix – that a heart attack claimed James Hunt. He hadn't been in Montréal, instead doing the BBC commentary with Murray Walker from London. I got back on the Tuesday morning, and towards lunchtime had a call from *Autosport*, informing me of the news, and requesting I write an obituary forthwith.

It was not until the next day that I got around to my answering machine, and the last message stunned me: "Nigel, J. Hunt calling. Six twenty-five, Monday evening. Just calling for a gossip. If you're back tonight, give me a shout – failing that, tomorrow perhaps. Bye..."

Having covered F1 through the 1970s, I'd grown sadly accustomed to losing friends, but Hunt didn't die violently, and you don't otherwise anticipate the loss of someone of 45 – particularly one who had cleaned up his act, even taken to cycling everywhere.

It was on two wheels, in fact, that Hunt had arrived for Denny Hulme's memorial service the previous autumn. As we milled around outside the church, James arrived on a 'Miss Marple' bike, complete with basket on the front.

James, who loathed formality, was less than suitably attired, but he knew how to behave when it mattered: after disappearing briefly, he returned, immaculately suited. Following the service, he reversed the process, then pedalled off again, back to the lovely, slightly shabby, house in Wimbledon where he lived in splendid anarchy.

I was much upset by his death, although in truth it was only after the end of his F1 career that we had become friends. During his racing days some of the hangers-on around him set your teeth on edge, "It was only then," he once said to me, "that I started to relax – and only then, actually, that I really began to love motor racing. I'd never really liked it when I was doing it."

Hunt's time at the top level, though spectacular, was brief: his first grand prix was Monaco in 1973, and he called it a day at the same race six years later. There were three seasons with Hesketh, three with McLaren, and seven races with Wolf, during which time he won 10 grands prix and a world championship,

Despite their famous 1976 rivalry,

Hunt and Lauda were good friends



He may have been unconventional at times but Hunt made the most of his talent in a relatively short career in Formula 1

clinched on a chaotic afternoon at Fuji in 1976. Never as complete a driver as his consummate rival Niki Lauda, on raw speed Hunt unquestionably had the edge.

If James in combat mode was indeed a sight to see, he was always brutally frank about himself, as aware of his failings as his strengths.

"I was a good racer, I think, but never much of a worker, never that much involved, outside of when I got in the car," he said. "I certainly wasn't the sort of driver who thought about racing all the time, and I thought that worked for me. In bad times, though, some drivers will get stuck in, and regenerate enthusiasm in the team, but I was never the man to do that – I always needed to feel I could win, and latterly I didn't have the car to do it. No way I was prepared to go on risking my life to finish seventh..."

In reality, Hunt was among the bravest of drivers. Yes, he was invariably sick before a race, but it was from tension rather than fear. Once in the car, the nerves evaporated, for his natural ability was high, his racing brain acute. Few could read a race like James.

He loved to talk about his days with Lord Alexander Hesketh's team. After a troubled start to Hunt's F3 campaign in 1972, it was decided to do F2, where results came in equally short supply.

"We ran a Surtees with a Ford engine, but neither were what

you needed,” James recalled, “so Alexander then took the rather intelligent view that if we were no good at F2 we might as well do F1! You could do it for about 30% more, and his philosophy was, ‘If we’re going to make fools of ourselves, at least let’s do it in the real thing.’”

Hence, for 1973, Hesketh purchased a new March, and as the season progressed the team, for all its attendant fripperies, ceased to be a joke: by the time of the British Grand Prix Hunt was among the frontrunners.

“At Silverstone we were competitive,” Hunt remembered, “but I didn’t have the confidence to mix it with the three in front of me – all I did was follow them round. Plus, we didn’t want a crashed car, because we didn’t have a spare. In my first year I was not encouraged to race...”

By season’s end James was right there. At Watkins Glen he finished at the heels of the winner Ronnie Peterson, and for 1974 Hesketh Racing built its own car, designed by Harvey Postlethwaite. Apart from a victory in the International Trophy at Silverstone, the season was largely barren, but the following year brought Hunt’s first grand prix win, following a race-long battle with Lauda at Zandvoort. “For the first time,” Hunt said, “I won a race more with brain-box than balls.”

At the end of that year came his big break. When Emerson Fittipaldi unfathomably left McLaren to join the team set up by his brother, the management signed Hunt. There were six wins – and the title – in 1976, three the year after and then... nothing more. In 1978, a season dominated by Lotus, McLaren was not competitive, and James’s enthusiasm evaporated.

A parting of the ways was inevitable, and he joined Walter Wolf

“

IT’S A FACT THAT I WAS GETTING SCARED OF HURTING MYSELF

JAMES HUNT

”

Racing, but the car was only so-so, and after seven races Hunt called time on his career.


“It’s a fact,” he said, “that I was getting scared of hurting myself. I don’t think it would have happened in a car that could win, but I didn’t have that in my last couple of years, and I was never the type to get pleasure from simply being a racing driver. When you’ve got the ability, driving a racing car is like riding a bike – you don’t get worse at it. It’s only your head that moves around.

“In my book, driving at ten-tenths is no more dangerous than at seven-tenths – I mean, how is an accident at 167mph going to be any better than one at 170? For me, driving at the limit didn’t change the risk. Whenever I made mistakes on my own, it was when I wasn’t trying – wasn’t *concentrating* enough – so it was always more likely I’d shunt in an uncompetitive car.”

Once out of the cockpit, James joined the BBC, and, with his dark brown voice and irreverent humour, developed into one of the great commentators. As with Martin Brundle today, there was always the substance of personal experience.

Predictably, James was fearless in his opinions: “I won’t compromise by saying things I don’t mean – what tends to happen, in fact, is that I compromise myself by saying exactly what I think.”

It was an irony that towards the end of his short life Hunt began working hard on his fitness, renouncing both tobacco and alcohol, previously staples of his existence. “The tail,” he smiled, “was starting to wag the dog.” Similarly, he made no attempt to hide that he was much less well off than he had been. There was never a grain of self-pity.

In a world ever more bland, James was a true free spirit, still missed by all who knew him, some of whom, it must be said, always suspected he might leave the party early. As he said, “It’s always the bores that stay to the end, isn’t it?” 

After winning the world championship in 1976, Hunt claimed his final three F1 wins with McLaren the following season



MCLAREN



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A
CAR**

No. 91

WORDS
STUART COOLING
PICTURES
JAMES MANN

MP4/2

A double title-winner that set the perfectionist template for Ron Dennis-era McLaren



McLaren's 1981 MP4 – later renamed the MP4/1 – is one of a handful of cars which can legitimately be claimed to have changed the face of Formula 1. Its sequel was naturally less revolutionary – but ultimately proved to be far more successful as visionary designer John Barnard rigorously eliminated the shortcomings of the original.

With the MP4/1, Barnard not only made full carbonfibre construction *de rigueur* if you wanted to be competitive in F1, he also definitively swept aside a number of cherished garage traditions. For years Barnard had been vexed that mechanics were responsible for fabricating various elements of the car, such as wing brackets and so on; it was craftsmanship, yes, but it was also impinging on an area Barnard considered to be the designer's bailiwick. The MP4/1 was a turning point on the road to the supremacy of the design office, a state of affairs in which no element of the car is not the subject of dozens of carefully optimised CAD prescriptions.

And yet this carbonfibre vision of the future was carrying historical baggage in its engine bay: the Ford-Cosworth DFV, the architecture of which dated back to the 1960s. The Cosworth V8 had democratised F1, enabling independent teams to access affordable, durable power, but by its very ubiquity it eliminated an element of competitive variation. Barnard's MP4/1 concept had offered a comprehensive answer



“IT WAS A COSTLY, RISKY ENTERPRISE – BARNARD ENVISAGED MP4/2 AS THE ULTIMATE GROUND-EFFECT CAR”

to that puzzle of how to unlock the 'unfair advantage', given engine parity: make a lighter, stiffer car. Now, though, turbo powertrains were nudging the Cosworth towards obsolescence. In his quest to build the perfect car, Barnard envisioned something suitably bespoke for the MP4/2.

These were times of rapid change for McLaren itself as title sponsor Marlboro engineered a shotgun marriage in 1980 between the struggling McLaren organisation and Project Four Racing, an ambitious outfit run by mechanic-turned-entrepreneur Ron Dennis. It's fair to say that Dennis held his new partners in low regard and set about remodelling the team in his own perfectionist image, hiring the like-minded Barnard to execute what Ron would no doubt call a "paradigm shift" in F1 design. And even before Barnard's MP4/1 hit the track, the two men were turning their attention to the next major hurdle: what turbocharged powertrain could they put in the MP4/2?

While McLaren's old guard, represented by long-time Bruce McLaren lieutenants Teddy Mayer and Tyler Alexander, pushed for an existing powertrain, Dennis and Barnard pushed back. Ferrari's V6 turbo was obviously off the table. Barnard rejected the Renault V6 and BMW's inline-4 on account of their inherent compromise – one originally built for sportscars, the other derived from a road-car unit, and neither designed to act as a fully stressed element of the chassis.

Porsche had no interest in returning to Formula 1, but had considerable expertise in turbocharged powertrains from sportscar racing – and had a customer engineering facility it was keen to develop as a profit centre. By mid-1981 Dennis had concluded an agreement for Porsche to design a new F1 engine to Barnard's specifications, provided McLaren underwrote the costs. Ron's next task was to find the money, since Marlboro's coffers were not bottomless. Fortunately, Dennis was able to entice Williams sponsor Mansour Ojeh to come aboard as a partner and add the name of his Techniques d'Avant Garde investment vehicle to the finished engine.

It was a costly, risky enterprise, and the development process was fraught. Barnard envisaged the MP4/2 as the ultimate ground-effect car, and to that end he prescribed

MCLAREN MP4/2

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a short, narrow engine with ultra-tidy cooling and turbo plumbing so that the chassis could accommodate long, straight and deep underbody venturi. He mandated the crank height should be the same as the DFV's, and he policed Porsche's interpretations of his scrupulously laid out dimensions ruthlessly and often rebarbatively.

Veteran Porsche engineer Hans Mezger's team finally managed to satisfy Barnard with the finished product, an 80-degree V6 boosted by twin KKK turbochargers and fed by a sophisticated new Bosch fuel injection system. Dyno testing began in late 1982, as Dennis bought Mayer and Alexander ▶



out to take full control, but F1 politics would generate another obstacle for Barnard's ambition: the elimination of ground effects thanks to a new rule for 1983 mandating every car had to have a flat bottom. McLaren contested 1983 with a revised version of the MP4/1, powered by the new Cosworth DFY, as work progressed on MP4/2 and the engine that would propel it.

This would not come soon enough for one of McLaren's drivers. Dennis had lured double world champion Niki Lauda out of retirement for 1982. The money was good, but Lauda was sold on the TAG-Porsche concept. By mid-1983 he was beginning to chafe impatiently for the new engine as turbocharged cars ran rampant, and Renault's Alain Prost and Brabham's Nelson Piquet carved up the wins between them – reliability permitting. Having failed to lobby Dennis and Barnard to introduce the V6 early – in effect shoehorning it into the D-spec MP4/1 – Lauda went over their heads, applying pressure via Marlboro, which threatened to pull funding if Lauda's demands weren't met.

"Barnard said the team wasn't going to race the turbo car before 1984 because he wanted to make the perfect car," Lauda later recalled. "But I went to see Ron and told him that Ferrari would win everything in 1984 if we didn't get on and start developing the TAG turbo. But John still wouldn't agree – so I had to eventually go behind their backs to Marlboro. Barnard was furious – he hated me for that!"

Furious or not, Barnard and his team turned around a TAG-powered prototype, MP4/1E, for Lauda to drive at the Dutch Grand Prix. A second car was ready for John Watson at the next round, and Barnard's disgruntlement was eased somewhat as testing under race conditions helped flush out teething troubles relating to the electrics, fuel system and valve timing.

MCLAREN MP4/2

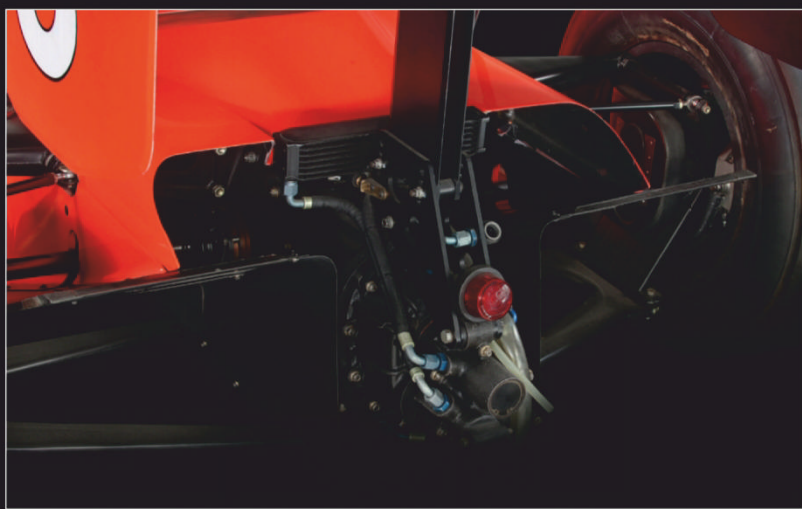
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Circumstances might have militated against Barnard's quest for perfection but the completed MP4/2 was a beauty, its neatly packaged TAG powertrain standing in stark contrast to the tangled engine bays of the Ferrari, Renault and the Honda-powered Williams. Where the various iterations of MP4/1 had been based on the same tubs, built by Hercules Corporation in the USA, the MP4/2 used a new monocoque fabricated in a redesigned mould to suit both the footprint of the V6 engine and a new rule dictating a maximum fuel tank size of 220 litres. Externally, the MP4/2 bore a family resemblance to its predecessor but with neatened aerodynamics (honed in the windtunnel at the National Physical Laboratory, opposite *GP Racing's* old offices in Teddington) and shorter, squarer sidepods optimised for the cooling demands of the new engine.

As with all turbo cars in the flat-bottom era, aero priorities dictated a substantial rear wing to assist with traction. Barnard went further, packaging the mechanicals as tightly as possible and shrouding them with bodywork which met the curved rear of the sidepods. The rear suspension was redesigned to offer minimal air resistance in this area, creating an unobstructed flow over the ramp of the diffuser: the lower wishbones were below the ramp, while the upper rocker arms actuated springs and dampers mounted above the transmission.

Perhaps the only sub-optimal element was the gearbox, a hybrid of Hewland and McLaren internals with a bespoke casing. A carry-over from MP4/1, it now had to transmit peak power loads in the region of 200bhp greater than before, as well as enduring higher temperatures thanks to Barnard's new layout, which routed the exhausts alongside it to vent into the diffuser. An all-new design was required to cure its fragility.

For the new car's debut in 1984 Lauda was joined by Prost,



“CIRCUMSTANCES MIGHT HAVE MILITATED AGAINST BARNARD’S QUEST FOR PERFECTION BUT THE COMPLETED MP4/2 WAS A BEAUTY”



summarily fired by Renault after a string of car failures derailed his title challenge the previous season. History records 1984 as something of a walkover for McLaren: Lauda (driving MP4/2-1, the car photographed here) eventually prevailed over Prost by half a point, and indeed they won 12 of the 16 races and finished with more than double the points of third-placed Elio de Angelis. But while the TAG engine and its sophisticated fuel injection system essayed a more useful compromise between power and frugality than its more brutal, thirsty and fragile rivals, it was not without problems. Several results went begging as a consequence of water losses, ancillary component failures and misfires. This was a season marked by brutal attrition – in Detroit, for instance, only six cars finished.

Michelin’s withdrawal entailed a swap to Goodyear rubber for 1985, along with various detail changes to improve performance and counter rule changes which sought to reduce downforce. One detail change within the body enabled Barnard to satisfy his need for neatness as well as finding extra speed: mirror-image turbochargers achieved both design symmetry and a better exhaust layout. In a more tightly contested season, Prost won five races aboard the MP4/2B while Lauda suffered the majority of the reliability problems and won only once, retiring at season’s end. Ferrari’s Michele Alboreto ran Prost close until the 156/85’s reliability deserted it during the run-in, enabling Prost to claim his first drivers’ championship.

Prost would win again in 1986 with the C-spec of the MP4/2, but by now the McLaren-TAG partnership was outgunned by Williams-Honda. Prost took the title through a combination of consistency and the Williams drivers poaching wins from one another. As Barnard took his leave and accepted a lucrative offer to join Ferrari, this was truly the end of an era... GP

RACE RECORD

Starts 96
Wins 22
Poles 7
Fastest laps 16
Podiums 20
Constructors’ championship points 329.5

SPECIFICATION

Chassis Carbonfibre monocoque
Suspension Double wishbones with pushrod-actuated springs and dampers (f), lower wishbone with upper rocker arm and inboard springs and dampers (r). Double wishbones with pushrod-actuated springs and dampers from 1985
Engine TAG TTE-P01 80-degree turbocharged V6
Engine capacity 1498cc
Power 750bhp@11000rpm (1984), 850bhp@11000rpm (1985)
Gearbox McLaren/Hewland five-speed manual, six-speed manual (1986)
Tyres Michelin, Goodyear
Weight 540kg
Notable drivers Niki Lauda, Alain Prost, Keke Rosberg

NÜRBURGRING

Home to the daunting Nordschleife, the Eifel venue's modern F1 track is yet another addition to the calendar...



▼ The chaotic start to the 1984 European GP. This was the first F1 race at the Nürburgring – albeit on the new short circuit – since the 1976 German GP in which Niki Lauda nearly lost his life. Lauda, who had come out of retirement in 1982, finished fourth





▲ The Nürburg, which stands within the confines of the famous Nordschleife or North Loop circuit, is a ruined hilltop castle dating back to the 14th and 15th centuries. The castle dominates the skyline but would have been of no interest to Tony Brise (Hill) as he was chased by the Ferrari of Clay Regazzoni in the 1975 German GP

◀ The unmistakable Juan Manuel Fangio during the 1957 German GP. Fangio led but then had a disastrous pitstop which left him three-quarters of a minute adrift of Peter Collins and Mike Hawthorn. Fangio recovered to claim what many regard as his greatest F1 victory, and with it a fifth title

▶ As F1 cars got ever faster, so instances of drivers getting airborne at the Nürburgring increased. Here, in the 1975 German GP, Carlos Reutemann has none of the wheels of his Brabham BT44B in contact with the surface. It didn't hamper the Argentinean, who comfortably won the race

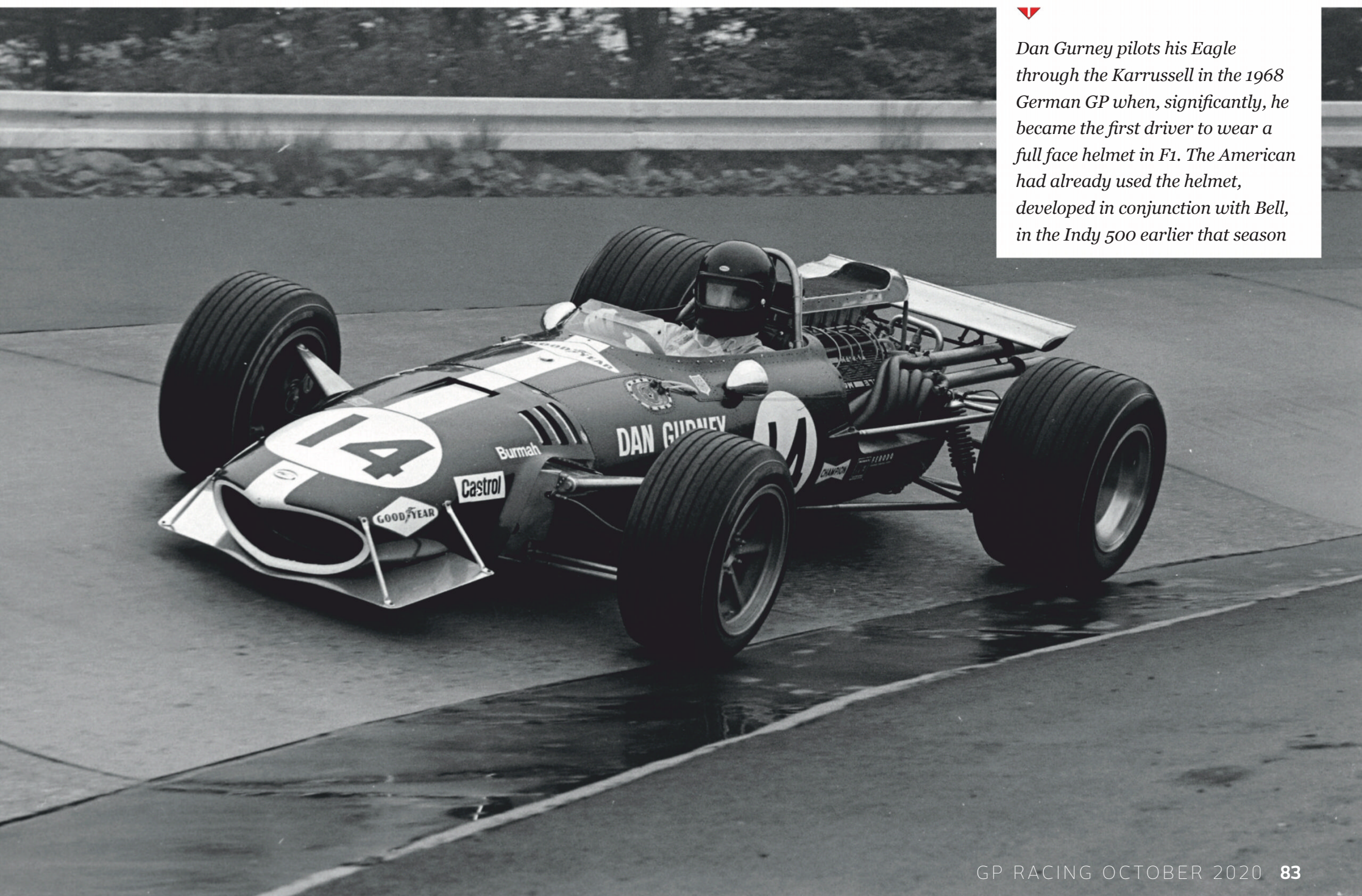




▲ Pedro Diniz midway through a barrel roll at the Castrol S corner, on the opening lap of the 1999 European GP. His Sauber was nudged into the aerobatics by Alex Wurz's Benetton but Diniz was helped out of the car uninjured, a lucky escape considering the roll hoop on the C18 failed on impact



◀ Hidden by the smoke, Innes Ireland's Lotus 21 is on fire on lap two of the 1961 German GP. Ireland was aware of the blaze when he exited the Schwalbenswanz corner so he stopped the car and got out. With no useful fire extinguishers available he had to stand and watch the car's incineration



▼ Dan Gurney pilots his Eagle through the Karrussell in the 1968 German GP when, significantly, he became the first driver to wear a full face helmet in F1. The American had already used the helmet, developed in conjunction with Bell, in the Indy 500 earlier that season

▶ A classic Nürburgring shot from the 1975 German GP as cars approach the famous Karussell corner. Opened in 1927, as part of the 17.563 mile Gesamtstrecke (whole course), the Nordschleife was 14.173 miles long, had 174-176 corners – depending on your definition of a corner – and was nicknamed the ‘Green Hell’ by Jackie Stewart...



▲ When his Ferrari F2001 broke down en route to the grid for the 2001 European GP, Michael Schumacher didn't panic. He just commandeered a scooter, returned to the pits, hopped in the spare and claimed his 49th F1 victory



▼ Lewis Hamilton, Scott Speed, Jenson Button and Nico Rosberg litter the Turn 1 gravel after they had all spun off on the third lap of the 2007 German GP. Needless to say the race – which was led at the time by Markus Winkelhock's Spyker – was red-flagged



RENNDIENST



▲ Some of the great and good of F1 assembled ahead of the 1961 German GP at the Nürburging. From left to right, at the front of the picture: Jim Clark is in conversation with John Cooper and Innes Ireland, Jack Brabham likewise with Stirling Moss, Graham Hill and Jo Bonnier share a table with Bruce McLaren looking on and Dan Gurney leaning on the tyres



▲ If your car stopped on the Nordschleife, the chances are you faced a long walk back to the pits. After a problem with his BT24 during practice for the 1967 German GP, Jack Brabham was saved such a hike by team-mate Denny Hulme, who then went on to win the race ahead of Brabham



▲ Jules Bianchi has just parked his blazing Marussia after an engine blow-up in the 2013 German GP. After Bianchi exited the car with speed, the MR02 rolled back across the track sans driver. The result was an instant Safety Car



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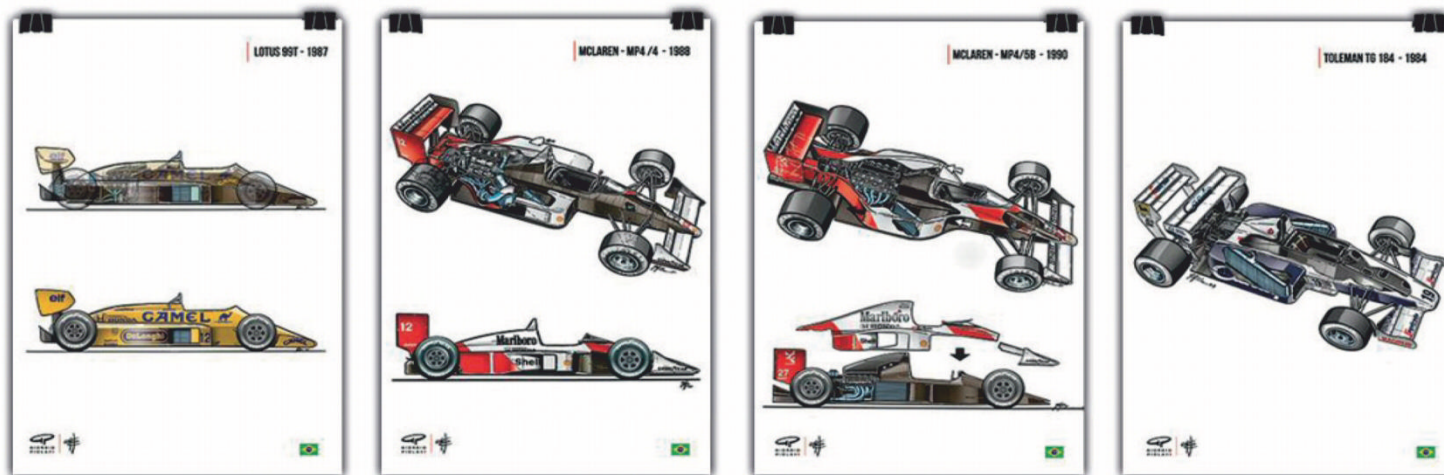
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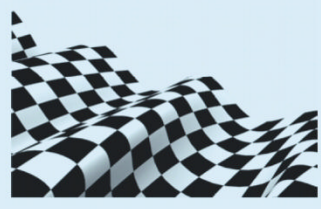
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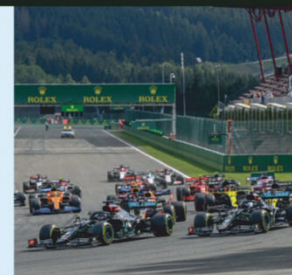


FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 7

THE BELGIAN GP IN 3 KEY MOMENTS



1 A single Lewis lap destroys the 'opposition'

Lewis Hamilton picked up at Spa where he left off in Spain. After the closing stint of the previous race at Barcelona, Hamilton spoke of reaching a special mental space that helped him crush chief pursuers Max Verstappen and Valtteri Bottas.

Once Mercedes finally dialled in its lower downforce set-up and turned up its fresh engines for qualifying, Lewis was unstoppable again at Spa. Spurred on by devastating news of the death of *Black Panther* actor Chadwick Boseman, to whom Lewis dedicated his achievements in Belgium, Hamilton secured the 93rd pole position of his career with a mesmerising new track record lap in Q3 that his team boss Toto Wolff called "extra-terrestrial".

The performance was very much of this world, but it was a spectacular feat of physical manipulation nonetheless – insanely late braking for Les Combes; mere balance of throttle through Malmedy; loud pedal fully down for the fearsome Pouhon; and ridiculous speed carried through the subsequent 'pif paf' that claimed Antonio

Giovinazzi's Alfa Romeo in the race.

It was breathtaking, a reminder that for all the (sometimes legitimate) sniping about rubbish racing, too-heavy cars and chewing gum tyres, F1 still has power to amaze, thanks to a driver at the top of his game pushing against the boundaries of possibility. The result was pole by more than half a second.

"Valtteri struggled with the set-up, particularly in Q3, there was just a little bit more sliding exiting the corners," Wolff said. "But I don't want to downplay or diminish Lewis's performance. On these fast, traditional circuits, he's just in a league of his own."

Hamilton converted this advantage into the 89th victory of his grand prix career with consummate professionalism. Fending off Bottas on the first lap, managing the Safety Car restart, and a slight concern over falling front tyre temperatures, added stress but were managed well.

Hamilton felt he underperformed in qualifying last season, so has made a "couple of adjustments" to how he extracts performance from the current

iteration of Pirelli's tyres in conjunction with his own driving style: "Now I'm back to being able to produce qualifying laps that I was able to do before last year, and on a more consistent basis."

Which is seriously bad news for his competitors. "Of course, it always comes from so many details," said Bottas of the deficit. "The out-laps, getting the tyres in the perfect window, the set-up and driving style. Lewis has had the upper hand this year, which honestly pisses me off."

Perhaps the only man more frustrated than Bottas at Spa was Verstappen, who single-handedly ensured Mercedes at least had one other car racing in the same postcode, albeit one that couldn't really threaten and had to get defensive on lap one to fend off Daniel Ricciardo's rapid Renault.

Max described his race as "lonely" and "a bit boring" – especially once bad tyre vibrations forced him to call off his fruitless chase of Bottas in the final stint. Max is driving heroically, but Mercedes – and Hamilton in particular – look unstoppable.



Hamilton dominated the race after a stunning qualifying lap on Saturday and dedicated his Spa victory to actor Chadwick Boseman



PICTURES: ZAK MAUGER; STEVEN TEE; STEVE ETHERINGTON; MARK SUTTON; CHARLES COATES

2 Spa shows up Ferrari's "ugly" side

Ferrari utterly dominated 2019's Belgian Grand Prix. As F1's TV graphics never tired of reminding us in the build-up to this year's edition, Ferrari's drivers were 1-2 in every practice session and qualifying segment last year.

This season, 2019 race winner Charles Leclerc, who called Ferrari's display "ugly", and team-mate Sebastian Vettel could do no better than 13th, the position in which Vettel finished Q1 and where Leclerc eventually qualified, just about within a second of the pace in Q2.

Leclerc was almost knocked out in Q1 by Kimi Raikkonen's Alfa Romeo, which finished the race as the leading Ferrari-engined car. This was a terrible weekend for the Scuderia, the flaws of its 2020 design horribly exposed by Spa's demand for engine power and aerodynamic compromise.

Ferrari likely based its 2020 drag targets around significantly more theoretical horsepower than it currently has, which has worsened the impact of this year's engine rules restrictions on its straightline speed amid Ferrari's quest to add downforce. Now Ferrari is shedding drag and making associated set-up compromises, and the drivers are struggling to get the tyres into the correct operating temperature range, which means

they lack consistent grip in the corners. A vicious cycle that, as Ross Brawn said, was exacerbated by Spa's cold temperatures. Ferrari's customers are suffering too, though at least they are used to having less downforce and drag to play with.

Ferrari team boss Mattia Binotto told *Sky Italia* his crew had "not been able to understand how to make the tyres work" at Spa. "We are disappointed and angry, as are our fans – and with good reason," Binotto concluded, after watching his cars score zero points for the first time this year having reached the finish. How the mighty have fallen...



Belgium was a total disaster for Ferrari, at a race it totally dominated last season

3 Renault displays serious signs of life

Stepping into the Ferrari-shaped chasm behind the two Mercedes and mighty Max was the much-improved Renault team. Fourth for Daniel Ricciardo and fifth for Esteban Ocon equalled Renault's best result of F1's hybrid era, from last season's Italian GP, only this time it was achieved without help from Vettel spinning off. Ricciardo also earned the bonus point for fastest lap and finished within four seconds of Verstappen's hobbling Red Bull.

The key this time was sustaining strong Friday

Both Renaults carried over their Friday pace to the weekend. Ricciardo finished fourth on pure speed and claimed the fastest-lap point



practice form – Ricciardo was second fastest – into Saturday. Ocon was second in FP3 and Ricciardo qualified fourth, ahead of Alex Albon's Red Bull. Ricciardo almost passed Verstappen on lap one and was quick enough to finish fourth on merit.

Ricciardo said Renault hit the same "sweet spot" with car set-up at Spa as it had at the second Silverstone race, which suggests genuine progress. "There is something fundamental which I think we've got a good choke-hold on," he said. "I'm not sure we had a real discovery like this last year."

Fifth was Albon's best qualifying effort since Austria. He was more comfortable with the RB16 at Spa but still miles off Max and eventually beaten by both Renaults, suggesting the RB16 is still a very difficult car that is perhaps flattered by Verstappen's heroics. Lando Norris upheld McLaren honour by finishing on Albon's tail, after exhaust failure prevented Carlos Sainz taking the start.

Pierre Gasly was unlucky to do no better than eighth after the Safety Car spoiled his excellent strategic choice to start on the hard tyre, on which he made impressive early progress. He beat both Racing Points, which fell further off the pace with each session, suggesting Racing Point could do with a go on Ricciardo's sweet spot detector.

RESULTS ROUND 7

SPA / 30.8.20 / 44 LAPS



1st	Lewis Hamilton	Mercedes	1h24m08.761s
2nd	Valtteri Bottas	Mercedes	+8.448s
3rd	Max Verstappen	Red Bull	+15.455s
4th	Daniel Ricciardo	Renault	+18.877s
5th	Esteban Ocon	Renault	+40.650s
6th	Alexander Albon	Red Bull	+42.712s
7th	Lando Norris	McLaren	+43.774s
8th	Pierre Gasly	AlphaTauri	+47.371s
9th	Lance Stroll	Racing Point	+52.603s
10th	Sergio Pérez	Racing Point	+53.179s
11th	Daniil Kvyat	AlphaTauri	+70.200s
12th	Kimi Räikkönen	Alfa Romeo	+71.504s
13th	Sebastian Vettel	Ferrari	+72.894s
14th	Charles Leclerc	Ferrari	+74.920s
15th	Romain Grosjean	Haas	+76.793s
16th	Nicholas Latifi	Williams	+77.795s
17th	Kevin Magnussen	Haas	+85.540s

Retirements

Antonio Giovinazzi	Alfa Romeo	9 laps - accident
George Russell	Williams	9 laps - accident
Carlos Sainz	McLaren	DNS - exhaust

Fastest lap

Daniel Ricciardo: 1m47.483s on lap 44

TYRE COMPOUNDS USED



CLIMATE

Cloudy

AIR TEMP

18°C

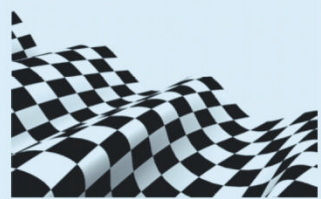
TRACK TEMP

27°C

DRIVERS' STANDINGS

1 Hamilton	157pts	12 Gasly	18pts
2 Verstappen	110pts	13 Vettel	16pts
3 Bottas	107pts	14 Hülkenberg	6pts
4 Albon	48pts	15 Giovinazzi	2pts
5 Leclerc	45pts	16 Kvyat	2pts
6 Norris	45pts	17 Magnussen	1pt
7 Stroll	42pts	18 Räikkönen	0pts
8 Ricciardo	33pts	19 Latifi	0pts
9 Pérez	33pts	20 Russell	0pts
10 Ocon	26pts	21 Grosjean	0pts
11 Sainz	23pts		





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 8

THE ITALIAN GP IN 3 KEY MOMENTS



Gasly celebrates his first F1 win (above), having taken full advantage of Hamilton's penalty (left), but was under severe pressure from Carlos Sainz on the final lap (right)



1 Gasly maxes out as Mercedes implodes

The jury remains out on the effects of the FIA's clampdown on special qualifying engine modes after a madcap Italian Grand Prix, but one thing is certain: Pierre Gasly ran out the victor on merit after seizing the initiative when the usually dominant Mercedes team fluffed it. Starting in 10th, Gasly could hardly have expected to feature in the fight up front, but the circumstances surrounding the double-whammy of a mid-race Safety Car period followed by a red flag – for separate incidents – conspired to turn the race on its head.

After qualifying, during which Lewis Hamilton annexed pole position with the fastest lap of all time, it appeared the law of unintended consequences was at work and that the new

engine-mode rules had in fact hindered those running Ferrari, Honda and Renault power units rather than Mercedes. Carlos Sainz's McLaren, in third place, was eight tenths off Hamilton. With a touch of *schadenfreude*, Mercedes boss Toto Wolff revealed his team had seen the ban coming months ago and developed "a strong mode for qualifying we can run all race". This glee would not last long once the start lights went out on Sunday.

As Hamilton got away crisply into his customary lead, team-mate Valtteri Bottas got swamped. He would later speak of suffering an unspecified "disturbance" at starts, something which caused him to pre-empt the lights going out in Hungary and nearly did so again here. The result was that Sainz

went by him before Bottas was even rolling, and the Finn dropped to sixth on the opening lap. So discombobulated was Bottas that he reported a puncture that proved to be non-existent.

Bottas faced a long battle to get back to the front and it soon became clear he was unlikely to do so. His car's marginal cooling setup meant he had to do too much lifting and coasting to regain ground on the cars ahead.

Gasly, meanwhile, had survived a squeeze at the first corner, during which he inadvertently knocked Alex Albon's Red Bull into the run-off. Gasly ran 10th until he pitted, just before Kevin Magnussen brought his expiring Haas to a halt in the grass by the pit entry. Since there was no gap in the barrier

there, the car had to be pushed into the pitlane.

The FIA therefore closed the pitlane for the first laps under the resulting Safety Car, but this went unnoticed by Mercedes and Alfa Romeo, who brought in Hamilton and Antonio Giovinazzi, both of whom were handed 10-second stop-go penalties. Once the pitlane opened and others stopped, Gasly found himself third behind Hamilton and Lance Stroll, the only driver yet to stop at all.

When Charles Leclerc embedded his Ferrari in the barriers shortly after the restart, bringing out the red flag, that meant Gasly took the subsequent restart from third on the grid. He duly blasted past Stroll, who made a mess of his first lap, then inherited the lead when Hamilton served his penalty.

Gasly managed the second half of the race superbly to keep Sainz just out of DRS range until the final lap, eventually finishing 0.415s ahead of the McLaren. "I nearly shunted 10 times in those final laps," Gasly said.

"It was kind of my race to lose," said third-placed Stroll. Yes, it was.

Hamilton got through the pack as far as seventh, but it was heavy going, and Wolff would later bemoan that the engine-mode clampdown had made for "a lack of spice".

What a difference a day makes...

2 Racing Point faces a different kind of protest

The legality surrounding Racing Point's 'pink Mercedes' may be settled but the team had more negativity on its hands after it took advantage of the rules enabling tyre changes under red-flag conditions. Since Lance Stroll hadn't pitted before the stoppage, he was running just behind race leader Lewis Hamilton on track and was therefore able to take the restart from second on the grid – with fresh tyres fitted at no cost of time.

McLaren's Lando Norris, who had run third in the first half of the race and ultimately finished fourth, felt swindled.

"They gained 24 seconds doing nothing," said Norris. "Not having to box and do that mandatory pitstop is a thing which I don't think is right."



Stroll had to make do with third because he botched the first lap after the restart

3 Home-turf misery for Ferrari

If the beleaguered Ferrari squad could extract any comfort from another uncompetitive grand prix, it would be that Charles Leclerc's frightening-looking shunt played some part in eliminating the possibility of Lewis Hamilton equalling Michael Schumacher's record 91 victories the following weekend, at the Scuderia's 1000th race. When Leclerc speared off into the wall at the Parabolica he triggered the red flag which ensured Hamilton took maximum pain from the 10s stop-go penalty he had earned for entering the pitlane while it was closed.

Until that point, Leclerc had brought the briefest flicker of light to a lamentable weekend on Ferrari's home turf. Neither he nor Sebastian Vettel had qualified inside the top 10 (Vettel was out in Q1 after having a time struck off for a track-limits error and getting bogged down in traffic when he tried again). Brake failure eliminated Vettel early on, leading him to opine it was a good thing the grandstands were empty.

But the timing of Leclerc's pitstop – just before the Magnussen-induced caution and pitlane closure – elevated him to sixth under the Safety Car. At the restart Charles had made short work of both Alfas for fourth when he crashed. A miserable end to another miserable race for the Scuderia.



Vettel went straight on at the Variante del Rettifilo when his brakes failed early on

RESULTS ROUND 8

MONZA / 06.9.20 / 53 LAPS



1st	Pierre Gasly AlphaTauri	1h47m06.056s
2nd	Carlos Sainz McLaren	+0.415s
3rd	Lance Stroll Racing Point	+3.358s
4th	Lando Norris McLaren	+6.000s
5th	Valtteri Bottas Mercedes	+7.108s
6th	Daniel Ricciardo Renault	+8.391s
7th	Lewis Hamilton Mercedes	+17.245s
8th	Esteban Ocon Renault	+18.691s
9th	Daniil Kvyat AlphaTauri	+22.208s
10th	Sergio Pérez Racing Point	+23.224s
11th	Nicholas Latifi Williams	+32.876s
12th	Romain Grosjean Haas	+35.164s
13th	Kimi Räikkönen Alfa Romeo	+36.312s
14th	George Russell Williams	+36.593s
15th	Alexander Albon Red Bull	+37.533s
16th	Antonio Giovinazzi Alfa Romeo	+55.199s

Retirements

Max Verstappen Red Bull	30 laps - engine
Charles Leclerc Ferrari	23 laps - accident
Kevin Magnussen Haas	17 laps - engine
Sebastian Vettel Ferrari	6 laps - brakes

Fastest lap

Lewis Hamilton: 1m22.746s on lap 34

TYRE COMPOUNDS USED



Hard (C2) Medium (C3) Soft (C4) Inter Wet

CLIMATE

Sunny

AIR TEMP

27°C

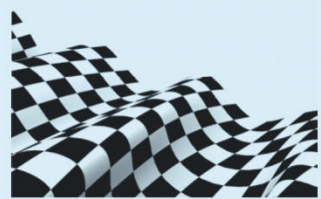
TRACK TEMP

45°C

DRIVERS' STANDINGS

1 Hamilton 164pts	12 Ocon 30pts
2 Bottas 117pts	13 Vettel 16pts
3 Verstappen 110pts	14 Hülkenberg 6pts
4 Stroll 57pts	15 Kvyat 4pts
5 Norris 57pts	16 Giovinazzi 2pts
6 Albon 48pts	17 Magnussen 1pt
7 Leclerc 45pts	18 Latifi 0pts
8 Gasly 43pts	19 Räikkönen 0pts
9 Sainz 41pts	20 Grosjean 0pts
10 Ricciardo 41pts	21 Russell 0pts
11 Pérez 34pts	





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 9

THE TUSCAN GP IN 3 KEY MOMENTS



1 Close but no cigar (again) for Bottas

Another Formula 1 race, another Lewis Hamilton victory. So far so typical for the pandemic-defying grand prix scene of 2020. Except this was no typical F1 race, and winning it was an achievement Hamilton himself said required effort like no other.

The chaos of the first lap, the Safety Car restart and a second standing restart following Lance Stroll's huge accident, combined with relentless weekend-long pressure from the other Mercedes of Valtteri Bottas, made F1's first race at the MotoGP mecca of Mugello, for Hamilton "physically and mentally one of the most challenging days I've experienced".

Since his outstanding start to the season in Austria, Bottas has been relatively subdued. Apart from the second Silverstone event, he's consistently been bested by Hamilton in qualifying – albeit narrowly sometimes – and watched Lewis's points lead expand as races have been lost to mistakes, inferior tyre management and bad luck.

And luck was certainly not with Bottas at Mugello either. Here on the insanely fast high-

speed, high-commitment sweeps of the Ferrari-owned circuit, it looked as though Valtteri really had Hamilton's number. Bottas was fastest in every practice session, forcing Hamilton to work like he's never worked before. Hamilton admitted he was "struggling to find the limit in certain sectors" – mainly the sector one chicanes – and that "Valtteri was miles ahead in some of those areas".

Hamilton finally moved clear, by less than a tenth of a second, in Q2 and Q3. Bottas felt Esteban Ocon's late spin in Q3 cost him pole, but Hamilton and Verstappen both went slower on clear laps, suggesting it would have been difficult for Bottas.

But then Hamilton made a poor start from pole – "I just went too deep and got wheelspin" – handing Bottas the lead. Max Verstappen's Red Bull would also have passed Lewis but for an electrical glitch on the Honda engine that robbed Max of power and plunged him into the mid-pack, making him a sitting duck when Romain Grosjean, Pierre Gasly and Kimi Räikkönen came together, the consequence of which was Kimi accidentally punting Verstappen

out of the race at Turn 2. Max called it a "shit show".

Bottas managed the Safety Car restart as well as he could – the mayhem behind was caused mainly by several drivers misjudging the pace: 12 received warnings after an FIA investigation post-race and Bottas was not among them – but the red flag stoppage required after Antonio Giovinazzi, Carlos Sainz, Kevin Magnussen and Nicholas Latifi were all wiped out handed Hamilton a reprieve.

This time Hamilton got his car properly hooked up at the standing restart, and used the slipstream to make a slingshot pass around Bottas at Turn 1. This move effectively settled the race. Subsequent Mercedes concerns about the integrity of the hard compound front Pirelli tyres across kerbs were alleviated by a second red flag period, allowing both cars to fit softs for the final dash to the flag.

After the second restart, Bottas made a ballsy pass around Daniel Ricciardo at Turn 1 – without using DRS – to reclaim second, then tried to turn the screw on Lewis, but to no avail. Bottas "tried everything" but once again came up short.

Hamilton got the first standing restart right and went round the outside of Bottas at Turn 1



PICTURES: STEVEN TEE; ANDY HONE; MARK SUTTON



Albon took advantage of Verstappen's exit and scrapped hard to claim his first podium

2 Breakthrough result can't hide the mountain Albon still must climb

Max Verstappen was in among the two Mercedes in practice, but unsurprisingly found himself cut adrift come qualifying. He would have been nailed-on to complete the podium under normal circumstances, but his first-lap elimination created a multi-car fight for third, a battle eventually won by his Red Bull team-mate Alex Albon.

Charles Leclerc deserves honourable mention for qualifying fifth and running third in Ferrari's 1000th F1 race, before the draggy SF1000 regressed to its natural level as a marginal points contender. Leclerc's heroics deserved better than eighth.

Ricciardo's slippery Renault, Stroll's updated 'Pink Mercedes' and Albon's underpowered Red Bull-Honda took up the fight, with Ricciardo gaining the upper hand at the first round of pitstops, made under normal racing conditions. Stroll was coming back at Ricciardo when the Racing Point suffered what looked like a left-rear puncture at the fastest part of the circuit, pitching Stroll into a frightening accident.

The final restart following another red flag period to clean up that mess brought Albon back into play. After Ricciardo's brief cameo in second, Dan fell back into the Red Bull's clutches and was overtaken with a committed pass around the outside at Turn 1.

"Thanks for sticking with me" Albon told his team as they congratulated him on a breakthrough result. But unless Alex can find a way to get more comfortable with the sort of instability that Verstappen barely notices inside the RB16, it's difficult to see how Albon can ever truly come to terms with his prodigious team-mate.

Albon has identified that Max is exceptional at driving "very understeery cars". It's the ability to manipulate the brakes and deal with the instability created by such understeer that makes Verstappen (and the likes of Alonso and Leclerc for that matter) so tough to beat in temperamental cars.

3 Monza heroes all end up zeroes

This was a terrible weekend for the drivers who visited the podium at Monza.

Italian GP winner Pierre Gasly failed even to escape Q1 at Mugello, before crashing out on the first lap after getting pincer between Romain Grosjean and Kimi Räikkönen.

Gasly blamed a set-up error combined with running out of recovered energy deployment well before the line for his qualifying early bath. "It just shows the reality and where we are in this midfield," he said. "Last week was exceptional. In this midfield it is so tight, there is no room for errors."

McLaren expected to do well again on such a high-speed track but was well off the pace owing to the MCL35's sensitivity to wind. Sainz spun on lap one after a brush with Stroll and was wiped out in the frightening Safety Car restart accident – and along with Ricciardo, Albon, Sergio Pérez, Lando Norris, Ocon, Daniil Kvyat, Magnussen, Latifi, Giovinazzi, Stroll and George Russell was warned by the FIA for failing to maintain consistent speed before the line.

Norris upheld McLaren honour with a battling drive to sixth, while Stroll was in contention for another podium until his unfortunate shunt at the second Arrabbiata right-hander.

Amid the chaos, it looked as though Russell might nick his maiden points finish for Williams, but was undone in his personal battle with the Ferraris of Leclerc and Sebastian Vettel by making a pitstop just before the second red flag, then a poor restart. Russell repassed Grosjean but finished 2.5s behind Vettel. George called the outcome "heart-breaking".

The Safety Car restart accident took out Monza star Sainz and three other cars



RESULTS ROUND 9

MUGELLO / 13.9.20 / 59 LAPS



1st	Lewis Hamilton	Mercedes	2h19m35.060s
2nd	Valtteri Bottas	Mercedes	+4.880s
3rd	Alexander Albon	Red Bull	+8.064s
4th	Daniel Ricciardo	Renault	+10.417s
5th	Sergio Pérez	Racing Point	+15.650s
6th	Lando Norris	McLaren	+18.883s
7th	Daniil Kvyat	AlphaTauri	+21.756s
8th	Charles Leclerc	Ferrari	+28.345s
9th	Kimi Räikkönen	Alfa Romeo	+29.770s*
10th	Sebastian Vettel	Ferrari	+29.983s
11th	George Russell	Williams	+32.404s
12th	Romain Grosjean	Haas	+42.035s

*includes 5s penalty for crossing the line at pit entry

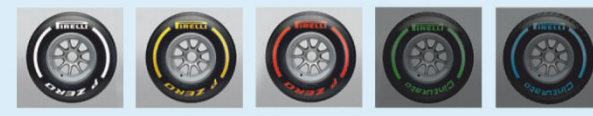
Retirements

Lance Stroll	Racing Point	42 laps - accident
Esteban Ocon	Renault	7 laps - brakes
Nicholas Latifi	Williams	6 laps - accident
Kevin Magnussen	Haas	5 laps - accident
Antonio Giovinazzi	Alfa Romeo	5 laps - accident
Carlos Sainz	McLaren	5 laps - accident
Max Verstappen	Red Bull	0 laps - accident
Pierre Gasly	AlphaTauri	0 laps - accident

Fastest lap

Lewis Hamilton: 1m18.833s on lap 58

TYRE COMPOUNDS USED



CLIMATE AIR TEMP TRACK TEMP

Sunny	30°C	45°C
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DRIVERS' STANDINGS

1 Hamilton	190pts	12 Ocon	30pts
2 Bottas	135pts	13 Vettel	17pts
3 Verstappen	110pts	14 Kvyat	10pts
4 Norris	65pts	15 Hülkenberg	6pts
5 Albon	63pts	16 Räikkönen	2pts
6 Stroll	57pts	17 Giovinazzi	2pts
7 Ricciardo	53pts	18 Magnussen	1pt
8 Leclerc	49pts	19 Latifi	0pts
9 Pérez	44pts	20 Russell	0pts
10 Gasly	43pts	21 Grosjean	0pts
11 Sainz	41pts		





FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 10

RUSSIAN GP

25-27 September 2020
Sochi Autodrom



PICTURES: GLENN DUNBAR; MARK SUTTON. ILLUSTRATION: ALAN ELDRIDGE



RACE DATA

Venue Sochi Autodrom

First GP 2014

Number of laps 53

Circuit length 3.633 miles

Longest straight 0.667 miles

Elevation change 6.234 feet

Race distance 192.466 miles

Lap record 1m35.761s

Lewis Hamilton (2019)

F1 races held 6

Winners from pole 2

Pirelli compounds C3, C4, C5

THE MAIN EVENT

Smooth of surface, flat of kerb and long of straight, the street circuit around the site of the 2014 Winter Olympics is something of an outlier in Formula 1 terms since it tends not to be hard on tyres or damaging to machinery. Its low-degradation nature has tended to make for one-stop races in the past, which is why Pirelli is bringing compounds from the softer ends of its spectrum.

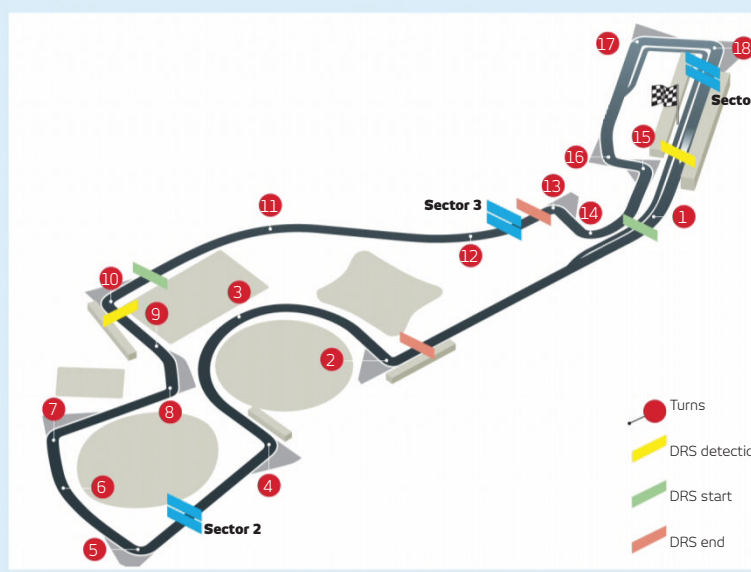
Though it's not famed for creating great racing, Sochi Autodrom is not without its hazards; the combination of very fast corners with walls in close proximity means collisions often have alarming consequences. It's also unusual in that very few grands prix here have been won from pole position, owing to the fact that Turn 1 is a kink rather than a hard stop, enabling canny racers to take advantage of the slipstream on the approach to Turn 2.

2019 RACE RECAP

Ferrari went into meltdown as its attempt to stage-manage the race went awry. Charles Leclerc qualified on pole with Sebastian Vettel third but, having used Leclerc's tow to get by Lewis Hamilton, Vettel then surged into the lead. Having not contested the move as per the team's plan, Leclerc was livid when Vettel refused to move aside.

As Vettel continued to ignore team orders, eventually the Ferrari pitwall appeared to hang him out to dry, bringing Leclerc in first and enabling him to undercut his team-mate. Vettel's car then broke down, causing a Virtual Safety Car which enabled Hamilton to pit and get ahead of Leclerc.

KEY CORNER: TURN 3 A ring around the singing fountain which once guarded the Olympic flame, this long constant-radius bend is a stern test of machinery and driver resolve owing to the proximity of the barriers on the outside of the corner.



CAR PERFORMANCE

Downforce level Medium

Cooling requirement Low

Fuel consumption 1.98kg/lap

Full throttle 51%

Top speed 213mph

Average speed 136mph

TIMETABLE (UK TIME)

Friday 25 September

Practice 1 09:00-10:30

Practice 2 13:00-14:30

Saturday 26 September

Practice 3 10:00-11:00

Qualifying 13:00-14:00

Sunday 27 September

Race 12:10

Live coverage Sky Sports F1

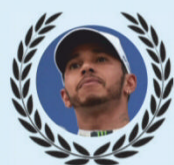
Highlights Channel 4

THE WINNERS HERE...



2019

Lewis
Hamilton
Mercedes



2018

Lewis
Hamilton
Mercedes



2017

Valtteri
Bottas
Mercedes



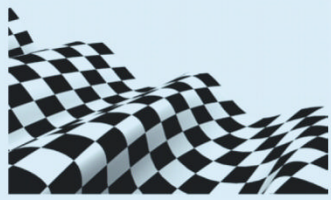
2016

Nico
Rosberg
Mercedes



2015

Lewis
Hamilton
Mercedes



FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 11

EIFEL GP

9-11 October 2020
Nürburgring



THE MAIN EVENT

The world was certainly a different place the last time the Nürburgring hosted a GP: 2013, the final year of V8 engines, and a season marked by the dominance of Sebastian Vettel and Red Bull. He's only won a handful of races since.

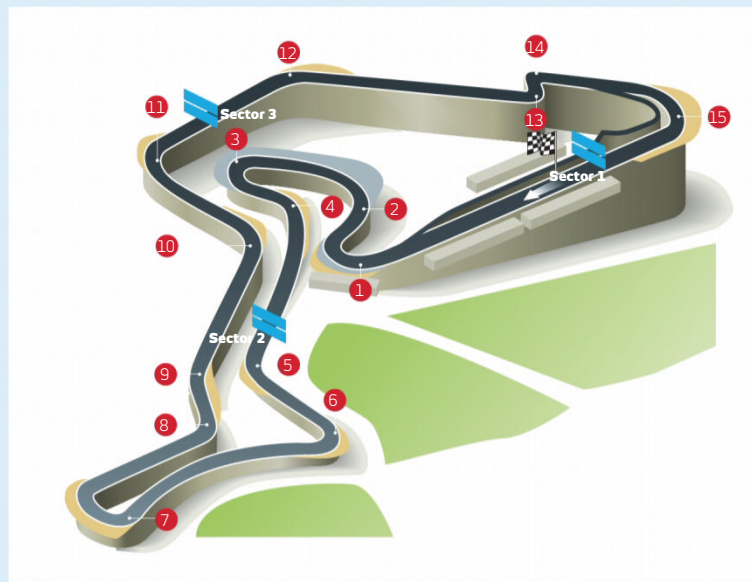
The Nürburgring first hosted a world championship race in 1951 but can trace its origins back to the pre-war grand prix racing scene. Rightly regarded as one of the most evocative and challenging circuits, the original layout remains a stern test of driver and machine. In the modern era, F1 events have been on a shorter loop at the southern tip of the still existent 14-mile roller coaster through the Eifel forest. Financial issues have kept the circuit off the calendar in recent years so this will be an interesting return – the weather here is unpredictable even in summer, so who knows what an October date will bring?

2013 RACE RECAP

There was still all to play for as we reached round nine of the 19 races, since there had been four different winners over the previous eight. But Sebastian Vettel was mere weeks away from his unbroken streak of nine wins, and he ran out the victor here, asserting himself over polesitter Lewis Hamilton on the opening lap.

Romain Grosjean enjoyed a spell in the lead for Lotus, having run longer before his first stop, and he and teammate Kimi Räikkönen kept Vettel in sight thereafter. Räikkönen finished a second shy of Vettel while Grosjean was third, just ahead of Fernando Alonso's Ferrari.

KEY CORNER: TURN 1 Formerly a chicane, the Castrol-S was redesigned by Hermann Tilke in 2002 to become a much more challenging proposition. It's now a hairpin leading into a wider section which progressively opens out before tightening again.



RACE DATA

- Venue** Nürburgring
- First GP** 1951
- Number of laps** 60
- Circuit length** 3.199 miles
- Longest straight** 0.528 miles
- Elevation change** 114.83 feet
- Race distance** 191.918 miles
- Lap record** 1m29.468s
Michael Schumacher (2004)
- F1 races held** 40
- Winners from pole** 15
- Pirelli compounds** C2, C3, C4

TIMETABLE (UK TIME)

- Friday** 9 October
- Practice 1** 10:00-11:30
- Practice 2** 14:00-15:30
- Saturday** 10 October
- Practice 3** 11:00-12:00
- Qualifying** 14:00-15:00
- Sunday** 11 October
- Race** 13:10
- Live coverage** Sky Sports F1
- Highlights** Channel 4

THE WINNERS HERE...



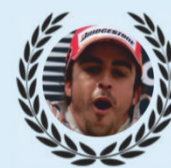
2013
Sebastian Vettel
Red Bull



2011
Lewis Hamilton
McLaren



2009
Mark Webber
Red Bull



2007
Fernando Alonso
McLaren



2006
Michael Schumacher
Ferrari



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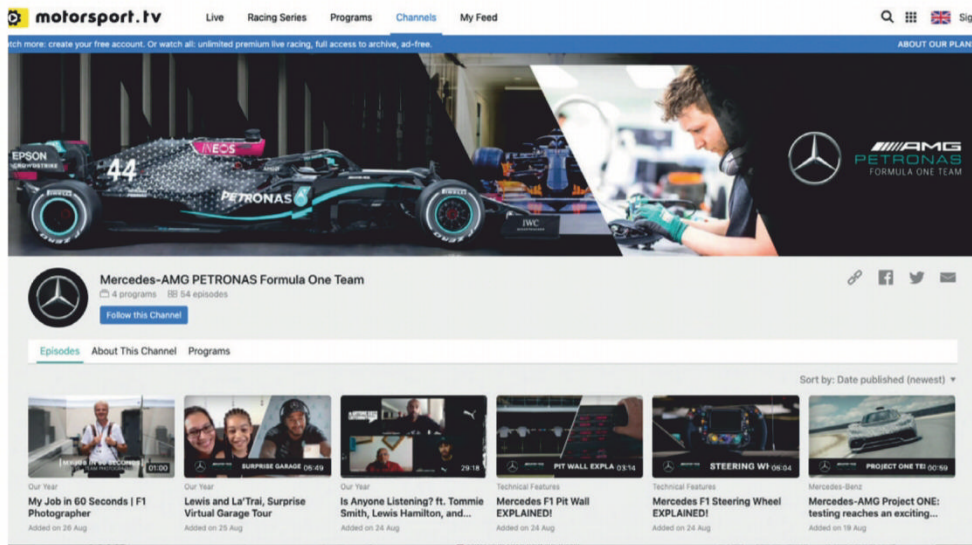
Motorsport.tv

Mercedes has enhanced its already impressive digital and social media reach (of all Formula 1's teams it boasts a 35% share of total online engagement) by launching a dedicated channel on Motorsport Network's digital video platform Motorsport TV.

The channel will feature content

devoted to all of Mercedes' diverse track activities, from behind-the-scenes coverage of its F1 team to Formula E and customer racing.

The Mercedes channel joins the successful Ferrari channel on Motorsport TV, which has a monthly audience of 56 million global racing and automotive fans.



JOCHEN RINDT: UNCROWNED KING OF FORMULA 1

Price £14.99

evropublishing.com



Originally published in large-format hardback in 2010 to coincide with the 40th anniversary of Jochen Rindt's untimely death, David Tremayne's excellent biography of F1's only posthumous world champion is now available in paperback. That means fewer illustrations than the original – although there's a bound-in section of photographs – but with the benefit of a more compact form factor and affordable price.

As you'd expect from an author of Tremayne's pedigree, the research

is meticulous and the emotional aspects of the story are rendered vividly. The book benefits from access to Rindt's friends and family, particularly Bernie Ecclestone, who was his friend, confidant, manager and business partner. Rindt died before F1 became the global media phenomenon it is today and there is very little English-language footage of, or interviews with, him available. This book fleshes out the personality of a driver who is perhaps less well-known to the mainstream audience.

**TAG HEUER FORMULA 1 X INDY 500
SPECIAL EDITION**

Price £1,750

tagheuer.com

As worn by IndyCar racer and former F1 driver Alexander Rossi during this year's delayed Indy 500 weekend, this special edition of TAG Heuer's venerable Formula 1 watch celebrates the Swiss watchmaker's links with both worlds. The 43mm ceramic black sandblasted bezel features special red Indy 500 engraving, and the event's official logo takes centre stage on the 6 o'clock subdial. There's also an engraving on the backplate.

A black rubber and leather strap continues the sporting theme – TAG Heuer say you could wear it over a race suit, though event officials might judge otherwise – and the rhodium-plated indices, hour and minute hands glow in the dark. It's also water-resistant to 200 metres. This special edition is limited to just 1500 units.



RED BULL RACING IRIS FLOW HEADPHONES

Price £379

irislistenwell.com/redbullracing

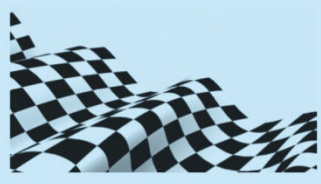
Red Bull's F1 team has partnered with high-end audio technology company Iris this season to improve the quality of its communications and shut out extraneous noise. Now you can experience this yourself with these limited-edition RBR Iris Flow wireless headphones.

Patented technology claims to dramatically improve the listening experience – Iris uses a proprietary algorithm which restores sound quality lost during the recording, mixing and digital mastering process,

aiming to make it sound just like it did 'in the room'. These headphones also feature beryllium drivers, an audiophile-grade onboard amplifier and DAC, and aptX low latency to achieve synchronisation while gaming or watching streamed video. Battery life is claimed to be over 30 hours and the headphones charge via an included USB-C adapter.

This Red Bull limited edition version has the team's logo etched into the arms and features red and blue accents on the headband.





FINISHING STRAIGHT

THE FINAL LAP

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FLAT CHAT

{ FULL THROTTLE MUSINGS WITH STUART CODDLING }

PICTURES motorsport IMAGES

PÉREZ LOSES OUT TO VETTEL'S TROPHY CABINET

For all its plucky underdog stylings, the team that started out as Jordan has always had a mercenary edge. As a driver, even if you brought a suitcase full of cash you lived in fear of that credit one day running out, and someone else arriving at the factory gates bearing a vessel suitably stuffed with filthy lucre.

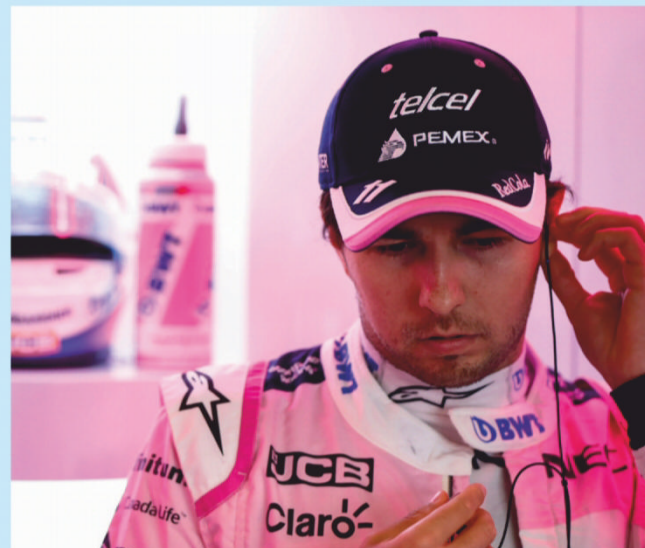
With that in mind it wasn't too surprising that Racing Point should toss Sergio Pérez under the bus one year into a three-year contract, even though he brings budget and Sebastian Vettel undoubtedly won't. Though Vettel's stock has fallen somewhat in recent years, he retains a star quality and brings a sprinkling of magic Pérez cannot match.

'Stock' is the name of the game here. From next season Racing Point will take the name of a certain premium automotive brand with which it shares an owner. The timing of the Pérez-Vettel announcements were significant, given that Aston Martin Lagonda Global Holdings PLC is listed on

the London Stock Exchange: Pérez's departure was confirmed at 8pm, long after the closing bell, while Vettel's imminent arrival was communicated at 8am the following day, shortly before the markets opened again.

Within an hour of the traders clocking in, Aston Martin's value had risen 7% as a proportion of its market capitalisation, which equates to an £80million increase in value. Not bad for a company whose value had been plummeting before Lawrence Stroll and his consortium got their wallets out. This is the kind of growth that money can't buy – well, with the exception of

Racing Point has decided that Sergio Pérez will not be around for the team's rebranding in 2021



whatever stipend the four-time champion will be drawing.

Sadly, the surge was short-lived, and come lunchtime shares were changing hands for roughly the same price they had 24 hours earlier – which is to say a third of the going rate this time last year. Investing in this kind of business requires nerves as steely as those of any F1 driver.

Confidence is key here. It's said that perception is all in Formula 1, and there is some overlap with that in the business world. Vettel might not be the wonderkid he once was, but his presence imbues the Aston Martin F1 project with credibility and investability. For all Pérez's gifts behind the wheel, to the world outside F1 – Mexico apart – he's very much "Who he?"

While Vettel isn't likely to get any faster or better as a racing driver at his age (33 and counting), he remains motivated. He's not one

of those drivers who hangs around in F1 because he loves it, or because he can't think of anything else to do. Given the right car he's arguably faster than Pérez over a single lap and better able to manage a race.

Pérez has long since purged his game of the lapses in judgement and tyre management which led to his ejection from McLaren all those years ago. He's worked to improve his craft but, as with Vettel, he's run out of runway for improvement. He's not going to get any faster. At the end of the day he's been swapped out for someone with a more impressive trophy cabinet.

Lance Stroll inarguably still has room to improve. To his credit, he's been working on his deficits, particularly a tendency to not extract the most out of the car in qualifying. He has plenty of that personal development runway left. And his father signs the cheques.

Indeed, Stroll might have won the Italian GP last month. If he'd had a 10-second head start after the red flag so he could make a pig's ear of the first lap and still stay in front.

And there we might have another reason for Pérez's ejection. History has shown that Seb needs a team-mate who plays nice and isn't fighting for the same piece of asphalt...

VETTEL IS NOT ONE OF THOSE DRIVERS WHO HANGS AROUND IN F1 BECAUSE HE LOVES IT

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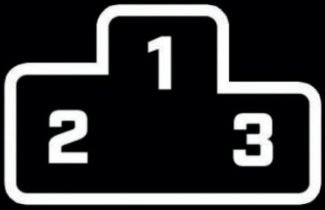
PICTURE: GLENN DUNBAR. ILLUSTRATION: BENJAMIN WACHENJE



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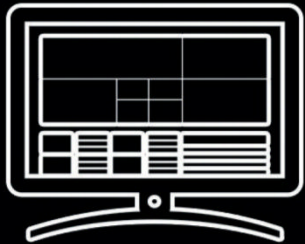


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