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JOHN BARNARD

F1'S DARK LORD

Why it was 'his way or the wrong way' for design guru

VALTTERI BOTTAS

"I CRIED LIKE A BABY"

Lewis's "wing man" on pain of losing grand prix victory

F1 TECH SECRETS

HARDEST EVER HAT

Exclusive insight into best-ever head protection for F1 drivers



**HOW F1
FAILED
ALONSO**

**Why Fernando's
decision to quit
shames Formula 1**



F1 RACING OCTOBER 2018 NUMBER 272

DID FORMULA 1 FAIL ALONSO?

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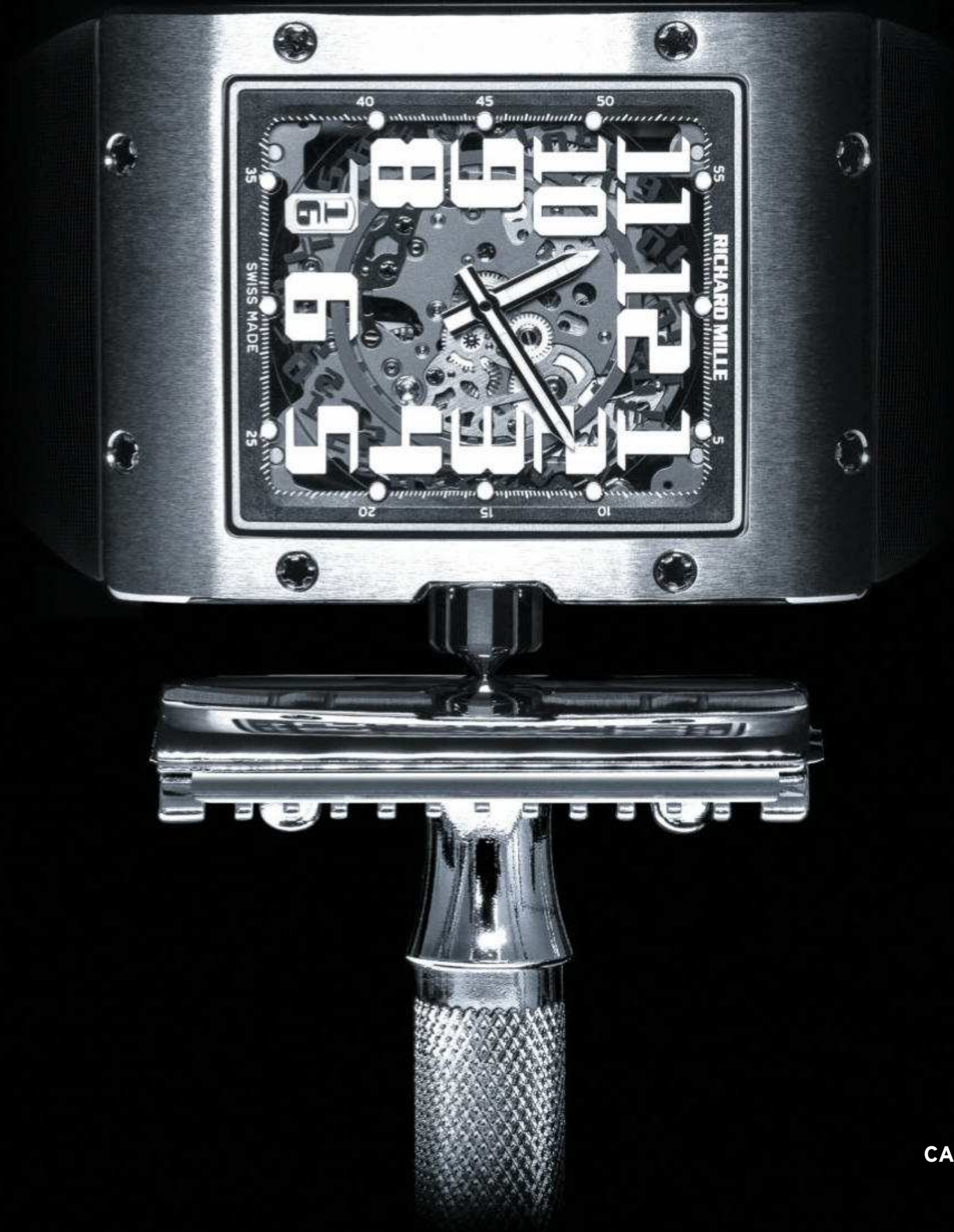
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IT IS AN ABSOLUTE DISGRACE THAT F1 CANNOT GIVE AN ACE SUCH AS FERNANDO A COMPETITIVE CAR. HE IS ONE OF THE ALL-TIME GREATS, AND BECAUSE HE CAN'T GET INTO ONE OF THE ONLY SIX CARS THAT CAN EVER WIN A RACE UNDER THE CURRENT BUSINESS MODEL, THEN HE MUST LEAVE. THIS IS A SIGN, IF WE EVER NEEDED ONE, THAT F1 IS COMPLETELY BROKEN.



THE LAST ACTION HERO

Few would dispute that Fernando Alonso is an all-time F1 great, yet he's also one of the most divisive characters ever to have raced. So as he prepares to turn his back on the sport (for now), should he be blamed for the failure to achieve the level of the success his talent surely merits? Or has the sport let him down?

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DID F1 FAIL FERNANDO ALONSO?

{ YOU ASK THE QUESTIONS }

SERGIO PÉREZ

At 28, he's no longer one of the bright young things, but this Mexican racer, on a mission to give his "absolute best", insists there's much more to come - from him and the team he describes as his "family"



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The FIA have put years of research into a new, ultra-protective F1 helmet standard, and from 2019 every manufacturer must meet it. This is how it came about...

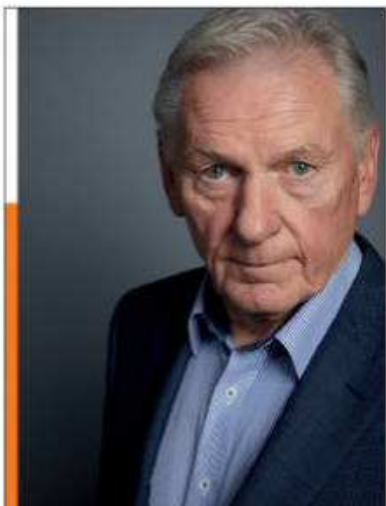


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NEW SAFER HELMET DESIGN FOR NEXT YEAR

THE LONG INTERVIEW

Formula 1's carbon-fibre pioneer was a legendary tough cookie, known as the 'Prince of Darkness' (at McLaren) and the 'Godfather of Scud' (at Benetton). Has time mellowed the father of some of F1's most beautiful cars?



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Anthony Rowlinson

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Farewell to F1's last action hero

Anger of course. Frustration, too. But most of all, relief. These have been the feelings shared between *F1 Racing* friends and family as news of Fernando Alonso's departure from F1 sank in.

The anger and frustration are easy enough to understand: as both Peter Windsor (p24) and Andrew Benson (p36) eloquently describe this month, a driver so richly skilled and aggressively competitive should surely have more to his account than two world titles and 32 grand prix victories. This is not to demean these considerable achievements, for Alonso's place in the record books alongside fellow two-time champs Alberto Ascari, Graham Hill, Jim Clark, Emerson Fittipaldi and Mika Häkkinen is secure and estimable.

Yet those three second-place title finishes for Ferrari in 2010, 2012 and 2013 with the 'joint-points second' (with Lewis Hamilton) in '07, speak to what might have been – and to what maybe *should* have been. The sense of relief comes from somewhere else – from an acceptance that an unfair struggle will soon come to an end and that new adventures await. So in that respect those of us who revere Alonso's warrior ways can be happy that he will find other arenas in which to rage for victory.

This, he admits, is what has come to matter to him most at this stage of his career – *winning*, or at the very least being in the fight for victory. Without that

opportunity, absent since 2013, the appeal of simply racing in F1 for its own sake could never appeal.

And here we return, alas, to anger, for F1 is lessened, even cheapened for Alonso's loss. I am by no means alone in believing he represented the last of a certain kind of old-school racer in F1: ultra-fast but not dirty; worldly, complicated, capable of volcanic rages, and, yes, a little bit dark. So while we wish the super-promising Pierre Gasly every success with his Red Bull Racing debut next year, how much more compelling would have been the war (for that's what it would have been) between Max and Fernando, had Alonso got the gig...?

It is to the eternal discredit of F1's team bosses and power-brokers that *somehow* room for Alonso wasn't found in a top team. And to those who've opined that he's "a bit difficult", when was Formula 1 ever meant to be *easy*? It was once – easily forgotten – routinely *lethal*, which very aspect did so much to infuse F1 with its heroic qualities.

Perhaps there's no room for such a brash and fearless character in contemporary, sanitised, Formula 1 and maybe, therefore, Fernando is better off far away from its often myopic concerns.

Whatever your view, come 2019 we'll have one fewer hero to celebrate in F1, as one of its most exceptional players leaves the field.

Adios, Fernando. You will be missed.

Contributors



ANDREW BENSON
BBC Sport's Andrew Benson gives his expert opinion of Fernando Alonso's decision to quit Formula 1. Read his analysis on page 36



ALISTER THORPE
Strict rules at the RAC Club in Pall Mall dictate that ties must be worn at all times, including for our photographer who shot John Barnard, p78



PAT SYMONDS
On page 26, the former Renault and Williams chief technical officer presents his views on the proposed wheel size changes in F1



STUART CODLING
Designer John Barnard was interviewed by our executive editor 'Codders', who you can see also obeyed the strict tie rule...

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Alonso becomes the youngest champ

As the Formula 1 world digests the news of Fernando Alonso's decision to quit, we're turning back the *Parade* clock to some of his most visceral moments.

From the time he entered the paddock as a callow but intense Benetton test driver, Alonso marked himself out as a special talent. In 2005 he beat Emerson Fittipaldi's 33-year-old record to be the youngest champion in the sport's history, and that characteristic intensity is on full show in this shot from the climactic Brazilian GP.

Third place (behind a McLaren 1-2) was enough to seal the title, and in parc fermé he jumped on his Renault's nose and released his emotions in a triumphant yell: "TOMA!"

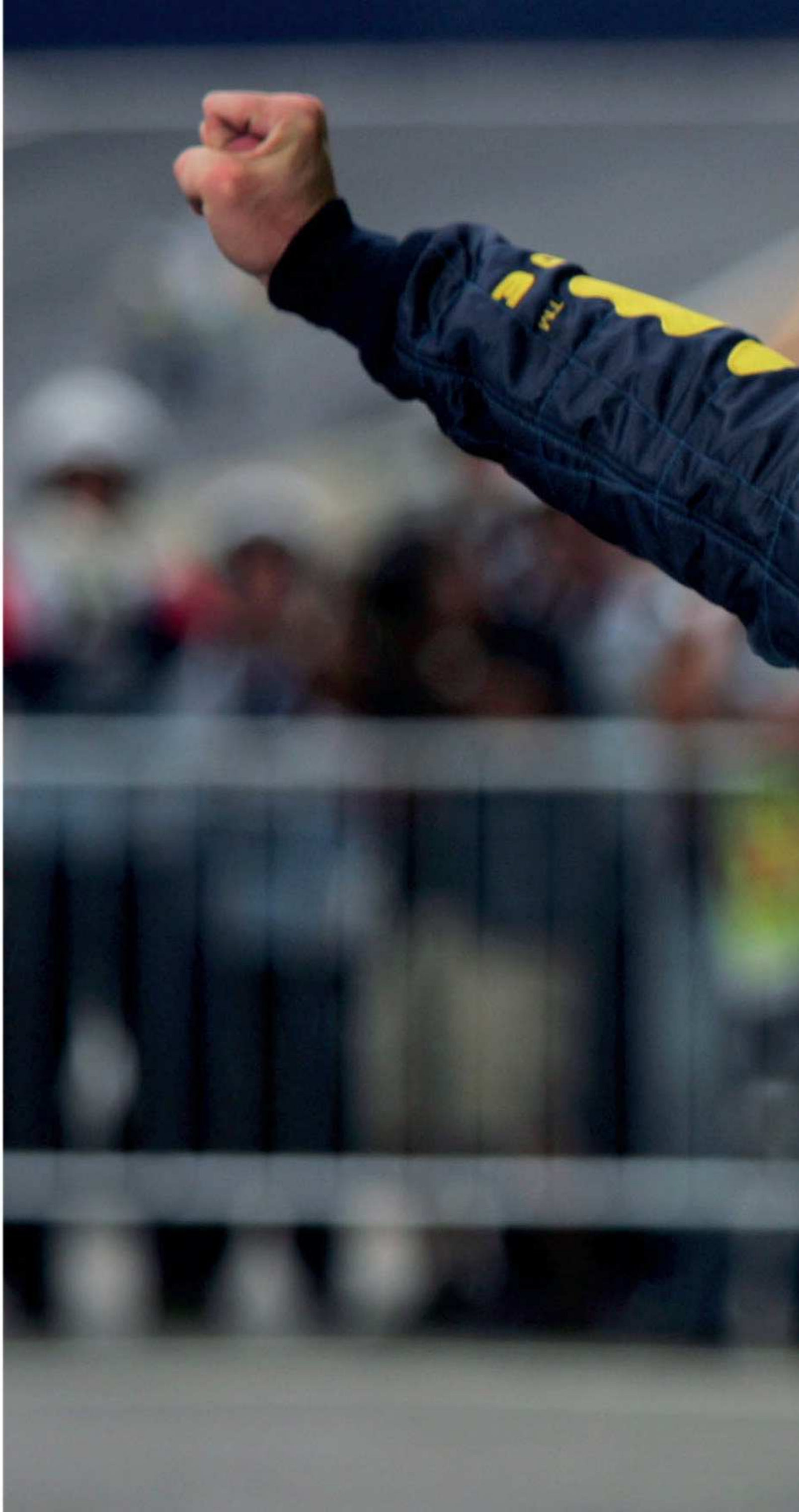


Photographer

Mark Capilitan/Sutton Images

Where Interlagos, Brazil

When 4.38pm, Sunday
25 September 2005





elf

GRAND PRIX

HANJIN

MELIN

RENAULT

GURU

MILD SEVEN

Telefonica

FERNANDO ALONSO

Capping off 2006 with a second title

Ferrari rocketed back into contention in 2006, making this season a real nail-biter – and one in which the new generation, represented by Alonso, properly asserted themselves over the old, led by Michael Schumacher.

Going into Interlagos, Alonso held a slim lead over Michael Schumacher, who had announced this race would be his last in F1 (until he made his comeback in 2010).

Schumacher had to win the race and hope that Alonso didn't score a point if he had any chance of taking back his crown, but an early puncture ruined Schumacher's hopes. Alonso claimed the title ahead of his move to McLaren for '07.



Photographer
Steven Tee/LAT

Where Interlagos, Brazil
When 4.56pm, Sunday
22 October 2006







Santander

Mobil 1

Mercedes-Benz

vodafone

Henkel

爱国者

JOHNNIE WALKER

0

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Hamilton & Alonso: too close to call

There was nothing to separate Fernando Alonso and his rookie team-mate Lewis Hamilton when they raced together for McLaren in 2007.

Going into the final race of the season, Hamilton was ahead on 107 points, with Alonso in his wake on 103 and Ferrari's Kimi Räikkönen on 100.

But on the opening corner of the Brazilian GP, Alonso saw an opportunity to go wheel-to-wheel with his team-mate and pass him for third place.

After a gearbox malfunction scuppered Hamilton's race, he finished seventh. Up ahead, Räikkönen won the race and took the title by one point from the two McLaren drivers, who finished on 109 each.



Photographer

Lorenzo Bellanca/LAT

Where Interlagos, Brazil

When 2.04pm, Sunday

21 October 2007

Five seasons without a victory

At the 2013 Spanish Grand Prix, Alonso scored the 32nd victory of his career. At Monaco two weeks later, he revealed a special one-off helmet celebrating all his F1 wins. He hasn't won since.

This helmet featured an intricate jigsaw design with each piece denoting a grand prix victory, in order of success, and Lorenzo Bellanca photographed it in the Ferrari garage just before FP1 on Thursday morning in Monaco.

Below the Ferrari logo were two final jigsaw pieces. They displayed an ace of clubs and the ace of hearts, a reference to Monaco's famous Casino, and perhaps a nod to Alonso's love of card tricks.



Photographer

Lorenzo Bellanca/LAT

Where Monaco, Monte Carlo

When 9.53am, Thursday
23 May 2013

Details Canon EOS-1DX,
85mm lens, 1/320th @ F2.8





SCHUBERTH
FERRARI

Schuberth

ER(KY)

动力
AI POWER

BAH '05

SMR '05

CAN '06

GBR '06

MON '06

KOR '10

ESP '06

SIN '10

ITA '10

JAP '06



MO

Making an impact at McLaren-Honda

After leaving Ferrari, Alonso returned to McLaren at the start of 2015 as the team began their new alliance with Japanese manufacturer Honda.

They would be three fruitless years for Alonso who could manage no higher than tenth place in the drivers' championship in 2016.

The season-opening GP that year started with a scare when Alonso, running in 13th, came up behind the Haas of Esteban Gutierrez. As they approached Turn 3 on lap 17, Alonso clipped the left rear of the Haas, hit the wall, then barrel-rolled into the gravel trap at high-speed.

Thankfully, he was able to escape from his cockpit without serious injuries.



Photographer

Daniel Kalisz/Sutton Images

Where Melbourne, Australia

When 4.32pm, Sunday
20 March 2016

Details Canon EOS-1DX MkII,
600mm lens, 1/800th @ F5.6





14

Mobil 1

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PIRELLI

Honda

CHANDON

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KPMG

JOHNNIE WALKER

ICEMAN COOL IN RED-HOT DRIVER MARKET

01 Two big questions hang over the remainder of the driver market as Formula 1 prepares for the closing long-haul leg of the 2018 championship: will Ferrari keep Kimi Räikkönen and, since McLaren announced just after the Italian Grand Prix that they have opted to partner Carlos Sainz with their protégé Lando Norris, how do Mercedes solve the problem that is Esteban Ocon?

Three months ago, Ferrari had decided to replace Räikkönen with Charles Leclerc, after the Monegasque's stunning debut with Sauber this year. Then came the death



Despite securing pole and finishing second in Italy, Räikkönen could still find himself replaced by Leclerc (above) for 2019

of president Sergio Marchionne, and with it uncertainty over much more at Ferrari than just the driver line-up.

Marchionne's responsibilities at Fiat and Ferrari were split between three different people and the new chief executive officer of Ferrari, Louis Carey Camilleri, attended the Italian Grand Prix and stated that the team had "not taken a decision yet" on Räikkönen's future.

"When we take that decision, and there is no time frame, you will be the second to know," he said.

Marchionne's death has changed the balance of power at Ferrari dramatically. When he was alive, no-one had any doubt that he was in charge, and his restructure of the team, aimed at promoting creativity, has led directly to its rise in competitiveness.

And it was he who had decided to jettison Räikkönen and promote Leclerc. So, do the new bosses stick with a plan hatched by their dynamic, successful predecessor? Or do internal politics change things?



Yet another mistake has left Sebastian Vettel on the back foot in his battle with Lewis Hamilton

Shocking Belgian GP startline shunt proves the value of head protection device

Team boss Maurizio Arrivabene was frequently belittled by Marchionne in meetings with other teams but now has a bigger role in the big decisions. And Sebastian Vettel has made little secret of his desire to stick with Räikkönen. Against that, the Finn has not exactly excelled consistently through his time at Ferrari and Italian media sense a strong desire from outside – fans, public, television – for the introduction of an exciting young talent. The feeling is that Leclerc remains the favourite, but it could easily go either way.

The future of another talented manufacturer protégé, Esteban Ocon, appears to be in limbo after McLaren decided to part company with Stoffel Vandoorne at the end of the season and replace him with a product of their own young driver programme, Lando Norris. Given his Mercedes affiliations, Ocon might seem like a less smooth fit than a driver who has been under McLaren's wing for some time, but his F1 credentials are more established than Norris, who will be

19 when he makes his debut. Norris has enjoyed a stellar trajectory through the junior formulae but he has been inconsistent in Formula 2, where (at the time of writing) he has not won a race since April.

Vandoorne, very much a product of the previous regime at McLaren, is understood to have been out of favour with recently installed team boss Zak Brown for some time.

The takeover of Force India by a consortium led by Canadian businessman Lawrence Stroll has created a complicated dynamic over some of the remaining seats. Stroll wants son Lance to switch soon – and certainly for 2019. But that means one of the current Force India drivers will be dropped.

Stroll is reluctant to move this year for two reasons: he does not fancy the idea of stepping into a car late in the season and trying to look good; and he does not want to leave his friend Ocon without a drive. But that might be what happens in 2019.

The situation is even making Mercedes question their junior programme. Team boss Toto Wolff said in Italy: "It has come to a point now where we need to decide what we want to do. If the drivers are stigmatised as Mercedes drivers, it seems to be not the best selling proposition.

"I still feel that the best talent needs to be supported and developed and I hope we find a solution for these guys. If we can't, I would question the junior programme." Wolff, for all his contacts, won't find it easy to solve this one.

NORRIS HAS ENJOYED A STELLAR TRAJECTORY THROUGH THE JUNIOR FORMULAE BUT HAS BEEN INCONSISTENT IN FORMULA 2



Lando Norris will replace Stoffel Vandoorne at McLaren next season

HAS VETTEL BLOWN IT ALREADY?

"Own goal." That was the verdict of three of Italy's major newspapers following the Italian Grand Prix, which Lewis Hamilton won with one of his greatest drives, but which Ferrari lost with the latest in what can be argued as a series of errors or misjudgements by the team and their lead driver, Sebastian Vettel.

Starting with a Ferrari front-row lock-out, the race ended with Hamilton extending his championship lead to 30 points when Ferrari should be heading to Singapore with the very real possibility of Vettel re-taking the lead.

The battle between Mercedes and Ferrari has been close and intense all year, but the Italian team have had the fastest car for much of the season, apart, perhaps, from a period comprising the French, Austrian and British GPs.

Yet Hamilton won three of the last four races of the European season – all against the run of form and following misjudgements or mistakes from Ferrari.

In Germany, Vettel crashed out of the lead in a late-race rain shower, as Hamilton was catching him hand-over-fist. Then in Hungary, Ferrari had the faster car but could not get it to work as well in the wet qualifying as Mercedes, who locked out the front row and organised the race for Hamilton to win. Ferrari threw away a chance for Vettel to pressure Hamilton in the lead by delaying a stop long enough to surrender a position back to his team-mate Valtteri Bottas and force Vettel to pass the Finn on track.

In Italy, Vettel slid into Hamilton and spun as the world champion was passing him around the outside of the second chicane on the first lap of the race.

There were also questions over Ferrari's management of qualifying, when Kimi Räikkönen ended up on pole after running last in a train of cars and behind Vettel, thereby benefiting from a tow from his team-mate.

Vettel, who also admitted to making mistakes on his lap, was unhappy about something after qualifying but would not say what it was. The presumption is that it was the team's failure to alter its strategy of alternating who runs last in qualifying on the basis of fairness.

Equally, it appears there was no instruction from the management at Ferrari as to how Vettel and Räikkönen should handle the first lap. "We have pilots, not butlers," team boss Maurizio Arrivabene said afterwards.

Nor are these the only mis-steps from Ferrari and Vettel. There was also the error at the Safety Car restart in Baku, when Vettel overshot a passing attempt on Bottas and slipped from what would have been first or

INDIVIDUALLY, THE MISJUDGEMENTS AND MIS-STEPS ARE SMALL. BUT THE CUMULATIVE EFFECT IS LARGE. VETTEL SHOULD BE LEADING THE CHAMPIONSHIP COMFORTABLY



Vettel's mistakes in France, Germany and Italy are gradually reducing his title chances

second to fourth, and Hamilton won. And the penalty he earned for blocking Carlos Sainz in Austria qualifying, which earned a grid penalty without which he would probably have won. *And* the crash with Bottas at the start in France. Individually, the misjudgements and mis-steps are small. But the cumulative effect is large. Vettel should be leading the championship comfortably.

"I'm not too worried," he said after Italy. "I think we have the pace. The points sound a lot but actually it doesn't take a lot to get them back."

He's done it before, for Red Bull *against* Ferrari in 2010 and 2012. But in each case he had a much larger performance advantage than he does now, and relied on Fernando Alonso's bad luck. If Vettel and Ferrari don't want 2018's history to be written as 'how they threw the championship away', they need to sharpen up. Fast.

HALO HERE TO STAY

The debate over the decision to introduce the 'halo' head protection system to F1 this year appears to have been effectively ended by the terrifying accident at the start of the Belgian Grand Prix.

Fernando Alonso's McLaren was launched over Charles Leclerc's Sauber when Renault's Nico Hülkenberg missed his braking point for La Source hairpin and slammed into the back of Alonso's car. Television replays and photographs of the incident show that not only did the McLaren bounce off the halo of Leclerc's car as it flew

03

F1 DIGEST THE MONTH'S BIG STORIES AT A GLANCE

14.08.18 Fernando Alonso announces his departure from Formula 1



16.08.18 McLaren sign Carlos Sainz as Alonso's replacement for 2019

20.08.18 Red Bull promotes Pierre Gasly to fill Daniel Ricciardo vacancy



23.08.18 New Racing Point Force India team granted F1 entry

24.08.18 Pirelli confirm simplified tyre naming system for 2019 season

25.08.18 Losing Force India bidders Uralkali threaten legal action

31.08.18 Michelin rule out immediate return as F1 tyre supplier

31.08.18 Liberty reveal provisional 21-race 2019 F1 calendar



02.09.18 Romain Grosjean excluded from Italian GP over illegal floor

STEVEN TEE; ANDY HONE; SUTTON IMAGES

LET'S PLAY AGAIN.



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Alonso's McLaren left its mark on Leclerc's halo and for many was final proof that the device was now here to stay



over it, but that the device also deflected the right-front wheel when it appeared from some angles to be on a collision course with Leclerc's head.

The FIA has not completed its investigations and cannot say for sure yet whether the halo saved Leclerc. But the incident did underline that the risks of serious injury or death from impacts with the driver's head are very real, and that the halo stood up to its first 'live' test extremely well. It also justifies the halo's introduction on the basis of two related points that the FIA took into account in their decision to impose the halo in 2018:

- » *the claim that such incidents happen at the top levels of motorsport on average at least once a year;*
- » *the concern that once a device had been tested and developed and proved to work, not introducing it would lead to significant liability risks in the event of an injury or death.*

Following the crash, a number of leading figures took the opportunity to point out how effective the halo had been. Chief among them was

Alonso himself. One of the vast majority of senior drivers who had backed the halo from the start, Alonso said: "The positive side is we are all OK, especially Charles. I flew over his car and the halo was a good thing to have. I think for him it helped, looking at the replay. And for me in 2012 [when Romain Grosjean's Lotus narrowly missed his head in a similar accident in the same place] I would be happier if I had the halo. It is a good proof. We didn't need any proof but it is a good thing."

Nico Rosberg, another vocal proponent of the halo, posted a picture of the damaged halo on Leclerc's car on Twitter and wrote: "We can end the halo discussion now. It will save lives!" Felipe Massa added: "After seeing this, we can say: 'The halo is beautiful!!!"

Leclerc was initially ambivalent when speaking after the crash, saying: "To be honest, in some case it is useful. If today, it has been useful or not, I don't know. I don't know what would have happened without it but in some cases it is definitely helpful." Having had time to digest the incident fully, he posted a picture of Alonso's car on top of his, and wrote: "Never been a fan of the halo but I have to say that I was very happy to have it over my head today."

A revised halo design, which FIA F1 director Charlie Whiting says he expects some people to find more aesthetically appealing, is being researched for likely introduction in 2021. Halo is here to stay.

FOLLOWING THE CRASH A NUMBER OF LEADING FIGURES TOOK THE OPPORTUNITY TO POINT OUT HOW EFFECTIVE THE HALO HAD BEEN

F1 MASTERMIND



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- Q1 Tyrrell's 14 Formula 1 poles were achieved by Jackie Stewart and which two other drivers?
- Q2 How many times did Stirling Moss finish second in the world championship and in which years?
- Q3 Who was the last driver to be disqualified from a race at the Brazilian GP in 2015?
- Q4 Four drivers began their Formula 1 careers under the age of 21 and subsequently went on to win a world championship. Who are they?
- Q5 What took Max Verstappen 23 F1 races that his father Jos managed in only six?
- Q6 True or false: 1999 was the last time the championship consisted of 16 races or fewer?
- Q7 At which circuit has Fernando Alonso managed the most podiums without winning: Interlagos, Istanbul or Spa-Francorchamps?
- Q8 Who was older when they won an F1 race for the last time: Gerhard Berger or Damon Hill?
- Q9 The Turkish Grand Prix last ran in 2011 but how many times was it held?
- Q10 How many Formula 1 races did Felipe Massa win during his career?



1 Patrick Depailler/Jody Scheckter 2 Four (1955-58) 3 Felipe Massa 4 Fernando Alonso, Sebastian Vettel, Jensen Button and Nico Rosberg 5 First podium 6 False, it was 2003 7 Interlagos, 8 podiums 8 Hill by 13 days 9 Seven 10 11



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THE RACER'S EDGE

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driver or two. Generally speaking, however, Bernie's approach to racing drivers was pretty raw: they were dispensable and they could be re-created overnight.

Liberty, though, are different. Their mandate from the start has been to make F1 The Greatest Show on Earth. Liberty's John Malone didn't start life in second-hand car yards; his empire grew directly from the media business – from radio, TV and cable.

Which is why The Show is so critical to Liberty. As an organisation they're clearly not cut out for under-the-table deals. They crave a nice, clean, globally watched show that generates billions in sponsorship and TV revenue.

Which brings me back to Fernando. You would have thought that a driver line-up that includes Ricciardo-Verstappen *and* Alonso-Sainz (I suspect Fernando would have loved to have had Carlos in the other car) would be much better for The Show than will be Verstappen-Gasly/Ricciardo-Hülkenberg?

And please don't think that the teams are not open to persuasion. It's just that it's easier, as I say, to focus on the gravlax and the second glass of Château Lafite than it is to sit down with Renault and Red Bull to see how they can work together to make an Alonso deal happen. It would have involved serious influence – but it would have been influence well-spent at a time when pay-TV audiences are continuing to decline and Alonso himself is going to be generating major viewing stats elsewhere. And as a double-whammy you would still have had Daniel scoring a win or three at RBR.

"But Renault didn't want Alonso – and vice versa!" I hear you say. Nonsense. Of course Fernando's difficult. You'd have to be a cretin, though, not to appreciate how good he is on race days. As for Fernando: don't make me laugh. You're telling me that he would have refused a number-one drive at Renault for the right money? Maybe, if he was retiring... but he's not. He still wants to race. It's just that he doesn't want to race where he is....

Bottom line: leave it to the teams and, generally speaking, it'll be a mess. They will act only in their own interest and not in the interest of F1 as a show. Ergo, Liberty should be the only game in town when it comes to seeing the bigger picture.

Problem is, they haven't been watching it. No previous commercial rights holder "interfered" with team-driver negotiations, so why should they?

"Why shouldn't they?" is the better question. A few years ago, I suggested in a Christmas edition of *F1 Racing* that an F1 of

KEEP THE BEST NAMES IN THE GAME

Although Fernando might say that he made his decision to quit F1 "months ago", I'll bet my autographed copy of *Jim Clark at the Wheel* that he made up his mind only when Renault told him they weren't interested.

In other words, the second-biggest name in F1 would be racing in 2019 if only some of the power-brokers had found the time to stop munching their lunches in dark-windowed motorhomes and for once done something useful.

I note that Fernando has thanked Chase Carey of Liberty for trying to persuade him not to leave F1. I don't doubt that Carey used his best endeavours – but trying to convince Fernando to spend another year in the midfield with McLaren is very different from getting your hands dirty and brokering a deal for Fernando to drive the lead, factory Renault.

Because that's what should have happened. The new owners of F1 should have realised that the "influence" needed to place Fernando at Renault and Daniel back at Red Bull would have been chicken-feed relative (a) to the uplift this would



Alonso and Sainz might have made a good partnership at Renault; now Sainz will replace Fernando at McLaren

have given the championship and (b) to the money that no doubt will be spent on new engines and new car regulations over the next few years.

And let's not forget the words of Renault's President, Carlos Ghosn, to Nigel Roebuck, a year ago in Paris: "We would *kill* to have Alonso...."

There are those who say that Bernie Ecclestone *would* have made it happen. I don't buy that. We knew how Bernie's brain was working when Seb Vettel left Red Bull at the end of 2014. That was the perfect time to place Fernando at Red Bull – yet Bernie did nothing and left McLaren to do their worst.

In fairness to Bernie, we should remember that he never made driver placement his thing. Yes, he once put Jacques Villeneuve in a Sauber when he felt the midfield needed a boost; and he was always sympathetic to the odd Brazilian

Fernando Alonso
wasn't tempted by
another season
in a McLaren



the future should feature a driver auction before every race. And I still think it's a great idea: no driver can be hired by the same team for two consecutive races; the auction becomes a huge TV event – watched globally, live, with teams saving wild cards or hiring jokers as they wish. The build-up is full of unknowns and suspense. Every driver at some point races quick cars and back-of-the-grid makeweights. The best drivers are paid the most – but the salary scale (auction price), in effect, is based on results – and the total amount of money spent is self-regulating, so there is no need for dead-end concepts such

as budget caps. Such a format would be perfect for Liberty Media. It is about marketing, promotion, pay-TV, social media and huge numbers.

Could or should Chase Carey and Liberty try to persuade the top teams to keep the top drivers in the sport?



“ YOU’RE TELLING ME THAT HE WOULD HAVE REFUSED A NUMBER ONE DRIVE AT RENAULT FOR THE RIGHT MONEY? MAYBE, IF HE WAS RETIRING... BUT HE’S NOT. HE STILL WANTS TO RACE ”

We're a long way from that; indeed, given the way most F1 people think, it will probably never happen.



The Alonso move, however, would have been do-able and great for the fans. More fans mean more TV viewers, more sponsors and more revenue – in Spain where pay TV and Alonso's poor car performance in recent years have been killing the country's F1 profile, but also world-wide, for the Fernando name is still that big.

Most of all, though, it would have seen a promoter actually promoting. Not wasting loot on unimportant peripheries or over-complicated technology. Just ensuring that we have the best possible drivers in the best possible seats. Simple.



UNDER THE HOOD

PAT SYMONDS

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IMAGES

a reasonable cavity air volume is required to provide robustness, and therefore the diameter will probably grow by around 40mm.

While the larger-diameter wheel will look more contemporary, this isn't the real reason for the changes. The wake from the front wheels of an F1 car is fundamental in the performance of not only that car, but also the one following it. Narrowing the wake and placing it marginally higher are both steps in the right direction. Also, one of F1's stated aims is to close the gap between the front and back of the grid. The difficulty of simulating the deflected tyre in both CFD and the wind tunnel is one of the factors that exaggerate that gap, because the complexities of the solutions favour the bigger teams. A slightly

more rigid sidewall again moves in the right direction towards this goal.

The appendix gives targets for the supplier to work to, and while it's the first time something like this has been seen, there is a precedent: the teams worked with the FIA in 2015 to produce a similar target letter.

The headline grabber is the stated desire to have specific performance gaps between compounds with explicit degradation rates for each that should produce stochastic strategies. This was embodied in the 2015 document, but this time the targets are more aggressive since teams will only execute multi-stop strategies if there is a considerable time advantage in doing so (and if this significantly outweighs the risks of losing track position or botching a stop).

Unfortunately the very intellectual capacity of the teams that brings so much to F1 may be the downfall of this altruistic notion. Over the past couple of seasons Pirelli have brought softer and softer compounds to races and yet still we face one-stop strategies. The tyre degradation calculated on Friday is rarely seen on Sunday, and the reason for this is that the teams have calculated that running at lap times below peak performance yields fewer stops and ultimately a better race outcome. While there will be a limit to the effectiveness of this practice, it may well lie beyond the targets set out in the document.

If we suppose that two or more stops is the more entertaining way to run the race, then how do we ensure this happens? The simplest way is to mandate all three

IT'S TIME FOR A FEW TYRE CHANGES

In late July the FIA released the tender document for the supply of Formula 1 tyres from 2020. It may seem like dry reading but it is probably one of the most significant pointers to the future of F1 we have seen for a long time.

Beyond the somewhat mundane legalities of

the tendering process, the document reveals two major changes to the formula. Firstly it confirms at last the switch from 13" wheels to 18" in 2021, and secondly it requires that these larger-diameter tyres be used without tyre blankets. Furthermore the document has an appendix that reveals detailed technical targets of performance and characteristics that the supplier is asked to use their best endeavours to achieve.

Let's examine some of these changes. While the wheels will be larger in diameter, the front tyre will be 35mm narrower. The outer diameter of the tyres isn't specified because although they will have a lower profile than the current rubber, the enormous loads imposed by an F1 car dictate that



The switch to 18-inch wheels has been confirmed for 2021



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compounds are used in a race and for a minimum of, say, 25 per cent of the distance. The latter requirement would stop the practice of first or last stop laps or single-lap stints behind the Safety Car to get rid of an unwanted tyre. The actual percentage would need careful simulation to ensure multiple strategies were effective – too close to 33% could obviously have everyone stopping together. F1 could also take a leaf out of Moto GP's book and allow teams to run different compounds on the

front if they wished. This could lead to multiple permutations of how to use tyres in a tactical way leading to what is termed 'peak end effect', where humans perceive excitement at the end of an event to have a more profound impact on enjoyment.

If multiple stops became mandatory we could consider a different approach to compounding. The appendix suggests the tyre must recover from overheating quickly and that the operating temperature window be much wider. One could

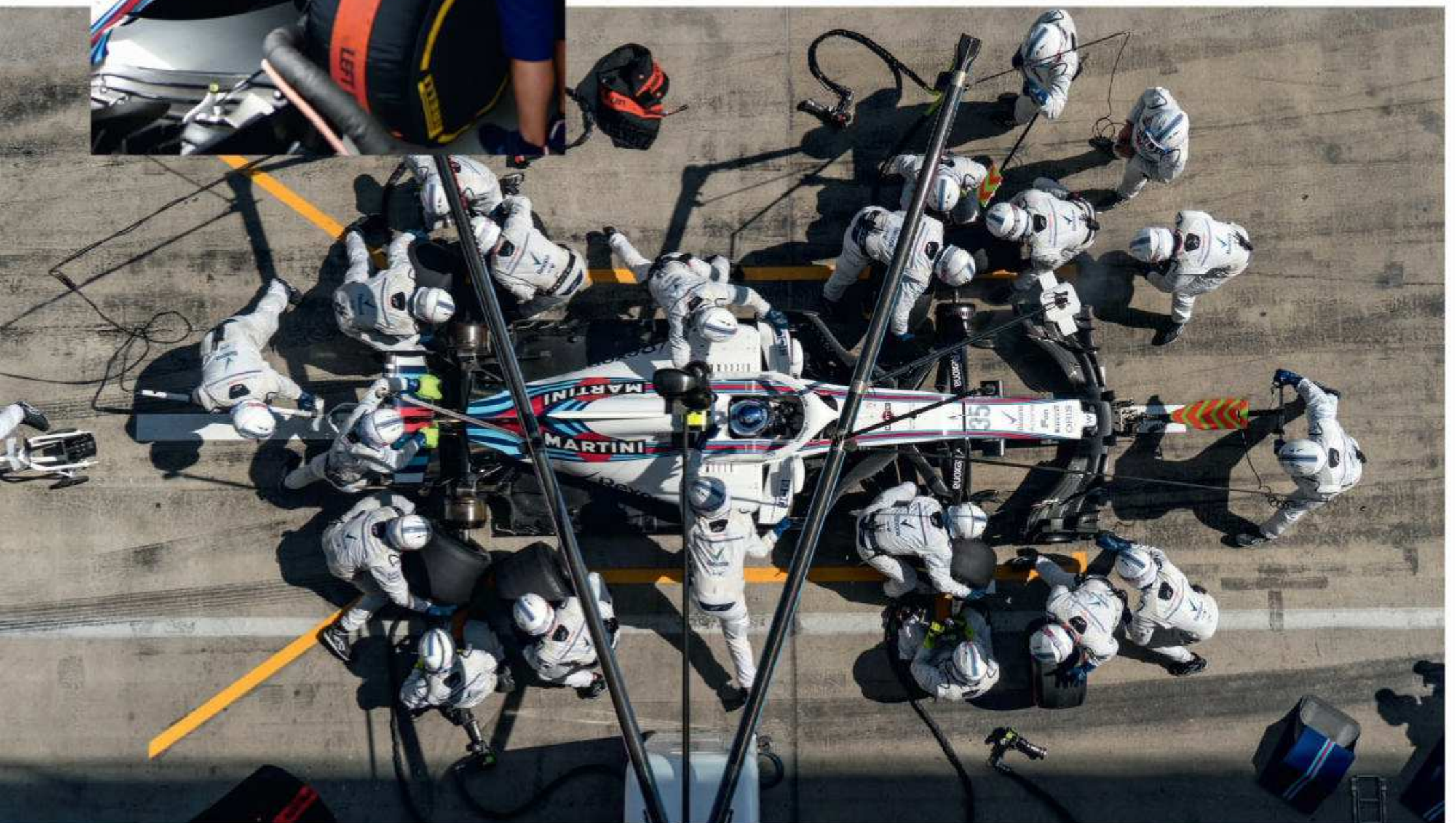
go further and suggest the tyres should have very low degradation to allow the drivers once again to push them all the way through the stint. This may determine the tyre has less ultimate performance, but does this matter? Already we're seeing much of Sunday's competition being run with strategic nuances that don't enhance the sport.

The ban on tyre blankets is a good thing, not just because of their extremely high cost and the enormous electrical demand they impose, but more importantly it requires another skill set from the driver – something we're trying to encourage. No longer will a driver be able to blast out of the pits and maintain any small advantage he had at the pit exit. In future he will have to manage a car with less-than-perfect grip. This in turn will lead to tactics in the race becoming more dynamic, although we must beware of degradation being so low that the overcut becomes the accepted passing manoeuvre.

So, will these changes bring about the required changes or indeed a new supplier? We will soon know the latter but on the former we can but wait.



New rules could mean more stops, but they will not include tyre warmers from 2021



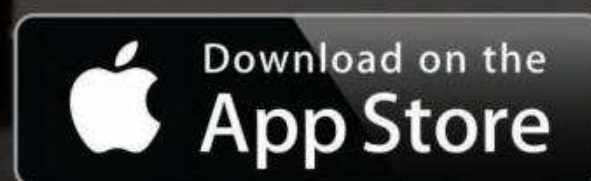
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Singapore: the face of F1's future



Profile: Petronas CEO Giuseppe D'Arrigo



How Force India were rescued



STRAIGHT TALK

JAMES ALLEN

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SINGAPORE'S BLAZING TRAIL

The more you look at the way F1 is developing, especially the way that the owners Liberty Media approach race promotion, the more you realise what a great job the Singapore Grand Prix organisers have done over the past decade.

In many ways they are the pioneers of the new F1 race experience – not only by hosting the first night race, but by introducing so many elements that make going to an F1 race a true 'experience'. They have combined motorsport and music; not just a single well-known band, but essentially a mini music festival every year, as well as layers of other entertainment, food and other activities.

Singapore is the blueprint for how Liberty would like F1 events to be in the future, stretching out for a week of activity, with seminars and business conferences as well as fan-engagement events. This is not surprising considering that the people behind the Singapore race are entrepreneurs, led by Ong Beng Seng, who have long promoted the larger-scale music events in the region as well as building businesses.

They also take all kinds of initiatives around interactions with teams. For example, Red Bull or Mercedes 'superfans' can get a seat in the stand

opposite their favourite team's garages and have an evening with the team during the race weekend.

The business model of the Singapore GP is also interesting and one that can be used as a blueprint for a sustainable event. The government, through the tourist office, takes 60 per cent of the financial risk on the race and Ong's team take 40 per cent. The rewards in the form of profits are shared in equal proportion. It helps that Singapore is run like a company as much as a country. They can make quick decisions on infrastructure projects and get things done in a way that would be very difficult in many other countries.

The race costs around £78million a year to stage including the hosting fee, and the minister responsible for the race said last year that the receipts to Singapore from associated tourism net the country around £700m. It also positions Singapore as a hub, not just as a stopover for Europeans and Americans heading for Australia.

The government has also made sure that around

Singapore is a model GP from a business and spectator slant, and it looks good under the lights



90 per cent of the set-up work around the Grand Prix goes to small businesses in Singapore. This not only boosts their revenues, but also builds up competences in new areas that they can then use to gain more international business. So the event has turbocharged the cottage industry around it. But as Chase Carey and his team look to drive growth in F1, they will need more strong promoter partners like Singapore to expand the calendar.

The discussions around a Miami GP – a final decision on which is due shortly after this issue of *F1 Racing* is published – reflect the potential willingness of Liberty to share some of the financial risk. This got onto the radar of some of the financially strapped events in key F1 heartlands such as the UK and Italy, and it will be interesting to see whether Liberty takes the step of mirroring to some extent the business model of Singapore with a shared risk/reward model with some promoters. I don't believe that's on the table with Silverstone currently as it looks to renegotiate its deal after 2019.

Projected revenue from race-hosting fees for 2018 is £477 million, slightly up on last year's figure thanks to the German GP making a re-appearance. A deal has been agreed for that event to return in 2019, having been a biennial fixture in recent seasons, opening the possibility for it to return to annual status. Negotiations are also taking place on four continents, and the frontrunners for future events include Buenos Aires, Copenhagen and Hanoi.

Last season F1 renewed its contract with Singapore for another four years. Liberty took a small haircut on the deal, since the Singapore organisers were able to drive a hard bargain, knowing their value to F1.

Renewing the Singapore deal was an important move because that race has become the one most of the F1 business community attends. After the financial crisis of 2008/9 it was noticeable that the top execs of companies sponsoring F1 stayed away from Monaco, not wanting to be seen as 'fat cats' while workers were being laid off. It's taken a while for those people to come back in numbers to Monaco. But even at the height of the crisis, they were still attending Singapore because it could be painted as a must-go, the gateway to new markets.

Another factor in Singapore's favour is how it looks. The night race on the streets makes the cars look great and it is noticeable that TV companies and sponsors use clips from Singapore in their 'sizzle reels' showcasing F1. This small island has made itself indelibly associated with all that is good about the sport.

THIS MONTH



Giuseppe D'Arrigo

Managing Director and Group CEO, Petronas Lubricants International

From sponsoring a midfield team more than 20 years ago, to underpinning the most successful hybrid powertrain in Formula 1, Petronas is a textbook example of how an ambitious partner can push beyond the traditional model of sponsorship – given an increasing commitment, a desire to find the extra performance advantage and, crucially, the right investment to allow this to happen

CV

2016-present

Chief Executive Officer and Managing Director of Petronas Lubricants International

2014-2016

Managing Director and Chairman of European Region of Petronas Lubricants International

2012-2014

General Manager Italy and European Leader, Wayne Business Unit, GE Oil and Gas

2011-2012

General Manager Italy, Dresser Wayne Business Unit, GE Oil and Gas

2007-2011

General Manager Retail, Shell Italy

2002-2007

North Europe B2B Fuel Cards Business Manager, Shell

1999-2002

Senior Strategy Consultant, Shell

1996

Joins Shell

1989-1994

University of Milan/Warwick University, International Law & Politics

F1 Racing: How has the involvement of Petronas changed since you came in as a sponsor of Sauber in the 1990s?

Giuseppe D'Arrigo: The history of our involvement has been increasing commitment. It's not a matter of branding or commercial success but one of technology – finding the extra decimal point that provides the performance advantage.

When we started with Sauber, 20 years ago, the main objective was to make sure that the brand was relevant and visible to the audiences of the time. Over the years we developed global operations and technical skills, particularly in fluids, and we thought it would be fitting to move up a couple of notches – to support our efforts from a technical point of view.

So we started this approach from the beginning of our partnership with Mercedes in 2010, but it was from 2014 onwards that it came to fruition in a very clear way. With the regulation change to hybrid power units we found a much better environment for our technology to really deliver the maximum performance.

Today we have nearly 200 engineers and scientists across the globe looking at developing the products, and about 14 of them are dedicated to the Formula 1 programme – that is the fuel, hydraulics, battery pack and engine fluids.

F1R: 70 years ago you could put aviation fuel in an F1 car. How useful is it to you that the cars are now running on products that are much closer to what ordinary motorists can actually buy?

GDA: The products are pretty close – the fuel is about 92 per cent the same, the lubricants about 95 per cent the same. There are some particular differences because of the performance requirements in Formula 1, and the regulations, but that is what challenges us to be innovative. And some of the specific solutions – for instance the same molecules – we found for F1 we're now applying on the road, such as CoolTech solution in our Syntium product. Some of them require a tweak to be suitable for the road – but the thinking behind them, the technology, is the same.

INTERVIEW STUART COOLING

F1R: Have you learned from – for example – the partnership between Shell and Ferrari, with their trackside lab?

GDA: I think there is greater integration in the team and the back-end side of the company. Also we have two people, not one, working here [trackside] full time. I think Shell is operating in a very professional way, doing an excellent job for Ferrari, but we believe that we're doing a better job for Mercedes over the past few years. It's very important for us to be keeping the game up and recognising that our competitors have the same objective as us.

We believe we have the right approach, competences, and the right formula to win in this space.

F1R: How significant has the investment in that side of the programme been to elevate you into this position?

GDA: Yes, it's not just about presentation. It means having a programme and of course that means money as well. To give you an idea, over the past three years we have nearly quadrupled our Research and Development spending. We opened a new R&D centre in Turin five months ago and we invested more than €60million in this venture. It's a state-of-the-art facility where we test both conventional and unconventional solutions to the current and future mobility challenges.

We're only the tenth-largest lubricants business in the world. We're growing fast, though there's some way to go before we reach the top five, but for sure we're the company that has invested more as a percentage of revenues. That's because technology is a key differentiator, and a key enabler for us to find solutions to meet customer requirements.

F1R: You've recently announced a global recruitment campaign for a new trackside fluid engineer. What are your ambitions for that?

GDA: We view it as a rare and exciting opportunity for new engineering talent to find a different way in to this world. And it's a really cool job! You can find the entry criteria on our LinkedIn page.



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PETRONAS

THIS MONTH

How Force India were saved from extinction

PICTURES



The Force India team is under new ownership after being saved from administration during F1's summer break. They will complete the season under the name Racing Point Force India, following a hastily agreed arrangement with governing body the FIA and the Formula 1 Group.

The rescuer is a consortium led by Canadian billionaire Lawrence Stroll, father of Williams driver Lance, but the deal was not without controversy. A transfer of naming rights and prize money needed unanimous agreement but was initially blocked by McLaren, Renault and Williams because of concerns that the new entity would become, in effect, a Mercedes B team. There remain questions about the arrangement even though the team began the Belgian GP with all parties saying they had come to an agreement.

The sale and ownership transfer was complicated by a number of Indian banks which were major creditors of former owner Vijay Mallya. Stroll had intended to buy the

“**STROLL HAD INTENDED TO BUY THE SHARES OF THE TEAM AND CARRY ON AS BEFORE**”

shares of the team and carry on as before, keeping the prize money and rights. The need for the banks' agreement meant that could not be done in the time required. Instead Stroll bought the assets and the old entity was declared defunct.

Chief operating officer Otmar Szafnauer, now CEO and team principal after the departure of deputy team principal Bob Fernley, said: “Once that happened we needed a new entry into Formula 1 and to gain a new entry in a short period of time takes a lot of work.” The arrangement reached with the FIA was that the old team would be disqualified from the championship on the grounds of not competing in all the races, and the new team would start from zero points, while drivers Esteban Ocon and Perez kept the same engine and gearbox allocation.

Szafnauer initially said in Spa that the other teams had “signed a document that enables us to keep the (prize) money Sahara Force India earned in years past”. As the weekend developed it emerged it was not that simple, and a number of teams – including Haas and McLaren – had questions about the unprecedented process by which the new team was granted an entry at a cost of €25m. There were also concerns about the fairness of the new team being allowed to keep what are known as the “column one” prize-money payments. This is an equal amount for all the teams who have finished 10th or above in two of the previous three seasons, and which last year was more than \$35m.

The three teams who initially had misgivings were given reassurances about the relationship between Stroll and Mercedes, but that remains something about which a number of senior figures are concerned. The privateer teams – and Renault – are worried that the growing trend for teams ‘buddying up’ and sharing resources, à la Ferrari/ Haas, is making their business model unsustainable.

The new team are expected to change name over the winter and there are also question marks about the driver line-up. Lance Stroll is expected to join his father's team but to do that a settlement needs to be reached with Williams, and a decision needs to be made over the future of Ocon.



WHO THE HELL ARE... ESTRELLA GALICIA?

Who are they?

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Where are they? As the beer is a personal sponsor of Carlos Sainz their logo can be found on the side of the car (above), the right arm of his overalls and on the front of his helmet.

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“ IT IS AN ABSOLUTE DISGRACE THAT F1 CANNOT GIVE AN ACE SUCH AS FERNANDO A COMPETITIVE CAR. HE IS ONE OF THE ALL-TIME GREATS. AND BECAUSE HE CAN’T GET INTO ONE OF THE ONLY SIX CARS THAT CAN EVER WIN A RACE UNDER THE CURRENT BUSINESS MODEL, THEN HE MUST LEAVE. THIS IS A SIGN, IF WE EVER NEEDED ONE, THAT F1 IS COMPLETELY BROKEN. ”

PADDY LOWE

A profile photograph of Fernando Alonso, a professional racing driver. He is wearing a dark blue racing cap with white stars and the 'United Autosports' logo. His racing suit is white with blue and red accents, featuring logos for 'IMSA', 'VR Racing', 'AERO', and 'DELL'. He is holding a silver racing helmet with blue, yellow, and red stripes. The background is a dark, textured wall.

THE LAST ACTION HERO

Few would dispute that Fernando Alonso is an all-time F1 great, yet he's also one of the most divisive characters ever to have raced. So as he prepares to turn his back on the sport (for now), should he be blamed for the failure to achieve the level of the success his talent surely merits? Or has the sport let him down?

WORDS ANDREW BENSON

PICTURES  **motorsport**
IMAGES



PICTURES: STEVEN TEE/LAT. RICHARD DOLE/LAT



fter all these years, even though he hasn't driven a front-running car for some time, Fernando Alonso remains at the epicentre of Formula 1. Not just as a gold standard, and one of only two drivers by which all the others are judged, but also as the sport's most charismatic and fascinating character – notwithstanding Lewis Hamilton's celebrity friends and greater social media following.

Yet in a few races, Alonso will be gone.

Why? Because he can't get into a competitive car. The same question again: *why?* It's not because of

his age, and there is no suggestion that he is past his prime. Alonso turned 37 in July, but as McLaren CEO, Zak Brown, puts it: "his competitiveness is undimmed."

Despite the difficulties a racer of his calibre, experience and standing must have in motivating himself to drive a car that might just, on a good day, qualify and finish in the top ten, Alonso says he is moving on because he has "bigger challenges" in the future than those Formula 1 can offer him. He hasn't spelled them out, but



Alonso's ferocious competitive spirit has been a trademark of his career, dating right back to his early days at Renault

it's very obvious what he means. He wants to race somewhere he can win.

Over 2018, this has meant the World Endurance Championship with Toyota, which he is leading and in which he won Le Mans. He's already won the Monaco Grand Prix twice (in 2006 and 2007), which leaves just the Indianapolis 500 if he wants to join Graham Hill as the only winner of motorsport's unofficial 'triple crown'. And going after that is exactly what Alonso is expected to do in 2019.

Alonso, who announced in mid-August that he would retire from Formula 1 at the end of the season, has not ruled out a possible return. He said: "I know McLaren will come back stronger and better in the future and it could be the right moment for me to be back in the series. That would make me really happy."

Realistically, though, the prospect of McLaren returning, within the next few years, to the kind of form that could entice Alonso back are slim. Liberty Media are determined to change the sport in 2021 – by way of a restructure of the rules and revenue distribution – to help independent teams compete with the might of Mercedes and Ferrari. Even if they manage it though, how likely is it that McLaren can turn things around so completely that they will be back on championship-challenging form by then? And by 2021 Alonso will be on the cusp of turning 40.

Right now, McLaren can't give Alonso a winning car. And he can't move to one because the top teams won't sign him (despite his insistence over the Belgian Grand Prix weekend that Red Bull had made him "two offers in 2018"). This has lately become something of an accepted maxim, but it's worth stepping back a little to examine the logic of that situation.

Paddy Lowe, Williams chief technical officer, who worked with Alonso at McLaren in 2007 and fought against him for many years before and after, has done just that: "It is an absolute disgrace that F1 cannot give an ace such as Fernando a competitive car," he maintains. "He is one of the all-time greats. And

HE WANTS TO RACE SOMEWHERE HE CAN WIN

because he can't get into one of the only six cars that can ever win a race under the current

business model, then he must leave. This is a sign, if ever we needed one, that F1 is completely broken.

"These three teams get two-and-a-half times the money of the other seven. In terms of discretionary spend on research and development, after overheads to go racing, that is about five to six times what everyone else gets. That is a divergent situation. These three teams just open a bigger and bigger gap every year because they can spend so much more on R&D. It's very upsetting to lose Fernando."

This situation is not just locking in a competitive order with three teams miles ahead of the rest. It also ▶



gives those teams significant control over many areas in F1, including, as we are seeing with Alonso, the future even of the sport's biggest stars.

Alonso himself has repeatedly returned to this theme over the course of this season: "I'm not bored," he said in Canada, as he celebrated his 300th grand prix. "It's obviously the top series in motorsport, and it's where we all dream to come, but it's true that in the last years it is so predictable. This is race seven; there are 21 races, we all know what is going to happen in the next 14 and this is very sad for the sport. I will come here and fight from seventh to 12th and I will finish the season in Abu Dhabi fighting from seventh to 12th. It doesn't matter about your inspiration, your lap in qualifying, how you set up the car – things go your way or against you. You can improve a couple of positions but it doesn't change the overall outcome of the championship, and that is probably unique in this series in motorsport."

Liberty were keen for him to stay on, and Alonso, in his statement announcing his retirement, offered his gratitude to "[Chief executive] Chase Carey and Liberty Media for the efforts made to change my mind". Commercial boss Sean Bratches has agreed that Alonso is right to say that F1 is too predictable. "We have a plan to fix it," Bratches says. "I wish he was around for another ten years to be part of that. He's been such a phenomenal ambassador for the sport, such a hero, a legend. I hope that his brand stays around for many years to come."

Detractors would suggest that Alonso has only himself to blame for this situation, saying he has been a disruptive influence at every team for whom he has driven. It's certainly true that his first stint at McLaren ended badly, and that he left Ferrari under a cloud.

But it's also true that the reasons those relationships went wrong were rooted in his unquenchable competitive spirit, and his own sense that he had been let down. And he was not the only one at fault.

At McLaren in 2007, Ron Dennis had promised to give Alonso priority in the team over a novice Lewis Hamilton, only to renege on that commitment when Hamilton swiftly proved to be a phenomenon. The relationship became terminal long before many realised. The final blow-up infamously came in Hungary, where Alonso threatened to release to the





The four eras of Alonso: Renault, McLaren, Ferrari, and McLaren revisited. He's amassed two titles and 32 wins – although the last victory was five years ago at the 2013 Spanish GP



was then caught by Hamilton who complained he was being held up. After the race, Dennis took Alonso to one side and said words along the lines of: “Be good to the kid; we had to stop him.” Alonso was furious, misinterpreting what was perhaps a badly phrased attempt at proving to him that he *was* the number one as an inaccurate suggestion that he had not deserved the win because Hamilton had been faster.

Should Alonso have applied a little bit more perspective to both of those incidents and behaved and reacted differently? It's hard to argue otherwise. Had he responded in a more measured fashion, he might well have won the 2007 and 2008 titles with McLaren, adding to those he had already collected in 2005 and 2006 with Renault.

But if Alonso's behaviour at McLaren in 2007 was viewed by those involved as unpleasant, unacceptable even, at the root of it was his burning desire to win. And without doubt, Dennis could have handled the situation better. Blame lies on both sides.

It was the same for Alonso at Ferrari. He drove superbly throughout his time there, often carrying substandard cars on his back and twice coming within a hair's breadth of winning the title, in 2010 and 2012, in cars that were a long way off being the fastest. Each time he missed out; each time it was not his fault. Yes, he made a couple of high-profile errors in the first part of 2010, but so did eventual champion Sebastian Vettel. In the second half of that season, Alonso closed a 47-point deficit in the championship and was leading going into the final race – only for Ferrari's misjudged strategy decision to scupper him.

In 2012, he was virtually flawless, driving superbly in a car that was, on average, only the fourth-fastest on the grid. Yet somehow he managed to lead the championship most of the way. People still recall the

FIA emails pertinent to the ongoing 'Spygate' case, and Dennis phoned FIA president Max Mosley about it before Alonso sent his manager back to apologise and withdraw the threat.

That row with Dennis had arisen due to an incident in Q3 at Budapest in which Hamilton was initially at fault when he double-crossed Alonso by going against a team agreement to let him do one further lap in the fuel-burn phase of qualifying. The two had been alternating this advantage all season to make things fair. Disadvantaged and angry, Alonso responded by blocking Hamilton in the pitlane later in the session, just long enough to prevent him getting in a final lap. Alonso was given a five-place grid penalty for this.

But the relationship was on the rocks three months before that. At the Monaco Grand Prix, Alonso had dominated the race from pole and then backed off in the final stint to protect his overheating brake calipers – a problem both McLarens were suffering. Alonso



PICTURES: GLENN DUNBAR; LORRENZO BELLANCA



As F1 has lost its competitive allure, Alonso's attentions have turned elsewhere. He now runs his own karting school (above) and has his eye on the triple crown, having already ticked victory at Le Mans off his list earlier this year (below)

streak of four consecutive wins by Vettel later in the year, which turned the championship in his favour once Red Bull had perfected their version of the exhaust-blown diffuser. Even so, Alonso would still have been champion had it not been for the two first-corner accidents in which he was taken out through no fault of his own by Lotus drivers Romain Grosjean at Spa and Kimi Räikkönen at Suzuka.

As then Ferrari team boss Stefano Domenicali observes: "He was unlucky not to win the title because I do believe he deserved it. With a title, the history of that period would have been changed dramatically."

LEAVING FERRARI WAS A GRAVE ERROR BUT IT WAS EASY TO UNDERSTAND HIS FRUSTRATION



Alonso talked himself out of Ferrari in 2014, signing a release from his contract following months of tense negotiations over what had started with the intention, on both sides, to extend it. He had initially requested that release – quite possibly as a negotiating ploy – because he felt that team boss Marco Mattiacci had backtracked on his promises to improve his salary and accede to his demands on conditions. But the team eventually grew fed up with his tactics and offered him the release, having already lined up Vettel to replace him. Alonso signed it, and that was that.

Leaving Ferrari was a grave error, but at the time it was easy to understand Alonso's frustration after five years fighting the odds, slipping back all the while. His decision to return to McLaren was, however, less easy to understand, other than on financial grounds.

Could Ferrari have handled Alonso better and kept him? He left for uncompetitive McLaren just as Maranello began to invest seriously in their F1 team under Sergio Marchionne. In letting him go, Ferrari lost arguably the best driver in the world. Few would dispute that Alonso is demanding, but Domenicali insists it is "unfair" to suggest that he is political and drives teams apart. "You need to manage the fact he has a great personality," Domenicali insists. "It is something you need to work on with all the big drivers. Sometimes it is easy and sometimes it is not."

Speaking of the prolonged negotiations over his new Mercedes contract this year, Hamilton admitted that he himself was "not the easiest". Neither was

Ayrton Senna straightforward, as the many notorious tales of his battles with Dennis attest. In the middle of 1992, while driving for McLaren, Senna

even offered to drive for Williams for free to try to get into what was then the dominant car. With Senna, such disruptive behaviour was accepted because, well, he was *Senna*. Yet for some reason, Alonso simply being Alonso has not proved similarly acceptable.

Perhaps Alonso is not as good as Senna. That's a matter of personal opinion – but he's certainly good enough to be considered in the same conversation. And the same cannot be said for many other drivers on the current grid. Indeed, the number of F1 insiders who speak in awe of Alonso's abilities are legion. So why aren't the top three teams clamouring for him?

Mercedes' rationale is most easily understood: for starters, there are the events of 2007, and their 40 per cent contribution to the \$100m fine that their former partner McLaren had to pay after the 'Spygate' hearing, which resulted from Alonso's row with Dennis in Hungary. Equally, Hamilton is their star driver, and they feel he operates better without another A-lister alongside him, preferring instead to employ a more compliant number-two. ▶

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The Alonso legacy: It's hard to believe he's leaving, so how will he be remembered? As a Samurai who was born to fight behind the wheel and undoubtedly one of the all-time greats. His departure is Formula 1's loss

It's a similar story with Ferrari, who are already invested in Vettel. Vettel has spoken of losing out last year because Ferrari lost performance relative to Mercedes in the second half of the season. That's true, but without his red-mist moment in Baku and the overaggressive manoeuvre off the line in Singapore that triggered a multi-car shunt and took him out of the race, he would still have been in with a strong chance at season's end. And in an even better car this year, he has, at the time of writing (pre-Italian Grand Prix), made three costly errors so far. At Baku he overcooked an overtaking attempt on the Safety Car restart, dropping from what would have been first or second to fourth; colliding with Valtteri Bottas at the start in France; and crashing out of the lead in Germany. Would Alonso have made these sorts of errors? It's less easy to imagine.

What of Ferrari's other driver, Kimi Räikkönen? In 2014, when he and Alonso were team-mates, Alonso outqualified him 16-3, was on average more than 0.5s quicker than him, and scored almost three times as many points. Vettel has never attained anything close to Alonso's level of dominance over Räikkönen since 2015.

And then there's Red Bull. When Daniel Ricciardo moves to Renault in 2019, Pierre Gasly will join the senior team to race alongside Max Verstappen, on whom Red Bull are focusing their future. Gasly shows promise, but no one could seriously suggest he is a match for Alonso at this stage of his career.

Red Bull motorsport boss Helmut Marko says of Alonso: "We were negotiating with him in 2007 or




PICTURES: STEVEN TEE/LAT; ZAK MAUGER/LAT

2008. His demands were very tedious back then. If you look at his history, in McLaren and Ferrari it was always a one-man show. That doesn't fit with us."

Ferrari and Red Bull clearly want to focus on their number-one drivers, even if they won't admit it. The implication is that they won't sign Alonso because they think he would be too much trouble. But in doing so they are unquestionably giving away performance

"IF YOU LOOK AT HIS HISTORY, IN MCLAREN AND FERRARI IT WAS ALWAYS A ONE-MAN SHOW THAT DOESN'T FIT WITH US"

HELMUT MARKO

– perhaps even, in Ferrari's case, their best chance of beating Hamilton and Mercedes to the title. That's their prerogative. And if they are prioritising stability and a harmonious team dynamic, it's understandable. Whether it is the right thing to do, for themselves, or the sport as a whole, is another debate altogether as F1 now faces the departure of one of its all-time greats. 

Andrew Benson is BBC Sport's F1 correspondent

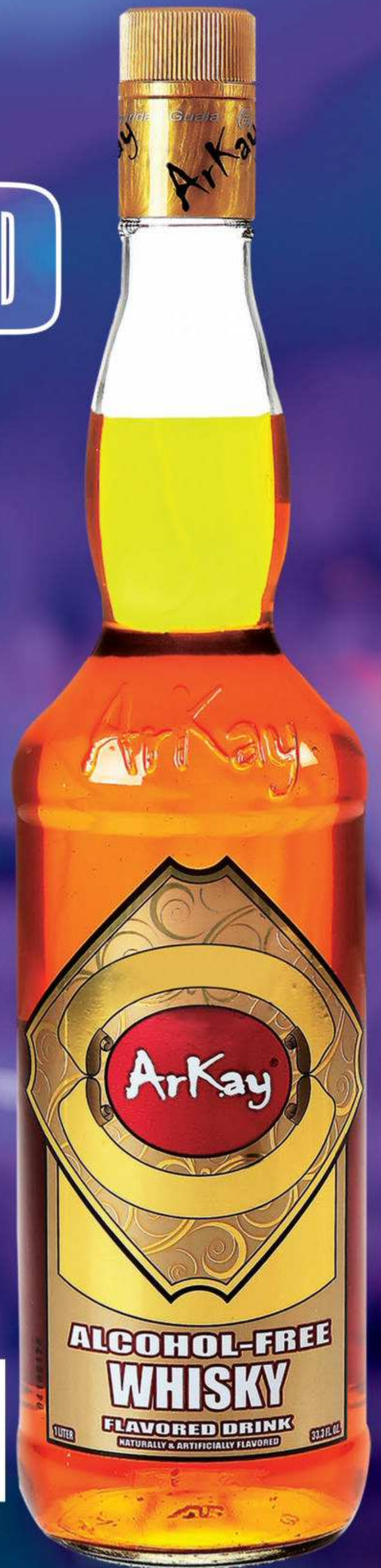
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GO FIGURE

As Fernando Alonso prepares to depart F1, here's his remarkable career in numbers

PICTURES 

14

Alonso's race number, which he chose because he won the junior karting world championship with the same number on 14 July, aged 14

311

The number of GPs he should have started by the end of 2018, putting him second behind Rubens Barrichello

15TH

The lowest qualifying position from which Alonso has won a race – the infamous 2008 Singapore GP

32

F1 circuits raced on

2ND

in the championship on three occasions: 2010, 2012 and 2013

35

The number of times he has started in fifth: his most common grid position

95.46%

his success rate in converting pole to a podium: retirement in Hungary in 2009 was the only time in 22 attempts that he didn't manage it



23 CONSECUTIVE POINTS FINISHES

from the 2011 European GP to Hungary 2012



46G

The peak force Alonso experienced during his crash in the 2016 Australian Grand Prix

8

The number of times Alonso has raced, qualified or practised in F1 on his birthday: 29 July

THREE

The total number of teammates who have finished a season ahead of Alonso in the championship: Tarso Marques in 2001; Lewis Hamilton in 2007; and Jenson Button in 2015

17



11



4



His total Formula 1 grand prix wins with Renault, Ferrari and McLaren respectively

1,767

laps led in 84 different races*

*Not including 2018 season

51,117 MILES

had been raced by Alonso in F1 prior to this year's Belgian GP – equivalent to 17,681 laps of his home track, the Circuit de Catalunya in Barcelona

ADIOS

FERNANDO ALONSO F1 LEGEND





Lewis Hamilton

McLaren team-mate
in 2007

He will be missed within the racing world. It's a shame he's not as decorated as he deserves, but it's not just about being a great driver: it's also how you play the game and how you position yourself.

He's the best driver I've raced against and I wish him all the best. Seventeen seasons is a long time and I have huge respect for that. It's a lot of commitment, time and dedication that people might not fully appreciate.



Paddy Lowe

McLaren engineering
director in 2007

He's very intelligent and he's able to deploy that to magnificent effect when driving. He is thinking all the time and making intelligent choices, and that's on top of his incredible skill in controlling the car.

He combines his skills with a great ability to think about what's going on and what he's doing, and he applies that cleverness outside the car as well. He's one of the best drivers of the current generation.

Though his Formula 1 career spans 17 years, Fernando Alonso remains an enigmatic character to many. So what *really* makes him tick? On the eve of his retirement, we've spoken to friends, rivals and former colleagues to gain an insight into a supremely talented, ruthless and extremely clever racing driver...



Jenson Button

McLaren team-mate,
2015-2016

In many ways, Fernando was an even tougher team-mate than Lewis was. Yes, there were days when Lewis would just do something amazing, but there were other days when you got everything right and you'd wonder where he'd gone.

With Fernando there were never any days like that. If he was behind you, he'd always be pushing you like crazy. If he was ahead of you, then you'd be hanging on.



Carlos Sainz Sr

Friend and former world
rally champion

Sometimes Fernando is very direct, and when he tries to protect himself this can generate some animosity. But his image is worse than the reality. He is very shy and that is why sometimes he is defensive, but when you meet him he's actually very funny – and he loves card tricks and magic. Sometimes he can be overprotective of himself, and I think it would be good for the people to know him a bit more. ▶

Felipe Massa

Ferrari team-mate,
2010-13



He is an amazing driver; one of the quickest and also one of the most consistent and aggressive. But when we worked together, Fernando's biggest problem was the way he is very political, very selfish. I think sometimes that doesn't help him or the team.

It's difficult to understand him; he was not a problem, he was always kind. But he has a personality you cannot trust. He is sometimes one way, then he'll be completely opposite.

Paul Stoddart

Minardi owner and
team principal in 2001



When I bought Minardi at the end of 2000, Fernando was so enthusiastic. He was in the factory helping us to build the car – we only had six weeks and three days to get to Melbourne.

He was there for many of the late nights and early mornings. Even the 12th-place finish that he took for us at his first race in Australia was outstanding. The car had been thrown together and he just went out there and wrung its neck.



Andrea Stella

Ferrari & McLaren
race engineer, 2010-18



Our collaboration over the years was very positive, and straight away he had quite a lot of trust in the people around him. He was relaxed and open to our way of working at Ferrari. He's also very charismatic and it was an enjoyable time together where we'd make jokes and talk about arranging a game of basketball next time we were in Maranello.

To be a winner you have to be a fighter. I don't trust those who want to look like angels because

without that fighting quality you won't succeed. This is part of his character that can make him difficult, but he knows what he is capable of. Occasionally, you have to tell people things they don't want to hear because there are other egos at play.

I think he is much cleverer than me. In the race I'd say "we need to do something" and he'd come back with an answer I'd never have thought of. And he could do it while driving.

Bernie Shrosbree

Human performance
director at Renault in 2002



Pat Symonds

Benetton & Renault technical boss, 2002-06 and 2008-09



Fernando is clever but very laid back, and in the early days this could mask his intensity. In a briefing you'd think he wasn't paying attention, and then he would ask an incredibly pertinent question that showed he was really digging deep.

There's a lot of capacity when he's driving, too. He set the fastest lap at the Canadian GP one year and was talking to us nearly all the way round the lap about some aspects of the race.

Then there's the other side. At the end of 2006 we were fighting hard for the title, we were under a lot of pressure, and our competitiveness against Ferrari was decreasing. Then, out of the blue, Fernando did a press conference and just laid into Renault and slagged them off. It was devastating for the team and he lost a lot of friends.

I don't think the team situation is important to him other than in terms of what it

can bring him. He returned to Renault in 2008 because he was in a position where the only thing he could do was come back. Time and time again he leaves himself in positions where he doesn't have options.

He's clever when it comes to racing, but in life he's not that clever. There are times in life when you don't do the best thing for that day, you play the long game. I don't think that comes onto Fernando's radar at all.



Eric Boullier

McLaren racing director, 2015-18

He was a quiet lad; a reserved guy. We nicknamed him 'Droopy', after the cartoon dog with the sad-looking eyes. In 2002 he was a Renault test driver and was really unhappy he wasn't racing: he always had drive and determination.


Some people found him tricky to work with, but sportsmen like him need to be strongly managed. He might have been let down by team bosses who lacked the necessary skills.



The difference between Fernando and the rest of the world is that he is on top of his skills and it's more than determination for him: he has an absolute *need* to win. It's like somebody needing oxygen to breathe. If he doesn't win, then he fades.

Character-wise, when the momentum is strong, then everything works well. But if you start to head into a downward spiral, then the trust is broken

and that's when the mess starts to happen – that's the reason why he fell out with both Renault and Ferrari.

He knows his own power. The team will always be the bad boy and the driver the good boy. But as long as the team are delivering the performance and he can see that your commitment and determination is right, then you will always have his full support and commitment in return. 

SLINGS & SILVER ARROWS

PICTURES  motorsport
IMAGES

WORDS JAMES ROBERTS

Valtteri Bottas entered the summer break with much on his mind. *F1 Racing* caught up with him at home in Finland to discuss failure, redemption and the future

“**Here, take a rock,**” says Valtteri Bottas, inviting *F1 Racing* to perch on a boulder at the edge of this tranquil Finnish lake. We’ve travelled a long way north to track down the Mercedes man, who is recuperating from the *sturm und drang* of the first half of the season, at his idyllic summer hideaway.

With the lake shimmering in the foreground, the backdrop is a forest of pine and spruce trees – a calming vista that’s a world away from the city lights, bustling airport terminal corridors and the intense spotlight of a Formula 1 weekend. This is where Valtteri comes to relax; it’s his childhood home. ▶





“ IN F1, I DO THINK THAT IT COMES DOWN TO QUALITY RATHER THAN QUANTITY. BY QUALITY I MEAN HOW MUCH YOU FOCUS ON DRIVING AND HOW MUCH YOU THINK ABOUT IT ”

We've here on the third and final free weekend of F1's summer break, a much-needed respite for teams and drivers after the intensity of five grands prix in six weeks. By the time you read this, the long-haul races will be looming and the pressure of the world championship run-in starting to spike. It's been a difficult few months for Bottas, who has demonstrated his quality through a number of outstanding performances – enough for Mercedes to reward him with a new contract. Yet he has also had to cope with distressing lows, such as the loss of certain victory in Azerbaijan, coupled with the prospect of having to set aside his championship ambitions for the good of the team.

Bottas slipped back home on the Sunday evening of the Hungarian GP, a race that had proved particularly fraught and one that he says was “a tough way to end the first half of the season”. There, lest we forget, he slid out of contention late on, owing to a sub-optimal strategy, and picked up a penalty and two points on his superlicence after on-track clashes with Sebastian Vettel and Daniel Ricciardo. He was later referred to by team principal Toto Wolff as a “sensational wingman” [to Lewis Hamilton] – which could have been interpreted as a backhanded compliment, even if it wasn't intended as such. All rather irksome for a driver who could, by now, have been in a much better position in the championship had luck taken a few different turns this season.

So, where better to decompress and reconnect with what made him want to be a racing driver in the first place? Ninety minutes north of Helsinki, on the shores of lake Iso-Kukkanen, is the town of Nastola where Bottas grew up. His old schools, friends and family are all close by. So too is the kart circuit that kick-started his interest in racing.

“I used to practice there a lot,” says Bottas, sipping a cup of milky coffee. “And I mean *a lot*. No matter if it was raining heavily or there was a little bit of ice or snow, I was there. I realised from a young age that I was very interested in how I could improve my lap time and what things could affect it. My dad used to time me – not just laps, but through sectors and corners, too – and so I would try different techniques, different lines and change my driving style. I was only six years old, but I found it really fascinating.

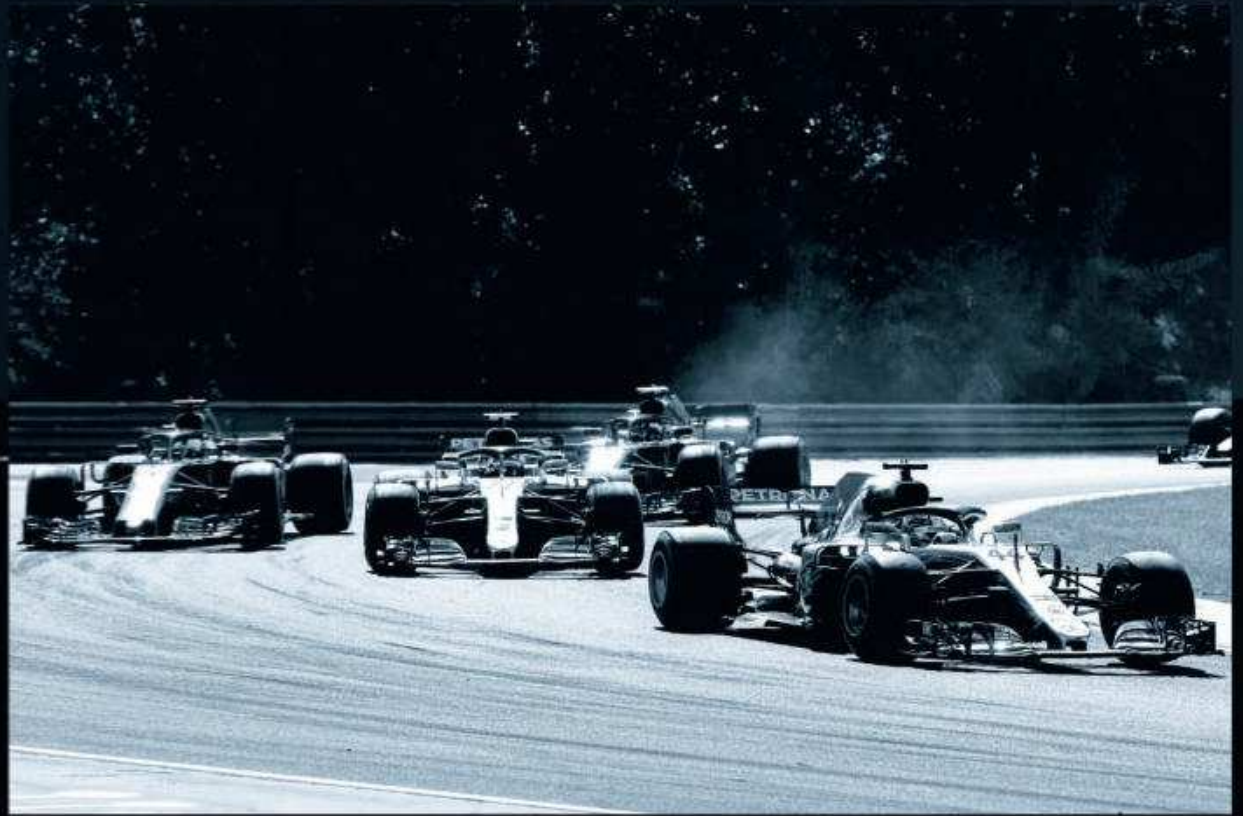
“All the time I was thinking: how could I be better? Where could I be quicker? What could I do differently? It was the same when we went to a new track. We'd try an alternative setup or different lines, all with the aim of going faster.”

It's the same determination to learn and improve that has helped Bottas, who will turn 29 just after the Belgian GP, in his second season with Mercedes. But modern F1 is unlike karting in that on-track testing opportunities are limited; self-improvement cannot, therefore, come from practice alone.

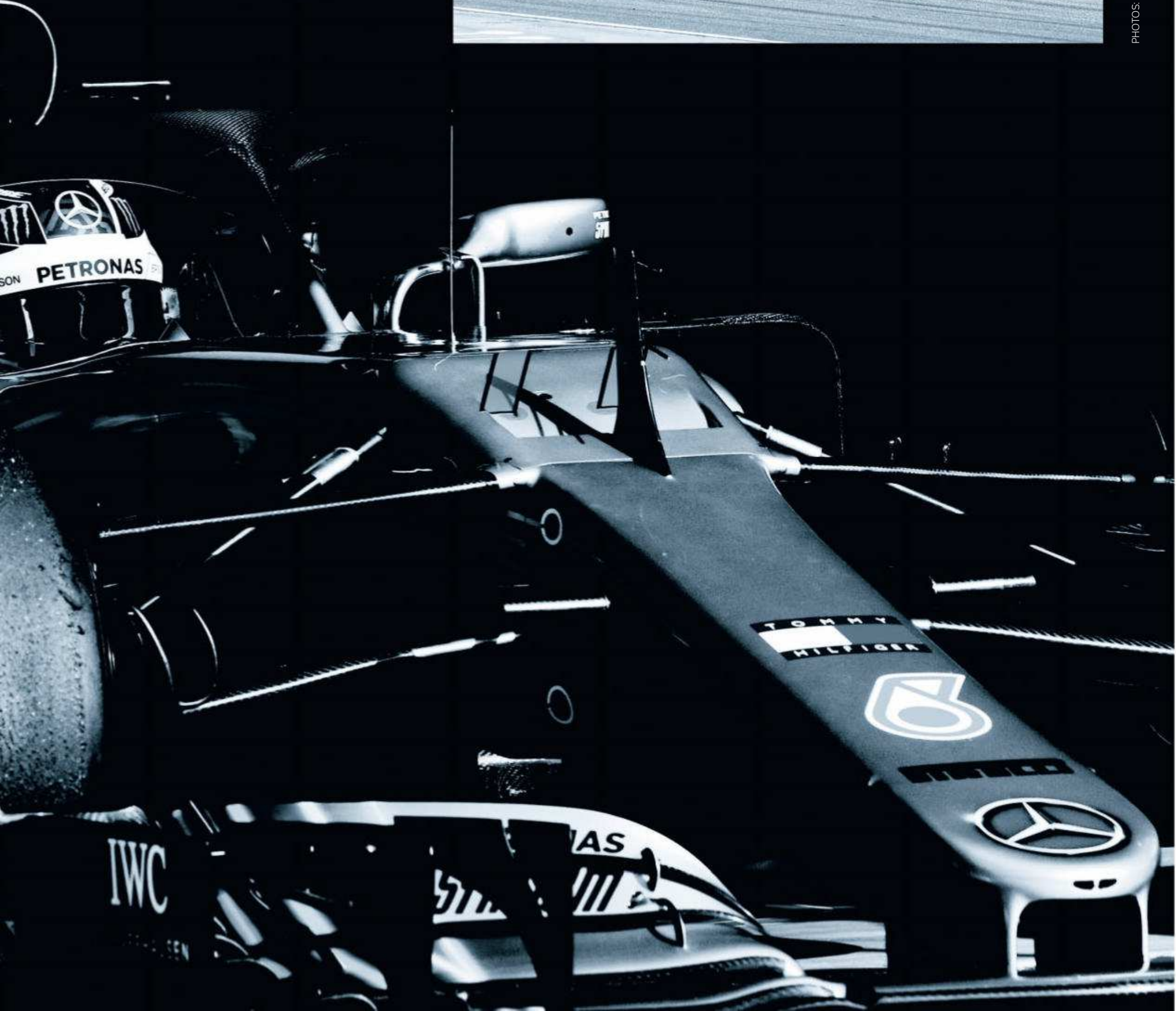
“In F1 I do think that at some point it comes down to quality rather than quantity,” says Bottas. “By quality I mean how much you actually focus on driving and how much you think about it. As a kid, for sure, it's good to drive around a lot. You get a good feeling for the car and you learn car control, but it's a million times more effective if you then *think* about it, too. If I've gone for a run or I'm cross-country skiing I might think: ‘So that corner, why didn't I drive it that way?’ ▶



Ending on a low: the last race pre-summer break was Hungary, where Bottas picked up a penalty and points on his superlicence



PHOTOS: STEVEN TEE; JERRY ANDRE/SUTTON IMAGES





Bottas has suffered bad luck all year, from the Safety Car in China (top), the puncture in Baku (middle) to hydraulic failure in Austria (bottom)

“IN BAKU, I REMEMBER WHEN I GOT BACK TO THE HOTEL ROOM I JUST COLLAPSED ON MY KNEES AND I WAS CRYING LIKE A BABY. I’D NEVER DONE THAT BEFORE”

Australia aside (when he crashed in qualifying and hit the wall at Turn 2), it looked as if Bottas’s homework had paid off in the early part of 2018. He outqualified Hamilton in both Bahrain and China and brilliantly beat Vettel during a pitstop phase, which should have netted him the win in Shanghai until an untimely Safety Car ruined his race.

Then came Baku.

Three laps from the end of the race Bottas was all set for victory when a right-rear puncture, caused by running over debris, gifted the win to Hamilton. The stoic Bottas was palpably distraught afterwards, to the extent that Hamilton toned down his usual post-race exuberance, taking a moment to console his team-mate before heading to the podium.

“After the race we went through all the on-board video footage, to see if we could see the debris I ran over,” says Bottas. “That was the only thing I was worrying about – how didn’t I see it? I was thinking: ‘Shit, was it my fault?’ But even when we looked closely, we couldn’t see anything. I knew then there was nothing I could have done to have avoided it, but it really hurt. With Bahrain and China, where I came quite close to winning and then leading with three laps until the end, it was very painful. I stayed in Baku that night and I remember when I got back to the hotel room I just collapsed on my knees and I was crying like a baby. I’d never done that before. It proves that even Finns have emotions.”

Bottas could easily have been leading the championship after the first few races, but luck can play a cruel hand when you least expect it. After being taken out at the first corner by Sebastian Vettel at Paul Ricard, Bottas arrived in Austria determined to make amends for his run of ill fortune. He qualified on pole and led every lap until a hydraulic failure forced his retirement.

“It’s been a pretty weird season with so many different things happening,” he muses ruefully, while finishing his coffee. “I don’t think there’s a single time where I have been lucky. Most of the time I’ve been unlucky, and so you start to question yourself. Should I change my approach? Is there something I did wrong? Because many people say there’s no such thing as luck – you make your own luck. But this year, I’m not sure. It’s been weird, but I’m fine with it. It’s the situation we are in, I can’t change anything from the past and I just have to focus ahead. The future is the only thing I can change; not the past.”

The strategy calls and reliability issues (Hamilton suffered the same hydraulic issue in qualifying at the German GP) could be explained by the pressure Mercedes are facing in 2018. For the first time in the hybrid era, their dominance is under threat from a resurgent Ferrari. While Vettel was

Or: ‘Why did I choose that kind of setup? Maybe next time I should try something else.’ It’s the mentality of the approach rather than driving around just not thinking about anything.

“When you have time off from racing you can develop, and I think it’s the same in any sport. Once you’ve been through so many millions of gigabytes of data with the engineers, you need to take the time to clear your mind; everything opens up and your body and your mind learn. All the time I’m thinking, like I did as a kid, about how to improve.”

Towards the end of his first year with Mercedes, Bottas told *F1R* that he intended to spend the winter working on raising his game for the coming season. He’d mentioned a few races where he’d been weak, notably Spa and Suzuka, and noted that he had to sharpen his qualifying performances – an area in which team-mate Hamilton is particularly strong. It didn’t help that last year it took him a while to get comfortable, using three different seats in the cockpit of the W08.

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“WE ARE BOTH WINGMEN. LIKE IN *TOP GUN*. WHEN THE COMPETITION IS TOUGH IT'S IMPORTANT TO HAVE TEAM SPIRIT... IT'S BETTER THAN TRYING TO HIDE SOMETHING”

strong last year, it appears Maranello have made significant steps in every aspect of car performance, so the fight for the championship is much tighter this season.

“There is pressure but, honestly, I think it's pressure in a good way,” says Bottas. “I don't think the faults we've had are because of that pressure. It's normal that you are always pushing the limits and now the competition is tougher; every team is pushing to the limits with everything, every single part on the car – it's more on a knife edge. Of course reliability is key and the issues we've had have been really unfortunate and unpredictable. Those things didn't happen last year but the cars are getting quicker all the time, the loads are getting higher and the parts are getting more stressed. I think Mercedes have reacted well to the issues we've had; there has been a quick fix and we've moved on.”

During his brief summer break, one thing Bottas hasn't had to worry about is where he'll be driving next year – an anxiety facing a few current Formula 1 racers while the driver merry-go-round has been in full swing this summer. At the German Grand Prix, Mercedes confirmed Hamilton for a new two-year deal (taking him up to the end of 2020) and also extended Bottas's contract for 2019 with an option for 2020. Mercedes boss Wolff reiterated his desire to continue with a pairing that offers harmony, following those fractious years when Hamilton was partnered with Nico Rosberg.

“The relationship really helps,” notes Bottas. “Everyone knows Lewis and I can work together and be open going into next year. I am competition for Lewis, it's not like I'm a...”

Wingman?

“We are *both* wingmen,” he says, laughing, his mind no longer troubled by the comments Wolff made post-Hungary. “Like in *Top Gun*! When the competition is tough it's important to have that team spirit because when you have two drivers who are willing to share everything, it's better than trying to hide something.”

But the fact that his Mercedes tenure beyond 2019 remains an option, the contractual equivalent of merely being pencilled in, means that Bottas cannot afford to let up his speed or commitment.

“Yeah, sure. At the beginning of next year, it's going to be a similar thing where I need to prove myself,” he begins, before changing tack. “Well – it's started already. If I have a strong end of the season that helps as well.”

“I'm fine with it because my intention is always to keep improving. And if the team see that, then I know there is no worry. I want to be closer and closer to Lewis all the time and eventually ahead of him. That is my goal. If I keep to my targets then my future will be good.”

Top Guns: Bottas and Hamilton have proved an amicable pairing so far, with Bottas giving his esteemed team-mate a run for his money



WHAT IS THE VALTTERI BOTTAS DUATHLON?

Held in the forests near Nastola, the Valtteri Bottas Duathlon is now in its second year. There are two events: the family duathlon consists of a 1.5km run, followed by a 5km mountain bike ride and another 1.5km run; for serious athletes the distances are 5km/20km/3km.

Last year the event raised €10,000 for the UK charity Starlight Children's Foundation, which helps terminally ill children. Before this year's event,

sponsor Tunturi presented a Valtteri Bottas children's bike – limited to 77 editions – to encourage youngsters to be more active.

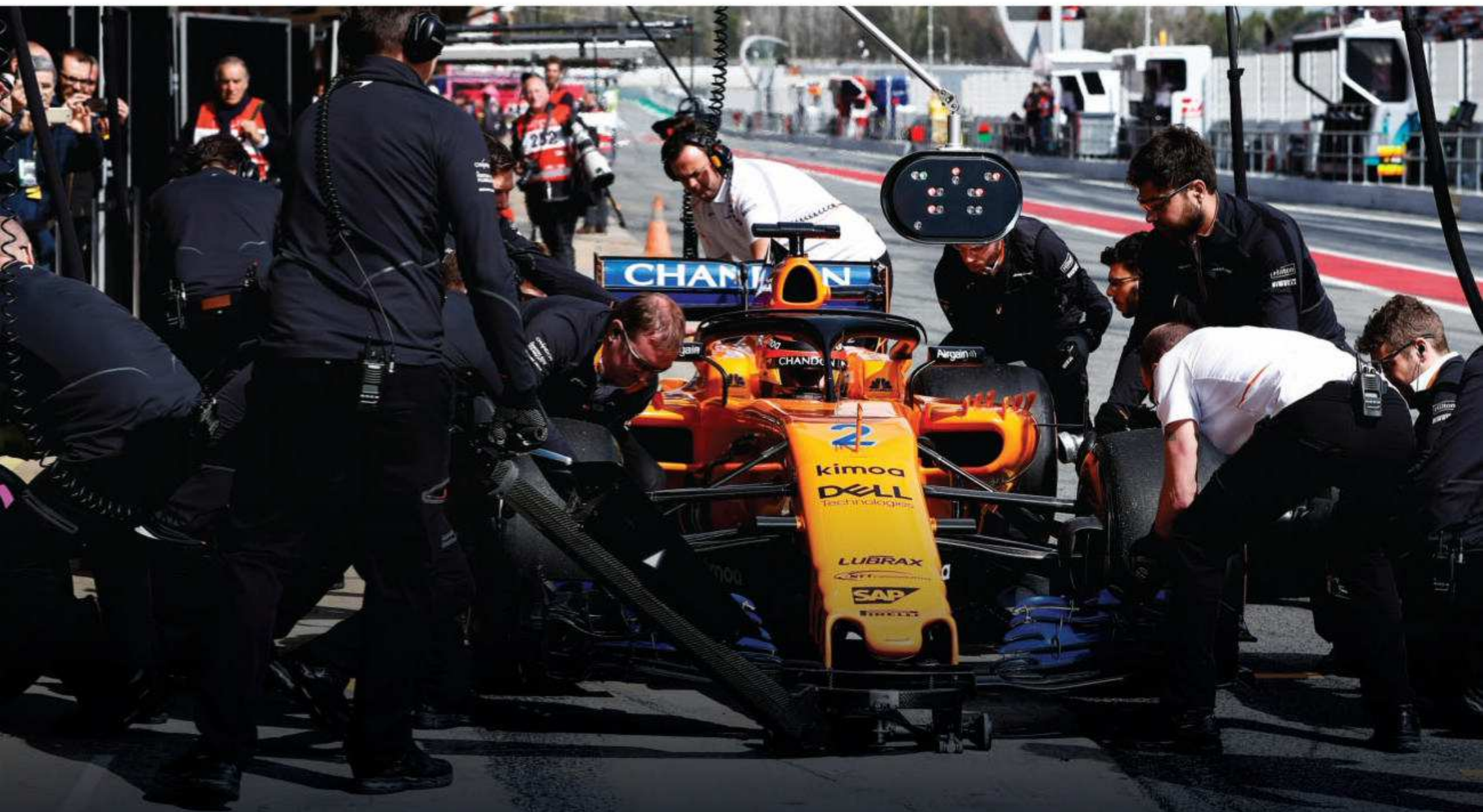
“I want to get people engaged in a sporting lifestyle, especially the young,” says Bottas. “I've seen many people either go into sports or they grab a bottle and a box of cigarettes. There are two choices, so I want to guide people this good, healthy way.”

• See valtteribottasduathlon.com



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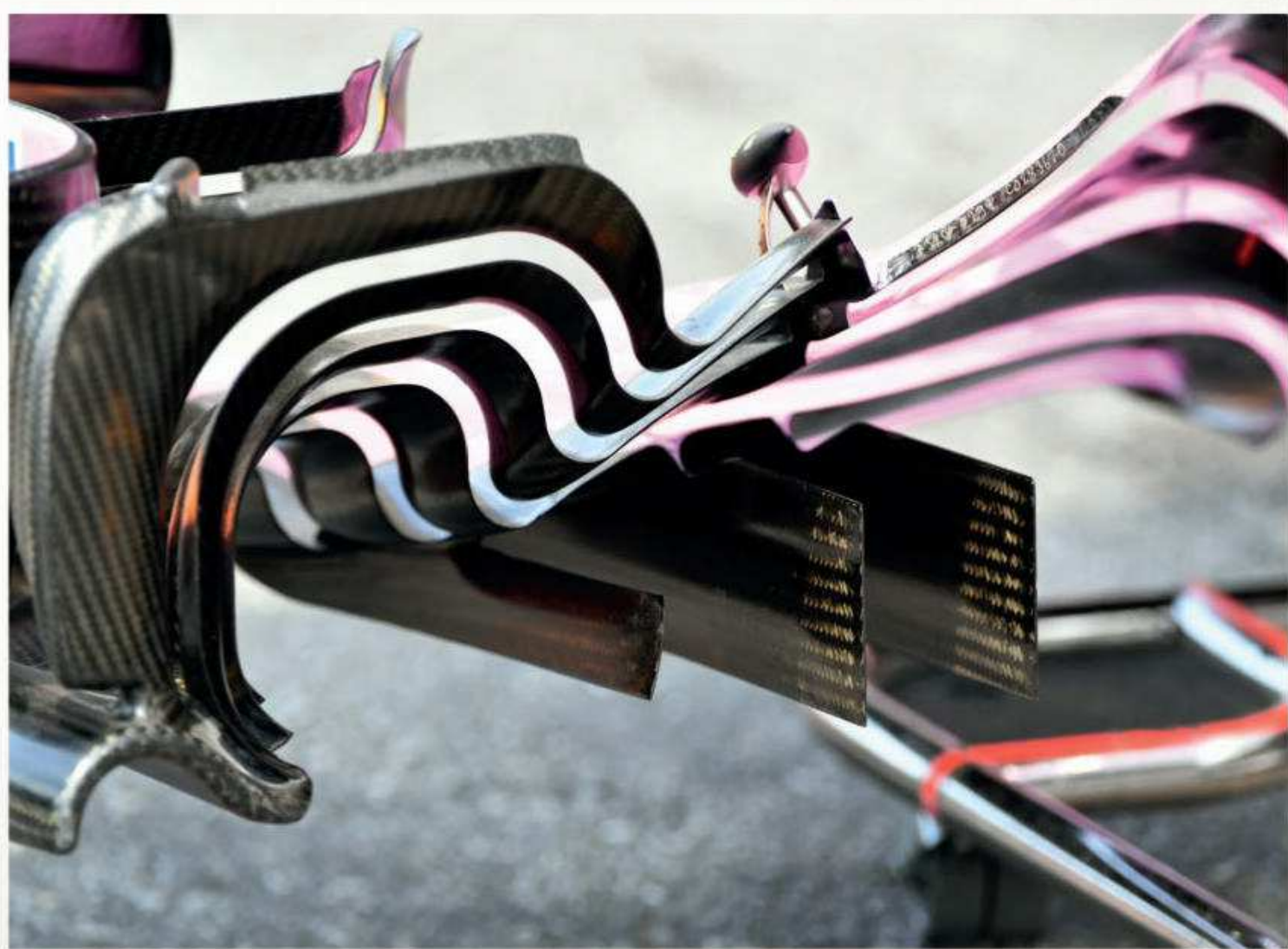
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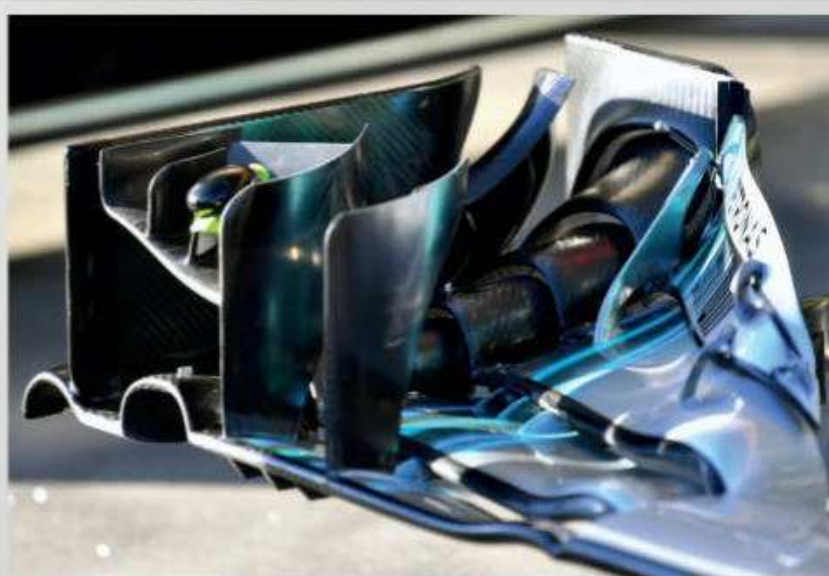


FORCE INDIA
The Wave 2018
Artist Simon Phillips
F1 paint on carbon fibre

MERCEDES
Armadillo
2018

Artist

John Owen
*F1 paint on
carbon fibre*



HAAS
In Passing
2018

Artist

Ben Agathangelou
*F1 paint on
carbon fibre*



THE LOST ART OF THE FRONT WING

Take a moment to savour the boundless complexity of these front-wing details, because in a few months all this will change as a new era of Formula 1 begins

PICTURES  **motorsport**
IMAGES
WORDS STUART COOLING

We've reached the point of peak wing. Formula 1's era of aero art for art's sake is about to be packed into a regulatory box and filed away – at least so far as front wings are concerned. From next year onwards, these elegantly sculpted beams with their many complicated layers of twists and curves will be replaced by far less intricate designs.

As with any other work of art, the front wing 2018-style divides opinion. Some adore the sheer complexity and imagination of the swoops and cascades; others declaim such elaboration as axiomatically ugly – and needlessly expensive. In our gallery on these pages we've credited the respective heads of aerodynamics for the sake of brevity, but in truth – as with the art factories presided over by the likes of Andy Warhol and ▶

THE WING'S CASCADE STRUCTURE HAS A TOXIC EFFECT ON THE AERO PERFORMANCE OF FOLLOWING CARS, SINCE IT LEAVES A WIDE WAKE OF DISCOMBOBULATED AIR

Damien Hirst – each wing is the work of many hands. Such is the importance of the front wing to the overall aero performance of the car that each team spends millions of pounds per season on development, and the process is so iterative that changes yielding improvements worth fractions of a second are often barely noticeable.

At the heart of the issue is the front wing's dual role as airflow conditioner and downforce generator. Regulations enshrine the central 500mm section as a flat area, free from development, but from there to the wingtips on each side it's been a free-for-all since the rules changed to allow wings to be wider in 2009. Aerodynamicists duly began to exploit the newly available width to achieve 'outwash' by steering air around the front wheels, each of which acts as a blockage and a generator of turbulence.

So as well as generating downforce, those complex folds and protuberances around the endplates are setting up flow structures that accelerate air around the wheels. The sharp points further in towards the centre are geared towards setting up what's known as the Y250 vortex (because it begins 250mm from the centreline of the car, at the end of the flat section of the main plane). On each side of the car, the Y250 vortex passes between the nose and wheels and, in effect, pushes the low-energy air in the wake of the front wheels away from the car. In the right conditions, when the ambient air is dense and damp, you can see the core of the Y250 vortices as a pair of contra-rotating spirals.

This effect is arguably more powerful in terms of overall performance than downforce alone – you'll notice on the Renault wing in particular that the majority of the cascade structure (the section painted in black) is non-adjustable. And it has a toxic effect on the aero performance of following cars, since it leaves a wide wake of discombobulated air.

So next year's rules aim to reduce that effect by mandating simpler geometries and fewer flow conditioners. Chances are it won't reduce the amount teams spend on aero; it also means you won't see this sort of artistic complexity again. 🚗



FORCE INDIA
Recurring Steps
2018

Artist Simon Phillips
F1 paint on carbon fibre



FERRARI
Study in Scarlet
2018

Artist Loïc Bigois
F1 paint on carbon fibre





RENAULT
Scales of
the Dragon
2018

Artist Peter Machin
*F1 paint on
carbon fibre*



McLAREN
Alton Towers in
Abstract No.4
2018

Artist Peter Prodromou
F1 paint on carbon fibre

YOU ASK THE QUESTIONS

SERGIO PÉREZ

At 28, he's no longer one of the bright young things, but this Mexican racer, on a mission to give his "absolute best", insists there's much more to come – from him and the team he describes as his "family"

WORDS MATT YOUSON
PORTRAITS ADRIAN MYERS

Look at Sergio Pérez and see everything currently wrong with F1. This is not, we hasten to add, a slight on Pérez; he is, as he says further on, a driver who makes the most of the tools at his disposal – but now, at 28 and in the prime of his career, those tools are a little blunt. In an earlier incarnation of F1, there would be a seat in a race-winning team for a driver of his prowess; today, there isn't.

The first Mexican in F1 since Héctor Rebaque has scored eight podiums but never raced for a team that finished higher than fourth in the constructors' standings. His shot at the big time came in the year McLaren fell off the perch. Now, despite being one of F1's safest pairs of hands, Pérez isn't a name being discussed in breathless terms – that's the younger generation of Leclerc, Gasly and Ocon.

As he settles in to answer your questions, it's this particular topic that draws a wry grin. "You never know in this business," he says with a glint in the eye. "Things change fast."

That they very much do – Force India competed in Hungary while operating in administration, and the new owners have had to start again with a new name and from zero points. That coveted fourth place in the championship seems a long way away now...

You've been close to a win on a few occasions. At which race did you feel you had the best chance of victory?

Kieran Vince-Clark, UK

Sergio Pérez: I think Malaysia 2012... or Montréal 2014 where I had the late issue with the brakes. That was close. I was second behind Rosberg when he had trouble. Those two were the closest.

F1 Racing: What did you make of Peter Sauber's "Checo, be careful, we need this position," message in Malaysia? We've been debating it for years...



SP: Definitely that radio call took it out of me a bit. I received it just before I got to the corner; it was quite damp and the conditions were very difficult. It wasn't the best message I could have got at that time, to be honest. ▶





Tickled pink: he wasn't sure if he'd dreamed it at first, but Pérez is thrilled by the BWT-sponsored rosy livery



“
LATE IN THE SEASON
McLAREN TOLD ME THAT WAS IT. THEY DIDN'T SHOW ME ANY LOYALTY
”

What was your first thought when you heard your team would race in pink livery?

Piotr Atwik, Poland

SP: Good one! I got the call from Otmar [Szafnauer – then Force India's COO] and he told me I had to paint my helmet pink. I was having a massage, so I was a bit drowsy. An hour later I called back and asked: “Was that serious?” Now, it's completely normal: we have become the pink team. It's good!

What's your favourite circuit on the current calendar, and which circuit or country would you like added to the calendar in the future?

Lindsay McCallum, UK

SP: Definitely Miami. I would love to race in Miami. And on the current calendar... I really like Baku. It has always given good racing. It's a nice circuit to drive and a great city as well.

F1R: You scored two of your eight podiums there. Why are you so good there?

SP: It's a circuit that offers opportunities to everyone. We've been good at taking those opportunities.

F1R: There's not a lot of grip and quite a few corners that favour the last of the late brakers. Is it scary in places?

SP: It suits me! It is a little scary – but I enjoy being on the limit. If you make a mistake, you crash in the wall.

With hindsight, was being dropped by McLaren a blessing in disguise?

Anna Hunt, UK

SP: When you see the trouble they're having now, probably. Yeah. It was the best thing.

F1R: Hindsight is a wonderful thing – but it must have been quite tough for you for a few months afterwards.

SP: It was very hard. They always said that things would change. It took me a while to adapt, but by the end of the year I was beating Button. Late in the season they told me that was it. I was young, I'd had opportunities with other top teams. Yeah... they didn't show me any loyalty.

Are you satisfied with what you've achieved so far in Formula 1?

Szymon Tomala, Poland

SP: Hmm... I'm not *satisfied*. It's not like I've been a world champion or winning races – but I also feel that I've had a great career so far with the tools that

I've had. I've never had a car capable of podiums – and I have eight podiums to my name. I've seen many drivers come into F1 and leave the next year, so to be here at this point, to be working with the best engineers in the world, to be delivering at the highest level, it's definitely something I feel privileged to be able to do. I know how hard it is to get into F1 – but staying here? That's harder. But I can't complain about what I've achieved so far.

Do you believe you could be a world champion if you had a seat at Ferrari or Mercedes?

Clair Henderson, Canada

SP: Yes.



With young drivers like Charles Leclerc and Esteban Ocon around, do you think you've missed the boat when it comes to a Ferrari or Mercedes drive?

Kunal Shah, India

SP: You never know in this business. Experience always counts. I won't give up until the journey is over.

Where do you hold the advantage over your team-mate, Esteban Ocon? Where does he hold the advantage?

Craig Harper, South Africa

SP: I'm good to deliver the result on Sunday, and to come out of a difficult position. I'm good at that. I think the advantage he holds... the car is probably adapted more to his driving style at the moment. I'm struggling to get the maximum out of it in qualifying.

Would you have won in Baku last year if you hadn't crashed with your team-mate?

Jonathan Simon, Australia

SP: There was certainly a massive opportunity... but we'll never know.

Do you and Esteban get along? You seem not to want to let each other past on the track, even when instructed to...

Przemek Iwaniec, Canada



SP: Hmm... I think we're both very professional and we always accept the team orders and we work for the benefit of the team.

F1R: But you're not best buds. Do team-mates need a bit of juice in the relationship? Is it good for the team when there've got a strong pairing who are butting heads?

SP: Oh, it's always good to have a strong team-mate who pushes you and you push him. It's absolutely the best way to develop a car, and to get the best result out of a race weekend. ▶



Pérez and Ocon have had a fractious on-track relationship, but Pérez concedes that "it's good to have a strong team-mate who pushes you"





Pérez collects the P3 trophy at Baku. It's a track he loves because it takes him to the limit



Who was your toughest team-mate – and why?

Chris Walker, UK

SP: Nico Hülkenberg was the strongest. In terms of consistency and delivery, he was complete. He was good at putting together a whole weekend, to maximise the potential in the car.

F1R: There wasn't much to separate you in the standings. Are you happy when things are so tight – or worried?

SP: If I didn't get a perfect weekend, then he'd be there. Always. Extracting the maximum. Even if qualifying was poor, or he had a poor first lap, he'd recover and be right there. We live on results: it doesn't matter if you do a tremendous lap in practice or qualifying if you don't maximise the points. It's important to maximise the result and he was good at it. But I managed to beat him!

You've been very loyal to your team. Do you feel your goals can be reached with them?

Robert Wood, USA

SP: I think we've developed a very strong relationship since I came here. When I look back, every year or every couple of years I've been offered seats in other teams, and in the end, I've always decided

to stay here. I feel I'm a part of the family. We've come a long way together, and now with the new ownership the team has a much more stable future for the coming years. I feel I haven't achieved all my targets with this team yet. I feel there is more potential in the team and I'm enjoying working with the people, everyone is very motivated even though the past months have been difficult. I have good friends in the team, so it really feels like home. I haven't experienced this in any other team.

Are you still as passionate about Formula 1 today as you were when you made your debut?

Yusuf Faqih, Bahrain

SP: Definitely. If I wasn't passionate about the sport, I wouldn't be here. F1 gives you a lot, but it takes a lot out of you. I've been living this life since I was six. If I didn't enjoy it, it wouldn't be worth it. But I love it.

F1R: When do you get the buzz?

SP: When I have a great result. I want to experience it every weekend. The competitiveness is a way of life. You wake up every day with a purpose. I can't imagine not having that motivation. I'm driven by it. I need it.

Force India had been held back by lack of money this season. Is that going to change with the new owners?

Pauline White, UK

SP: I think so. We're seeing it's now possible to do the upgrades that were planned, there's a different structure, and there's a lot of positivity and enthusiasm at the factory. That will translate into track performance.



How do you keep yourself motivated when you know the only chance of success is when there are incidents with the big three teams?

Tony Flower, UK

that's what you're searching for: your absolute best. I love winning, but I know a weekend where I give my absolute best will provide the motivation. I don't have to finish on the podium to be happy with my performance.

You're always known as a guy who is kind on his tyres. Where has this particular skill come from – or is it just your natural driving style?

Cian McLeod, Ireland

SP: By delivering the best I can deliver. We're working at the very highest level in motorsport. There's a level of perfection you can reach in F1 – I think it would surprise people. Even when you qualify P10, that might be a great lap. It might be as close to perfection as is possible – and

SP: It's from karting. My dad had no money for new tyres, so we did old-tyre racing: you had to be as quick as the guy on the new tyre. In F1, it's not just saving tyres: if you're slow, you'll save the tyre more than the other guy. The key is: drive fast and still save the tyre.

“
I'VE BEEN OFFERED SEATS IN OTHER TEAMS AND I'VE ALWAYS DECIDED TO STAY HERE AT THIS TEAM. I FEEL A PART OF THE FAMILY
”

If you could swap hair with any other driver on the current grid, who would it be?

Paddy Bates, UK

SP: Hmm. I haven't seen everyone's hair – we wear a lot of caps and helmets. It wouldn't be Valtteri Bottas's hair because he doesn't have much!

Now that you have a child, is retirement on your mind, or are you still pushing as hard as ever?

Claudio Petrobelli, Canada



SP: I'm pushing as hard as ever. When I'm on the race track, I'm not thinking 'I'm a father'. I just want the very best for me, for my future. And I want my kid to see me racing at a good level. I think it's a motivation. 🏁

{YOU ASK THE QUESTIONS}

Want to get involved? For your chance to ask drivers questions, sign up at: [f1racing.com/global-fan-community](https://www.f1racing.com/global-fan-community)

ADDITIONAL PICTURES: ANDY HONE

HEAD CASE

The FIA have put years of research into a new, ultra-protective F1 helmet standard, and from 2019 every manufacturer must meet it. This is how it came about...

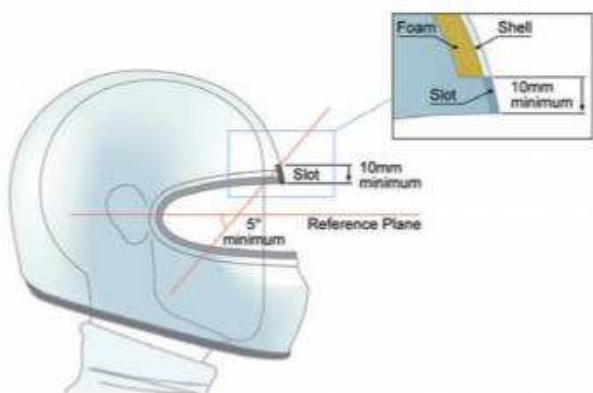
WORDS MARC CUTLER PICTURES FIA

The name – FIA 8860-2018 – may not appear to offer much cause for excitement. A brief glance at the outside of the product itself might not suggest much of a change. And yet the toughest helmets in the world are about to get even tougher and, over the coming years, the technology will trickle down from F1 to other major championships.

While current top-level helmets are already the safest available, the new FIA 8860-2018 standard sets the bar even higher. From 2019, every helmet manufacturer supplying F1 must meet it. “The current standard is already very demanding in terms of energy absorption and resistance to penetration,” says Stephane Cohen, chairman of Bell Racing Helmets, a leading helmet manufacturer. “The new standard goes one step further to achieve something that a few years ago we’d have thought it was impossible to reach.”

FIA 8860-2018 has been more than ten years in the making and is based on the latest scientific developments. All new helmets will now offer advanced ballistic protection, increased energy absorption, and an extended area of protection for drivers. “We’ve been evolving since 2006 when we started working on it,” says Andy Mellor, senior research engineer for the Global Institute for Motor Sport Safety, the FIA’s safety research partner. “There was no emergency because the current 8860 helmets provide huge levels of protection. But now is the right time and the manufacturers are ready for it.”

Under the new standard, a visor must undergo a penetration test in which it must withstand an air rifle firing a 1.2g pellet at it



As is often the case with research and development in motorsport, the project has been driven by specific accidents, such as at the 2009 Hungarian GP, where a loose spring hit Felipe Massa’s helmet at nearly 140mph. This is one of the reasons for the most noticeable change – the visor opening being lowered to incorporate increased ballistic protection in the frontal area. Currently, F1 helmets have a zylon panel attached to the top of the visor, but from 2019 this additional protection will be integrated into the shell of the helmet itself, ensuring that the protection is built in. This will lower the visor opening by 10mm, but tests have already proved that this won’t be to the detriment of the driver’s vision.

Another change is the inclusion of variable masses in test headforms: larger heads are heavier than smaller heads. Also, the new 8860 is a stand-alone FIA standard, while the original 8860 was part of the Snell Foundation SA Programme. As Mellor explains: “When we launched 8860

in 2004, we needed an efficient certification process to support the enhanced helmet performance and technology. We adopted existing test methods and worked with Snell to ensure rapid introduction.”

The new version of 8860 allowed the test methods to be revisited and the variable headform mass system was chosen to better represent the physiology of drivers. The outcome of the new testing regimen is that helmets will be optimised for all drivers regardless of their size and weight. “This presents something of a design challenge,” says Mellor, “because the larger helmets now have to absorb somewhat more energy. And the small helmets, less energy.”

Under the new standard, shell hardness will be assessed to ensure the helmets are tough *and* resistant to penetration. A specific penetration test, called Barcol, will be used for all 8860 helmets, and will likely lead to a toughened carbon epoxy outer shell becoming the norm for every level of motorsport. A further change will ensure extended areas of protection on the sides of the helmet. This is important to improve compatibility with the latest single-seater headrests and closed-car, seat-side, head-protection systems. “It ensures that we’ve got energy management within the helmet at the point of contact with the side headrests,” Mellor explains.

F1 helmet manufacturers such as Stilo, Bell Racing and Arai all contributed to the research programme but are now competing to produce the best helmet they can. Each will be free to use whatever material or technical solution they deem to be most appropriate to pass these tests. This will grant more design freedom, and open the door to innovation. “That’s one of the main points about this new standard,” says Stephane Cohen. “A second interesting point is that the area of testing will be expanded compared with what we currently enjoy, which means that the overall protection of those helmets could be considered better, and the FIA will remain at the forefront of helmet protection technology.”

First published in the FIA’s Auto magazine

HARD FACTS

1 THE TOUGHEST MATERIALS ARE USED

The helmet shell is constructed from advanced composite materials to ensure it is not only tough but also resistant to crushing and penetration.

2 THE VISOR OPENING HAS BEEN IMPROVED

The top of the visor opening has been lowered to include advanced ballistic protection that achieves unprecedented safety during impact from debris.

3 HELMETS WORK IN TANDEM WITH CARS

Extended areas of protection on the sides are compatible with the latest single-seater headrests and closed-car, seat-side head-protection systems.



MY LIFE IN PICTURES



ROMAIN GROSJEAN

He's had his share of ups and downs – and, indeed, upside-downs. Now Romain Grosjean is ready to share a selection of his racing memories in a walk through the Motorsport Images archive





1 Formula 3, Pau, 2006: “LIKE MONACO OR MACAU”

This is my best memory of 2006. I was with Signature in the F3 Euro Series, we had a beautiful car, but the team struggled a little bit: we swapped from Opel to Mercedes engines, I was lacking in experience, and we didn't get the performance. We joined the British Formula 3 Championship for this race in Pau. I won both the races and it felt good, because we'd been struggling to get results. The Pau Grand Prix is like Monaco or Macau; it's maybe not quite as famous, but it's big, and I was very proud to win it.

2 Formula 3, Hockenheim, 2007: EN ROUTE TO F1

Winning the F3 Euro Series with ASM in 2007 was very difficult – there were a lot of drivers who were moving up to Formula 1. Sébastien Buemi was in a different team, then in my team I had Kamui Kobayashi, Tom Dillmann and Nico Hülkenberg. We were each told we needed to be the champion if we wanted to carry on; it was a big fight and it was probably the best year of my racing career. In the team we were pushing each other hard all the time. I remember at Hockenheim going for pole position and getting the fastest time ever set there in an F3 car, then Hülkenberg beating it, so I had to go on pushing and pushing... and eventually I had the last word.

Fred [Vasseur, who was then the team principal of ASM] is a real racer; he knows the best way to speak to drivers, and I still have a very good relationship with him today. He's very funny and he knows how to get people to work to the very best level they can reach. I think that Guenther Steiner [team principal of Haas] is a lot like that as well.

3 GP2, 2009, Monaco: OFF TO A FLYING START

This was the second GP2 round of 2009, in Monaco. I'd had such an amazing debut: I was first in race one at Barcelona, second in race two and then we went to Monaco and I won again. Then I had a big crash with Andreas Zuber in race two: it was the biggest crash I've had to date. Things went a bit downhill from there. There were a few things – I knew I could have a shot at Formula 1 with Renault because Nelson Piquet was in and out, so I didn't focus as I should on GP2. Nico Hülkenberg was strong... I was still second when I left to go to F1, but I wasn't in a position of dominance like I had been at the start.

Addax was an interesting team. It was the first time I'd gone into a team where the owner [Alejandro Agag, now Formula E impresario] wasn't from a racing background. But he was a very good character, always behind you and giving you confidence. Seeing what he's done with Formula E is very impressive.

4 Formula 1, Valencia, 2009: IN AT THE DEEP END

This is a day I'll always remember: my first ever F1 grand prix. I got the phone call while I was on holiday. This was the one, finally – they'd called me before, but then called back the next day to say no! I had no preparation, no testing, and then I had to jump in next to Fernando Alonso. I don't think I did too badly. It was very interesting to look at Fernando and see what he was doing and how I could learn.

I didn't know much about F1 and all the other things like dealing with media and sponsors. I was shy so people thought I was arrogant. And unfortunately at the end of the year I couldn't keep my seat – which was tough, but a good life lesson. ▶





1 3
2 4





5
6





5 Formula 1, Interlagos, 2011: BACK IN THE F1 GROOVE

In 2011 I had two practice sessions in F1 with Lotus in Brazil [replacing Vitaly Petrov] and Abu Dhabi [in place of Bruno Senna]. It was hard to go back, because this team had fired me previously, and when a team fires you they think you're a loser and you go in the cupboard.

But, yeah, I came back in through the window. These practice sessions were very important – there was a lot of pressure and I had to show I knew what was going right or wrong on the car, and that I had the pace and could do a good job. And then it happened! On 8 December I got the phone call saying I had the race seat.

6 Formula 1, Bahrain, 2012: PODIUM TIME!

I got my first F1 podium in Bahrain in 2012. I remember standing on the podium and remembering how when I was a kid watching races on TV, people like Alain Prost, Nigel Mansell and Ayrton Senna would be up there... and now there would be kids watching me on the podium. I was very proud of being there.

Eric Boullier was super-proud afterwards because he had really pushed for me to come back.

7 Formula 1, Spa-Francorchamps, 2012: THE 'FIRST-LAP NUTCASE'

I think in my career it was a positive thing to start working with a psychologist and learn to do things in a different way. The penalty here [a €50,000 fine and a one-race ban] was very harsh. I think Lewis [Hamilton, whose left-front wheel hooked Romain's right-rear into the air, triggering the shunt] had at least 50cm or a metre on his right to move. I don't think it was a mistake initially – I thought I had overtaken

him, and then obviously not, but then the wheel had come off, all the brake fluid came out, and I had no more brakes. I'm happy nobody was hurt.

I sent a text to Fernando after the race to apologise, and he replied, "Don't worry, it happens, penalty is harsh, you will come back."

I got a tough time on social media after that, with a lot of people saying I cost Fernando the championship there. Well, it might not have helped but it wasn't that. People still come up to me with this photo wanting me to sign it – sorry, I don't sign it! Guys, please – it was a long time ago; I've learned from it, and moved on.

8 Formula 1, Melbourne, 2016: MAKING THE MOVE

Haas came at the right time for me. I was about to turn 30, I'd had a lot of time at Enstone – and it was ten years since I'd started in Renault Driver Development. I figured it would be a great challenge, a great adventure. I thought the whole system behind it [close technical co-operation with Ferrari and the use of listed parts] was very intelligent, a strong way to come into F1.

Obviously it was a risk to change to the unknown. But I'm proud of what we've been doing so far. Our third season is going super-well, and this is the kind of experience that has no price. Learning to develop a team from day one has been incredible. We've had a lot of laughs, and there's a lot of trust between us, with Guenther Steiner and Gene Haas. Finishing sixth in the first race with this team [2016 Australian GP] was incredible. We had a bit of luck with the red flag, but then we finished P5 in Bahrain with no help. Then in China we were 18th and 19th on the grid – that was a wake-up call. "Guys, it's not that easy..." 🚫

THE LONG INTERVIEW

Formula 1's carbon-fibre pioneer was a legendarily tough cookie, known as the 'Prince of Darkness' (at McLaren) and the 'Godalming Scud' (at Benetton). Has time mellowed the father of some of F1's most beautiful cars?

INTERVIEW **STUART COOLING**
PORTRAITS **ALISTER THORPE**

THIS IS
JOHN
BARNIARD





THE 72-YEAR-OLD FRAME might be more venerable, but the grey-blue eyes possess the same intense stare you'll recognise from countless photographs. As John Barnard strides purposefully into the Segrave Room in the Royal Automobile Club's cloistered Pall Mall clubhouse and encloses your hand in a firm grip, you notice he has deviated somewhat from the dress code... and briefly wonder if the doorman braced to apprehend him for arriving without a tie was silenced by a look.

"Unlike Scuds," Barnard is said to have quipped when he learned that his Benetton colleagues likened him to a ballistic missile, "I always explode when I land."

That was then. This, indubitably, is now, and Barnard has been absent from F1 for almost two decades, principally occupying himself by sketching elegant bespoke furniture. He's breaking his silence to promote a highly detailed biography that lifts the lid on a career that took him from a minor design role at Lola to an unassailable position as one of F1's most innovative – if truculent – visionaries. He remains one of a select few engineers who can genuinely claim to have changed the sport: carbon-fibre construction and semi-automatic gearboxes are *de rigueur* today, but came about only through his relentless fixity of purpose.

F1 Racing: You had a reputation for being very uncompromising to work with. So it was interesting to see during the Q&A with your book's author that many of your old colleagues were in the room.

F1 Racing meets the 'Prince of Darkness' – now a designer of bespoke furniture – at the swish Royal Automobile Club on London's Pall Mall

John Barnard: Yes, I was surprised at that!

F1R: Is it true that your nickname during your time at McLaren was the 'Prince of Darkness'?

JB: Yeah, it was Tyler Alexander who came up with that one. He was the master of the soundbite. I'd worked at Team McLaren [as a junior designer] and knew it well. I'd then gone to California, come back and joined Ron Dennis at Project Four, and then we were brought together by Marlboro [who were frustrated by McLaren's serial underperformance] as a new organisation, McLaren International.

As technical director I wanted to change things because I felt very strongly that all the design, all the parts, had to come out of the drawing office and had to be done to a drawing, because otherwise I couldn't keep track of everything. Lots of the small bits and pieces, oil cooler brackets and so on, would be made by a mechanic. Then the guys on the other car would make their own brackets, so there would be these tiny differences every time. I couldn't have this going on.

In changing the system, I earned myself that reputation as the 'Prince of Darkness'. I was tough and I upset plenty of people. Many of the old-timers there didn't like change and quite a lot of hostility built up. It was a Kiwi team, let's face it, and the Kiwi ethos was very much 'we can build it in our back shed' because that was exactly the way they had worked back in New Zealand. It just wasn't going to work for me.

F1R: You've said that when you first worked at McLaren in the early 1970s you were hired as "a pencil" – just a designer of various



pieces. When you came back in 1980 you'd undergone this big professional transformation and had a very clear idea of what the future was going to be like – what brought that about?

JB: When I left Team McLaren in 1975 to go over to California, I'd been offered the job as chief designer with Vel's Parnelli Jones [an IndyCar team] by Jim Chapman, the team manager, who I knew from my Lola days. It took me about half a millisecond to say "Yeah, fine, when do I start?" We got our stuff together – I'd just got married – and within two weeks of getting married we were off to California.

There was a completely different atmosphere there – for example, if you want to go and set up your own company, that's fine. Move to a building up the road... there are a lot of places you can put it. Everything was 'no problem, just do it'. And that can-do attitude is what I took from the American experience.

I can best illustrate it by when we started working on the carbon monocoque [with Ron Dennis at Project Four in 1980], and Ron and I had to find somebody to make it because we didn't have composite facilities. We visited several UK companies doing composite work, such as helicopter blades, and we didn't exactly get laughed out, but I'd taken a roll of proper composite drawings with me, and at a lot of places they took one look at it and said: "That's way too complicated. You are never going to get that."

We ended up going to see Hercules in America. They made all sorts of things like rocket engines, and their attitude was, 'Hey, we've never seen anything like this before, but we'd really like to have a go at it because we will learn stuff.' That was so different to the response we got from the English companies, and it still makes me sad in a way.

John Watson wins the 1981 British Grand Prix, proving the virtues of Barnard's groundbreaking carbon monocoque

In America, Barnard's most significant design calling card had been the Chaparral 2K IndyCar, which successfully imported the 'ground effect' aerodynamic philosophy introduced with such great impact by Lotus in F1. But it still seems like a considerable leap from that to building a complete car from a hitherto little-used and little-understood composite material.

F1R: In terms of your personal journey, as it were, to becoming an acknowledged technical guru, was that through a growing confidence in your vision? Because you've said your Chaparral Indycar was the perfect car...

JB: Ha! I said *nearly* perfect. It was a combination of growing confidence, of being in positions where I was able to call the shots, and a desire to do something new. Ron Dennis contacted me more than anything because I'd just done the Chaparral and he thought it was a great car.

Ron's proposal was that we should spend a year developing the carbon-fibre F1 car before we raced it, and to be given that opportunity in motor racing doesn't come along too often. So I was thinking to myself: 'I need to make another step, because I'm going to get this opportunity of a year with no racing, just designing for the following season'. And I got into that frame of mind.

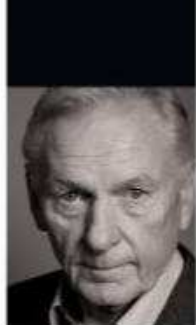
Then after the McLaren came Ferrari... What am I going to do? What's my next step? And then I came up with what they call the double Coke-bottle shape and the paddle-shift gearbox and so on. So I'd kind of got it into my psyche that I needed to be making steps. I mean, if I was going to beat the opposition I needed it to be not just a development exercise but a real fundamental step forward. And I think, ultimately, it cost me in terms of race wins because I was pushing ahead with the new stuff, perhaps too soon, without having enough testing.

F1R: You're known as the pioneer of carbon fibre in Formula 1. It was interesting to see in your book how much credit you give to Arthur Webb – someone who doesn't really figure in mainstream Formula 1 history. Where did he come in?

JB: Arthur worked at British Aerospace at Weybridge. He was fundamentally a stress engineer. But he was old school – slide rule, calculator and pencil – which suited me because that's what I was. He didn't know anything about racing cars but he brought the knowledge of calculating loads and stresses, and the ground rules of designing in composites as opposed to designing a structure in metal. For instance, the first thing you want to do with composites is to get rid of the joints. You want, as much as you can, to have one-piece parts, not all bits and pieces joined together as you would with metal. So he had a lot of input into the conversations around how we would go about moulding it, too – he was very important to me in that first, early stage.

The MP4/1 proved the virtues of carbon fibre as a structural material very quickly – within months John Watson had won the 1981 British Grand Prix and then had a substantial accident at Monza, where the car didn't just disappear in a cloud of dust as many paddock soothsayers had predicted it would. But it was

INSET: LAT IMAGES



still running the same naturally aspirated Cosworth V8 as many of McLaren's competitors, and Dennis was busy wooing Niki Lauda to make an F1 comeback – the idea being to properly establish McLaren as a leading team again.

FIR: When did the bespoke TAG-Porsche V6 turbo arrive on the table? Was that Ron's idea?

JB: No, no. That was me. At that time [1981] there were still five directors of McLaren International: Ron, me, Creighton Brown, Teddy Mayer and Tyler Alexander, and it was very clear that in terms of pure horsepower we were going to need a turbo engine. I had looked at some of the options. Ron and I visited BMW in Munich. Teddy had come along with drawings of the Renault V6 Lotus were using. I remember him saying, "If it's good enough for Lotus it's good enough for us, isn't it?" And I just said: "No. It isn't." [In Barnard's book, he says of Mayer: "I found him to be a particularly annoying character, a frustrated designer who was always trying to press upon us his ideas about how he thought something should be done just because he'd seen it done that way on another car, or read about it in some magazine."] Because both of them were, effectively, road-car engines. They weren't designed to go into a racing car chassis.

We were still concentrating heavily on ground-effect underbodies, so I said to Ron: "We need to find someone to build us the engine that I want, and the engine I want has got to have all the pumps down below, not on the side. It's got to be as slim as possible down there." Ron said: "What about Porsche?" And I said: "You'll be lucky!" Ron being Ron, he picked up the phone and got hold of somebody over there, and off we went to see them. And because we were paying the bills, I was able to control what they were doing in terms of the package. I constantly went back and forward to Porsche to make sure it would fit the way I wanted.

And we ended up, or would have ended up if they hadn't changed the ground-effect rules at the end of 1982, with an unbelievable machine. We were producing some incredible numbers in the windtunnel with our model.

The engine Barnard had custom-built by Porsche was rushed through (against his will) for 1983, but even so, Niki Lauda collected the title the following year

NIKI WAS POLITICKING WITH MARLBORO AND PUSHING AND PUSHING. I THINK RON WAS TRYING TO KEEP ALL THAT AWAY FROM ME UNTIL, I SUPPOSE, EVENTUALLY THE PRESSURE BECAME TOO MUCH

FIR: Is it true that if you thought Porsche were deviating from your outline, you'd ring them up and scream at them?

JB: Oh, I'd be over there! There was one instance where they'd put some sump-to-block bolts outside the profile line. It would have required a tiny bump on the underbody, and I said, "No, you've got to find another way of doing it." And they did. They *could* do it. They just had to be *told* to do it.

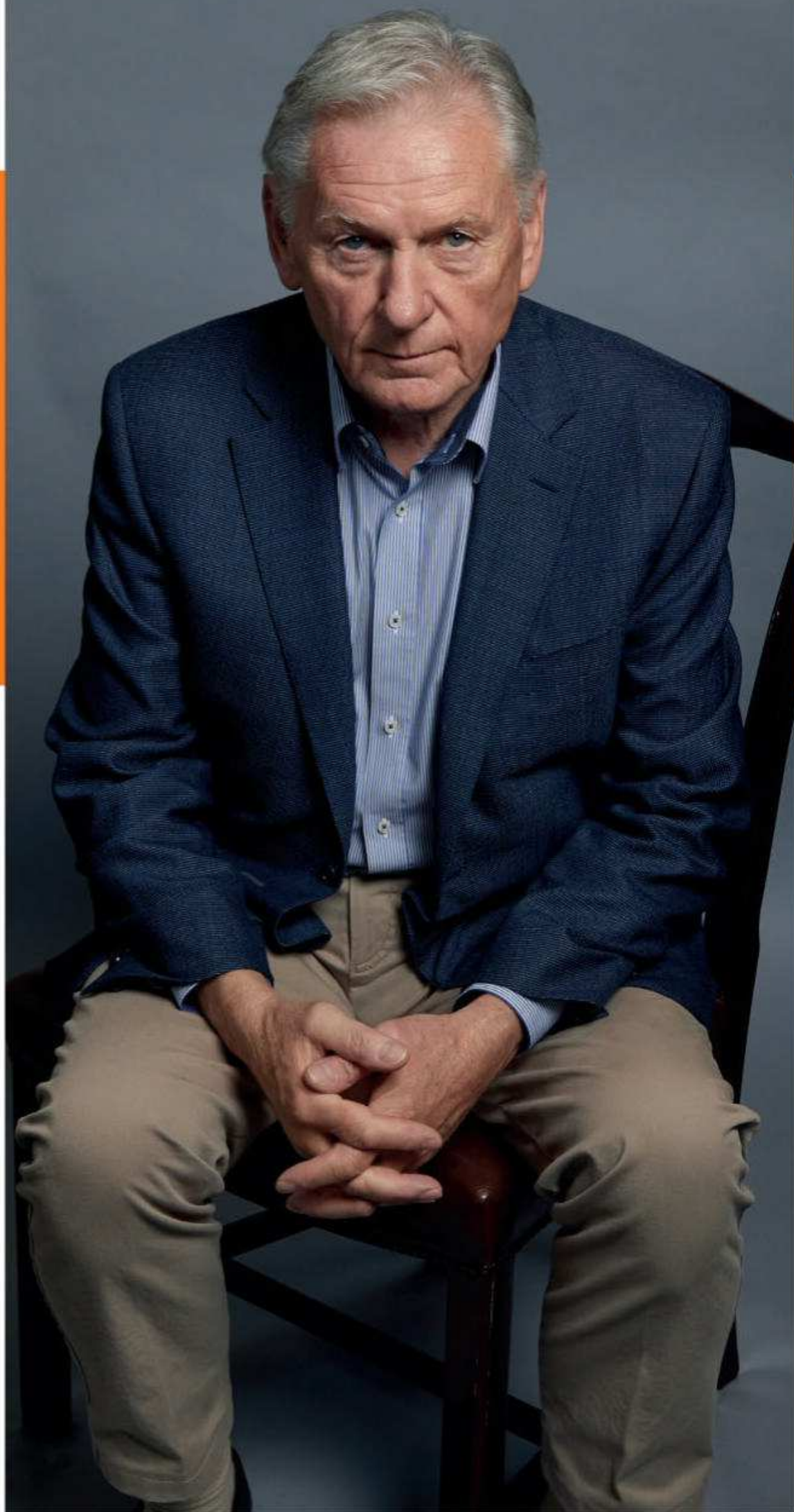
FIR: Being a clean-sheet design, it took a while. Niki Lauda pushed for it to be introduced earlier than planned, in 1983. Was that something you approved of?

JB: No! I was annoyed. Niki was politicking with Marlboro and pushing and pushing. I think Ron was trying to keep all that away from me until, I suppose, eventually the pressure became too much. Marlboro were going to pull the plug. So we had to take an MP4/1C chassis, modify it for the turbo engine, and that took time that would have been better spent on the MP4/2, which had been designed from the ground up to fit the TAG-Porsche engine.

FIR: Even so, Lauda won the championship in 1984 and then Alain Prost took the next two, so the MP4/2 still proved to be fantastically successful.

JB: It was a fabulous car because the aerodynamics worked fantastically well, and a lot of it was down to the whole rear-wing package with those little winglets – and with the turbo engine it absolutely flew. And then the rules changed again for 1985 and they attacked the aero; we had to take all the winglets off. We struggled to gain some of that back. We never gained *all* of it back, but we gained enough of it, with the engine and everything else, for Prosty to win the '85 championship as well.

The '86 car [the MP4/2C] was essentially the same chassis, engine, and gearbox package we'd been running since '84, with a few changes to the outside bits and pieces, and some... neatening. I got KKK to make me left- and right-handed turbochargers so that



everything was perfectly symmetrical on the engine – the exhaust system and the turbo inlets. And that was really the last time I developed the same package over a period of seasons.

Despite McLaren's success on track, all was not harmonious in Woking, and as Ron Dennis's power grew, Barnard felt sidelined as a partner. There was also the question of a salary review which Ron, allegedly, never got round to negotiating. Barnard now says he underestimated the difficulty and importance of Ron's role as commercial hunter-gatherer.



The rules changed for 1985, but Barnard managed to claw back enough aero for Alain Prost to take that year's title

F1R: It seems very much – from an outsider's point of view – that you and Ron were almost cut from the same cloth, being single-minded perfectionists. Do you think, in hindsight, that it's because you were so similar that you were inevitably not going to get on?

INSETS: LAT IMAGES

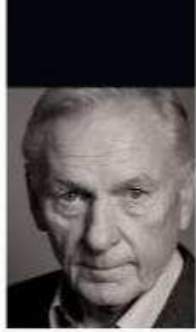
JB: To be honest, if we both looked back on it, I think Ron would realise that he never came back to me on the questions I'd asked him at the start of the season. I got enticed away by the magic of Ferrari. Ron's been extremely successful anyway, but I think we could have stayed together because we knew it worked. We were being successful, so it had to work. The ups and downs, me losing my rag and so on, Ron not telling me everything... we probably needed to get all that ironed out. He needed to tell me everything and not hide things he thought would upset me. Because when I found out, I *did* get upset. On the other hand he was great at his job and I was good at mine.

But by the end of 1986 I needed to be able to step back for some fresh thinking. And I thought that's what the Ferrari opportunity would do – give me that fresh start with something that was completely new. I knew it wasn't going to be easy, but it turned out to be a whole new bag of problems.

F1R: So Ferrari initially approached you through an intermediary. What was your first meeting with Enzo Ferrari like?

JB: The first meeting I had, they flew me out on a private jet to Maranello on a Sunday to meet him. He didn't speak English and I didn't speak Italian, so anything we spoke about had to go through Marco Piccinini [the team's sporting director]. But, you see, Piccinini was a very canny operator; a very smart guy. He was really making the decisions. Sometimes Marco would go to a FOCA meeting or something and he would have to play the card of: 'Oh, I'll have to go back and talk to the Old Man.' But we all fundamentally knew that Marco was going to make the decision and just get the approval from the Old Man.

At the end of that first day they put a letter in front of me and said the Old Man would be very pleased if you would sign this ▶



I FLEW TO ITALY AND SPOKE TO GIANNI RAZELLI, THE MANAGING DIRECTOR AT FERRARI. I BASICALLY DELIVERED AN ULTIMATUM AND SAID IT WAS THEM OR ME. WHEN IT GOT BACK TO ENZO, HE PRETTY MUCH THREW PIERO OUT – AND BANNED HIM FROM COMING TO RACES

to show a genuine interest in coming to Ferrari. And I said I was very sorry, but I didn't want to sign a meaningless piece of paper, just to keep them happy. But then I kind of felt almost obliged. I signed it! They were very astute operators.

Ferrari acceded to Barnard's condition that he be allowed to design and manufacture their race cars from a base in the UK – an unassuming industrial unit in Shalford, Surrey, that is now home to Gordon Murray Design. Despite being labelled Il Mago ('the magician') by the Italian press, Barnard was unable to work much of a spell on the 1987 Ferrari, which was designed by Gustav Brunner, electing instead to push ahead with a V12-engined clean-sheet design that would feature a radical semi-automatic gearbox. But the project was dogged by various delays that meant it wouldn't be ready in time for the 1988 season – and

Prost pushed Senna hard for the 1990 title, in the beautiful Barnard-designed Ferrari 641, which is now on display in New York's Museum of Modern Art

Barnard eventually learned that the source of the hold-ups was a splinter group, led by Enzo's illegitimate son Piero, who were pursuing an entirely separate car project.

F1R: You've always said you didn't 'do' politics. How did you manage to deal with the Ferrari in-fighting when you weren't actually on the ground at Maranello?

JB: I flew to Italy and spoke to Gianni Razelli, the managing director at Ferrari. I basically delivered an ultimatum and said it was them or me. When it got back to Enzo, he pretty much threw Piero out – and banned him from coming to races.

Barnard's Ferrari overcame early teething troubles caused by the engine throwing off its fan belt. Alain Prost, armed ▶



INSET: SUTTON MOTORSPORT IMAGES

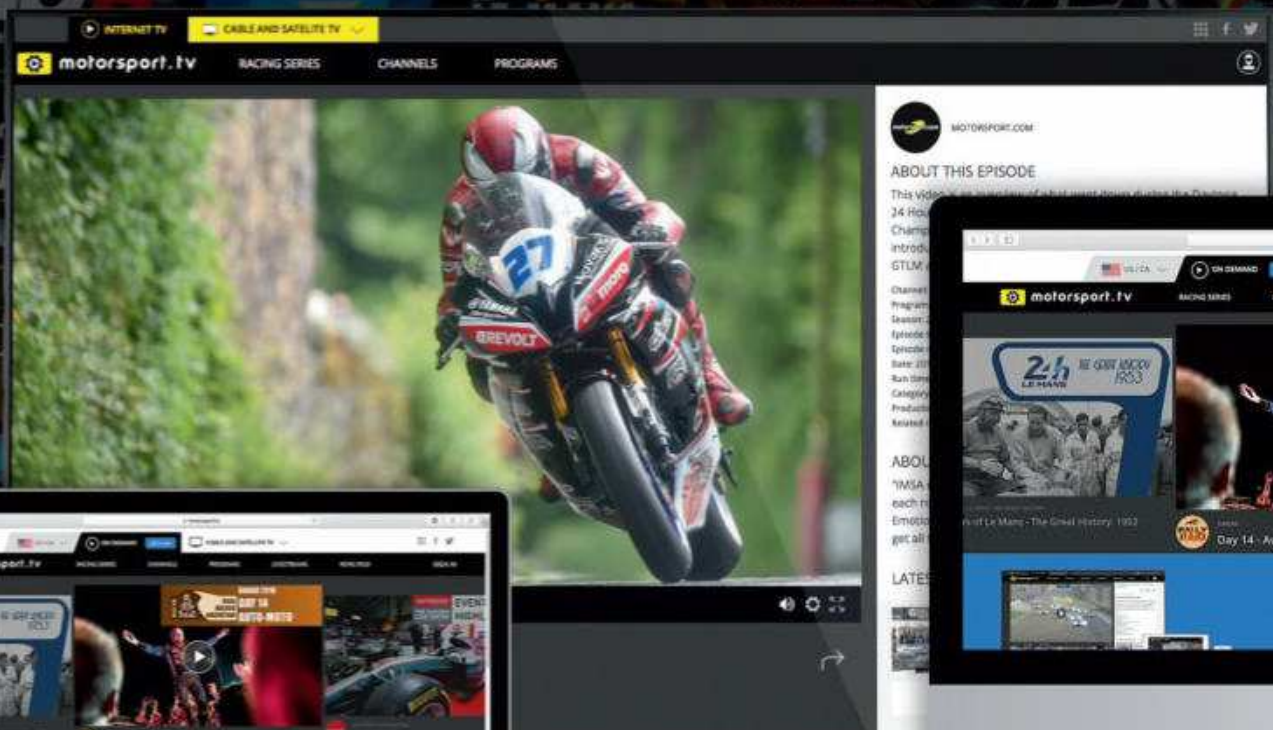


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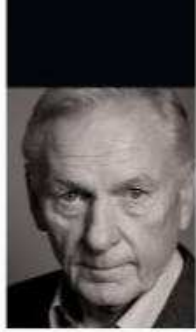
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with a development of it in 1990, pushed Ayrton Senna for the world championship. An example of that car, the Ferrari 641, now resides in New York's Museum of Modern Art. But by the end of 1989, Barnard had grown tired of the politics at Ferrari and was duly tempted away by an offer to join Benetton, again on the proviso that he could set up a design and production facility near his Godalming home. His B191 won one race, but the relationship with Benetton's Flavio Briatore ended badly – for legal reasons we will direct you to the very carefully written chapter in Barnard's biography – and John was soon invited back to the Maranello milieu.

F1R: You've said that after a certain point, racing became less interesting for you than engineering as a purely technical exercise. When did that start to happen?

JB: I think it was probably my second time round at Ferrari when racing started to become less of an interest. It became more about looking for a step, something new – and the pleasure of getting the design right, even on small parts of the car, where I could look at it and think, 'I really like that.' Or I look at it and think, 'Ahh, we could have done a better job there.' That's kind of what drove me, what really got me going.

F1R: So you were continuing to chase the notion of the perfect car?

JB: Yes. I was always looking for that next step – but maybe, as I've said, I was pushing them through too quickly. The 1994 Ferrari, the 412 T1... that was a huge disappointment to me. The radiator package was designed to be zero drag, and we did all sorts of testing with it with MIRA, using hot-flow testing, to prove the concept. The car looked fantastic, "a pebble washed by the sea" the

Barnard raises the Silverstone trophy won by John Watson for McLaren in 1981 – it marks his first tangible success in F1 as a designer

Despite its good looks, the Ferrari 412 T1, driven here by Jean Alesi, suffered problems with overheating, due to a lack of testing by the engine team



INSET: SUTTON MOTORSPORT IMAGES

THE 412 T1 WAS A HUGE DISAPPOINTMENT. THE CAR LOOKED FANTASTIC, "A PEBBLE WASHED BY THE SEA" THE ITALIAN MEDIA CALLED IT. BUT WE GOT ROYALLY SCREWED BY THE ENGINE PEOPLE

Italian media called it. But we got royally screwed by the engine people because they never did a proper water-flow check with the radiators [the car suffered major overheating problems as a result of this, and the flaw in the water flow calculations was discovered only after the 412 went through a major redesign, giving it shorter sidepods]. If they had done that, we would never have had the cooling problem, and the problem itself would have been easily fixable without compromising the car's aero.

It won the race at Hockenheim with the short pods. That car still had a very high top speed, which everyone put down to the engine having loads of horsepower. But it wasn't just that – it was because we'd found really low drag. When you have a sound concept like that, and it's compromised by politics, it really is immensely frustrating. 🏁

The Perfect Car: the Story of John Barnard, Motorsport's Most Creative Designer, by Nick Skeens, is available now, priced £40, from Evro Publishing.



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NIGEL ROEBUCK'S GRAND PRIX GREATS



WHEN GIANCARLO BAGHETTI SPUN OFF in the 1961 British Grand Prix, a spell was broken, for this, the fourth Formula 1 race

of his career, was the first he hadn't won. A fortnight earlier he had taken his Ferrari to victory at Reims, thus becoming the first – and only – man to win a grand prix at the first attempt. Prior to that, he had won non-championship races at Naples and – on his F1 debut – Syracuse.

Six years earlier another rookie triumphed in the Syracuse Grand Prix, but whereas Baghetti fizzled as quickly as he had flared, the victory of Tony Brooks heralded the beginning of a great career. Before travelling to Sicily, he had never so much as sat in an F1 car.

Come to that, nor had he ever entertained thoughts of racing professionally. For three years he had been successful in British club racing, leading to a drive with Aston Martin at Le Mans in 1955, but at 23 Brooks's focus was on studying dentistry at Manchester University, and coming up were his 'Finals'.

"There I was, swotting away, when a call came through from Connaught: would I like to drive for them at Syracuse? Frankly, they couldn't find anyone else! I rather absent-mindedly said yes, and put the phone down."

Perhaps it was fortunate that Brooks was preoccupied with his exams, for on the flight to Sicily he worked away, and didn't give much thought to the race. "When I got there, the transporter hadn't arrived, so we missed the first practice day, and I hired a Vespa to learn the circuit in the evening..."

Clear favourites for the race were the factory Maserati 250Fs, but soon

Brooks was lapping as fast as they. "The Connaught handled well, but was short of power – and also the team's reliability record was awful. 'Don't do too much practice,' they said, because they were terrified of not getting the starting money. Come race day, I'd done no more than a dozen laps."

Although Luigi Musso led initially, after 10 laps Brooks was in front, and at the flag led Musso by 51 seconds. If the spectators were stunned, so also was the winner.

"Obviously I was very pleased, but it didn't really sink in – quite honestly, all I could think about was my exams! I swotted all the way back, too..."

While not in a world championship race, Brooks's victory was the first for a British car in half a century, and the young man was on his way: although he duly got his degree, he was never to practise as a dentist.

After a wasted season with BRM, for 1957 Brooks signed as number two to Stirling Moss

in the Vanwall team, and if there were no outright wins, he nevertheless shared victory with Moss in the British Grand Prix.

A month before, Tony had been injured at Le Mans, and only came out of hospital the day before practice began at Aintree: "I didn't break anything, but there was a hole in the side of my thigh I could have put my fist into..."

Remarkably Brooks qualified third, but he was still weak, and it was agreed that if Moss should need his car – back in the day drivers could take over other cars if their own had retired – he would willingly give it up. In the event, after retiring from the lead, Stirling indeed took over Tony's Vanwall, and put in a fabled drive to come through the field and win.

For 1958 they stayed with Vanwall, Moss winning four times, and Brooks three, yet such was the points system that both were beaten to the world championship by Mike Hawthorn, who won but once. Never did seem right.

Appropriately Brooks's victories came at classic circuits – Spa, the Nürburgring, Monza – and it may be that the driving of a Formula 1 car never came easier to any man. Quietly spoken, physically slight, he was always a fingertip driver: to lap the old Spa-Francorchamps at well over 130mph, in a front-engined car on skinny tyres, brought no sweat to his brow. He was, in every sense, a 'natural'.

"I particularly loved Spa. It seemed to me the essence of a true grand prix circuit, very quick and calling for great precision, with absolutely no margin for error at all – if you went off, you might get away with it, you might not. It's one thing knowing a mistake might mean going into a run-off area: walls and trees and ditches instilled a discipline, believe me..."

Following the death of Vanwall's third driver, Stuart Lewis-Evans, Tony Vandervell withdrew his team, and for 1959 Brooks moved to Ferrari. By now front-engined F1

TONY BROOKS

Club racer to Grand Prix winner





A weakened Brooks willingly gave up his Vanwall when team-mate Moss retired from the lead at the British GP in 1957. Moss then stormed through the field to claim a famous victory



The sublime natural talent of Brooks would see him partner Jim Clark in Stirling Moss's grand prix dream team

cars were in their death throes, but he won at Reims and Avus, and went to the final race, at Sebring, in contention – along with Moss and Jack Brabham – for the world championship.

Brooks's two biggest accidents – in the BRM at Silverstone and in the Aston at Le Mans – had both been caused by mechanical problems of which he was aware, and they had a profound effect on his thinking. A devout Catholic, he vowed never again to risk his life in a car that was in less than sound condition.

“As it was, that philosophy may well have cost me the championship. On the first lap at Sebring, I was hit by Taffy von Trips, and my natural

inclination was to press on – that would have been the easiest thing to do – but I made myself come in to have the car checked over. I lost half a lap doing that, and still finished third – on a day when Stirling retired and Jack ran out of fuel! Still, in my own mind, I think I did the right thing.”

Thereafter, Brooks raced for two more years, but his thoughts were increasingly on the future: now married, with children, he had never envisaged a long career in racing, and at 29 retired to his thriving garage business, taking with him one of the greatest talents the sport has known.

Moss has said that if he were running a grand prix team, and could choose any two drivers, they would be Jimmy Clark and Tony Brooks. 🏎️

THIS MONTH

LANDMARK BRM RETURNS

PETER COLLINS REMEMBERED

“THE BRM TURNED A WHEEL FOR THE FIRST TIME IN NEARLY 50 YEARS WHEN HALL SHOOK IT DOWN AT BLYTON”

One of the few surviving examples of BRM's first rear-engined Formula 1 car, the P48 from 1960, has returned to action this summer after a lengthy restoration by marque experts Hall and Hall.

Having spent nearly half a century in storage, the ex-Dan Gurney P48 returned to the track at the Silverstone Classic in late July. The freshly finished car was entrusted to versatile young racer Ben Mitchell, who qualified an excellent seventh in a 50-car field for the pair of HGPCA races. Unfortunately, gearbox issues then left it unable to start.

BRM's first rear-engined F1 design was a rushed development of the front-engined P25 for the 1960 season and Gurney raced chassis number 6. In 1960, three P48s (for Gurney, Graham Hill and Jo Bonnier) joined the fray at the Monaco Grand Prix. Chassis 6 was later used in hillclimbing during the mid-1960s before being bought by racer Robs Lamplough. The racer and aviator has been actively competing since the 1960s, when he raced at international level in Formula 2, and still turns out regularly in cars from his extensive collection.

Lamplough acquired the car in 1971, used some of the mechanical parts to build up a front-engined P25, and put the P48 chassis into storage – where it stood in a corner for more than 40 years. Finally, five years ago, the chassis went to Hall and Hall in Bourne, Lincolnshire, for restoration. Like the P25, the P48 uses a 2.5-litre four-cylinder BRM engine.

“It's a fantastic honour to be asked to drive it and it's everything you'd want it to be,” said Mitchell.

“It's great to have it back out,” added Rob Hall from Hall and Hall. “It's got the original engine and new magnesium bodywork.”

The BRM turned a wheel for the first time in nearly 50 years when Hall shook it down at Blyton in the week leading up to the Classic. There are now plans to run the car again at suitable events.

Sixty years after his death at the Nürburgring, British racer Peter Collins was remembered in early August in a modest ceremony at Saint Mary's Church in Stone, Worcestershire, close to his former home.

Collins died in the 1958 German Grand Prix when his Ferrari Dino 246 flipped into a ditch and he was thrown out. His rise to F1 and sportscar racing had been meteoric and he progressed from 500cc F3 in 1950 to make his F1 debut in 1952. He won three grands prix, including the 1958 British race after a mighty performance, and took many sportscar successes. He also partnered Stirling Moss to victory in the 1955 Targa Florio for Mercedes.

Collins was close to both Enzo Ferrari and Mike Hawthorn, and his death was a major factor in Hawthorn's decision to retire at the end of the 1958 season.

His life was marked by the ceremony and an address by respected commentator Neville Hay. A wreath in the shape of a Ferrari steering wheel adorned Collins' grave in a fitting tribute to one of Britain's greatest drivers.

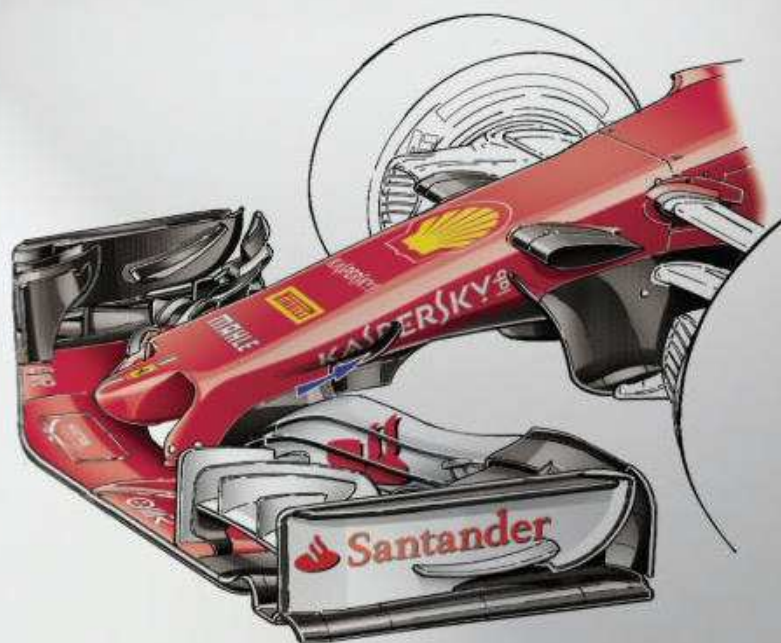


Peter Collins made his F1 debut in 1952 and had won three GPs by the time of his death in 1958



Dan Gurney in the BRM P48 at the 1960 Monaco GP. The car recently appeared at the Silverstone Classic

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THE MAIN EVENT

Dijon to host FIA Masters Historic F1 Championship finale

Mention the **Dijon-Prenois circuit** and most Formula 1 fans will immediately think of the 1979 French Grand Prix, when Gilles Villeneuve and René Arnoux battled for second place in one of the most spectacular conclusions to an F1 race ever seen. The Ferrari and Renault banged wheels several times before Villeneuve wrestled the Ferrari 312T4 to the flag 0.24s in front of the Renault RS10.

This October, period Formula 1 cars will return to the undulating and iconic French track for the final two races of the season for the FIA Masters Historic Formula 1 Championship.

Although it's now 34 years since contemporary F1 appeared at Dijon, the recently refurbished track remains a popular destination for historic racing, and the annual Dijon Motors Cup in mid-October is a seasonal highlight.

This year the Masters organisation has chosen Dijon as the setting for the season finale for the Historic Formula One Championship, and the races form rounds 15 and 16 of the schedule. At the mid-point of the season Greg Thornton (Lotus 77 and March 761) and Nick Padmore (Williams FW07C) are leading the two divisions, but double-headers at the Nürburgring, Zandvoort and Spa will shape the situation before the deciding races at Dijon.

A full supporting programme also includes the final two races of the season for the Historic Formula 2 FIA International Series, when local racer Robert Simac will aim to secure a sixth straight title in his ex-Jean-Pierre Jaussaud March 712M.

HISTORIC RACING AND AUCTION CALENDAR

September

14-16: Masters FIA Historic F1 Championship, Spa-Francorchamps

October

12-14: Masters FIA Historic F1 Championship, Dijon-Prenois

December

2: Autosport Awards, London

January

10-13: Autosport International, National Exhibition Centre, Birmingham



PICTURE: LAT ARCHIVE

Arnoux and Villeneuve do battle at Dijon in 1979 and the French track will host period F1 cars in October

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CAR**

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WORDS DAMIEN SMITH
PICTURES JAMES MANN

THE FERGUSON P999

The only 4WD F1 winner and a curio that intrigued Stirling Moss

Stirling Moss was curious. Up against the sleek ‘Sharknose’ Ferrari 156 in this, the first year of the new 1.5-litre F1, England’s hero needed a new edge – that unfair advantage desired by all racers. Rob Walker’s Lotus 18 had been enough to overpower the reds at Monaco, but over a season he was up against it. This front-engined Ferguson looked obsolete in the era of the mid-engined revolution.

But with four-wheel drive, and on any wet track, just maybe...

Harry Ferguson was an Irish engineer whose eponymous company was best known for its tractors. Having once lost \$1million on a coin toss, he was clearly a man not averse to taking chances, and he liked to think big. Four-wheel drive had captured his imagination as early as 1948 when he backed racers Tony Rolt and Freddie Dixon in their all-steer, all-driving project called ‘The Crab’. But it was the traction benefits for safer road cars that really fired his motivation.

A prototype estate car featuring four-wheel drive, Dunlop anti-lock brakes and a hatchback predated Audi’s *Vorsprung Durch Technik* by a good couple of decades in 1959 – except few seemed to notice. He needed a billboard for his technology: what better than F1?

**NOW
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No. 71



**THE FERGUSON
P99**

Designed by Claude Hill of Aston Martin fame, the Ferguson P99 was conventional at a glance: standard tube-frame chassis, all-wishbone suspension, the same Coventry Climax four-pot used by Britain’s F1 establishment and planted in front of the driver, too. The lower suspension arms in line with the driveshafts that resulted in ungainly spring turrets and an offset driving position to make room for the propshaft linking both axles were visual indicators of its novelty. Four-wheel drive was hardly a new concept, but in F1 terms this was groundbreaking.

The Rob Walker connection came through Rolt, who was a partner in Harry Ferguson Research. The gentleman F1 privateer had used both Coopers and Lotuses for his loyal driver Moss, who loved racing for his friend. When Walker indicated his plan to run the P99 in 1961, he must have known that intuitive Moss curiosity would be piqued.

But Stirling had his doubts. At the British Empire Trophy at Silverstone, Moss practised in the car, but chose to race his Cooper T53. Jack Fairman raced the P99 instead, running with a 2.5-litre Coventry Climax for an event that ran to the new Intercontinental rules. Moss’s instincts, as usual, were on the money. Fairman struggled with the Colotti ‘dog box’, spun



off and retired, while Stirling won in the Cooper.

But at a rain-affected British GP at Aintree, the Fergy was back – and Moss sensed an opportunity. He was fastest in the P99 during practice blighted by a torrential downpour, Stirling revelling in its neutral handling and 50:50 torque split across its two axles (although he never did run with its novel ABS connected). He switched back to his Lotus for the race, but Moss wasn't yet done with the car.

Having shot past the Ferraris of Richie Ginther and Phil Hill at the start, Moss was tracking the leading Sharknose of Wolfgang von Trips when a brake pipe burst. In a time when a driver could still take over a team-mate's car, Stirling pulled rank on Fairman, who had been struggling with electrical woes in the P99, and stormed back into the race in the Fergy praying for more rain. Sadly, the comeback was thwarted by a black flag. An earlier push-start for Fairman came back to bite and the car was not only disqualified from its single F1 World Championship start, but this was also the last time a front-engined car was seen in a points-scoring grand prix.

With such a meagre record, the large August crowd at Oulton Park must have wondered what Moss was thinking when he turned out in the Ferguson one last time at the prestigious Gold Cup. Although Ferrari and Porsche stayed away, this was one of the biggest F1 races of the UK season, in an era when the world championship was far from the be-all. Moss faced a grid packed full of talent: Jim Clark, Jack Brabham, Bruce McLaren, John Surtees, Tony Brooks, Graham Hill, Innes Ireland. But inclemency in Cheshire led Stirling to sniff an opportunity to beat them all.

It didn't start well. Second on the grid beside McLaren's Cooper, the Colotti once again proved the Achilles Heel as the flag dropped. Moss was forced to chug away in second as the pack swamped him. But once he was up to speed, nothing could stop the P99 on a damp track. By lap six, Stirling had taken the lead from Clark's Lotus and was motoring up the road.

By the chequer, the Ferguson was a remarkable 46 seconds to the good over Brabham, after Clark had succumbed to suspension failure. Even on a drying track, the Ferguson P99 had delivered one of the most notable upsets in F1 history. Was this the future, the crowd must have pondered?

No. F1 teams would eventually experiment with 4WD at the other end of the decade, but the chase for a new god called downforce and improved tyre grip would bypass the weighty

“EVEN ON A DRYING TRACK, THE P99 HAD DELIVERED ONE OF THE MOST REMARKABLE UPSETS IN F1 HISTORY”



RACE RECORD

Starts 1
Wins 0
Poles 0
Fastest laps 0
Other podiums 0
Retirements 1 (DSQ)
Points 0
Other significant races
1961 Oulton Park
Gold Cup, 1st

SPECIFICATION

Chassis tubular spaceframe
Suspension: double wishbones, coil springs over Armstrong shock absorbers, anti-rollbar
Engine Coventry Climax FPF
Engine capacity 1496cc
Power 151bhp @7500rpm
Gearbox Colotti five-speed manual 'dog box'
Brakes Dunlop discs
Weight 660kg
Notable drivers Stirling Moss, Jack Fairman, Graham Hill

challenge of perfecting all-wheel drive. It was a diverting cul-de-sac rather than the highway to a grippier F1 future.

Poor Harry Ferguson didn't even witness his creation's day of days at Oulton. The founder died just months previously. Still, his oddity that shone so brilliantly in Moss's hands can be said to have achieved its founder's aim.

The car itself was raced by Graham Hill in the 1963 Tasman series, while Peter Westbury borrowed it to win the 1964 British Hillclimb Championship. Its influence then stretched to the US and Indianapolis. Andy Granatelli was so impressed, he commissioned a new car, the P104 – better known as the Indy Novi Ferguson. Four-wheel drive never quite conquered the Indy 500, but it came close. More importantly, Ferguson's pioneering work with four-wheel drive and ABS would have a wider influence and become standard features for road cars – which was entirely the point in the first place. 🔴

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FINISHING STRAIGHT

PICTURES **motorsport IMAGES**



Are the stewards being consistent enough when handing out penalties for on-track incidents?

Consistent inconsistency

The problem of having different stewards at races needs to be addressed since, in my view, there is no balance in the process, as has been proved by recent races.

In France, Sebastian Vettel nerfs Valtteri Bottas out of contention, is judged to have caused an avoidable collision, and gets a five-second penalty.

Then in Hungary Bottas understeers into Ricciardo while defending his position on worn tyres and with a damaged front wing. Ricciardo picks up damage but passes Bottas, who is judged to have caused an avoidable collision and gets a 10-second penalty and two points on his licence!

You could argue that Vettel's misdemeanour in France was

far more serious because it cost Ferrari's main rivals points, plus he wasn't defending his position in that he simply misjudged his braking point and used Bottas to slow himself down.

It's crazy. There is absolutely no consistency. You could also argue that Vettel's 'robust' defence after overtaking Bottas earlier on in Hungary, and the inevitable contact, was more Vettel's fault than Bottas's. Vettel didn't give Bottas racing room to allow him to counter and the damage made him vulnerable to Kimi Räikkönen and ultimately Ricciardo.

I'm not saying Vettel did it deliberately but as Mark Webber recently said: "I think sometimes Seb forgets that where the back of his helmet is, is not where the back

of his car is. There's a bit more he's got to get through."

The whole stewarding situation is something that the FIA have to fix because the present system simply does not work. The only way to have a fair and impartial stewarding system is to have a panel of the same stewards who go to every race, with no driver rep either, plus the stewards should not have any previous involvement with any of the F1 teams.

Graham Dalley

By email

A predictable exit

Fernando Alonso has retired from F1. Are we really that surprised?

We should have known that after his victory at Le Mans in June, he would return to Indianapolis to try

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and become only the second person in motorsport history to claim the triple crown, after Graham Hill.

We also must remember that Alonso loves a challenge and IndyCar will be the perfect championship for him. With its mix of ovals, road courses and street courses, he will be challenged every step of the way.

I wish Fernando the very best of luck and hope he makes up for his Honda engine failure on lap 179 of the 2017 Indy 500.

Joshua Kerr

Kidderminster, UK

If the budget cap fits...

It was great to hear during the summer break that Force India had been rescued from administration, but if such a well-run team can get into trouble then what hope for teams lower down the grid?

A budget cap has been talked about for far too long and the time for action is now. It could be too late by 2021, when the new engine regs formula is due to happen, and grids may have already started to dwindle by then.

Alex Williams,

Cardiff, UK

PICTURES: STEVE ETHERINGTON; STEVEN TEE. *CONTENTS MAY BE SUBJECT TO CHANGE.

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Saved, but what happens now?



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- > Marcus Ericsson answers your questions
- > Now That Was A Car: McLaren MP4-14
- > Pizza with Haas team principal Guenther Steiner



RACE DEBRIEF BELGIAN GP

FINISHING STRAIGHT

VETTEL WINS, ALONSO FLIES

A first-corner shunt caught the eye, but Lewis Hamilton couldn't catch Seb Vettel in Belgium

PICTURES motorsport IMAGES



Sebastian Vettel opened the second half of the season by blasting a hole in the points advantage of his championship rival Lewis Hamilton by winning in Belgium. Vettel's Ferrari demonstrated a clear advantage on the majestic roads cutting through the Ardennes forest, leaving Hamilton and Mercedes reaching for quick fixes as the F1 season rushes towards the finishing line.

"They [Ferrari] have continued to develop their car and add performance over the past four or five races," said Mercedes team boss Toto Wolff. "We need to address the opportunities in our own car and concentrate on where we need to optimise."

Hamilton started from pole but Vettel led all 44 laps, giving Ferrari their first victory at Spa-Francorchamps since 2009. Perhaps more significantly this, the 52nd win of his career, took him to third in the list of all-time winners, ahead of Alain Prost and behind only Hamilton and Michael Schumacher.

QUALIFYING

Hamilton described the moments leading up to his 78th pole position as some of the toughest in a qualifying session he could remember. A short, sharp shower doused the circuit right at

the beginning of Q3, sending all ten slick-shod runners into the pits for intermediate tyres. But even before the remaining 12 minutes had elapsed, the circuit was beginning to dry and those still circulating at the end enjoyed an advantage.

Hamilton had already made mistakes on his two previous laps and was under pressure to find grip on the slippery surface, ultimately posting a time nearly 0.8s quicker than title rival Vettel.

"I really can't find the words to express how difficult it was, it was drying up in some parts and wet in others," said Hamilton. "You saw I went off in Turn 1 and again into Turn 12, so I only had one lap left, otherwise I would have been a lot further down the order. I knew I had the pace, but it was a balance of not pushing too much or backing off too much."

The fight between the Mercedes and Ferraris would have been much closer if conditions had stayed dry – and indeed, many expected the Ferrari to take pole. In the dry Q2 session, Vettel was fastest with a 1m 41.501s lap, and his team-mate Raikkonen was just 0.032s behind, while Hamilton was 0.02s further back. Amazingly close when you consider Spa is a 7km lap.

"I think we had the pace today to take pole," said Vettel afterwards. "But in these conditions anything can happen..."

The weather was also kind to the team formerly known as Force India, who locked out the second row of the grid, Esteban Ocon recording a time just 0.043s quicker than his team-mate Sergio Perez. Romain Grosjean (Haas) and the second Ferrari of Kimi Räikkönen were fifth and sixth.

“AFTER FOUR LAPS THE RACE WAS RESTARTED. HAMILTON WAS CLOSE TO VETTEL AND CONSIDERED MAKING A MOVE AS THEY APPROACHED THE BUS STOP CHICANE, BUT LOCKED UP AND HANDED VETTEL A TINY ADVANTAGE”

RACE

Spa is the longest track on the calendar but it also has one of the shortest runs from the start line to the first corner. The propensity for accidents is high as the field accelerates away, then suddenly jumps on the brakes for the tight La Source hairpin.

For the championship protagonists on the front row, everything played out smoothly. Hamilton held his advantage as they approached Turn 1, despite drifting a little to his left to keep Vettel at bay. But the Ferrari man was focused on getting a clean exit for a tow on the way out of Eau Rouge.

On the Kemmel Straight, Vettel jinked left out of

RESULTS ROUND 13

SPA-FRANCORCHAMPS / 26.08.18 / 44 LAPS



It all happened on the first lap: Fernando Alonso flew over Charles Leclerc's Sauber (above) and then Vettel dived ahead of Hamilton into Les Coombes, watched by both Force Indias (below)



ANDY HONE; GLENN DUNBAR; STEVE ETHERINGTON; SUTTON IMAGES

Hamilton's slipstream to take the lead, but getting a superior run behind them both were the Racing Point Force Indias. Perez went left, while Ocon went right, and as they approached the braking zone for Les Combes they were momentarily four-abreast for the lead. Ocon on the inside braked early, but lost a position to his team-mate, and over the course of the next 44 laps he was never able to recover the place.

But even as these events unfolded, and Vettel led Hamilton and the two Force Indias into Les Combes, the race was neutralised so that wreckage from a dramatic-looking midfield crash at La Source could be recovered.

Nico Hülkenberg's Renault had started 18th because of a series of grid penalties, and as he approached La Source he misjudged his braking. Locking up, he smashed into the back of Fernando Alonso's McLaren violently enough to propel the McLaren into the air and over the back of Charles Leclerc's Sauber. All three were out on the spot. Hülkenberg took responsibility for the incident and

was awarded a ten-place grid penalty for Monza.

After four laps under the Safety Car, the race was restarted. Hamilton was close to Vettel and considered making a move as they approached the Bus Stop chicane, but locked up and handed Vettel a tiny advantage. Now, any chance of getting a slipstream up the hill after Eau Rouge was over. Vettel was able to cling on to his lead.

In the opening phase of the race, Hamilton couldn't keep pace with Vettel and as he neared the end of his stint on the supersofts, his rears were graining significantly. The Mercedes man's best chance of passing Vettel was in the pitstops, with the undercut.

He pitted to switch to the softs on lap 21, then put in the fastest middle sector of the race. Ferrari reacted immediately and when Vettel emerged from his stop a lap later, he was still comfortably ahead of Hamilton. Mercedes had been trumped by a quicker car.

How they respond to this in the coming weeks may well define the season.



| | | |
|------|-----------------------------------|----------------|
| 1st | Sebastian Vettel Ferrari | 1h 23m 34.476s |
| 2nd | Lewis Hamilton Mercedes | +11.061s |
| 3rd | Max Verstappen Red Bull | +31.372s |
| 4th | Valtteri Bottas Mercedes | +68.605s* |
| 5th | Sergio Pérez Force India | +71.023s |
| 6th | Esteban Ocon Force India | +79.520s |
| 7th | Romain Grosjean Haas | +85.953s |
| 8th | Kevin Magnussen Haas | +87.639s |
| 9th | Pierre Gasly Toro Rosso | +105.892s |
| 10th | Marcus Ericsson Sauber | +1 lap |
| 11th | Carlos Sainz Renault | +1 lap |
| 12th | Sergey Sirotkin Williams | +1 lap |
| 13th | Lance Stroll Williams | +1 lap |
| 14th | Brendon Hartley Toro Rosso | +1 lap |
| 15th | Stoffel Vandoorne McLaren | +1 lap |

Retirements

| | |
|----------------------------------|---------------------------|
| Daniel Ricciardo Red Bull | 28 laps - accident damage |
| Kimi Räikkönen Ferrari | 8 laps - accident damage |
| Charles Leclerc Sauber | 0 laps - accident |
| Fernando Alonso McLaren | 0 laps - accident |
| Nico Hülkenberg Renault | 0 laps - accident |

*Includes 5-sec penalty for causing a collision

FASTEST LAP



Valtteri Bottas
1min 46.286s on lap 32

FASTEST PITSTOP



Sebastian Vettel
22.253s (entry to exit)

TYRE COMPOUNDS USED



CLIMATE



AIR TEMP

18°C

TRACK TEMP

30°C

DRIVERS' STANDINGS

| | | | |
|--------------|--------|--------------|-------|
| 1 Hamilton | 231pts | 11 Ocon | 37pts |
| 2 Vettel | 214pts | 12 Sainz | 30pts |
| 3 Räikkönen | 146pts | 13 Gasly | 28pts |
| 4 Bottas | 144pts | 14 Grosjean | 27pts |
| 5 Verstappen | 120pts | 15 Leclerc | 13pts |
| 6 Ricciardo | 118pts | 16 Vandoorne | 8pts |
| 7 Hülkenberg | 52pts | 17 Ericsson | 6pts |
| 8 Magnussen | 49pts | 18 Stroll | 4pts |
| 9 Alonso | 44pts | 19 Hartley | 2pts |
| 10 Pérez | 40pts | 20 Sirotkin | 0pts |





RACE DEBRIEF ITALIAN GP

FINISHING STRAIGHT

LEWIS BLOWS FERRARI FAIRY TALE

An Italian GP for the ages that so nearly brought a fairy-tale win for Kimi Räikkönen, but Lewis Hamilton and Mercedes were having none of it...

PICTURES 



Call it a fiery riposte to that sweltering Silverstone Sunday when Ferrari mugged Mercedes on home turf. Here at Monza, as the onset of meteorological autumn began to tug gently at the leaves of the whispering trees, Brackley's finest snatched certain victory from Ferrari's plate under the disbelieving eyes of the *tifosi*.

QUALIFYING

Singing – football-style tribal chanting – greeted Kimi's Räikkönen's pole position in Monza and where else but the hallowed Autodromo could deliver such a moment of F1 theatre?

His 1m 19.119s tour, for his 18th career pole – the fastest lap in F1 history – at the head of Ferrari's 60th front-row lock-out, was a high-speed honey that owed as much to the straight-line performance of the SF71H and a slipstream from Seb Vettel, as it did to the Iceman's cool, error-free precision.

More than a year has passed since Räikkönen's last pole (Monaco 2017); more than five since his last win (Australia 2013) and if he's not the electrifying firebrand of the early noughties, his native speed remains intact.

Räikkönen success came at the cost of Vettel joy. Seb might have expected pole here, having

been fastest in second and third practice, and in Q1 and Q2. But running third in a four-car 'quali' train, behind Hamilton, ahead of Kimi, he benefitted less from a 'tow' than his team-mate. His final pole shot was more than two-tenths quicker than his first Q3 run, but that wasn't enough to quell the Kimster, who sliced more than three-and-a-half tenths off *his* previous best.

A valiant Hamilton emerged third from this fabulously tight battle, waged on Pirelli supersofts. His first Q3 run, 1m 19.390s, put him on provisional pole. But at the death there just wasn't enough grunt behind his shoulders to secure P1.

Ferrari's lockout – their first at Monza since 2000 – underlined the advantage they've enjoyed since mid-season: Bottas's P4 was more than half a second from pole and represented a truer reflection of Mercedes' current deficit to Ferrari than did Hamilton's stellar time.

Behind the top four was a chasm to Max Verstappen on 1m 20.615s. Renault's motors still can't hold a candle to Ferrari and Mercedes PUs – despite a 'C-spec' upgrade for Monza – and P5 represented a considerable achievement for Red Bull on one of the team's weakest tracks. Max would surely be vulnerable to an attack from a Ferrari-powered Romain Grosjean (P6) and a Merc-pushed Esteban Ocon (P8) come race day. Sainz (P7) would be in the thick of it, though team-mate Nico Hülkenberg was condemned to a back-of-the-grid start after changing prescribed engine components. A similar fate befell Dan Ricciardo, who would line up in P19.

RACE

For 45 of 53 laps this was the most mesmerising Italian GP. Crowd darling Räikkönen seemed to have enough speed to keep a pressing Hamilton at bay and had already survived a mid-race 'Hammer-time' period when Lewis went for a bold overcut.

Alas, the fairy tale was not to be, and the fizz went from the final eight laps like bubbles from stale champagne. This race had been so tense, so poised between Kimi and Lewis, that the final result – brilliant though it was for Hamilton and his own title ambitions (he now leads Vettel by 30 points) – could only be an anti-climax.

When the silver and red machines pulled into parc fermé, Räikkönen seemed lucky, indeed, even to have scraped home second, 8.7s behind Lewis, so shot were his rear Pirellis. And it was this factor, rather than any inherent Räikkönen or Ferrari performance shortfall, that would prove decisive.

Kimi took off from pole, rebuffing a Turn 1 challenge from Vettel, and proceeded to turn 21 laps on supersofts, before his first (and only) stop for softs – this being in accordance with Pirelli



Vettel came off worse after his first lap scrap with Hamilton (above). Bottas then backed Räikkönen into Lewis's clutches (right) and the Briton took full advantage (below)



STEVEN TEE; ANDY HONE; GLENN DUNBAR; SUTTON IMAGES

VETTEL FELL OUT OF CONTENTION FURTHER AROUND THE FIRST LAP, AT THE SECOND CHICANE, WHERE HE WAS JUMPED BY HAMILTON. IT WAS THE SWEETEST OF OUTSIDE PASSES, BUT ONE WHICH RESULTED IN LIGHT CONTACT AND A SEB SPIN

guidance for 'optimum race strategy'.

Vettel fell out of contention further around the first lap, at the second chicane, where he was jumped by Hamilton. It was the sweetest of outside passes, but one which resulted in light contact and a Seb spin. So began a long afternoon's fightback for Vettel to an eventual P4 – an error having cost him a possible victory for at least the third time this season.

A four-lap Safety Car period followed, after which a fully lit Hamilton fancied his chances against the other Ferrari. He slipstream-passed Kimi into T1... only for Räikkönen to return the favour into the second chicane. Kimi, having regained the lead, was able to progress to his lap-21 pitstop without further drama, but this strategy, while 'optimal' according to strategists' data, now committed Kimi to 32 laps on softs.

On worn supersofts Hamilton was a speed match for a fresh-booted Räikkönen and it was here that Mercedes played their tactical masterstroke with Bottas. He inherited the lead

when Hamilton stopped and succeeded in slowing Kimi down, easing him gently back into Hamilton, just as Räikkönen would have hoped to be controlling the pace from the front.

All this was to Hamilton's benefit for by lap 38, after Bottas stopped, Hamilton was within DRS range of Kimi. Ferrari's data was telling a tale already evident to the naked eye, by virtue of a dark black stripe on Kimi's left rear: his Pirellis were blistering. Hamilton's position became stronger by the lap and the coup de grâce came on lap 45, with a deft round-the-outside pass into T1. The remaining laps were mere formalities as Hamilton charged to his 68th victory, with Räikkönen tip-toeing home behind.

Bottas placed third after T1 fisticuffs with Verstappen for which Max was penalised five seconds (also enabling Vettel to jump to P4).

This had been a mighty motor race – F1 at its epic, stirring best – and it was won by the right man. But also, for the Räikkönen romantics willing him to win, by the wrong one too.



| | | |
|------|---------------------------|----------------|
| 1st | Lewis Hamilton Mercedes | 1h 16m 54.484s |
| 2nd | Kimi Räikkönen Ferrari | +8.075s |
| 3rd | Valtteri Bottas Mercedes | +14.066s |
| 4th | Sebastian Vettel Ferrari | +16.151s |
| 5th | Max Verstappen Red Bull | +18.208s* |
| DSQ | Romain Grosjean Haas | +56.320s** |
| 6th | Esteban Ocon Force India | +57.761s |
| 7th | Sergio Pérez Force India | +58.678s |
| 8th | Carlos Sainz Renault | +78.140s |
| 9th | Lance Stroll Williams | +1 lap |
| 10th | Sergey Sirotkin Williams | +1 lap |
| 11th | Charles Leclerc Sauber | +1 lap |
| 12th | Stoffel Vandoorne McLaren | +1 lap |
| 13th | Nico Hülkenberg Renault | +1 lap |
| 14th | Pierre Gasly Toro Rosso | +1 lap |
| 15th | Marcus Ericsson Sauber | +1 lap |
| 16th | Kevin Magnussen Haas | +1 lap |

Retirements

| | |
|----------------------------|--------------------|
| Daniel Ricciardo Red Bull | 23 laps - clutch |
| Fernando Alonso McLaren | 9 laps - electrics |
| Brendon Hartley Toro Rosso | 0 laps - accident |

*Includes 5-sec penalty for causing a collision **disqualified after protest

FASTEST LAP



Lewis Hamilton
1min 22.497s on lap 30

FASTEST PITSTOP

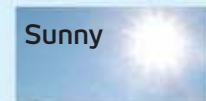


Lewis Hamilton
23.728s (entry to exit)

TYRE COMPOUNDS USED



CLIMATE



AIR TEMP

22°C

TRACK TEMP

34°C

DRIVERS' STANDINGS

| | | | |
|--------------|--------|--------------|-------|
| 1 Hamilton | 256pts | 11 Alonso | 44pts |
| 2 Vettel | 226pts | 12 Sainz | 34pts |
| 3 Räikkönen | 164pts | 13 Gasly | 28pts |
| 4 Bottas | 159pts | 14 Grosjean | 27pts |
| 5 Verstappen | 130pts | 15 Leclerc | 13pts |
| 6 Ricciardo | 118pts | 16 Vandoorne | 8pts |
| 7 Hülkenberg | 52pts | 17 Stroll | 6pts |
| 8 Magnussen | 49pts | 18 Ericsson | 6pts |
| 9 Pérez | 46pts | 19 Hartley | 2pts |
| 10 Ocon | 45pts | 20 Sirotkin | 1pt |

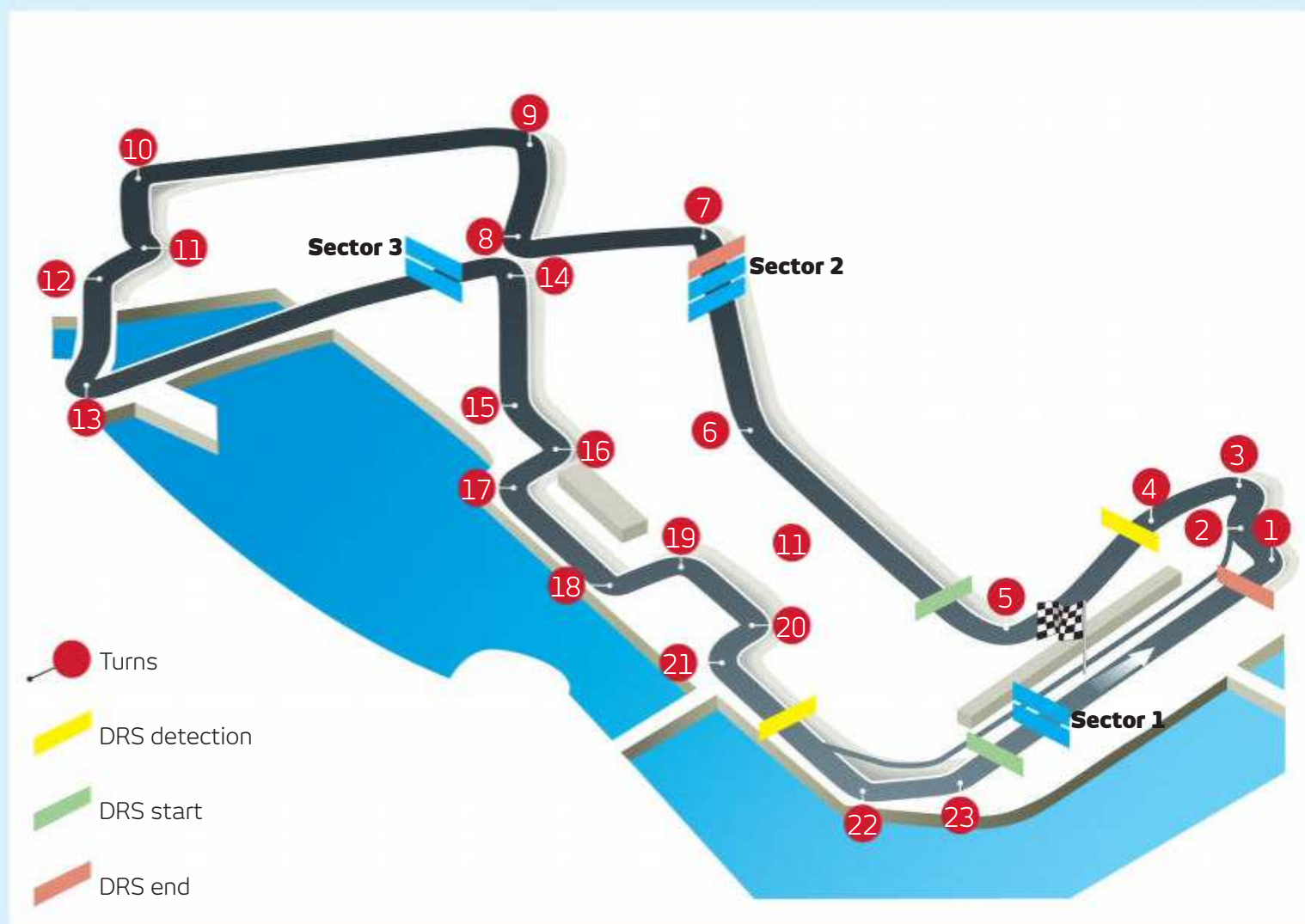




FINISHING STRAIGHT

THE SINGAPORE GP

PICTURES motorsport IMAGES



RACE DATA

Circuit name Marina Bay Street Circuit
First Grand Prix 2008
Number of laps 61
Circuit length 3.15 miles
Race distance 191.90 miles
Lap record 1m 45.008s
 Lewis Hamilton (2017)
F1 races held 10
Winners from pole 7
Tyres Pirelli, ultrasoft, soft

TIMETABLE (UK TIME)

Friday 14 September
Practice 1 09.30-11.00
Practice 2 13.30-15.00
Saturday 15 September
Practice 3 11.00-12.00
Qualifying 14.00
Sunday 16 September
Race 13.10
Live coverage Sky Sports F1 & Channel 4

THE MAIN EVENT



One of the most welcome additions to the calendar during the latter years of Bernie Ecclestone's reign, Singapore's night race is a pioneering event that others have rushed to imitate. Yes, it's a street race, so overtaking is theoretically difficult, but this venue has delivered drama in huge quantities during its 10-year tenure.

The event is physically and mentally gruelling, since even at night the atmosphere is hot and humid. The F1 circus attempts to keep to 'European time', which is a challenge in itself as the city resolutely sticks to its own daily rhythms.

In tandem with the sultry atmosphere, Singapore's weather conditions can be unpredictable. When the rain arrives it is generally biblical, though only once has it rained during the race itself. The oppressive heat saps drivers' strength and concentration, and most of them lose several kilos of fluid through sweat during the race – assuming they get to see the chequered flag. Last year the two Ferrari drivers barely made it to the first corner...

CLASSIC RACE: 2009

Lewis Hamilton's early challenger in the second Singapore GP was Nico Rosberg's Williams, but when Rosberg was penalised for crossing the white line exiting the pits Sebastian Vettel (Red Bull) took up the cudgels. Hamilton's McLaren was always ahead, but the pair traded fastest laps after a Safety Car period from laps 22-26 and were separated by barely a second.

It all started to go wrong for Vettel when he exited the pits after his second stop, damaging his floor on the out lap. And a 10-second penalty for speeding in the pit lane dropped him down to seventh. Hamilton then had a relatively calm run to victory, although the one-stopping Toyota of Timo Glock was within 10 seconds of him at the flag.



THE WINNERS HERE...



2017

Lewis Hamilton
Mercedes



2016

Nico Rosberg
Mercedes



2015

Sebastian Vettel
Ferrari



2014

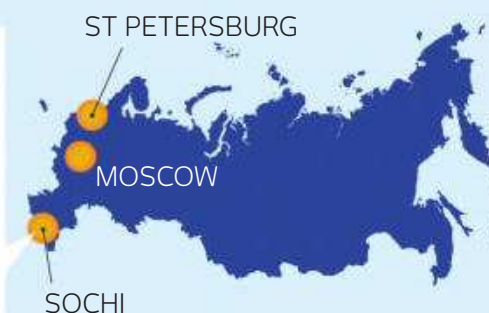
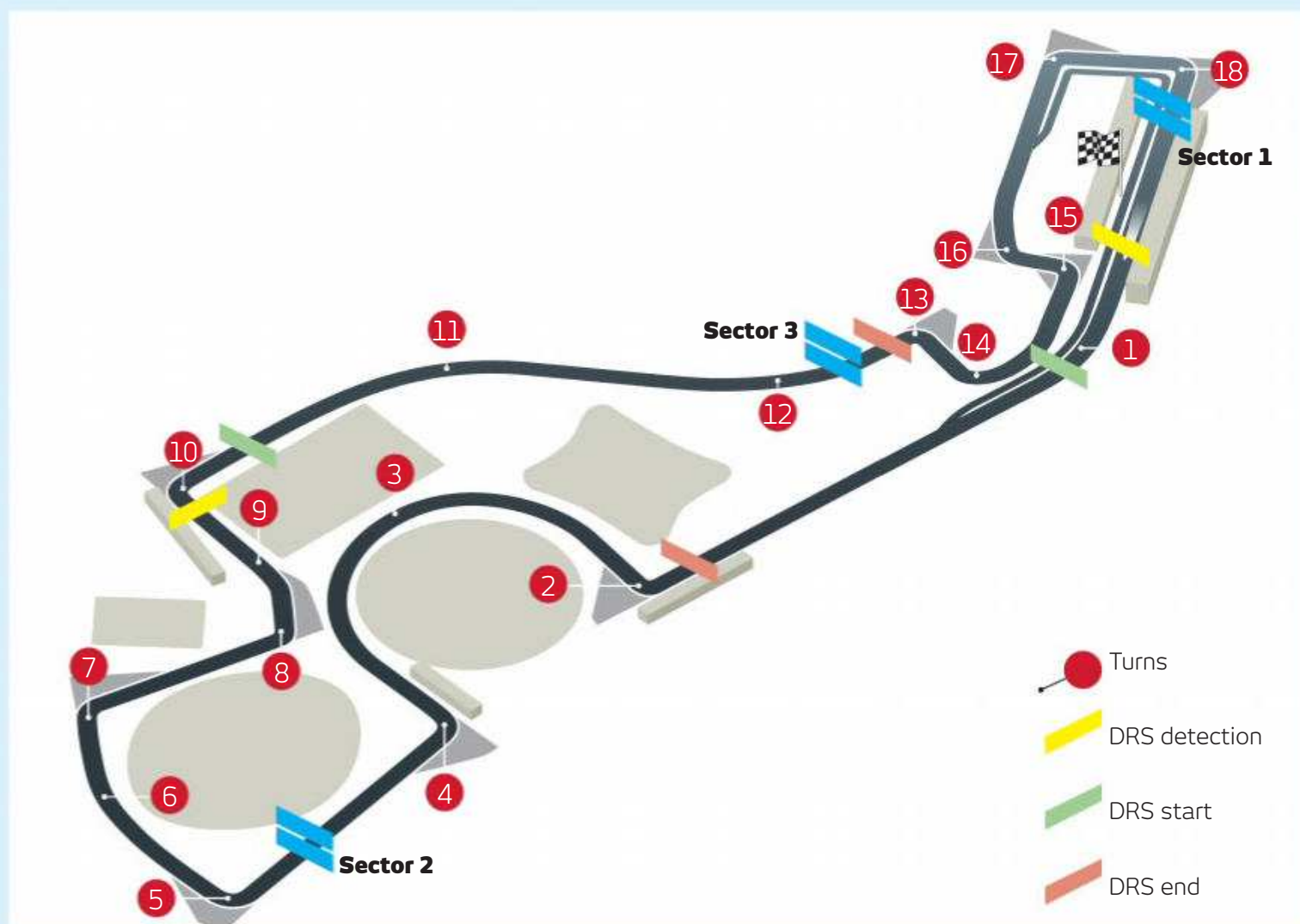
Lewis Hamilton
Mercedes



2013

Sebastian Vettel
Red Bull

THE RUSSIAN GP



RACE DATA

- Circuit name** Sochi Autodrom
- First Grand Prix** 2014
- Number of laps** 53
- Circuit length** 3.63 miles
- Race distance** 192.47 miles
- Lap record** 1m 36.844s
Kimi Räikkönen (2017)
- F1 races held** 4
- Winners from pole** 2
- Tyres** Pirelli: Soft, Medium, Hard

TIMETABLE (UK TIME)

- Friday 28 September**
- Practice 1** 09.00-10.30
- Practice 2** 13.00-14.30
- Saturday 29 September**
- Practice 3** 10.00-11.00
- Qualifying** 13.00
- Sunday 30 September**
- Race** 12.10
- Live coverage** Sky Sports F1
- Highlights** Channel 4

THE MAIN EVENT



A popular holiday destination on account of its unusual geography – you can go skiing in the morning and spend the afternoon sunbathing on the beach – Sochi beat Moscow to the honour of hosting the Russian Grand Prix.

Remarkably, the first three editions passed without anyone other than Mercedes leading a lap. When Ferrari found better form in 2017, and Sebastian Vettel started from pole position, Valtteri Bottas made a better start and only ceded the lead when he came into the pits. This is Bottas's strongest track: he has never qualified lower than third here, even when driving for Williams.

A combination of the smooth, low-degradation track surface, and a layout largely dictated by having to fit around the built environment of the former Olympic village, has militated against overtaking. Races are typically one-stop affairs, and while the drivers like the high-speed nature of the track – Turn 3 is a spectacular high-G ride – they constantly bemoan the processional nature of the racing.

CLASSIC RACE: 2016

In an action-packed start to the third Russian GP Daniil Kvyat (Red Bull) managed to hit Sebastian Vettel's Ferrari twice on the opening lap, the second punt pushing Vettel into retirement. Contact further down the field resulted in a Safety Car and when racing resumed pole man Nico Rosberg was still in front, ahead of Kimi Räikkönen, Valtteri Bottas, Felipe Massa, and his team-mate Lewis Hamilton. The action surrounded Hamilton, who had qualified 10th, and his attempts to catch Rosberg. He battled up to second, 11 seconds back, only for a water pressure problem to halt his progress. He would finish 25 secs down on Rosberg, who left Russia with a maximum of 100 points from the first four races of the season.



THE WINNERS HERE...

| | | | |
|--|---|---|---|
|  |  |  |  |
| 2017 | 2016 | 2015 | 2014 |
| Valtteri Bottas Mercedes | Nico Rosberg Mercedes | Lewis Hamilton Mercedes | Lewis Hamilton Mercedes |

GLENN DUNBAR; CHARLES COATES; LAT ARCHIVE; ILLUSTRATION: ALAN ELDRIE



FINISHING STRAIGHT

THE JAPANESE GP



RACE DATA

Circuit name Suzuka International Racing Course
First Grand Prix 1987
Number of laps 53
Circuit length 3.61 miles
Race distance 191.05 miles
Lap record 1m 35.540s
 Kimi Räikkönen (2005)
F1 races held 29
Winners from pole 14
Tyres Supersoft, soft, medium

TIMETABLE (UK TIME)

Friday 5 October
Practice 1 02.00-03.30
Practice 2 06.00-07.30
Saturday 6 October
Practice 3 04.00-05.00
Qualifying 07.00
Sunday 7 October
Race 06.10
Live coverage Sky Sports F1 & Channel 4

THE MAIN EVENT



The first outpost in Formula 1's eastward expansion, Japan is home to some of the sport's keenest fans – and they have to be, for Suzuka, the Japanese GP's traditional home, is some way off the beaten track, though only 40 miles south of the city of Nagoya. Suzuka makes the most of a narrow and undulating piece of real estate, even folding in on itself. It's the only circuit on the calendar with a figure-of-eight layout.

The area's sharply bumpy topography has made it difficult to update the circuit to modern standards, so the track itself is narrow and the run-off areas not especially generous. Drivers are prepared to forgive Suzuka this, though, for in a properly set-up car it is an absolute delight to string together a lap around its flowing, swooping curves.

Overtaking is possible, but not easy, and one of Suzuka's most frequent challenges is a truly unpredictable one: the weather. October comes at the tail end of Typhoon season, so when the rain comes it does so with great force.

CLASSIC RACE: 2007

Torrential rain meant that the first Japanese GP at Fuji for 30 years had to be started behind the Safety Car, which led the field, headed by the McLarens of polesitter Lewis Hamilton and Fernando Alonso, for the first 19 laps. When racing got underway Hamilton put in a controlled performance for a fifth win of his debut season, when others seemed determined to make mistakes. Ferrari had their cars on the wrong ('standard' and not 'extreme') wets at the start and were forced to pit to rectify this. Hamilton led until his only stop on lap 28 and even when punted into a spin by Robert Kubica on lap 34 he was back in the lead after 41 laps, just as Alonso crashed out.



THE WINNERS HERE...

| | | | | |
|-------------------------|-----------------------|-------------------------|-------------------------|---------------------------|
| | | | | |
| 2017 | 2016 | 2015 | 2014 | 2013 |
| Lewis Hamilton Mercedes | Nico Rosberg Mercedes | Lewis Hamilton Mercedes | Lewis Hamilton Mercedes | Sebastian Vettel Red Bull |



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TRAVEL GUIDE

FINISHING STRAIGHT



Singapore was F1's first night race and has gone from strength to strength



PICTURES: GLENN DUNBAR; OTHER IMAGES: SHUTTERSTOCK

VISIT THE SINGAPORE GRAND PRIX

SINGAPORE, 14 – 16 SEPTEMBER 2018



YOUR GUIDE TO SINGAPORE

The Marina Bay Circuit, located close to the island's southern tip, has played host to the Singapore Grand Prix since F1 first headed to the city-state in 2008 – the calendar's inaugural night race. The tight street circuit encounter has been an eventful affair ever since, with 15 Safety Car deployments over the ten races.

Since becoming its own sovereign nation in 1965, Singapore has grown into one of the world's most developed countries, ranking high in everything from economic strength and healthcare to technology and education. It has

also received a 'world's smartest city' accolade, with its airport proclaimed the world's best.

The densely populated city-state has a heavy emphasis on maintaining its precious green spaces, and ten per cent of the island's land is reserved for parks, gardens and nature reserves. The garden city project has given rise to new developments such as the Gardens by the Bay and the conservation of historical sites like the Singapore Botanical Gardens.

Opened in 2012, the Gardens by the Bay is a huge space situated on reclaimed land near the marina, east of the city's downtown core. Home

to an incredible array of themed gardens, the 250-acre complex is the site of one of Singapore's most iconic spectacles, the Supertree Grove.

The Supertrees are man-made tree-shaped sculptures that house much of the technology that keeps the gardens healthy, whether that's cooling or ventilating the huge on-site greenhouses or collecting rainwater to irrigate the gardens. Each one is a vertical garden of its own, individually themed with different flora.

Around 25 minutes north-west of the Gardens by the Bay, you'll find the Singapore Botanical Gardens. This UNESCO World Heritage Site



in association with

**Thomas
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Sport**

The stunning cityscape of Singapore from across the bay



Supertree Grove's sculptures hide away modern technology



Singapore's Botanical Gardens are more than 150 years old



The Esplanade Theatres host concerts all year round



FAST FACTS

Flight time 13hrs from London

Currency Singapore Dollar

Time zone GMT +7

Temperature 31°C (average high during race weekend)

is more than a hundred years older than the country it sits in and is adorned with lakes, lawns and gardens, perfect for a lazy wander. Head to the National Orchid Garden to see a mesmerising array of the city-state's symbolic flower.

Singapore's food is varied and fusion is high on the menu. Heavy Chinese and Malay influences combine with Indian and Indonesian as well as inspiration from Portugal and the UK to create a truly diverse cuisine.

Since the early '90s the city's cultural sites have seen massive investment from the country's leaders. The National Gallery, housed in the City

Hall and Old Supreme Court buildings, and the Asian Civilisations Museum are a must for history and art buffs. Keep an eye open for the Tang Shipwreck exhibition and works of art by some of Asia's most acclaimed artists, such as Liu Kang and Cheong Soo Pieng.

For those looking for culture before they head to the GP, you can visit the Esplanade Theatres. Opened in 2002, the theatres play host to a full calendar of stage and musical performances, including around a hundred shows a year by the city's world-famous Singapore Symphony Orchestra.



ASK THE EXPERT THE THOMAS COOK SPORT REP'S VIEW

What's your favourite part of the track?

It has to be Turn 7, as the cars head down the back straight before piling onto the brakes and hitting 5.1G, just ahead of the tight left-hander that follows.

What about away from the track?

Head to the Concert Fanzone at the Padang stage. Be aware though, it is first come first served for entry but if you can't make it in, there are several other stages with live music being played throughout the complex.

Any recommendations for local food or drink?

The restaurants are incredible in Singapore. You'll be able to find world-class cuisine from any culture in this city. Personally, there's a pork broth-style dish I had a few times during my time in Singapore, so ask for Bak Kut The.

Is the track easily accessible?

Yes, the Marina Bay Street Circuit is easy to visit via the city's underground system, so there's no need to worry about long transfers.

And your top tip for this destination?

Singapore's gardens are incredible. It's easy to get caught up in the hustle and bustle of the centre with its abundance of restaurants, bars and shopping, but you must take the time to head off into the parks and reserves. They're huge, beautiful and mostly free.

THOMAS COOK SPORT BREAK DETAILS

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certina.com

There are ten different models of this new Certina DS Podium watch, with stainless steel case. The chronographs are equipped with an accurate 'Precidrive' quartz movement and have functions, including a lap timer, especially tailored for motor sport timing.

The display, which shows 1/100th seconds in real time, allows for precise time measurements, and in order to maintain the watch's energy reserves the coloured 1/100th second hand stops after one minute.



LEWIS HAMILTON RACE SUIT

Price £24,000

mementoexclusives.com

This limited-edition race suit is a genuine article worn by Lewis Hamilton during his first year with Mercedes in 2013, when he was driving the W04.

Memento Exclusives specialize in items from Formula 1 teams, be they car parts or articles of clothing worn by drivers – for example a Nico Rosberg race suit is also available

– and they have a range of different pieces of memorabilia to collect.

This is a rare chance to purchase an official team race suit, direct from the team's archives and complete with a Mercedes official certificate of authenticity.

Professionally framed by the Memento Exclusives motor sport framing team, the item is sized at 75cm x 106cm x 8cm. The race suit is attached to the mounting board with invisible tags in order to protect the original team wear.



F1 2018

Price £54.99

Xbox One, PS4 and PC
codemasters.com

F1 2018 promises to be the best official Formula 1 video game yet with detail improvements and an overhaul to its previously irksome multiplayer.

The broadcast feel of the game is accentuated through F1 owner's Liberty Media's TV presentation remodel and acts as a final layer of a stunning game, augmented by small touches such as dirt being thrown up when a wheel runs onto the grass.

Those of a more hardcore sim

racing disposition will appreciate the use of real F1 data that's led to updated suspension and chassis behaviour, and more realistic tyre management. The game also has a more involved career mode and a new batch of classic cars, including the 2009 Brawn.

Finally, the online multiplayer, previously a source of frustration, now has a new licence system that matches drivers with rivals of a similar ability, and better technology to prevent bugs and glitches.





FERRARI SF71H 1:18 SCALE

Price £465

amalgamcollection.com

Ferrari's 2018 contender, the SF71H, could yet be the first car to be built in Maranello to win the world championship since 2007, and it is the first 2018-spec model to be produced by Amalgam this year.

In the hands of Sebastian Vettel

and Kimi Räikkönen, the SF71H has proved to be a significant challenger to Mercedes and the representation of the car has been taken from the season-opening Australian GP.

This fine 1:18 scale model has been handcrafted and finished with

the co-operation and assistance of Ferrari regarding finishes, materials and original Computer Aided Design (CAD). It has also undergone detailed scrutiny by both engineering and design teams to ensure complete accuracy.

MOTORSPORT MANAGER MOBILE 3

Price £4.99

iOS and Android

playsportgames.com

For fans of the game Motorsport Manager, Playsport Games's new Motorsport Manager Mobile 3 packages all the best aspects of the desktop game onto your mobile.

But rather than compromising its predecessor by fitting it onto a phone, it's simplified the management and added new features that make MMM3 work on a mobile device.

There is no official licence for this game, so there's a familiar-sounding world championship featuring hybrid-powered single-seaters to allow fans to live out the fantasy of running a team, along with additions such as tyre management and refuelling. That opens a wide network of career progression, allowing a team to rise from feeder single-seaters into the highest categories.



SEBASTIAN VETTEL PORTRAIT

Artist Paul Oz

Price £12,000

mementoexclusives.com

Paul Oz is a motor racing enthusiast who has created a number of F1 pieces of art, including portraits of Ayrton Senna and James Hunt – as well as action shots. Oz's motorsport artwork is noted for its energetic and explosive style.

Memento Exclusives have acquired a Paul Oz original of Sebastian Vettel that is now available. Painted in his trademark style, the piece is layered in thick oil paints and on a board measuring 100 x 92cm.



VALTTERI BOTTAS ME AND MY LID

Delighted with the result of a fan competition to design his 2018 helmet, Bottas thinks the remodelling even looks quick...



STEVE ETHERINGTON; GLENN DUNBAR; MERCEDES



My helmet for this season is completely different from previous years because we had a competition for a fan to design it. But I wanted to try something new anyway. There were a lot of entries and it wasn't easy to choose, but this was the winner, submitted by Andy Werner.

It looks even better in real life than it did on paper because of the paint treatment. There's a nice contrast between the gloss blue and the matt white and black, and the shapes and colours are different on each side, which is pretty cool. It's got my logo and the number 77 on the

back and top, and on the lip at the top there's the coat of arms of Nastola, the area of Finland where I'm from.

It's quite unusual to have an asymmetrical design. Most of all, it looks fast – and that's always important!

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