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SCOOP! Secrets of Jenson's illegal racer



FERRARI ANALYSIS As Di Montezemolo exits, what next for the Scuderia?



12-PAGE 2014 TITLE SHOWDOWN SPECIAL

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Why Hamilton's massive speed is key to the F1 crown

Plus
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Emerson Fittipaldi

with foreword by Sir Jackie Stewart

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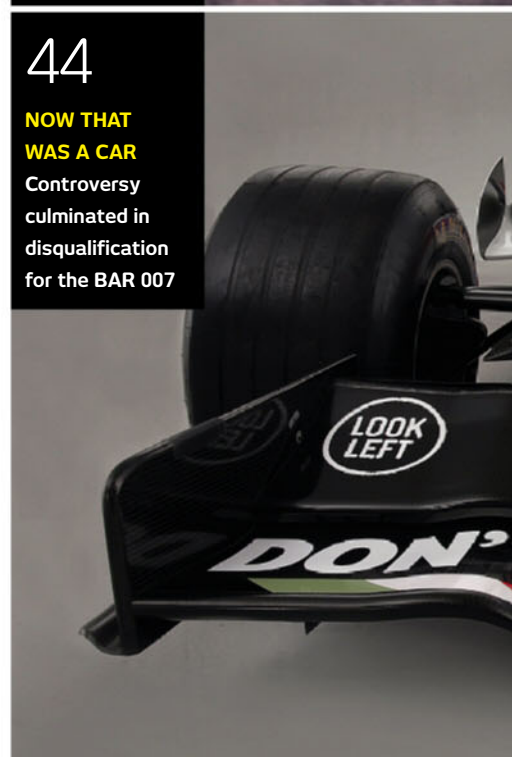
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PAUL HEMBERY

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IT'S HAMMER TIME

Lewis faces some stiff competition if he's to finally secure that second world championship





Ignition / Anthony Rowlinson / 11.14

A dark day for Formula 1

As F1 Racing closed for press, Jules Bianchi was in an intensive care unit of the Mie General Medical Center in Yokkaichi, following surgery for a serious head injury. His parents had flown over to be at his bedside. His team, Marussia, asked for patience and understanding, as they, too, awaited news of his condition.

The mood of gloom and 'not knowing' were bitterly reminiscent of the hours and days that followed Michael Schumacher's skiing accident earlier this year.

Both reminded us of the fragility of existence and of the often dire consequences of head injuries. Schumacher's had seemed innocuous, yet swiftly became life-threatening; Bianchi's appeared immediately grave and proved, sadly, to be so.

The initial reaction within the sport was one of stoical professionalism, yet the atmosphere in the post-race Suzuka paddock had been experienced only by the more senior members present: shock, laced with sadness and a numb confusion.

Questions, then, were immediate: what, exactly, had happened to Bianchi? Should the race have been started earlier? Should it have been started at all? Should the red flag have been shown for Adrian Sutil's accident? Had light conditions become too low for the race to continue? They were typical of the desperate reaching for knowledge that occurs when intelligent beings are taken out of their comfort zone by circumstances beyond their control. We don't yet have answers and it will be some time before a clearer picture emerges.

As a magazine that takes its name from the sport, we hope Bianchi's accident does not bring calls for knee-jerk changes to F1. Yes, motor racing is dangerous and racing in low light at a soggy Suzuka is about as sketchy as F1 gets in its risk-reduced modern guise. But we've witnessed some massive accidents in recent seasons (Robert Kubica, Canada 2007; Sergio Pérez, Monaco 2011; Felipe Massa and Pérez again in Canada this year) and, on each occasion, drivers have escaped with little more than stiffness and concussion. And we should rejoice in that, without for an instant being complacent about the welfare of our heroes. Why shouldn't they retire from the fray into a long and prosperous dotage, having entertained us royally in their pomp? Who wouldn't, now, love to be bumping into Gilles, Ronnie, Tom, Lorenzo and Jochen on a Sunday morning paddock stroll? But one day, we knew, the music would stop and it is Bianchi's grave misfortune to have suffered so cruelly when the racing gods took away their blessing for a split-second.

The muted podium celebrations we witnessed in Japan were not forced or fake. The common bond among racing drivers is that they alone know the true extent of the dangers they face. They alone get the 'dream job' high; but they alone put themselves in the line of fire. So when one of their number goes down, they know – it doesn't have to be spoken, it never is – *that it could have been them*. Those of us beyond the cockpit perhaps forget this. Those who race, never do.

#ForzaJules. With all our hearts we wish you Godspeed.



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Andrew Benson
F1 paddock newshound for the BBC Sport website

No one has followed the saga of Mercedes' intra-team rivalry more closely than Andrew Benson. Read his analysis of the title showdown on p46



Dieter Rencken
South African reporter who is now a citizen of Belgium

It rains in Belgium as much as it does in England. So it's fitting that Dieter Rencken is tasked with trying to forecast the weather in Spa (page 82)



Max Peef
Milan-domiciled snapper who paints with light

We spend a day with Pirelli tyre boss Paul Hembery (page 86) and asked Milan resident Max Peef to accompany him around his Italian 'hood



Drew Gibson
A return to the forests for the former rally co-driver

Away from the clinical F1 trackside, Drew Gibson took to the muddy woods of Oxfordshire to cycle with Romain Grosjean and the Lotus juniors. See p66



Thanks to Idoia Bilbao, Amy Benbow-Hebbert, Board Bros, Russell Day, Darren Jones, Bradley Lord, Adrian Myers, Tracy Novak, Sophie Ogg, Anthony Peacock, Andy Stobart, Peter Windsor



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THE TIME TRAVELLER

Christian Horner travels the world with Infiniti Red Bull Racing, so it's no wonder he appreciates smart technology that saves time, such as the new Casio Edifice EQB-500

Q: Christian, Formula 1 is constantly leading the way in pioneering new technology – what are the most important developments you've seen this season?

The power unit development for this year has been very impressive. They are complex machines that can deliver enormous power – up to 775bhp – while also being extremely fuel efficient.

Q: How critical is time management in F1, and how do you ensure that this is implemented?

A: Time is absolutely vital in Formula One, everything runs to a strict schedule, whether it be the design of a part, a car build, the FIA press conferences or the sessions on track. We need to make sure that times are adhered to and targets are hit. Formula One waits for no one!

Q: The EQB-500 synchronizes with your phone – is that the kind of time-saving innovation you appreciate?

A: Yes, anything that makes life on the road easier is welcomed. Throughout the season, we travel through quite a few time zones in a short amount of time, so if the items we rely on, like watches and phones, automatically update, then that's a great help. The fact that my watch and phone synchronise saves time in itself!



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Select one of the 300 World Time cities from a map in the smartphone app and even set functions such as alarms from your smartphone. Content is instantly sent to the EQB-500.

Light into power

Using Casio's Tough Solar technology, the EQB-500 converts light into power to continuously drive its functions.



Q: Working with the likes of Adrian Newey, you must appreciate great design. How important is sophisticated and elegant design in F1?

A: It's always appreciated. People often say a fast car is a beautiful car, but Adrian has always said that he likes a car to look beautiful in how it is packaged, as long as it doesn't compromise performance. I would agree with that.

Q: Is the EQB-500 a watch that will look good in the F1 paddock?

A: This new Edifice has a very sophisticated design, making it a watch that the Team are proud to wear on their wrists.

Q: Do all the team get a Casio watch?

A: Yes, the entire team are equipped with Casio Edifice watches. We are always working against time at the race track, so having a watch that is reliable and functional is a necessity!

Q: What makes Casio a perfect partner for Infiniti Red Bull Racing?

A: Casio are one of our longest standing partners and we have built up a close alliance over the years due to our mutual understanding of the exacting nature of the environments we operate in. Casio shares many of our team values – specifically a focus on precision and accuracy, making them an ideal partner for the Team.

* See online for smartphone details





Parade

A moment to reflect Lewis Hamilton holds aloft the winner's trophy on the top step of the podium after this year's Italian Grand Prix. The cup not only reflects his beaming smile, but also the sea of fans who have filled the track to celebrate his victory over his Mercedes team-mate – and now arch-rival – Nico Rosberg

Where Monza, Italy **When** 3.36pm, Sunday 7 September 2014

Photographer Lorenzo Bellanca

Details Canon EOS-1DX, 300mm lens, 1/640th at F6.3

Parade

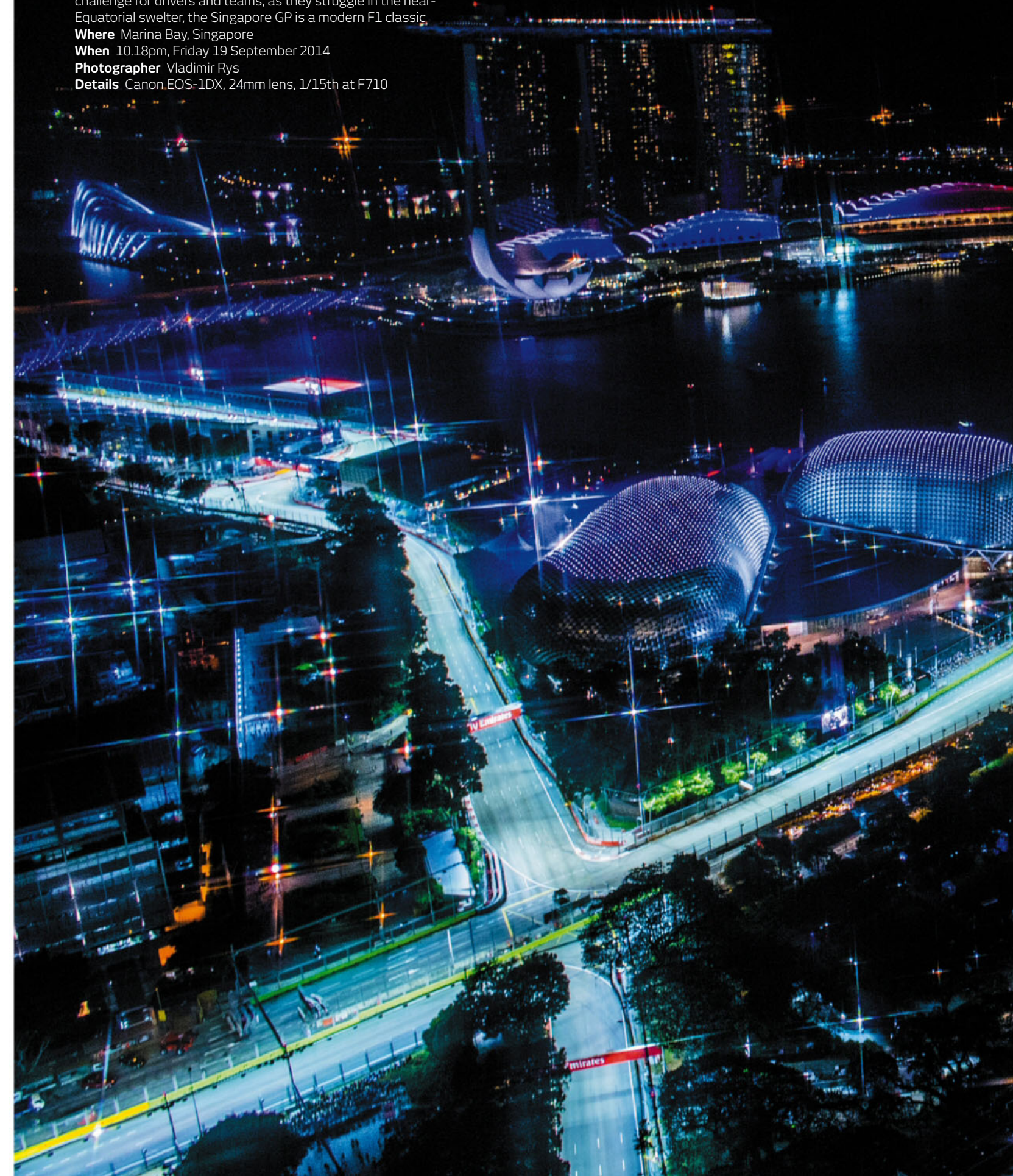
Night fantastic The stunning night-time kaleidoscope of Singapore presents a vision of Formula 1 like no other. A massive challenge for drivers and teams, as they struggle in the near-Equatorial swelter, the Singapore GP is a modern F1 classic.

Where Marina Bay, Singapore

When 10.18pm, Friday 19 September 2014

Photographer Vladimir Rys

Details Canon EOS-1DX, 24mm lens, 1/15th at F710







Parade

Silver screen Rounding the Parabolica (now tamed by Tarmac run-off areas), Lewis Hamilton threads his Mercedes W05 Hybrid through Monza's final turn with metronomic precision. With every passing lap he makes incremental gains in lap time, continuously striving to push the boundaries of adhesion and speed

Where Monza, Italy **When** 2.42pm, Saturday 6 September 2014

Photographer Steven Tee/LAT

Details Canon EOS-1DX, 20mm lens, 1/3200th at F3.2







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FI INSIDER

NEWS ■ OPINION ■ ANALYSIS

NEWS

Bianchi severely injured in Suzuka crash

Popular Marussia racer struck recovery vehicle at 100mph at Dunlop, leaving him in a critical condition in hospital





Bianchi receives medical attention after crashing into the recovery vehicle retrieving the Sauber of Adrian Sutil (pictured)

The Formula 1 community was shocked when Jules Bianchi was severely injured after colliding with a recovery vehicle in the closing stages of the Japanese Grand Prix at Suzuka. The 25-year-old Marussia racer suffered a diffuse axonal brain injury, and as *F1 Racing* closed for press was in a critical but stable condition at the Mie General Hospital in Yokkaichi.

Bianchi went off the circuit at Turn 7, Dunlop, in deteriorating wet conditions on the 42nd of 53 scheduled laps. He struck the back of a recovery vehicle that had been deployed to retrieve the Sauber of Adrian Sutil, who had spun off at the same corner on the previous lap.

The FIA confirmed that double waved yellow flags – which indicate a significant danger on the track – were waved at the corner before the recovery vehicle was despatched. After Bianchi's crash the Safety Car was deployed, with the race then stopped after 44 laps. Bianchi was taken to the circuit medical centre, before being transferred by ambulance to hospital.

Bianchi was understood to be unconscious throughout. A CT scan on his arrival at the hospital indicated he had suffered a severe head injury, and he underwent surgery that evening.

Bianchi's family flew to Japan to support him, and were joined by representatives from both Marussia and Ferrari, of whose driver academy Bianchi is a member. Professor Gerard Saillant, the president of the FIA Medical Commission, and Professor Alessandro Frati, a neurosurgeon at the University of Rome La Sapienza, also travelled to Japan to meet with the medical staff treating Bianchi and advise his family.

The incident alarmed fans and the F1 paddock alike. In a statement, Bianchi's family said: "This is a very difficult time for our family, but the messages of support and affection for Jules

from all over the world have been a source of great comfort to us. We would like to express our sincere appreciation."

After the accident, several drivers questioned why the race was allowed to continue in the worsening conditions, and why it hadn't been started earlier. With Typhoon Phanfone heading for Japan, heavy rain had been scheduled for race day. While there were discussions about bringing the start time forward to avoid the rain, the race began as scheduled at 3pm. It is run late in the afternoon in Japan, to give a better television timeslot for European viewers.

The race was red-flagged early on due to heavy rain, but once that eased the majority of the race went ahead as planned – although the final laps were run in fading light. The rain began to intensify on the 40th lap, and the fading light made conditions difficult. Sutil said: "In the end, when it got dark, you couldn't see where the wet patches were and that is why I lost the car. [Bianchi's crash] was the same as what happened to me – he had aquaplaning, but one lap later."

The Suzuka circuit is a favourite among drivers because of its high-speed layout. The track has been only slightly modified since it was built in 1962 and, due to limited space, the run-off areas at several of the corners are small by modern F1 standards. Bianchi's accident happened at the Dunlop corner, a fast uphill left-hander that concludes Suzuka's daunting 'esses' section. With limited run-off, Sutil struck the barriers after going off, necessitating the use of the recovery vehicle to move his stricken car.

The incident was similar to Martin Brundle's accident at the esses in 1994. In wet conditions, he went off, just missing a vehicle collecting Gianni Morbidelli's stricken Footwork. Brundle struck a marshal, who suffered a broken leg.

Bianchi at the start of the Japanese Grand Prix. Fading light and poor weather made conditions difficult for drivers


TRIBUTE

Jules Bianchi: a racer happy to let his driving do the talking

The popular and professional driver, who scored his and Marussia's first points this year in Monaco, was long overdue a place at F1's top table

Some drivers sweep through the F1 paddock as if they own the place; others, especially those at the financially challenged end of the grid, well aware of how fragile their careers are, hug the sidelines as they establish a foothold. For all the movie-star looks and effortlessly cool persona, Jules Bianchi falls into that latter category.

His two seasons of hard graft at Marussia have been a lesson in patience and application. Some drivers blessed with Ferrari backing and a management deal with Nicolas Todt would trumpet their sense of entitlement from the rooftops; but Jules has quietly chiselled away at his craft, with Todt usually a low-profile presence. This, you sense, is all part of the plan.

Jules doesn't thrive on media attention. He's shyly self-deprecating about his command of English, but the longer you spend in his company the more you realise that he can communicate more meaning with a throwaway piece of understatement, accompanied by a mischievous twinkle in his eye and a wry twitch of an eyebrow,



than a more verbose driver would convey in a paragraph. At race weekends, Jules, who admits he doesn't particularly relish interviews, is happy to remain below the radar and let his driving do the talking. For him, racing with Marussia has been an opportunity to reinvent himself after his career came unstuck in the senior echelons of the feeder formulae.

In GP2, he gained a reputation for being quick but not paying enough attention to his mirrors, even injuring his back during one heavy accident. He knew something had to change.

"I was too much focused on the victory," he told *F1 Racing*. "I was quick over a single lap, quick in the races all the time, but I was making mistakes and crashing. The second year [of GP2]

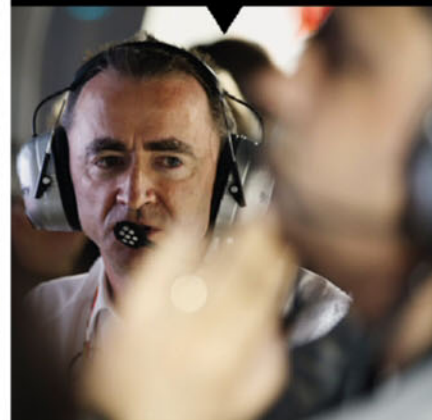


NEWS DIGEST

The month's big stories at a glance

03.09.14 Haas Formula changes name to Haas F1 Team and announces Ferrari tech deal **04.09.14** Renault reveals Red Bull engineering partnership **05.09.14** Lotus ends development of 2014 car **10.09.14** Di Montezemolo steps down at Ferrari

11.09.14 FIA bans performance-related radio messages



15.09.14 Mercedes appoint Pascal Wehrlein as reserve driver **03.10.14** Alex Wurz named as new chairman of Grand Prix Drivers' Association

PHOTOS: GLENN DUNBAR/LAT, CHARLES COATES/LAT

Bianchi, 25, was in line for a Force India seat in 2013 and due a reward as the driver market opened up at Suzuka



I started in the same way and it was wrong. I made mistakes and crashed again.

"After that I completely changed my mind and my way of driving in races. I thought much more about points and less about victory – even though you always want to win, of course. I did a lot of work with Ferrari on the mental side and that was very useful."

He was in line for a Force India drive at the beginning of 2013, only to see it fall to Adrian Sutil at the last minute. The Marussia seat was a lifeline, and he knew it.

"I think F1 would have been finished for me," he said. "I'm really lucky to have this opportunity with Marussia."

Jules is a popular figure within his team, never going on-record to criticise his equipment even at the end of a long, hard race to a finish outside the points. With the driver market opening up so unexpectedly over the course of the Japanese Grand Prix weekend, that patience and professionalism was due a reward. We wish him well.

ANALYSIS

Vettel drops Red Bull bombshell

World champion quits team as Fernando Alonso and Ferrari also part ways

Fernando Alonso's decision to leave Ferrari has paved the way for Sebastian Vettel's arrival, and will lead to the biggest shake-up of the F1 grid in years. Alonso and Ferrari have agreed to split and the Italian team have consummated a long-standing arrangement with Vettel that he would join them when he leaves Red Bull.

Vettel told Red Bull team principal Christian Horner of his decision to leave the team that has nurtured him since he was 12 on Friday evening at the Japanese GP, and Red Bull announced his departure the next morning. Horner told the media that Vettel was going to Ferrari, although the move had not been officially announced by Maranello as *F1 Racing* went to press.



All change at the top: Vettel and Alonso speak to the press after qualifying in Japan

An announcement from McLaren that they have re-signed Alonso was also expected imminently, although there remains a possibility that the double world champion will take a sabbatical if he is unable to secure the deal he wants. His ultimate target may be to ensure he is available in case a seat opens up at Mercedes in the next year or so.

The trigger for this was Alonso's belief that Ferrari could not provide him with the competitive car he has craved for years within a timeframe that suited his desire to win a third world title before it is too late. Once he had made that call, he felt his only option was to leave.

Alonso has decided that if he cannot get his hands on a Mercedes – where no seat is available – then he has to take a risk on Honda being able to challenge them, given that he feels Ferrari cannot. He has been McLaren's prime target since late summer 2013 after they and Honda decided they wanted him to lead their new partnership. They had also been chasing Vettel.

Why Alonso believes McLaren are a better option than Ferrari remains a mystery. His logic seems flawed to some, given that this year McLaren are slower than Ferrari – at least a Ferrari driven by Alonso – despite the Mercedes engine's power advantage of at least 50bhp.

It may be that Alonso has been given encouraging information about Honda's progress on the engine front – and the fact that the Japanese company are a year behind the other manufacturers and therefore have more scope within F1's rules to develop their engine for 2016 is also significant. He may also have been influenced by McLaren's signing of Peter Prodromou – formerly Adrian Newey's right-hand man at Red Bull – as chief engineer.

In any case, his options elsewhere were limited. Both Mercedes and Red Bull hold him in high regard, but neither is interested in signing him. That left McLaren as the only

option, so he has had to put his faith in them and Honda succeeding before Ferrari do.

Ferrari wanted Alonso to commit his future to them beyond the end of his current contract in 2016, but were put off by his demands. Insiders say these have been high, presumably influenced by his fading faith that they would get it right soon enough to satisfy someone who is desperate for a third title and is 34 next summer.

Vettel, on the other hand, can afford to wait. He already has four titles and, at 27, has time on his side to build a new relationship with Ferrari, which he hopes will ultimately match the success he enjoyed with Red Bull.

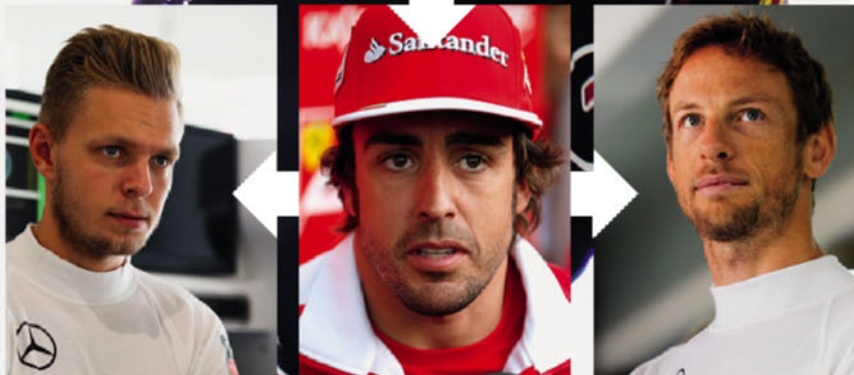
Luca Di Montezemolo is understood to have been instrumental in Alonso's exit. He asked his lead driver if he could grant him a parting wish and Alonso asked to be released from his contract. Losing Alonso is a blow – without him, Ferrari's recent record would have been dismal and it has taken the struggles of 2014 – their worst year since 1993 – to bring things to a head.

The moves by Alonso and Vettel put Jenson Button's F1 career in doubt. He and team-mate Kevin Magnussen are out of contract and the 2009 champion is the driver McLaren are believed most likely to let go in favour of Alonso.

Button has outscored Magnussen this season, but the Dane is increasingly outdoing his team-mate on pure pace – the qualifying score was nine-six in Magnussen's favour after Japan. And with Button nearing the end of his career and Magnussen at the start of his, keeping the young, promising talent is the logical thing to do.



Sebastian Vettel's move to Ferrari is likely to trigger Fernando Alonso's move to McLaren, forcing the team to drop either promising rookie Kevin Magnussen or 2009 world champion stalwart Jenson Button



OBITUARY



**Andrea de Cesaris
1959 – 2014**

The popular Italian packed plenty of drama into his 15-year F1 career. **Maurice Hamilton** pays tribute

Despite spectacular crashes and a lack of significant results during an F1 career spanning 214 GPs, a flow of heart-felt tributes said everything about Andrea de Cesaris as a genuinely likeable man. Even allowing for the shock of his fatal motorcycle accident in Rome on 5 October, the sincerity and breadth of the memories reflected his impact in every sense during time spent with ten teams spread across 15 seasons.

A former karting champion, de Cesaris finished second in the 1978 British F3 championship. A step up to F2 with Ron Dennis and Project Four in 1980 led to his F1 debut with Alfa Romeo at the end of the season, followed by a permanent seat with Dennis's McLaren team in 1981. While team-mate John Watson won a race and consistently scored points, de Cesaris drove his mechanics to despair with a relentless series of incidents that encouraged the nickname 'de Crasheris'.

Three years with Alfa Romeo hit a high note early on at Long Beach in 1982 when he became the youngest driver to take pole – only to crash out. He would have won Monaco that year had Alfa Romeo not contributed to a bizarre finish by having their car run out of fuel.

Periods at Ligier, Minardi, Brabham, Rial and Dallara produced some points, two podiums and a depth of experience perfect for Jordan's debut in 1991. Immediately at home there, de Cesaris scored points in Canada, Mexico, France and Germany. In a remarkable drive at Spa, he was closing on Senna's leading McLaren when his Cosworth V8 ran out of oil.

De Cesaris returned to Jordan in 1994 (after two seasons with Tyrrell) to finish fourth in Monaco as Eddie Irvine's stand-in. He retired at the end of that year to split his time between currency broking and windsurfing. The warm welcome accompanying his visits to the paddock said everything about his true F1 legacy.

PHOTOS: STEVEN TEE/LAT; GLENN DUNBAR/LAT; ALASTAIR STALEY/LAT; KER ROBERTSON/GETTY IMAGES; LAT ARCHIVE

De Silvestro's F1 dream scuppered by budget

A lack of funding means that Swiss driver Simona De Silvestro will not race for Sauber next year in spite of her promising test form

Simona De Silvestro's hopes of becoming the first woman to race in Formula 1 for nearly 40 years have been dashed after she failed to raise the money required to secure a drive at Sauber.

The Swiss team were planning to make a seat available to 26-year-old De Silvestro for 2015, but they have announced that the deal has now collapsed. Furthermore, the 90-day period following De Silvestro's last test, during which she could have applied for a superlicence, has now expired.

Team principal Monisha Kaltenborn said: "The driving programme with her will not continue due to financial reasons on her side. We are very sad about that because everyone who works at Sauber really enjoyed working with her, and you see the talent she has and the opportunities she can bring along for herself, the team and even the sport.

"She could fit very well into Formula 1. Now we have to wait and see what we can do. We will evaluate different opportunities with her and see where we go from here."

De Silvestro had participated in two tests for Sauber this season: one at Ferrari's Fiorano test track and another at Valencia's Ricardo Tormo



De Silvestro testing in the 2012 Sauber C31 at Valencia's Ricardo Tormo circuit (below) in June

circuit. There had also been a possibility of her driving in free practice for the US GP at Austin.

The breakdown of her relationship with Sauber means the team will most likely stick with

the same driver line-up in 2015. Adrian Sutil says he has a firm contract and Mexican Esteban Gutiérrez's position is strengthened due to the return of his country's home race next season.

QUIZ



F1 Mastermind

Your chosen specialised subject: the world's greatest sport



- Q1** If you get Turn 17 of the Abu Dhabi Grand Prix wrong, you'll end up in the breakfast room of which hotel?
- Q2** The Autódromo José Carlos Pace is better known to many Formula 1 fans by which former name?
- Q3** How many circuits on the 2014 Formula 1 calendar run completely anticlockwise?
- Q4** *It Beats Working* was the memoir of which recently departed Formula 1 personality?

- Q5** 'A matador plods on' is an anagram of the name of which current driver?
- Q6** How many corners are there at the Yas Marina circuit?
- Q7** Sebastian Vettel clocked up his tenth Formula 1 win at the Abu Dhabi Grand Prix in which year?
- Q8** In 2002, which local celebrity failed to wave the chequered flag at the right moment in the Brazilian Grand Prix?

- Q9** Lewis Hamilton overtook which former Toyota driver on the final lap of the 2008 Brazilian Grand Prix to secure fifth place and the drivers' world championship?
- Q10** Jacarepaguá is a former Formula 1 circuit close to which major city?
- Q11** Which lofty trackside landmark in Singapore is some 30 metres taller than its equivalent structure in London?

- Q12** At which circuit in 1970 did Emerson Fittipaldi win his first grand prix?
- Q13** Nelson Piquet's final grand prix was in which country?
- Q14** Which Californian circuit hosted the US Grand Prix just once, in 1960?
- Q15** What were drivers given on the podium at the inaugural grand prix at the Circuit of The Americas in Austin in 2012?

Q10 Rio de Janeiro Q11 Singapore Q12 Interlagos Q3 Four Q4 Eoin S Young Q5 Pastor Maldonado Q6 21 Q7 2010 Q8 Pelé Q9 Timo Glock
 Q10 The Yas Viceroy Q2 Interlagos Q3 Four Q4 Eoin S Young Q5 Pastor Maldonado Q6 21 Q7 2010 Q8 Pelé Q9 Timo Glock
 Q10 Rio de Janeiro Q11 Singapore Q12 Interlagos Q14 RiverSide Q15 Pirelli-branded cowboy hats

Confusion reigns over double-points finale

Bernie Ecclestone keeps F1's stakeholders guessing over the future of the widely reviled double-points rule

F1 boss Bernie Ecclestone has implied that the controversial double points scheme could be dropped for 2015. He was behind the adoption of the idea for the final race this year, but the plan has met with widespread disdain from drivers, team bosses and fans around the world.

Ecclestone admitted he had wanted the scheme to apply to the final three races of the season "then people would believe it was still possible for somebody else to win. But they all say I'm mad, so we won't do it." He also said he had proposed the idea because he felt it was "the right way to keep the championship open". But he offered a confusing response when asked if it would be kept for 2015: "Don't know. Probably not. We can't see whether it has worked, so it depends."

Team bosses have been dismayed by the plan and have been privately determined, since the beginning of the season, to ditch it as soon as possible. But Ecclestone's court case in Germany, which he settled in the summer, delayed any major decisions to do with the running of the sport.

Now the uncertainty over Ecclestone's future is over, planning can continue. He is continuing to push the idea of three-car teams in the future, saying he would rather have three Ferraris, for example, than some of the teams struggling at the back of the grid.

The Concorde Agreement has clauses that require some teams to run third cars if the grid drops below 20, as it would if just two current teams were to exit F1. But this has met with a lukewarm reception from team bosses.

Mercedes boss Toto Wolff said top teams running a third car was "not good for the sport". He also rejected claims from Sauber

team principal Monisha Kaltenborn that teams could make money from it by running drivers who brought funds. Wolff said the figures mentioned by Kaltenborn were "not realistic", adding that it would cost £20-25million to run a third car for a season and that there was "not a profitable business case for it. I don't see it coming."

Even Ecclestone ally Christian Horner of Red Bull has played down the likelihood of it happening, which raises questions as to whether Ecclestone has another agenda and is using third cars as a distraction.

This would be a classic Ecclestone manoeuvre – propose something no one wants, so when you suggest something else they're not keen on, but you want more, they are more likely to accept it on the grounds that it is less bad than the first proposal. If this is so, it remains to be seen what Ecclestone actually *does* want.

Ecclestone: wanted double points for final three races, but idea may now be dropped altogether



YOUNG GUNS

Pascal Wehrlein



Finding the stars of tomorrow, today

Pascal Wehrlein will be 20 on 18 October. He was born in Sigmaringen, Germany, and competes for HWA in the DTM

Who is he?

Wehrlein is a favoured son of the Mercedes young driver programme, which also gave us the likes of Michael Schumacher, Karl Wendlinger and Paul Di Resta.

What's he been doing recently?

He graduated from karting to single-seaters in 2010, competing in ADAC Formel Masters in 2010 and winning it in 2011, then moved to the Formula 3 Euro Series and the Formula 3 European championship in 2012. He was highest-placed rookie and runner-up to Daniel Juncadella in F3 Euro Series, then swapped to the DTM for 2013, initially, with the second-string Mücke Motorsport. This year he moved up to the works HWA team and recently won his first race, which coincided with his appointment as Mercedes reserve driver.

How good is he?

Mercedes have placed a lot of faith in his technical ability during the development of the W05 Hybrid – he's completed more than 30 simulator days this season – and his DTM win at the Lausitzring was a commanding lights-to-flag performance in wet-dry conditions.

Will we see him in F1?

He lacks experience in top-level single-seaters, but Mercedes took the unusual step of putting him in a two-year-old F1 car for a 500km test and "familiarisation programme" at Portimao in early September. "Aside from Nico and Lewis," said team boss Toto Wolff, "he is the driver most familiar with the procedures of our F1 W05 Hybrid and therefore the right choice for the role of reserve driver."

NEWS

Calendar expands to 20 confirmed races for 2015

The returning Mexican Grand Prix will run back-to-back with the US GP – potentially reducing attendance at the Austin race

For 2015, Formula 1 will equal its longest ever season, with the publication of a 20-race schedule that features the return of the Mexican Grand Prix. The Autódromo Hermanos Rodríguez will host its first race in 23 years on 1 November – just one week after the US GP.

Mexico's formidable, banked, 160mph Peraltada corner will not be part of the updated track. The end of the lap has been remodelled because buildings since constructed around it make it impossible to render the Peraltada safe.

Despite speculation that the season would open in Bahrain, it will begin in Australia on 15 March, and features four sets of 'double-headers' or back-to-back race weekends. The first of these is near the start of the season: the Malaysian GP takes place on 29 March followed seven days later by Bahrain on 5 April. The other three double-headers are the German and Hungarian GPs on the last two weekends

in July, the Singapore and Japanese GPs at the end of September and the US and Mexican GPs.

The race in New Jersey is still yet to materialise on account of it failing to raise the necessary funds, and the return of the Mexican GP has raised concerns about the viability of the race in Austin. Up to 40 per cent of the US GP's audience is of Mexican origin – either coming from across the border or drawn from the USA's sizeable Mexican community.

Senior figures have expressed concerns that hosting a race in Mexico City a week after a race in Texas could reduce attendance at the US GP, placing the event's future in jeopardy.

Questions have also been raised over the German GP, which alternates between Hockenheim and the Nürburgring. Next year is the Nürburgring's turn, but its financial stability is in doubt, despite rumours of a takeover deal involving F1 boss Bernie Ecclestone.

F1 CALENDAR 2015

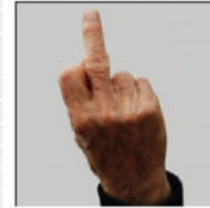
 Australia 15 March	 Hungary 26 July
 Malaysia 29 March	 Belgium 23 August
 Bahrain 5 April	 Italy 6 September
 China 19 April	 Singapore 20 September
 Spain 10 May	 Japan 27 September
 Monaco 24 May	 Russia 11 October
 Canada 7 June	 USA 25 October
 Austria 21 June	 Mexico 1 November
 Britain 5 July	 Brazil 15 November
 Germany 19 July	 Abu Dhabi 29 November

PHOTO: CHARLES COATES/LAT

F1 BANTER

PASSNOTES

Your essential F1 briefing
#8 Swearing



Name Swearing

Age As old as language itself

Appearance Short. Coarse. Often Anglo-Saxon

Well blow me down!

That's the spirit, old fruit. One has to mind one's language these days – Sky Sports F1 have had a close encounter with Ofcom after Gerhard Berger came over all potty-mouthed during a live interview, and a viewer complained.

There's always one, eh?

Indeed, but broadcast rules are very strict. Ofcom says: "Rule 1.14 states that the most offensive language must not be broadcast before the watershed. Ofcom research on offensive language clearly notes that the word 'f'"

Don't say it! Don't say the word!

"...and other variations of this word are considered by audiences to be among the most offensive language, particularly when used in an aggressive manner."

Surely Gerhard was just having a laugh, though?

He was, and thus Sky were spared. "You already told me I should not use the word s**t," was his opening salvo to Damon Hill and an increasingly flustered Johnny Herbert, who replied, "No, you're not." "Nor f**k," added Gerhard, quick as a flash.

Perhaps he was seeking directions to the home county of turkey magnate Bernard Matthews?

Hardly. Gerhard's clear aim of causing mischief by ignoring his pre-broadcast briefing, plus apologies from Herbert and anchorman Simon Lazenby, led Ofcom to consider the matter closed.

He's not the first F1 type to deploy some prime Anglo-Saxon live on air, is he?

Indeed not. During the 1989 Monaco Grand Prix, after Murray Walker had recounted the litany of excuses René Arnoux provided for being dog slow in the Ligier, James Hunt voiced an opinion that had also passed through my mind, though not, since my mother-in-law was present, to my lips.

Golly.

Not quite what James said...

Do say: Mind your language!

Don't say: People with enough time on their hands to complain to Ofcom really ought to [EXPLETIVE DELETED]

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- Trusted Reviews

"It's hard to not marvel at the glorious graphics"
- Pocket-lint



Xbox.com/Forza

Features and requirements subject to change. Features vary between Xbox 360 and Xbox One version of game (each sold separately). Xbox One games for use only with Xbox One systems. Games made for Xbox 360 will not work on Xbox One. Xbox LIVE Gold membership (sold separately) required for online multiplayer; multiplayer between Xbox 360 and Xbox One not supported. On Xbox 360, some cars require download from Xbox LIVE (ISP fees apply) and a hard drive. For Xbox 360 4GB, Arcade and Core consoles (hard drive sold separately). Demo available for Xbox One only. Download from Xbox LIVE. 12GB required. ISP fees apply.



COLUMN



THE DRIVER'S WIFE

Toeing the party line

I almost have a hangover! Which should be reason to celebrate.

One of the toughest things a driver's wife has to face is the practically nonexistent social life. I bet you think our life is all glamorous galas, VIP parties, and exclusive cocktails on superyachts? Well, so did I! But drivers should come with a big "No Fun" forehead tattoo, so girls are fully warned.

Basically *Amor* is *always* in training – pre-season, mid-season, pre-next season... He never wants a drink, or a late night, or to go out where someone might be smoking. Whereas I only really come alive after dark, on a red carpet, twerking in my Louboutins. *Amor* is the greatest guy, but he's also the only driver who doesn't understand the obligation of going out on the Sunday of the Monaco GP, when the entire COUNTRY is partying.

But when the invitation arrived for *Amor's* team-mate's birthday bash, he just couldn't say no. Not because we are neighbours in Monaco and he'd know we were lying about being out since our lights were on, but because of all the media furore about their on-track fighting, end-of-a-friendship, daggers-at-dawn stuff. The decision to accept wasn't even *Amor's*, I think his manager RSVPed before the invitation reached our letterbox.

So *Amor* and I were to go to a party *mid-season!* I might have got a little over-excited. I co-designed a black full-length fan-tailed gown for the arrival, and a red sequined backless mini dress for after the aperitifs. Then an hour before we were due to leave, *Amor* announced there was a *Flintstones* theme, grabbed one of my fur gilets and told me he'd wait for me in the car.

Perhaps it was because we arrived two hours late, but there was no red carpet, no photographers and no security. Some woman accosted me with a bone necklace to 'get into the spirit of things' and nearly ended up with a bone enema. Then two sickly purple cocktails later I spotted *Amor* on the dancefloor, red, sweaty and shirtless under my gilet. Before I could send someone to retrieve him, he was rounded up by six other underdressed and rhythmically-challenged drivers into a bouncing rugby scrum.

It was like a flashback to my 14th birthday party. I'm sure I saw someone vomit in a pot plant.

A quarter of an hour later, *Amor* was passed out face-down on a leather banquette and I had to have him carried to a taxi. I never even changed into my second outfit.

So as I sit here with my green tea while *Amor* snores on the bathroom floor, I've had a revelation. It's for the best he doesn't go out. He was the serious sporty teenager who missed out on drunken binges, bad dancing and inappropriate behaviour. And if he missed it at 17, it's certainly not worth starting it now!

Saúde!
Adriana

NEWS

Fashion magnate shops for F1 team

Lotus, Caterham and Marussia jostle to be snapped up by billionaire behind Ralph Lauren

Billionaire businessman

Lawrence Stroll is looking to buy a Formula 1 team. The 55-year-old Canadian has held talks with Lotus, Marussia and Sauber, and, according to insiders, is keen to buy a team so he has somewhere for his 15-year-old son, Lance, a member of the Ferrari Driver Academy, to race when he is old enough.

Stroll, who made his fortune through the Ralph Lauren, Tommy Hilfiger and Michael Kors brands, is calculated by *Forbes* magazine to be worth \$2.3billion – putting him in the same wealth ballpark as F1 boss Bernie Ecclestone.

He is a racing enthusiast, but it is unclear whether he understands either how much money he would need to buy a team, or the resources needed to run it effectively thereafter.

Nor is it entirely clear whether Stroll wants to buy a team outright, or take a shareholding that gives him some level of influence. All three teams with which he has held talks are struggling financially to one degree or another, and there is uncertainty as to whether they will make it onto the grid next season – as is also the case with Caterham.

Most back-of-the-grid teams are seeking new investors in the wake of failed attempts to impose budget caps or meaningful cost reductions. The precarious financial position of some teams was highlighted when Williams, currently fighting Ferrari for third place in the constructors' championship, posted losses of £20million for the first half of 2014.

Meanwhile Lotus, who lost £64million in 2013, say they have improved their financial position and cut their losses to £6m for the first half of this year.

Lotus have cut their losses to £6m after a financially disastrous 2013



PHOTO: STEVEN TEE/LAT

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NEWS

Magnussen battled burns at Singapore Grand Prix

The McLaren rookie was treated for dehydration and heat injuries following the failure of a radiator seal on his MP4-29

Seldom has a single world championship point been so hard-earned. Kevin Magnussen required medical attention for dehydration and minor burns after finishing tenth at the Singapore Grand Prix, highlighting the vulnerability of the present generation of drivers, who must maintain minimal body weight to be as competitive as possible.

Singapore is one of the most physically demanding grands prix of the year for drivers on account of its length – the race regularly runs to the two-hour limit – the bumpiness of the track,

and the hot and humid conditions. Dehydration is one of the greatest threats since it magnifies fatigue, which in turn leads to mistakes.

In Magnussen's case the ambient heat was exacerbated by a broken radiator seal, possibly a consequence of running over the kerbs at Turn 7 in the early laps, which led to a brief investigation by the stewards for exceeding track limits. The broken seal caused hot air to be vented into the cockpit area, heating up his seat and drinks bottle. The contents of the bottle quickly became too hot to drink – he complained

over the radio that it was burning his mouth – and, over the closing laps, Magnussen had to raise his arms out of the cockpit to direct outside air flow down his sleeves and on to his back.

Toro Rosso's Daniil Kvyat was also suffering from dehydration, and began radioing the team two thirds into the race to say, "Oh guys, it's really bad. I need to stop. It is a disaster." Then, with just one lap to go, he pleaded with them: "I can't drive any more."

After the finish, Magnussen's trainer, Antti Vierula, treated his back with an iced towel while the team located a doctor. *F1 Racing* later saw them leaving McLaren's hospitality unit on foot, with Magnussen looking pale and drawn.

"It was hot. Really tough," he said. "I never experienced anything like this in racing. I couldn't drink water, and the seat was very hot. I still feel dehydrated. I lost a lot of water."

But with admirable stoicism, he later Tweeted that reports of his burns "were exaggerated" – and – "I was just hot and sweaty."

Mystery over future of Caterham deepens

Visits from bailiffs, employment tribunal proceedings, staff upheaval and as-yet-unnamed owners all add to the confusion

There are fresh doubts about the future of Caterham after bailiffs visited the team's factory before the Japanese Grand Prix and took away property. The team say that the action taken was against a "supplier company" to the team "which has no influence over the entry of Caterham F1".

The sense of turmoil at the team has been enhanced by the fact that Caterham are already on their second team principal since the change of ownership. Former F1 racer Christijan Albers resigned in September and has been replaced by his former assistant, Manfredi Ravetto.

At the Singapore Grand Prix, Ravetto explained that Albers "wanted to stay closer to his family and the flyaways are not the best option in this case". This was met with

skepticism, since it was considered unlikely that Albers had not known details of the F1 calendar before he took the job. The move changes little in terms of the running of the team, since Colin Kolles remains in his post, officially the team's "adviser" but actually their *de facto* boss.

The team also face employment tribunal proceedings from 38 former members of staff, who were among the more than 40 dismissed in July following the takeover. Caterham say that ongoing negotiations are taking place with the former staff members over a settlement, a claim disputed by the staff themselves, one of whom has said they have neither been paid nor offered a settlement.

Meanwhile, the new owners of Caterham have still not revealed their identity, and increasingly the word within the paddock is that there is no Swiss-Middle Eastern consortium and that the man who bought Caterham F1 is in fact none other than the boss of Formula 1 himself: Bernie Ecclestone.



This season Caterham are firmly at the back of the grid, but they're still racing... for now

Christijan Albers' deputy Manfredi Ravetto has taken over as Caterham team principal



F1 STUFF



F1 SKID BLOCK KEYCHAIN

Now you can carry an upcycled F1 component in your pocket; machined from a genuine race-used skid block, this keychain (priced from £22) comes with a certificate of authenticity. www.mementoexclusives.com

'ADDED LIGHTNESS' T-SHIRT

A retro-themed T-shirt (from £20) based on Lotus pioneer Colin Chapman's famous mantra of 'added lightness'. The main decal is an illustration of the all-conquering Lotus 49 from 1967. www.slickattire.com/



SCALFARO JOHN SURTEES EDITION WATCH

For the 50th anniversary of John Surtees' world title with Ferrari, this 300-piece limited edition watch (£3,295) includes original material from John's Ferrari 158 and 1960 MV Agusta motorcycle. www.scalfaro.com

FORMULA 1 TECHNICAL ANALYSIS 2013/2014

Illustrator Giorgio Piola's annual technical round-up (€29.75) is as much a fixture of the F1 calendar as the Monaco GP. This one rounds out the V8 era in exquisite hand-drawn style. www.giorgionadaeditore.it



NEWS

Ferrari seek thaw on engine freeze

An underperforming Scuderia are leading the charge to ease restrictions on engine development – but not everyone agrees

Ferrari are pushing for a relaxation of rules governing F1 engine development. Team principal Marco Mattiacci has criticised the strictures introduced with the new turbo hybrid engine formula, which forbid in-season development and specify limits on upgrades, with increasing restrictions placed on the areas in which teams can introduce change.

The issue has arisen as a result of Ferrari's failure to produce a competitive power unit this season. One of the ideas proposed by Ferrari is to allow an extension on development into the early stages of the season.

"We've never worked from tactical angles saying: 'Let's do this softening of the rules so we can catch Mercedes,'" Mattiacci said. "The starting point was that in F1, I cannot wait one year to work on the engine. We do not believe this is a magic bullet. It's a way to talk about innovating and to keep working on the car."

Mercedes boss Toto Wolff said he was conflicted about the idea. "It's about defining what we want to do," he said. "Obviously we have a competitive advantage but we would take the challenge on. Is it the time to change the rules to change something? Maybe."

But Wolff also admitted he was in favour of rules stability and warned that any relaxation of the engine freeze would incur a rise in costs.

Mattiacci took a hardline stance on this at a recent meeting of team principals. He responded to claims that an engine freeze would increase costs for the struggling smaller teams by saying that Ferrari's engines were effectively free as they had not received any money from either Marussia or Sauber this year.

He was exaggerating for effect, for while both teams may have fallen behind with payments, they have each paid Ferrari at least some of their engine dues this season.

Renault, meanwhile, have warned that allowing more room for development was no guarantee that manufacturers who are behind would necessarily catch Mercedes – who would obviously also be free to develop their engine. Renault F1 boss Cyril Abiteboul said he wanted rules that ensured the engines were as close together in performance as possible while keeping costs under control.

"There is the law of diminishing returns, which means that after some time Mercedes will be limited, and at that point in time we will be in a position to catch up," said Abiteboul. However, I am not sure how far we are from the physical limit of the system.

"Depending on how far away we are, we may even be in a worse position with that additional unfreeze than with the current freeze."



Renault and Ferrari engines are lagging behind the dominant Mercedes power units

NEWS IN BRIEF



FORCE INDIA PAY TRIBUTE TO 'GADGET'

At the Italian GP, Force India's VJM07s bore tributes to Gary 'Gadget' North, who has passed away from cancer. North joined as chief mechanic in the test team during their Jordan incarnation in 1995, and more recently worked in Force India's R&D department.

BRABHAM NAME MAKES RETURN TO MOTORSPORT

The Brabham team name will be back in business next year under the leadership of Le Mans winner and former Formula 1 driver David Brabham, son of Sir Jack. The team, which is funded via an innovative crowdsourcing model, will begin in the World Endurance Championship but Formula 1 is also a possibility. To learn more, visit www.indiegogo.com/projects/project-brabham

TEAMS QUERY HIGH TICKET PRICES

Mercedes executive director Toto Wolff reports that teams in F1's Strategy Group have expressed concern over ticket prices to Bernie Ecclestone. "It is clear what needs to be done to fill grandstands in traditional races such as Hockenheim and Monza," said Wolff.

VETTEL PENALTY 'UNAVOIDABLE'

Sebastian Vettel will not be able to complete the season without a sixth engine, so will incur a ten-place grid penalty following the failure of a unit during practice for the Singapore GP. "We will have to commit to a sixth," said Renault's Remi Taffin. "It is now a question of where we are going to strategically introduce it, instead of how we are going to avoid it."



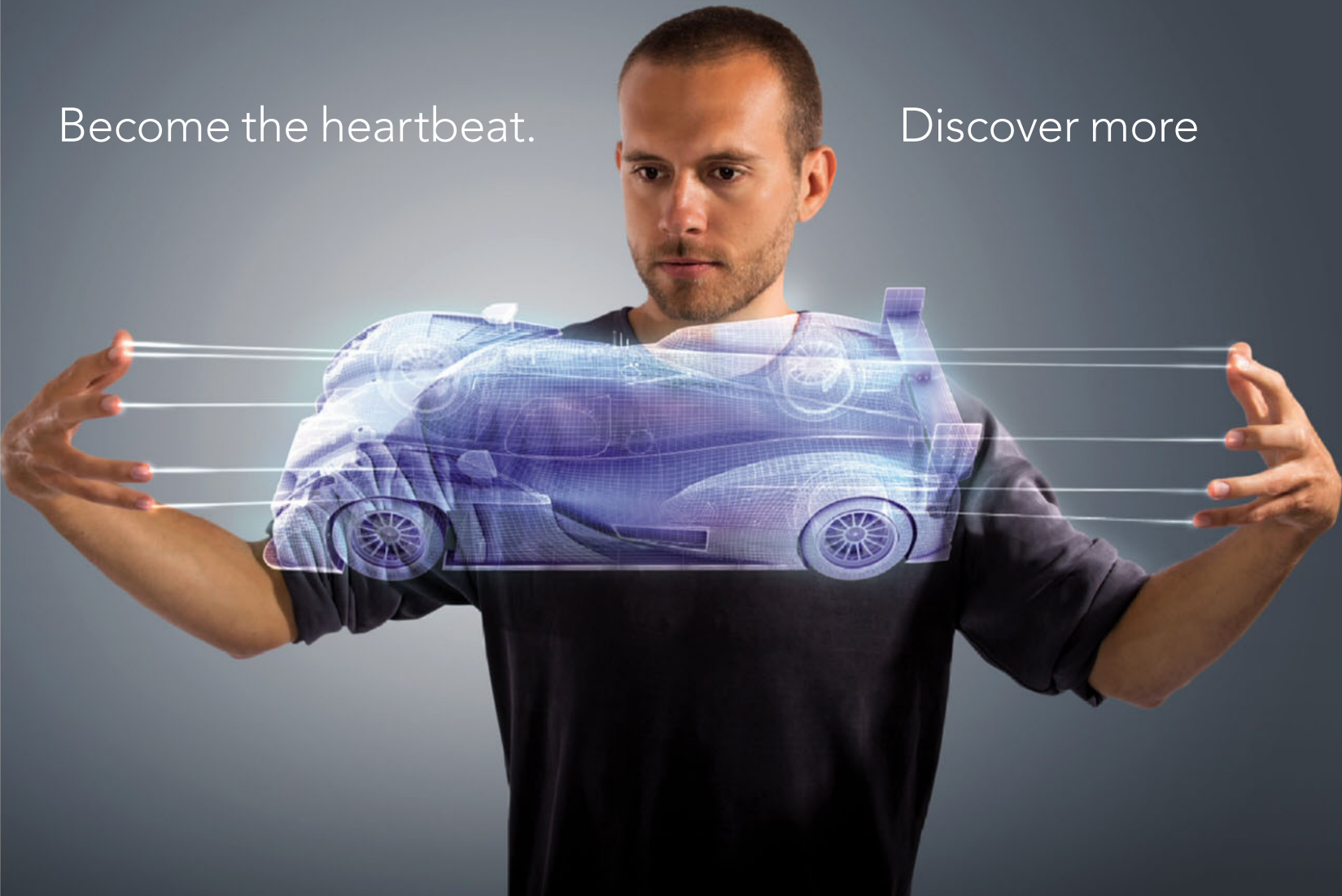
PHOTOS: ALASTAIR STALEY/LAT; ANDY HONE/LAT; CHARLES COATES/LAT

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Pat Symonds explains
THE SCIENCE BEHIND...
Real-time data

F1 TECH

What is meant by telemetry?

The word is often used incorrectly. Telemetry is not just data, it is the transmission of data via wireless means from one location to another. The word is actually derived from the Greek words *tele*, meaning distant, and *metron*, meaning a measure. In F1 we use such data to provide real-time information about the performance and health of the car. At the same time, higher fidelity data is also being stored on board and is downloaded when the car stops in the pit.

We are getting used to seeing more data transmitted on our television screens. Is this similar to the data the teams are seeing?

Viewers see a small subset of the full data. All teams let FOM (who deliver the TV feed) access an amount of data from the cars so they can add infographics to the television screen in order to increase viewers' understanding. Some data, such as the cornering G-force, is displayed in graph form, while other data, such as fuel usage, is shown in a quantifiable numeric manner.

How do the teams use the data?

Different engineers use it in different ways but, essentially, they are analysing and inspecting the data to ensure the car is safe and reliable as well as extracting maximum performance and efficiency from the various systems on the car.

In recent years, tyre use has come under increased scrutiny: as well as monitoring tyre pressure, the temperature of tyre surface and carcass is measured. The energy each tyre has to generate is also derived from a suite of sensors and this data is used to advise the driver on how to manage tyre consumption through a stint.

How many sensors are there?

There are more than 120 different sensors on the car. Some measure simple things such as fluid temperatures and suspension displacements, while some are much more complex – fuel flow

being an example. All data must be extremely accurate – particularly that used for control of the gearbox, for example, where the position of each gear needs to be determined to within fractions of a degree at very high speed.

So this means there are 120 channels of data?

No, there are far more than that since we also record intermediate control parameters; these are things such as states of the various control systems, which will tell us, for example, whether the gear positions have been synchronised or whether the driver has operated any of the steering wheel buttons. We also record system outputs, for instance the drive currents to the many servo valves that control the hydraulic systems on the car. In addition, we have many virtual channels derived by amalgamating other streams of data through algorithms that are calculated by apps running on the ECU in the car. In all, we regularly hit the limit of 1,000 channels that the system allows.

How much data does this generate?

Each lap for each car generates around 15 to 20MB of real-time data, so over the course of the weekend it is not unusual to be storing nearly 3GB of data. This may seem a lot, but it's dwarfed by the 70-80GB of data that comes from downloading the on-board data acquisition system and the processed files.

To put this in context, a standard-definition movie is just over 2GB in size and a single MP3 audio track is between 4 and 8MB.

How is the data transmitted back to the pits?

It is sent via a radio transmitter mounted on the car to multiple receivers around the track, in a manner not unlike a wi-fi or cellular system used by smartphones (although the technology is rather different). The system can transmit at up to 4 megabits per second, which is around the speed you are likely to get on a 4G network, or up

to twice what we would normally expect on 3G in a reasonable urban environment.


We're all used to data drop-outs on our smartphones due to dodgy wi-fi – how do you overcome this?

If reception is poor the system can buffer the data on the car and transmit it when conditions are right, as happens when you attempt to play video files in real time from the internet.

Is data also sent back to the factory?

Once the data has arrived at the servers in a team's garage, it is transmitted back to base via a mixture of the internet and dedicated lines. Alternatively, engineers working in the factory operations room can access virtual machines based at the track to interrogate the data.

Isn't it impossible for an engineer to assimilate that amount of data?

It is very difficult to analyse so-called 'big data' in real time by purely manual methods. This is leading to more and more effort being focused on automated data analysis. In its simplest form, this may be a flash screen that gains the focus of the user to alert them that an important parameter may have gone out of limits. More analytically, incoming data may be used to populate a trend line on a graph to ensure that fuel consumption is on target or that brakes won't wear out before the end of the race. 





Data from more than 120 sensors is sent back to the pits using a car-mounted radio transmitter, where it is analysed to extract maximum performance from the car



PETER WINDSOR

RACER'S EDGE

Authority, wit and intelligence
from the voice of *F1 Racing*

Lotus designer Len Terry has passed away, aged 90, leaving for our delectation his portfolio of work. Or was it art?

There aren't too many F1 people who would tick the box marked 'no' when asked the question: 'Is the 1967 Eagle-Weslake the best-looking F1 car of all time?' Like all works of art, however, the Eagle... just happened.

It was Dan Gurney who had instigated the Lotus rear-engine revolution at Indianapolis in mid-1962. Thus he knew Len as a Colin Chapman-led Lotus designer of great skill and industry – and also of dignity: Len suffered in silence when, oddly, he was sidelined from the 1963-64 at-track Indy programme while Chapman renegotiated his team's Ford engine deal and vacillated between racing Dunlops and Firestones.

Len worked hard in Cheshunt to give Chapman the Lotus 38 – the car that won Indy for Jim Clark in 1965. As landmarks go, the 38/1 falls just short of the wheel, which is why I decided last year to join a number of other 38-lovers as one of its trustees. The 38/1 has become a global ambassador for svelte engineering and for those who believe that mountains are there to be climbed.

Dan decided in 1965 to do his own F1 team. He hired Len as chief designer and hatched the

The lasting legacy of Lotus legend Len Terry



Eagle. I once asked Dan if he, Dan, had had any imprint on the shape of the Eagle's nose and he smiled his usual smile and thus said a thousand words: of course he did. Dan's was the blue-and-white livery, too – make that "the *layout* of the blue-and-white livery and its white striping". I daresay a thousand of today's graphic designers would give us a

very different interpretation if they were asked to colour the Eagle as it was, bare metal, clean sheet of paper... and that none of them would be a patch on Dan's 1966 elegance.

The death of Len has set me to thinking about what beauty really means to the racing person. It's all very well and good for me to go on about the Lotus 38 and the Eagle, but what do we *actually* see when we look at these cars – or pictures of these cars? Is it the whole or the parts that *comprise* the whole? And when is a racing car more than just an 'engineering solution'?

"Len's Lotus 38/1 has become a global ambassador for svelte engineering"

Terry's Lotus 38, driven to Indy 500 victory by Jim Clark in 1965 (right); Len Terry admires his handiwork, the Eagle AAR101-Climax (below); the intricate exhaust layout on Terry's beautiful Eagle-Weslake (below right)



- The orange-tinted windscreen of the 1967 Lotus 49-Cosworth
- The first 'Elf Tyrrell' logos on the 1968 Matra MS11
- The chassis rivets of said Matra MS11: these, for me, spelt 'aerospace' for the first time in F1 history
- The original (small sailor) Gold Leaf livery
- The driver's script on the flanks of Bruce's McLaren M7A and the windscreen/chassis section of the same car
- The Pescarolo-green nose stripes against the blue of the 1971 Gérard Ducarouge/Michel Tetu Matra MS120C-V12
- The 1970 Yardley BRM P153 complete with Pedro Rodríguez's silver helmet and dark visor
- The dark blue internal chassis sides of the 1971 Derek Gardner Tyrrell-Cosworth
- The Martin Waide oil-tank/rear-wing mounting on the 1972 Lotus 72
- The bottom edge of the Gordon Murray 1974 triangular-chassis Brabham BT44B
- The rear view of the Colin Chapman/Peter Wright 1978 Lotus 79
- The typeface of the driver names on the 1978 Ferrari 312T2/T3
- The pedals of the 1979-80 Williams FW07
- The 1984 Ducarouge-chassis Lotus 84T – bodywork off
- The nose of the 1987 Williams FW11B
- The 1988 Steve Nichols McLaren MP4/4 (particularly the chassis sides below the cockpit and the front suspension area)
- The 1990 Enrique Scalabroni Ferrari 641/2
- The 1992 Williams FW14B
- The 1999 Williams FW21
- And the steering wheel and scuttle of the Adrian Newey Red Bull RB7/8/9/10s, as seen from the rollbar-mounted on-board camera

I'm really honest, I love the Eagle – but I don't love every part of it. To me it's a little bulky and heavy around the engine bay and, if I had to be really critical, I'd say its scuttle is a tad too rounded and high. The 1964 Lotus 34, was neater and more aggressive just in this area. It wasn't an Indy winner, though. Thus context, too, makes a difference.

Going back to what makes a beautiful racing car, I conclude it's in the detail. If I think about all the cars I place in my 'forever loved' category, the pictures in my mind are of the details that will never be forgotten... even if the car as a whole was less than memorable.

We all have our lists: they are subjective and personal and often a function of what-we-were-doing-then. So here's my list of cherished F1 details... the parts of the cars to which I immediately gravitate:

- The head-on view of the 1962 F1 Porsche
- The 'Team Lotus' signwriting in 1965 – before Chapman thickened the font
- The red, removable seat and the grey chassis sides of the Lotus 25/33/33B
- The green-and-orange nose of the 1964-66 BRM P261
- The blue wheels and chassis flanks of the 1965 NART F1 Ferrari flat-12
- The exhaust cluster of the 1967 'within-the-vee' Repco engine
- The head-on view of the 1967 BRM H16, external water pipes, extra rads and all
- The nose of the 1967 Eagle-Weslake

Patrick Head once told me that there was no technical reason for rounding the nose of the 1986 Williams FW11-Honda as he evolved it into the 1987 FW11B; the change was purely cosmetic, he admitted. And, walking through the wreckage at Woodcote after the 1973 British GP multi-shunt, I saw Bernie Ecclestone hurl the Geoff Ferris-designed airbox from Andrea de Adamich's Brabham BT42 into a skip: "I always hated that airbox," I heard him say as it tumbled into obscurity.

Which leads us, I think, to another question: when do details become more than that? If

My list thins as we approach 2014. Call me grumpy, but too many of today's cars are designed by the rule book – and too many liveries are dictated by sponsorship. So it's the RB10 to which I feel attracted in 2014 – but I'd fancy a naked Merc if I ever got to see one.

So thanks, Len, for your art... and for provoking our ideas of what came next. 🍷



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EMERSON FITTIPALDI

SPEED KING

The double world champion writes exclusively for *F1 Racing*

Forgive me for beginning my column this month with a plug, but, after a year of hard work, I've just launched my autobiography. We had a little party on the top floor of the McLaren Brand Centre in Monza, and I was overwhelmed by the interest shown by people in the paddock – a place where racing drivers are hardly a rare sight. President of the FIA Jean Todt was kind enough to come and say a few words, and Niki Lauda came along – although he likes to go to bed early these days so he vanished before the party got going.

Writing the book – which I did with Matt Bishop, a good friend whose work will be well-known to those of you who've been reading *F1 Racing* for a long time – let me express a lot of personal feelings about events from my career that even my family didn't know about. It was a fascinating experience and, after the writing, searching for pictures brought back a lot of memories about good times and bad.

It got me thinking that perhaps the current generation of drivers could do more to engage with the fans and build Formula 1's audience. Over the past couple of months I've put forward a few ideas about how the sport needs to work harder to win over the next generation of fans. Well, it's not just the job of

All teams should follow Merc's lead

the promoter and the other stakeholders to push this agenda forwards – the competitors can, too. If the drivers were able to express their personal feelings more often, it would help create emotional connections with the audience – and all sports are about emotion. It's passion that connects us with a sport. Right now, the rules and racing are great but the public is too far away.

Obviously there are challenges here. I wonder if the PR people are too controlling, because they're afraid that their drivers may say the wrong thing in the heat of the moment. That's true to an extent, because the news agenda tends to be so quote-driven, but I say bring it on – let the drivers say what they think! It beats those press releases you see pre-race where every driver on the grid is quoted as saying almost exactly the same thing. Sometimes in life you *do* say the wrong thing – and you soon learn not to. It's part of growing up. And the public enjoys a bit of controversy.

Like everyone else, I've been very interested in the mounting tension between Lewis Hamilton and Nico Rosberg this season. Sometimes the soap opera off-track has been almost as good as the action during the races – those pregnant silences in the green room before the podium say more than words. Mercedes have been very intelligent in the way they've dealt with the situation. They've accepted that they can't silence or micromanage their drivers, so they've been much more open. After that controversial collision at Spa they put out two Tweets inviting the fans to have their say – do they want to see team orders imposed, or should Lewis and Nico be free to race?

There were some abusive responses, because this was such a charged subject, but Mercedes – and Lewis and Nico – came out of it better than if they had just pretended nothing had

happened. The impression was not of a big corporate entity shutting its doors, but of a confident brand happy to engage with the fans.

Other teams are engaging more, too. There are a lot of funny, friendly exchanges on Twitter between Mercedes and Lotus, as well as with their fans, and Lotus are known in the paddock as a team whose PR people let their drivers speak without interference. For sure, drivers scream at one another just as much as people in other sports do – and I think in a lot of cases we're missing that raw emotion.

Not all drivers want to express themselves to that extent, of course. Some are quite shy. You see drivers like Fernando and Lewis arriving at the circuit, being mobbed by fans, and they



The growing tension between team-mates Hamilton and Rosberg has been dealt with openly by Mercedes

stop to sign autographs and say friendly words. Others – mostly younger ones – hurry on by with their heads down. That's a shame.

Then again, sometimes the best way to express yourself isn't verbal. As I wrote in my book about that championship showdown at Watkins Glen in 1974, when Clay Regazzoni had nearly forced me off the circuit as I passed him, I'd wanted to say something in the interviews after the race about how dangerous his tactics had been. But I decided not to – because I'd done my talking on the track, and there was nothing more to say. 🚗

“Mercedes give the impression of a confident brand happy to engage with the fans”



Emmo: A Racer's Soul

Emmo's autobiography, with a foreword by Sir Jackie Stewart is available from Amazon, priced £19.99

PORTRAIT: BENJAMIN WENCHE/IE; PHOTOS: ANDY HONE/LAT; ALASTAIR STALEY/LAT

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DIETER RENCKEN

POWER PLAY

The stories F1's bigwigs would rather you didn't know...

The end, when it came, was brutally swift – yet there had been warning signs since early March. For that was when Italian sources first whispered that all was not well within Ferrari, and that Luca Di Montezemolo's 23-year reign as *Presidente* of the *Cavallino Rampante* was nearing an end.

The timing seemed somewhat strange given that Di Montezemolo had recently extended his contract by another three years. But the value of contracts lies not in their length but in the provisions of their break clauses. Thus sources contemptuously dismissed his increasingly strident protestations that all was well.

I suggested several months ago that Di Montezemolo was fighting a last-ditch battle to remain at the helm of the company he led to serial success at the turn of the millennium. The take was that his criticism of new-look F1 and its 'taxi-cab racing' – as he dubbed it in Bahrain – was driven more by a need to deflect attention from Ferrari's disappointing performances than by altruistic motives.

Potential successors to Italy's most visible corporate office included Andrea Agnelli of the famous Fiat family. But engineering the departure of a high-profile man who provided the last spiritual link to Old Man Enzo, and

The real reasons for Luca's Ferrari exit

who did so with an unequalled combination of stylish nous and high drama, was never going to be the work of a moment.

Ferrari's lack of performance eventually provided the trigger, with the announcement of Di Montezemolo's departure coming days after the Italian GP – arguably Ferrari's worse on-track performance on his watch. In the decade since Michael Schumacher's 2004 title win, the Scuderia have claimed the drivers' title just once (2007) despite their commercial advantages over the opposition.

Ross Brawn, once an integral part of the dream team, scored double title wins in 2009 with his eponymous entry; worse, since then, Ferrari have been creamed non-stop by drinks-can cars. True, they have had some near misses – but a single title lost (2010) is unfortunate; a second (2012) embarrassing; and a third (2013)... totally unacceptable.

Despite their lack of recent success – the last grand prix win came in Spain 18 months ago, and owed everything to Fernando Alonso's on-track brilliance – Ferrari cling to their belief that they deserve almost divine status in F1. By extension, Di Montezemolo considered himself in Ferrari's top job by right. Hence his comments in Monza, which implied that


he, and only he, would decide when to depart, adding that he would be the one to say when.

These remarks came in response to gossip suggesting that Sergio Marchionne, the top man in Fiat Chrysler Automobiles (FCA), and arguably the best numbers man in the auto industry, would replace Di Montezemolo post-haste. Second only to John Elkann – grandson of Fiat chairman and architect Gianni Agnelli – Marchionne, who successfully took on Italian and American unions as he returned both manufacturers to profitability, had designs on Wall Street as he devised ways to reduce Fiat/Chrysler debt.

Yes, during Di Montezemolo's watch, Ferrari consistently exceeded their profit forecasts, but that's only half the story. His maverick leadership of Ferrari did not fit the grand plan to float on the New York Stock Exchange. Thus Marchionne took immediate umbrage at Di Montezemolo's comments, branding them "not something I would say" before adding "Nobody is indispensable." Not content with plunging the knife, he gave it a vicious twist: "The heart of Ferrari is winning in F1. I don't want to see our drivers in seventh and 11th place [as they were on the grid at Monza]..."

It was flair versus finance in the fight over Ferrari's place in Fiat's hierarchy, with the main prize being the strategic direction of FCA's IPO. Can it be coincidental that Di Montezemolo was to clear his desk on 13 October, the day FCA's shares were listed?

The exit announcement, made in Di Montezemolo's name, opened rather flatly with: "Ferrari will have an important role to play within the FCA Group in the upcoming flotation on Wall Street. This will open up a new and different phase, which I feel should be spearheaded by the CEO of the group." Not a word about Marchionne (nor Elkann), although Enzo's surviving son Piero, a 10 per cent shareholder, is later praised.

In the end, Di Montezemolo did announce *when* he would leave – and so ends an era that began back in 1973 when he joined Ferrari as bright-eyed PA to Enzo, at roughly the same time a certain Bernard Charles Ecclestone bought into F1. He, too, recently stated that he alone would decide when to go... 

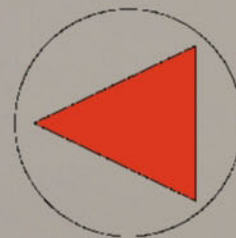
Di Montezemolo left Ferrari on the very day that Fiat-Chrysler Automobile's shares were listed



"Despite their lack of success, Ferrari cling to their belief they deserve divine status in F1"

PORTRAIT: BENJAMIN WENCHENIE; PHOTO: STEVEN TEE/LAT

Now that was a car



No. 32 The BAR 007

A controversy-dogged car that took too long to deliver on its promise

British American Racing spent much of their existence in some form of turmoil, be it locking horns with the FIA over their livery (as in their launch season, 1999), undergoing a rebranding (rumours swept the paddock in 2002, following the arrival of David Richards as team principal, that they were going to change their name to “something unusual” – it turned out to be ‘BAR’), or reshuffling their management. But 2005, their final season before being bought outright by Honda, would prove to be the most eventful of all.

Great things were expected of the BAR 007, because the 006 had proved competitive and taken the team to second in the constructors’ championship. Off track, 2004 was the usual soap opera – BAR and Williams fought a running battle over Jenson Button’s contract, and Richards and his Prodrive company left as Honda bought a 45 per cent interest in the team. But the on-track verdict was that the 006 was a decent car allied to one of the most powerful engines in F1.

As a radically lighter evolution of the 006, modified to suit 2005’s new aerodynamic and sporting regs, the 007 had good prospects. Honda produced a new V10, since engines now had to last for two races, and acoustic analysis conducted by a rival suggested it was bang on the money for power. But the opening races were disastrous.

It became clear that the 007 had major aerodynamic instability as a result of the designers being too aggressive with the ‘spoon’ section of

the front wing beneath the nose. And it was too kind to its tyres – fine in a season in which mid-race tyre changes were banned, but it meant drivers struggled to generate temperature for a flying lap in qualifying. This was magnified by a qualifying system in which grid spots were determined on an aggregate of two one-lap runs.

There were problems in the engine room, too – both cars were instructed to pull out on the final lap of the Australian GP, so as to circumvent the engine-change rules. The FIA instantly closed this loophole and fitting fresh engines for the following race, in Malaysia, availed the team of nothing – both cars blew up within three laps.

Then, at Imola, BAR were disqualified when their cars were found to have secondary bladders in their fuel tanks. The FIA, believing this to be a ruse to run the cars 10-12kg underweight and then ballast them back up to the minimum weight at the final fuel stops, pursued the team relentlessly. BAR were banned for the next two races.

Aerodynamic changes and reliability improvements yielded a dramatic change in fortunes for the second half of the season as Button claimed a string of points finishes and two podiums. Team-mate Takuma Sato was shown the door after a less successful run.

Honda took 100 per cent ownership at the end of 2005 – just in time to catch a wave of flak from home after sacking Sato. No matter whose name was above the door, there was always drama here...



WORDS STUART CODLING PICTURES JAMES MANN



BAR 007 TECH SPEC

Engine	Honda RA005E
Layout	3-litre V10
Brakes	Alcon
Fuel	ENEOS
Gearbox	7-speed BAR Honda semi-automatic
Weight	600kg



HAMMER TIME The season showdown



"JUST DRIVE!"



PHOTOS: STEVE ETHERINGTON/LAT; ALASTAIR STALEY/LAT

With these words, Mercedes chief Niki Lauda implored Lewis Hamilton to defy distraction and do what he does best in pursuit of the 2014 title – **plant Puma race boot to carbon-fibre bulkhead and go faster than any other race driver on Earth**. But will it be enough? **Andrew Benson** investigates →



“If you look at Lewis’s career,” says Mercedes F1 boss Toto Wolff, “drama and glory were always very near to each other. I don’t know why that is. But when you describe this year – drama and glory. Very much beside each other.”

In those few sentences, Wolff pretty much strikes to the heart of the story of 2014 so far. The question is, when one of the most intriguing title fights in years is finally resolved, will there be glory despite the drama, or will the drama stand in glory’s way?

In theory, this championship should have been easy for the man in car number 44. Lewis Hamilton has been the faster driver, in the team with the fastest car, by miles. Night should have followed day. It yet might but, as so often seems to be the way with Lewis Hamilton, it has not quite worked out that way so far.

For various reasons, the other Mercedes driver, Nico Rosberg, has led the championship pretty much all year, and Hamilton has been chasing, trying to close a gap, always the one with the more work to do, the one under the most pressure.



After the Singapore Grand Prix, Hamilton just edged back into the lead. Prior to that, he had led the championship once. That was back in May, after his run of four consecutive victories from Malaysia to Barcelona.

In between there have been mistakes, misfortune and sheer bad luck, all of which have played to the clichéd view of Hamilton – that he is a stupendously fast driver, but also a dangerously fragile personality. Rosberg, the perceived wisdom goes, has been calmly going about his business, and his consistency has pressured Hamilton into vulnerability.

There have indeed been mistakes from Hamilton this year, more than you would get from, say, Fernando Alonso. But the truth of the season is much more nuanced than that.

Hamilton would be leading the championship by a comfortable margin, had he not had significantly the worst of the reliability at Mercedes.



He has been on the back foot since he suffered engine failure in the first race in Australia, gifting a win and a 25-point advantage to Rosberg.

After closing the gap and building a small lead with his four consecutive victories in Malaysia, Bahrain, China and Spain – each one demoralising for Rosberg in its own way – Lewis was confronted with the events of Monaco (more of which later) then his retirement in Canada as a result of his brakes overheating. And then there were the car failures in qualifying in Germany and Hungary.

Hamilton has had four major reliability issues that have affected his competitive position – as well as being effectively taken out of the Belgian Grand Prix by his team-mate. Rosberg, by contrast, has had just two at the time of writing – his gearbox failure while leading the race at Silverstone and the electrical problems of Singapore.

As a result, Hamilton has had to come back from a deficit of more than a win on three occasions this season. In addition to the 25 points lost in Melbourne, he lost 18 points with retirement in Canada, ten in Hungary (the difference between his third-place finish and the likely win he would have achieved from pole), at least 18 in Spa, and at least three in Germany, where he recovered to third after starting at the back following a brake failure in qualifying.

Even giving Rosberg the benefit of the doubt that Hamilton would not have beaten him to pole and victory in Hockenheim without his problems – as had looked likely – that's a total of 74 points Hamilton has lost to problems beyond his control.

It's a moot point whether Rosberg would have beaten Hamilton at either Silverstone or Singapore. But whichever way you look at it, and →

PHOTOS: STEVE ETHERINGTON/LAT; ALASTAIR STALEY/LAT



even taking into account the errors that hindered Hamilton in qualifying in Canada, Austria and Silverstone, it would take another victory for him and a no-score for Rosberg to equalise the reliability count between the two.

All those failures could have a decisive effect on the destiny of the title, but so far the defining moments of the season have been the controversies of Monaco and Spa.

Monaco, of course, was the race where Rosberg ran into the escape road on his final qualifying run, bringing out yellow flags and thereby preventing Hamilton from doing his own final run, which he was confident would have brought him pole. So odd did Rosberg's 'incident' appear at the time, that there were immediate suspicions it had been deliberate. Rosberg denied it. But many drivers and ex-drivers came to the same conclusion, and that impression has grown as time has passed and word filters out.

Right from the start, Hamilton was one of those who suspected Rosberg of gamesmanship, and he played out in public a very obvious internal battle between not wanting to say so, but also – in typical style – not being able to hide what he was feeling.

Slipping into the monosyllabic, distant manner he projects when he is trying hard not to say anything he might regret, Hamilton was torn between kicking himself for not having done a faster first lap, and disbelief at what he believed to have been Rosberg's actions.

"I should have known that was going to happen and done it the lap before," he said, half blaming himself.

He was still fuming 24 hours later, after an awkwardly timed Safety Car had prevented his only chance of trying to pass Rosberg, around the pitstops, and he was beaten into second place in the race.

The gathering he holds with the British media after every race took place that day in a tiny kitchen above the Mercedes garage, several journalists and the driver all crammed into a small space. It bears repeating.

Hamilton was asked: do you think Rosberg did it deliberately?

"Look, man," he replied. "The weekend's done and dusted. We've got a one-two for the team. Let's just focus on moving forward. I plan to be stronger in the next race."

Why have you been so upset?

"It's not something I really want to go into. Nothing good can come from what I may or may not say. We've fierce competition and that's about it."

Is there anything you need to clear up?

"No, not really. We've sat down and cleared whatever air needed to be cleared. We've been through the data and seen what needed to be seen. I wish you guys could see it. Otherwise, we're good. It was a difficult weekend, but what doesn't break you will make you stronger. I can only get stronger for this weekend, I think."

What started it this weekend?

"I don't know. I'm not entirely sure. Just competition, that's what we have this weekend. One weekend is one way and one weekend is another and this weekend went a direction I wasn't expecting... but it's a good experience. I'll make sure I'm aware of it for the future."

The sense of disbelief that Rosberg would do such a thing was palpable. This, after all, is a man he has known and raced against since they were teenagers, someone he counted as a friend.

"The relationship has changed," Wolff says, "from let's say an almost amicable relationship at the beginning of the season to very intense moments, where it was almost like realising these two are enemies for the world title."

This, Wolff agrees, has been a shock for them both, and also "a learning process. These boys have been calibrated their whole life that their main priority is to win the drivers' championship in F1. And here they go. They're in the same car, competing against each other for that trophy, and →

FLASHBACK!

As the Merc duellists scrap for the crown, we look back on five of the year's most incendiary moments



Bahrain

Lewis and Nico stage a thrilling duel on the track, with Hamilton emerging on top. But Rosberg criticises his team-mate's driving, particularly the move on lap 18. During the race he tells his team: "Someone needs to tell Lewis that move was not on." Afterwards he adds that the manoeuvre was "over the line."



Spain

There is fury during the post-race debrief between the two protagonists after it emerges that Hamilton used a power function that was against the orders of the team, to keep Rosberg behind him. Although later it emerges that Rosberg had used exactly the same function in Bahrain...



Monaco

With tension simmering pre-race, it boils over on the streets of Monte Carlo when Rosberg, after setting fastest qualifying time, locks up his car into Mirabeau, scooting up the escape road and prompting yellow flags. Hamilton has to slow and loses his pole shot. Lewis is furious as Rosberg converts pole into win.



Hungary

After a series of misfortunes in qualifying, Hamilton fights back through traffic from a pitlane start and finds himself ahead of Rosberg on an alternate strategy. The team ask Hamilton to let his team-mate through, but he replies: "I'm not slowing down for Nico." Lewis finishes P3, directly ahead of Rosberg.



Belgium

On lap 2 of the Belgian GP, Rosberg attacks Lewis for the lead at Les Combes and the pair touch. Rosberg loses part of his front wing, while Hamilton is slowed by a puncture. This time there is fury from the Mercedes management: "It's absolutely unacceptable," scowls a furious Toto Wolff post-race.

“Monaco was a difficult weekend but what doesn’t break you will make you stronger. I can only get stronger, I think” **Lewis Hamilton**





one is going to win and one is going to fail. This is a new experience for both of them – a difficult experience, maybe.”

Monaco only enhanced the sense Hamilton has had all season of being on the back foot, of the fates conspiring against him. This has clearly played on his mind. He has mentioned the need to “catch up”, the disparity in his and Rosberg’s reliability records, at regular intervals.

And in the aftermath of Monaco – and later at Spa, too – he has had the belief that his rival is prepared to employ dirty tricks to win the title. That’s not such an easy place to be mentally when you’re always behind in the points and when any crash between the two cars will almost inevitably harm you more than it will your rival.

It is in this context that one should judge the mistakes Hamilton has made this year. Because of his constant need to make up ground, he has perhaps been forcing it when he should just be letting it flow. Was it a coincidence that the two mistakes he made in final qualifying in Canada – one of his favourite tracks – came the weekend after Monaco? Likewise that a similar situation arose in Austria, the race after Canada?

Around this time, Mercedes non-executive chairman Niki Lauda sat Hamilton down for a chat. The Austrian was his usual blunt self, so blunt that it would be unfair to repeat exactly what he said, but the gist of it was this: “You’re incredibly quick – use that pace. Don’t think, just drive.”

Ironically, it was not thinking that got Hamilton into trouble in qualifying at Silverstone, where he started the weekend 29 points behind his team-mate. He knew he had to beat Rosberg in that race to start

“I am impressed with Lewis since many races, because he has had some dreadful weekends, dreadful Saturdays, dreadful Sundays, and he has always come back with a smile to the next race. That is impressive” **Toto Wolff**

clawing back the deficit, and the first part of that process should have been to ensure that he qualified ahead of him, irrespective almost of where they were on the grid.

So, on provisional pole, heading into his qualifying final lap, crossing the line with seconds to spare, with Rosberg behind him, all that should have been on Hamilton’s mind was completing the lap. Had he done that, it would have been impossible for Rosberg to beat him, because his pace was being controlled by Hamilton. If Hamilton crossed the line ahead at the end of the lap, he would be faster. Whether that was pole or not, and where the others ended up, didn’t really matter.

But Hamilton locked up into Turn 3 and, thinking the lap was lost, aborted. Rosberg kept going, and found that the last sector had dried up to the tune of four seconds, and he took pole with Hamilton down in sixth. Hamilton was almost speechless in his disbelief at his mistake afterwards. He left the track early that day to get his head together. And his description of what he did that evening gives an insight into how much he felt he had let himself down.

He went to his father’s house, and sat on his own in his room for a long time, went down for dinner, and then spent more time in his room. His sister, who was looking after his beloved dogs, Roscoe and Coco, for the weekend, brought them and her son round to surprise him, and Hamilton’s mood began to brighten.

His girlfriend Nicole Scherzinger, in tears for him, wrote him a long email. He went to bed, woke up, looked out of the window at what

apparently is a very nice view, said a prayer and resolved to “harness all the positive energy I could and attack”.

It is this resilience that has really marked out Hamilton’s season so far.

“I am impressed with Lewis since many races,” Wolff says, “because he has had some dreadful weekends, dreadful Saturdays, dreadful Sundays, and he has always come back with a smile to the next race. He was always in good spirits and a good mood and that is impressive.”

Hamilton, as Wolff says, “wears his heart on his sleeve”. But the Austrian believes that trying to change him, trying to get him to work with more equanimity, flattening out the peaks and troughs, would be counter-productive.

“We need to understand what kind of background and environment we need to provide so that Lewis functions at his best,” Wolff says. “It makes no sense to try to change a personality and say: ‘You know what? You need to have the Niki Lauda or the Nico Rosberg or the Fernando Alonso approach, and you don’t need your dogs and you don’t need your LA and you don’t need your music.’

“That’s not the case. Lewis needs all that. It is his personality and it makes him function well.”

Through all this, Hamilton has hung on to what he regards as a simple truth – he is faster than Rosberg and as long as he puts his best race weekend together, he should be able to beat him.

Even the Mercedes team think that.

“Lewis from my point of view has a 0.1-0.2secs advantage on Nico because he can get the laps in qualifying in order,” Lauda says. “Nico is working hard, my type, with the mechanics, with the engineers, with the tyres, how many laps, forwards and backwards. So we have one natural talent, very emotional, and we have another guy who is doing the same job in another way.”

And therein lies an element of the psychological battle between the two this season that has been overlooked by some.

Hamilton knows, all things being equal, that he is faster than Rosberg. And Rosberg knows it too. They also both know they have a dominant car and that one of them will be world champion.

On the basis of talent and speed, it should be Hamilton. They both know that. And they both know that everyone else knows it, too. So in many ways Rosberg has nothing to lose. If he finishes second to Hamilton, he’ll be disappointed, yes, but it’s no more or less than what you would expect in the normal run of things. Whereas if he wins, he will have been world champion while competing against the fastest man in the world – someone Jenson Button describes as “one of the fastest drivers ever” – in the same car.

For Hamilton, it is the other way around – he is the one with everything to lose. He is expected to beat Rosberg, and if he doesn’t it looks bad. People tend not to look at the facts behind the story, only the story itself. They will forget the reliability problems and the gamesmanship and they’ll just see the final result. Hamilton would be perceived to have lost to an ‘inferior’ driver – and all the old clichés about him being fast but fragile →



SCOOP!

The secret formula that predicts Hamilton will be 2014 world champion



Singapore



Italy



Britain



Spain



China



Bahrain



Malaysia

$$Z = 11\sqrt{p} + 10w + 5s + \frac{5f}{2} - 20a$$

The numbers never lie do they? Here's how the stats *prove* Hamilton has the form to scoop the crown. Probably...

After analysing the wins, poles, podium finishes and retirements from every single year of the Formula 1 world championship, *F1 Racing* has obtained the formula to predict the winner of this year's drivers' title.

Inputting the data from the key protagonists in this year's world championship battle produces an answer that shows Hamilton is more likely to win the world title than his nearest rivals, Rosberg and Ricciardo.

The formula was created for *F1 Racing* a couple of years ago by Dr Mark Peace, a lecturer and doctor of physics at Reading University. It takes into account the form of every previous world champion, back to 1950.

The sum to the formula is based on p) the number of poles; r) number of retirements; w) number of wins; f) points-scoring finishes; a) average race finish and s) number of podiums.

Hamilton has the edge over his teammate thanks to his higher number of pole positions, race wins and average finish (as of the 2014 Singapore GP).

The odds on Hamilton have been short all season, but those who put a bet on Rosberg at 25/1 back in January won't be happy to see the mathematical formula is not in their favour...





would be trotted out. It would be a lot for Hamilton to take, especially after waiting so long for a truly competitive car.

Until Monza, Rosberg had played this game brilliantly. His modus operandi was clear – don't overreach, keep it simple, play it safe. The logic was clear. He had the best car, so Hamilton was his only opposition for the title. So as long as he did a solid job, the worst place he could expect to qualify was second on the grid. No need for heroics, then. Just work calmly and diligently. Analyse the data – especially Hamilton's. Look for an advantage. Be as close as you can. Be consistent. Always just be there. That in itself would put pressure on Hamilton, and pressure brings mistakes. When they came, Rosberg would be on pole – and, from there, he'd have a good chance of victory. Being outqualified would put more pressure on Hamilton, and so on and so on.

As Hamilton himself has said: "Nico is very, very strong mentally." Rosberg knows this, too. When it was relayed to him that Hamilton's run of success early in the season might begin to affect him, Rosberg replied: "Break me down mentally? Good luck with that."

His strength of mind was clear from his ability to bounce back from Hamilton's four consecutive wins early in the season. And while this plan was working, Rosberg was driving beautifully, too. His race in Canada, for example, was one of the best of the season. Both Mercedes cars suffered the same energy recovery system failure, putting huge pressure on rear brakes, which this year are much smaller because the ERS does so much more of the braking. Neither should have been able to make it to the end.

But for all that Mercedes said Hamilton was unlucky to suffer brake failure, they were stunned by Rosberg's ability to get to the flag in second place. He even came within three laps of victory. "If he wins the title," one team member said afterwards, "he'll deserve it just for that one drive."

"I don't know why anyone had the perception of Nico being Mr Nice Guy. He is calibrated on winning" Toto Wolff

But Rosberg has his weaknesses, too. For the most part, his plan has worked perfectly for him, but – mental might or no – there have been signs that he is suffering. Take Monaco and his trip down the escape road in qualifying. Whether or not deliberate, it betrays a fallibility.

If you believe it was deliberate, the decision to use gamesmanship was almost certainly influenced by the fact that Hamilton had just won the last four races, erasing the lead Rosberg had been gifted in Australia, that Rosberg knew he had just messed up the start of his final qualifying lap and that by doing so he had just given Hamilton – faster that weekend – an open goal to take pole and a fifth consecutive victory.

If it was not deliberate, then we have to assume that the errors he made at Massenet and into Casino – before he ran wide at Mirabeau – were also the result of the pressure applied by Hamilton's pace and the results leading up to that race.

And then there is Spa, and that fateful collision between the two at Les Combes on lap 2. Rosberg left his nose in, knowing Hamilton would hit it, because he wanted to prove a point that he would not be intimidated in wheel-to-wheel racing, one of Hamilton's strong points. But it backfired massively. Yes, Rosberg gained another 18 points on Hamilton, taking his advantage out to 29 again, just as it had been after Austria. But there is no doubt it damaged his standing within the team.

Wolff and Lauda came down on him like a ton of bricks, calling it "unacceptable", inflicting internal disciplinary action and forcing Rosberg into a humiliating public apology. And he was booed on the podium.

"He was shocked by what happened," Wolff says. "He was shocked about his own error of judgement and the reaction of the fans on the podium. That is really tough to swallow."

At the next race in Monza, Rosberg tried to win back some public support by making a point of saying Lauda had apologised to him after Spa. But this was disingenuous. Yes, Lauda had apologised, but only for speaking so critically on television before talking to Rosberg. Lauda's views of the incident – that Rosberg was in the wrong and had behaved badly – remained the same. Except Nico just happened to miss that bit out.

For those surprised by Rosberg's behaviour this year, Wolff offers a reality check. "There are 22 guys out there and all of them are ruthless," he says. They know what they want and they will take it. Nico has always been like this. I don't know why anyone had the perception of him being Mr Nice Guy. I always knew he was calibrated on winning the championship. This is what he wants and he puts that above everything else."

But has that ruthlessness come back to bite Rosberg? Will Spa and its aftermath come to be seen as the turning point of the championship? After all, at the very next race, in Monza, Rosberg's protestations about it being impossible to "break" him rang a bit hollow. He twice cracked under the pressure of Hamilton's pursuit, missing his braking point at the first chicane, the second time handing Hamilton the lead.

It's hard to believe that the reaction inside Mercedes after Spa, the shock of losing the support of his bosses, and being treated by fans in a way only Michael Schumacher and Vettel have been as drivers, did not contribute to this scenario.

On top of that, the psychological position each Mercedes driver is in is now very different from the beginning of the season. Not only does Hamilton have the benefit of knowing the majority of fans are backing him, but now Rosberg *does* have something to lose.

After Monza, he had a 22-point lead with six races to go. Not huge, especially in the context of a double points finale, but substantial. From there, he shouldn't lose. But he could. Quite easily. Especially if Hamilton gets on another roll like that of Malaysia-Bahrain-China-Spain. And while they are focusing almost exclusively on each other, neither can afford to ignore the threat from the perma-smiling Australian in the Red Bull.

Daniel Ricciardo has been nothing short of a revelation this season, overshadowing team-mate Sebastian Vettel and driving with an abandon and *joie de vivre* that has been a pleasure to witness.

Thanks to his three brilliant wins in Canada, Hungary and Belgium, Ricciardo scored just four fewer points than Rosberg from Montréal to Monza – and 14 more than Hamilton.

He left Singapore with a deficit of 60 points to Hamilton and 57 to Rosberg. That is almost certainly too large a gap for him to close, especially given Mercedes' performance advantage. But then this is the point in the season when Red Bull traditionally tend to move into another gear – just look at Vettel's seasons in 2012 and '13. They know they cannot expect something similar this season, and Ricciardo is realistic about his chances. "Can I nick the championship? Yeah, I can but it's obviously going to take more than just winning all the races. It's going to take a bit of luck as well. There's more talk about it now, but to be honest I'm not really thinking about it. If I can go out there and keep winning, that's awesome."

"If they crashed into each other every race, that would impact me a lot but the best thing is for me to get my head down and get on with my job."

This is advice the Mercedes drivers would do well to heed. But as the already intense pressures of a title battle builds over the remaining races, it will be easier said than done.

Andrew Benson is the BBC's chief F1 writer



DANIEL RICCIARDO

So keep on keepin' on



About the only thing that could hurt Daniel Ricciardo's (admittedly outside) chances of winning the world championship is actually thinking that winning is possible.

That would destabilise his momentum in ways he wouldn't be able to imagine – but with which his Red Bull predecessor, Mark Webber, would be all too familiar.

It won't happen, though. Daniel is too bright an athlete to let things get ahead of themselves. He'll be aware that the right way to run the final phase of 2014 is to change nothing: to show only respect for his team-mate, the four-time world champion; to delight in the professionalism of the team for which he is driving; and, as he says, never to forget how fortunate he is

to be doing what he does well in a sport he loves. To keep it simple, in other words. And to appreciate every moment – win, lose or draw.

For Red Bull, this will be a season climax with a difference. Adrian Newey will be focusing on a new, energy-efficient Nissan road car in 2015 and as a precursor to that will be spending less time in Milton Keynes from here on in. I agree with the assessment that one day a month with Adrian is still better than 31 days with any other engineer in the F1 business but, still, the remaining races will be different

– of that there's no doubt. RB10 development may stagnate a little while new people settle into new team responsibilities, and this may impact, too, on the 2015 car... with emphasis always on the *may*.

I don't think Daniel can assume that Seb Vettel will hide, either. If Red Bull are running third and fourth behind Merc, with Seb ahead, I don't see the world champion moving over to help a new team-mate who has an outside chance of winning the title. Seb has his own agenda, which is to beat his team-mate in every remaining race and thus to restore some pride. If Daniel is clearly faster in the closing stages of a race – as he was at Monza, for example, or in Hungary – then there will be no arguments. All things equal, though, Daniel has to count Seb as one of his fiercest competitors.

But there's a chance Daniel will continue to operate at the level he's found: he manipulates a lower-downforce rear end more effectively than Vettel and he is sharp and decisive in traffic. He's in the running to win at least two more races in 2014 – and will do that by taking each event in its own way, day by day. He'll have no problem fielding the endless "Can you win the title?" questions that will materialise (unlike Lewis, who would be much better off taking a fine at each race by not doing interviews at all). And Daniel, perhaps more than any other driver on the grid, will have the full support of the brilliant people behind him.

Ultimately, though, his 2014 is one to be savoured and enjoyed, not to be rent asunder by that great god we call The Championship.

Peter Windsor →



NICO ROSBERG

Professor? No. Processor



Nico Rosberg has emerged in 2014 as a brilliant all-round Formula 1 driver – part-Alain Prost, part-Ayrton Senna... part-Intel processor.

The Prost part you see most days, most corners. Razor-sharp precision. Great feel for the loaded front as he trades brakes against steering. Butter-smooth exits, so composed that he makes it look easy. A driver (on about 80 per cent of today's circuits) as quick as Lewis Hamilton.

Ayrton, never shy of a brake-test or two, would have loved Nico's Monaco manoeuvre. It was so good no one could have condemned him. And I think Ayrton would also have enjoyed Spa, Les Combes, lap 2. What price a fine when the world championship is at stake – especially when the guy you have to beat lacks

the temperament to do the same in return? Spa 1987 revisited.

I think Ayrton would have made a similar fuss after Hungary, 2014. Nico lost a ton of time sitting behind Jean-Eric Vergne's Toro Rosso for 18 laps, but it was towards Lewis that he directed the venom. A clear breach of team orders! What could be more blatant – or as simple to orchestrate? The world's slickest politician – Max Mosley – could not have played it better.

As for the computer element, Nico today has no F1 peer: drive-by-numbers (so long as you inherently drive as well as Nico). Tyre temps.

Brake temps. Brake balance. Brake-by-wire. Diff. Engine mapping. Take it all in. Use it well. Finish second in Canada even with dying motors. Ask salient questions about default modes even as you are racing from the back in Singapore and watching your points lead evaporate.

I'd go further. I think Nico is the most *intelligent* driver on the grid – a guy capable of retiring at the end of the year (if he so chose), in order to take up a new superno position at Ferrari and quickly turning that team into championship winners. Or, if he wanted an option two, of running said Intel Corporation.

How, though – now that the gloves are off – is the world's classiest F1 driver ever going to beat the *racing* driver in the other Merc?

By doing more of the same. By being Mr Nice Guy, Mr Eloquent,

Mr Diplomacy, when Lewis is in a funk. By perfectly using the cockpit switches – or using them better than Lewis does at any rate. By beating Lewis to pole in Austin and possibly at Interlagos (where, admittedly, it will be more difficult). And – if he is ahead even by an inch as they go into the Abu Dhabi double-points finale – of doing what Ayrton did to Alain at Turn 1 at Suzuka, 1990. How would they punish him? Disqualify him from the championship? I think not – for a million reasons. Fine him again? Certainly. Suspend him from some races in 2015? And?

And Nico will be world champion.

My prediction at the start of the year was that Lewis will win it – and I stand by that. Nico, though, has surprised me – and it's just possible that this is but the start of it.

Peter Windsor →



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LEWIS HAMILTON

Stay loose. But keep it tight



Singapore changed everything. Until then, the events of Monaco and Spa had coloured his year; Lewis, the fastest racing driver on the planet, had been thwarted by subterfuge.

As the season reaches its climax, however, it has evened itself out – and no one knows better than Lewis that there's no such thing as luck. There is a cause and a reason for everything.

We know also what Lewis will do: he will continue to be a racing driver, working with 'his side of the garage' to take every pole and to win every race. It's always been thus. There will be no fudged braking points or nerfing of Nico: like Nigel Mansell, Lewis drives on the absolute hard edge of what is do-able. He'll push tyres and brakes to the limit – and often beyond; he'll use his FPs to make the inevitable mistakes. Sundays, though, he'll be immaculate.

Nor will there be any PR involved. He knows from the past 18 months that he can't compete with Nico's string of languages, media charm and general Merc mediastardom. But he knows, now, how to deal with it. He learned the hard way in the Alonso-McLaren years, when he was hated by the Spanish media and fans and by quite a few more from other F1 strata, and had to handle it almost alone; and those times with Jenson, when he'd look across and see Jenson with his mates and family, all of a group, a support team in harmony. They sit somewhere still in his psyche.

Now there's the Nico factor – but now there's also the more mature

Lewis, never more relaxed, never more able to take what's coming.

So what can take the 2014 title away from him? More mechanical failures to be sure – but Lewis at least knows that there is no bias in this department. His car is exactly equal to Nico's – give or take the irascible variables of current F1 technology. More Monaco/Spa tricks from Nico? Certainly – but then Lewis will have built up defences, too. Before, Nico was his mate from karting and F3; now he is a driver he can never trust again.

Beyond that – what? Perhaps Lewis has to tighten further the way he reacts when things go wrong. Intense emotions can work for you (John McEnroe) or against you (Andy Murray). I think Lewis stands somewhere near the Murray zone. He didn't congratulate Nico on his manoeuvre after Monaco qualifying and thus re-take the high ground; and, as guilty as he was, Nico still

emerged relatively unscathed from Spa, so in-er-face was the post-race Lewis.

If I was managing Lewis, I'd be asking the team to excuse him from all media exposure until 24 November and paying the fines for Lewis avoiding all at-track interviews. It would be the bargain of the year – just as Nico's Spa fine was cheap at the price. 'The Hamilton Brand' can easily be expanded when the title is won. Leave the sound bites to Nico, Toto and to Niki. Stay away from the silly questions about the obvious. Nico's much better at deflecting them.

Then go about your business. Relax. Drain your emotions and brain of everything but the car, the day ahead and your physical fitness. Continue to be self-critical, continue to make mistakes when it doesn't matter. And leave the rest to the 2014 technology.

Peter Windsor

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TEAMWORK IS EVERYTHING...



Winning as a team is way better than winning on your own. You take risks together, you strive together, you celebrate together. Here are the five motor sport team essentials...

1 CO-OPERATION

Motor sport is the ultimate example of teamwork in action. The key principles of a racing team are commitment, hard-work and discipline. When everyone from the design office to the production line follows these values, then together they can achieve common goals.

2 COMMUNICATION

You only achieve victories if every member works in harmony. Good communication is essential in motor sport. Whether it's the engineer instructing from the pitwall, or the post-race technical de-brief, success relies on talking well and clearly.

3 LEADERSHIP

You don't win multiple championships without having a great team behind you; likewise every team must have a great leader to inspire them. Respect commanded by brilliant, multiple racers

of the sport means every member of the organisation sacrifices everything to help their driver to victory.

4 KNOW YOUR ROLE

Motor racing teams achieve excellence because each department employs the best people using all individual skills.

5 KEEPING TOGETHER

Don't despair if something bad happens. And don't point fingers... "We win together and lose together and, as a team, we will emerge stronger."



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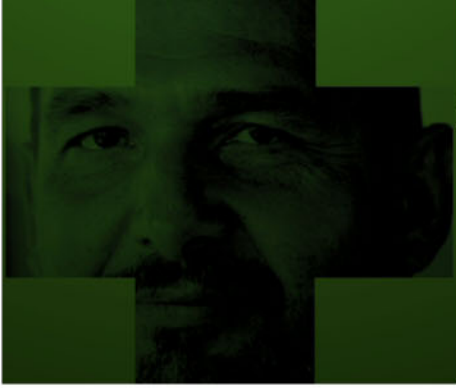
The doctor will see you now



PHOTO: CHARLES COATES/LAT

When an F1 team hits the skids, ace troubleshooter Dr Colin Kolles gets the call. In an **exclusive** on-the-record interview, he opens up about his role at Caterham and his links with new team 'Forza Rossa'

WORDS JAMES ROBERTS
PORTRAITS ADRIAN MYERS



It's fair to say that Dr Colin Kolles isn't your typical Formula 1 team boss. He doesn't have the smiley, media-friendly persona of, say, a Christian Horner. Instead he has a manner more akin to that of one Bernard Charles Ecclestone. The intimidating scowl, the reticent responses to questions – yet, underneath, there is a mischievous sense of humour.

Over the past ten years, Kolles has gained a reputation for rescuing F1 teams on the cusp of crisis. With debts mounting, Eddie Jordan had little choice but to bail out of his own team at

asked to sort out the mess that was Campos F1 at the start of 2010. In the space of just three weeks, he took an organisation that “didn't even have a screwdriver” and created Hispania Racing (HRT F1). Cars were hastily assembled for Bruno Senna and Karun Chandhok in the Bahrain pitlane – and somehow made it on to the grid.

Fast-forward to 2014, when Kolles received a call on the Monday after the Bahrain GP to help sort out Caterham. By July, owner Tony Fernandes had departed, new investors had arrived, and former F1 racer Christijan Albers

We've arranged to meet not in the paddock, but away from the hubbub, in the Intercontinental Hotel on the banks of the Danube in the centre of Budapest. It's all very Cold War.

“I have been very busy behind the scenes,” announces Kolles with a glint in his eye when asked what he's been up to since the demise of HRT. He has just arrived at the hotel with Albers, who has driven the pair of them here from Munich. Shortly after this interview, it is announced that Albers will step down after just two months at the helm (citing “private reasons”) to be replaced by his deputy, Manfredi Ravetto. But now, Kolles reiterates to Albers: “I have to do this interview. It's the only one I'll give.” Then promptly orders a “Zero Coke.”

Romanian-born Kolles grew up in Germany and was always interested in cars. He was a rally co-driver at the age of 16, finishing fourth in a Group B Audi Quattro in the Romanian Rally, then a round of the European Championship. After studying medicine and dentistry, he continued to pursue his love of racing by supporting young drivers, first meeting Albers when the Dutchman was racing in Formula Ford. After setting up an F3 team, Kolles moved into German Touring Cars before arriving in F1 with Shnaider and Midland at the start of 2005.

Since then he has been instrumental in putting together various high-level sponsorship deals and financing projects in F1. He was responsible for introducing one of his former business partners – Toto Wolff – to Frank Williams and came very close to taking a team principal role at that team. Kolles's company still has a small shareholding in the Williams team today.

So to the point: what is going on at Caterham?

“You have to imagine this team is like a clinically dead patient,” says Kolles seriously. “We are the intensive care specialists trying to revitalise it. There was no clear structure, no control. A lot of the people there didn't know how to run a small team. It was like dynamite fishing. You throw a lot of dynamite into the sea – it explodes and then you have a lot of dead fish. You do it once – you don't do it again.

“With all respect to Mr Fernandes, he is a successful businessman, but didn't know how to run a small F1 team. A lot of it was driven by ego – you see it all over this business – but that's not my interest. I'm just here to turn the team around and make it more efficient.”



Kobayashi escapes his smoking Caterham at Hockenheim this year, following an engine failure

PHOTO: GLENN DUNBAR/LAT

the end of 2004. Kolles, with investment from Canadian businessman Alex Shnaider, took over the team and renamed it ‘Midland’, after Shnaider's steel-trading company.

You might recall Kolles was dubbed ‘Chavski’ on his first visit to the paddock, following his last-minute purchase of a cap from the Burberry store at his hotel to protect himself from the Melbourne sun. Far from being perturbed by the mockery, at season's end he donned a shirt with ‘Chavski’ printed on the back of it, to celebrate the moment the Jordan name formally bowed out of F1. If you think you can predict Kolles's next move, then, to employ one of his oft-used phrases, “you are very much mistaken”.

After Shnaider cashed in his investment and departed F1, Kolles guided the team through phases as Spkyer and Force India, then was

**“This team is like a clinically dead patient. We are the intensive care specialists trying to revitalise it”
Colin Kolles**

had been appointed as team principal. Kolles continues as a consultant for the project.

Although he's happy to chat to journalists, he rarely speaks on the record. But on this occasion, he has granted a rare interview to *F1 Racing*.

Another new Formula 1 team?

Forza Rossa have been granted an entry to join the grid in 2015 – but who are they?

There has been much talk of Gene Haas setting up a new F1 team. The NASCAR magnate plans to enter the sport in 2016 with a team based in North America. Less has been said about a second F1 team known as 'Forza Rossa.' This is a Romanian-funded équipe using Kolles's HQ and staff in Greding, Germany. At one stage there was a plan to merge this team with the

The new owners of the team are a Swiss-Arab consortium that Kolles has worked with over the past few years on a number of other projects – but he's adamant that their identity must be kept confidential and they are not publicly involved.

"Past experience has proved the pitfalls," he says.

"I repeat, this team is like a patient that is clinically dead. We are trying now to revitalise it. It has a heartbeat and is slowly trying to open its eyes. If you have this kind of patient in the hospital, you know the family is also not allowed to be with the doctors during the operation. There will only be disturbances in this respect. We need silence and to do our job correctly. When everything is fine, I will disappear and the new owners will come and be presented.

"This is what I have requested personally. It was one of the conditions, because I have seen what has happened in the past. Mr Shnaider was an honourable man who had good intentions, but was put in a corner, maybe wrongly advised. When journalists asked him whether he would sell the team, he answered: "everything is for sale". Then things were written about him saying he wasn't serious about doing F1 – so it went wrong. It was very damaging.

"The next one was Victor Muller [of Spyker] who came in with a big bang announcing Ferrari engines and saying we would be a top team – and what happened? It didn't finish in a positive way from my experience. Then we had the third one, Vijay Mallya, where I had to pay photographers to take 300 pictures of him a day... I didn't need this type of disturbance.

"All these personalities are very much ego-driven, including [José Ramón] Carabante of HRT. Why did he and his son have to sit on the pitwall with headphones on? What is the reason for that? This is just disturbing. For us, we are here just to do a job. That is the reason."

An inevitable side effect of cutting costs to make an F1 team efficient is a reduced headcount, and there has been a public spat between aggrieved former employees and their new management. But Kolles says cutting staff was necessary. "The people who are in the factory know this, too," he adds. "Even the people who had to go knew it was necessary. There is now a simple structure where people have their own responsibilities and their own job descriptions stating very clearly what they have to achieve. There is no discussion about it.


"And it will not be based in Leaffield – not at this factory," he continues. "The factory is completely inappropriate for F1. It is wrongly built, too big, too old and not right. We have not purchased this – it is still owned by Fernandes. The team will leave. It will still be in the UK; at the moment we don't know where. As soon as the team is stabilised, we will look into this."

With windtunnel updates being added to the car from Spa, the goal is to move Caterham up from the bottom of the constructors' standings. "Maybe we'll finish ahead of Sauber?" suggests



Kolles. "Listen – you never know. You can have a lucky punch even with a slow car. I've had lucky punches in the past with Jordan. In America we finished on the podium in 2005; at the Nürburgring in 2007 we led the race with Markus Winkelhock for Spyker. Then Adrian Sutil had one lap to go in fourth at Monaco in 2008, when Kimi Räikkönen crashed into the back of us. Something can always happen..."

With Kolles at the team, you can be assured feathers will be ruffled. Again he smiles, clearly relishing his role as troubleshooter-in-chief. As he once remarked in his HRT days: "If anyone is in my way, they soon get out of it..."

It won't be an easy ride, but as so many people before Tony Fernandes have discovered, just spending money isn't the answer. Spending it wisely is the key to success. 

Caterham operation, but Kolles says they will continue as separate entities.

"It is not *my* team, rather I am supplying the equipment and former staff from HRT [through his supply company Kodewal]" says Kolles. "There is a desire to put Romania in a good light. It is a nice country with good people, but the perception is completely the opposite. People think of criminals robbing and stealing. So it's not positive and with an F1 team – Forza Rossa or FRR F1 Team – they want to put that right.

"They have an entry for next year and my role is purely to advise them. They might choose to wait until 2016 because they need to guarantee they can qualify three times within the 107 per cent rule. If they do not, they face losing a \$20million performance guarantee. But if they want to enter in 2015 then everything is in place for it to go ahead. Watch this space..."

There will be mud!



It's mud, sweat and gears as *F1 Racing* joins **Romain Grosjean** and the Lotus driver development programme's young hotshots for an off-road team-building exercise

WORDS ANTHONY ROWLINSON
PICTURES DREW GIBSON

Suddenly, Romain Grosjean looks a long, long way from home. Ankle deep in thick, gloopy Oxfordshire mud that's the colour of a too-strong cuppa, he's not entirely *content*.

"I've a plane to catch in two hours and this is my only pair of socks. Ah, shit!" he laments.

Said socks are invisible beneath a thick coating of sodden soil, thrown up by the Whyte mountain bike he's ridden from Lotus's Enstone team HQ, down Tew Lane, before hanging a gravelly right into one of the many spiderwebs of footpaths that lattice the land here.

From there on, it all got a little boggy, owing to the torrential rain that has lashed the area, leaving the clay-rich soil wet and heavy.

"Nice day for a ride, eh Romain?" quips one of the assembled Lotus F1 team junior drivers also part of this day's chain gang.

He forces a thin smile, perhaps momentarily reflecting on the clean alpine vistas he grew accustomed to as a Geneva-born youth. The Alps bring topographical challenges of their own of course. It's just that mud isn't one of them. This is, we decide, a very British moment – one depressingly familiar to any cyclist who enjoys going off road in the UK.

Romain is not alone in his travails. Your own correspondent has had a rear wheel sucked from the frame of his bike after a chain-mangling interface between spokes and gear-change mechanism – legacy of, yes, too much mud. Alexander Albon, an 18-year-old Thai Renault →



You don't get this in the Alps: men and machines are put to the test in that most English of mediums – mud. And lots of it

Lotus's young guns

Eurocup competitor, is having brake trouble; his Eurocup team-mate, Scotland's Gregor Ramsay, also 18, is so caked in earth it's hard to distinguish man from mire. As for Alex Fontana, a 22-year-old Swiss-Greek GP3 contender... he wears a bemused expression that says: 'What the hell is going on?'

The answer to that question lies in the prescient decision by the then Benetton-Renault team, back in the late '90s, to establish a human performance centre and associated young driver programme on site at their Enstone HQ.

Its aim was narrow, clear and effective: to hand-pick the young talents scattered throughout championships across Europe (and beyond) and enlist them into a sports-science-based academy programme designed to further their careers.

These noble aims, still adhered to, weren't entirely altruistic of course, for any team that can spot and grow their own future champions earns a massive advantage in the cut-throat and mind-bogglingly expensive elite F1 driver market. Red Bull have done just the same with their prodigies Sebastian Vettel and emerging talent Daniel Ricciardo. The Lotus-née-Renault young

driver programme also boasts a number of glittering alumni. Double champ Fernando Alonso is the most notable, but the successes are legion: 2009 world champion Jenson Button, Robert Kubica, Heikki Kovalainen, Mark Webber, Giancarlo Fisichella and Jarno Trulli – grand prix winners all –

and Romain Grosjean from the current F1 crop.

Who, from the hyper-energetic gaggle gathered around us today might emerge as the next F1 mega-talent? One hotly tipped is French *pilote* Esteban Ocon, 18, currently enjoying an excellent season in European F3. And when

we say "excellent", that's no exaggeration. At the time of writing, he was securely at the top of the championship table, ahead of one Max Verstappen – the very Max who has just been signed to Toro Rosso for a 2015 race drive.

Ocon appears to be keeping a low profile during this ride, steering clear of some of

the bunny-hopping, wheelie-ing antics of his classmates, but also, astutely, staying out of trouble – an indication, perhaps, of a calm racing head on young shoulders.

One or two of his chums are less circumspect, 24-year-old Dane Marco Sørensen, for example.

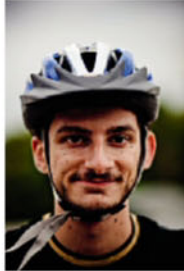
Marco, we learn, likes nothing better than to race a mountain bike in his homeland, to lend a little competitive edge to his training. And boy, does it show. In this coterie of skinny whippets (one or two of whom look as if they could do with downing a protein shake) he's a veritable Alsatian. Thick-thighed and built more like a

rugby player than a racing driver, he has earned himself 'The Viking' as a sobriquet, and it suits him well. On any hill he's the first to charge up; on any descent, he's the fastest down, grinning all the way and revelling in his physical prowess. "I was racing last weekend," he declares with glee, "and I had my heart rate up past 190. At one point it showed 200! I felt so sick, it was crazy." Each, one might say, to their own.

Intriguingly, one of the few able to keep up with our resident Viking is Grosjean himself. Calm of pedal, smooth of stroke, he cuts a serene



Esteban Ocon



Alex Fontana



Juan Manuel Correa



Gregor Ramsay



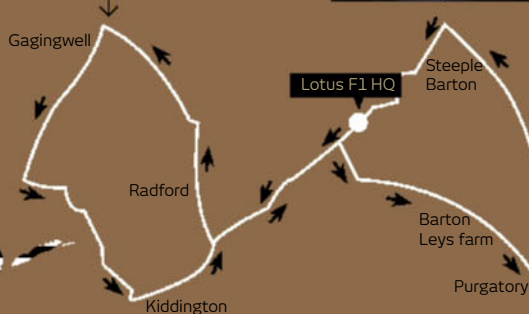
Alexander Albon



Marco Sørensen



The route





In the battle between bike and terrain, terrain triumphs – sucking the rear wheel from *F1 Racing's* bike



figure on his full-sus ride, and he's so well within his abilities keeping at the group pace that he's able to chat easily about how he stays fit for Formula 1. "A year or so ago my resting heart rate was down to 37," he reveals, "and I was running half-marathons in under 90 minutes. But then I damaged my knee, so I had to stop for a while. Cycling is much easier on your knees, you know."


With that, he pops a five-crank wheelie and zips off down the trail a lot more briskly, keen to get maximum benefit from his time in the saddle.

The sweep of physical abilities among the group is wide, unsurprisingly for a group of drivers whose experience ranges from the sharp end of F1 to just-out-of-karting. This is where the 'science' comes into 'sports science'.

David Thompson is the fitness guru for the Junior team programme, in addition to being Grosjean's personal physio and the Lotus F1 race team trainer. A busy boy. One of the challenges of his multi-faceted job is adapting basic principles of training to individual requirements. "Everyone is different," he explains, "so there's no simple answer to what the 'correct' programme should be. You might be looking to improve core strength or focus

on endurance. With a bigger driver, weight management without losing strength might be the goal. So it all has to be tailored very precisely to the individual. Getting them out on their bikes together is as useful for team-building as it is for their training."

It also, let us not delude ourselves, gives the opportunity for these super-competitive young guns to indulge in a little wheel-to-wheel jousting. On the final road home, there's jockeying for position, illicit brake-testing (causing one near-mega-shunt) before finally it's declared "let's race!" With Grosjean and Sørensen already far ahead, the remaining contingent stop, line up, then thrash for the factory gates.

It would be PR-perfect, now, to script the hungriest of the young 'uns emerging from the pack to force his way to the front in a stirring display of derring-do. The truth is somewhat more amusing – for *F1 Racing* at least. None other than our own steel-thewed photographer (admittedly a keen road cyclist) Drew Gibson lights up the cranks to scorch home first by (almost literally) a country mile. As these future stars will doubtless already have learned, you can't win 'em all. 

Six of the best

Great grads from the University of Enstone

1

FERNANDO ALONSO

World champion 2005, 2006

Runner-up 2010, 2012, 2013

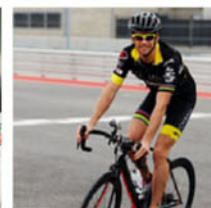
Wins 32 **Poles** 22



2

JENSON BUTTON **World champion** 2009

Runner-up 2011 **Wins** 15 **Poles** 8



3

MARK WEBBER **Wins** 9 **Poles** 13



4

GIANCARLO FISICHELLA **Wins** 3 **Poles** 4



5

JARNO TRULLI **Wins** 1 **Poles** 4



6

ROBERT KUBICA

Wins 1

Poles 1



All stats accurate as of 2014 Italian GP

PHOTOS: STEVEN TEE/LAT; CHARLES COATES/LAT; ANDY HONE/LAT; ANDREW FERRARO/LAT; VLADIMIR RYS/GETTY IMAGES; CLIVE MASON/GETTY IMAGES



 Sauber F1 Team

In conversation with

Adrian Sutil

The former Force India stalwart has shuffled down the midfield to Sauber this year. We find out how he's coping with the lack of performance...

INTERVIEW JAMES ROBERTS **PORTRAIT** THOMAS BUTLER

What are your thoughts on how your season has progressed up until now?

The results show that it hasn't been the best year so far, but someone has to be at the back. That's how it is in sport: you can't always win. Sometimes you are good, other times you are bad. I hope to be able to improve things and get to the front again. At the moment we are a bit down, but I'd say we are strong enough to move up again. The motivation is there, so as long as we don't give up I don't see that as a problem. Everyone is pushing hard and although I would have liked a different start in a new team, it's been difficult for everyone. I enjoy racing for Sauber, being able to speak my own language and having support from good people. So it's getting there.

What is the reason for the poor performance so far?

Everyone has to ask themselves where the problem is. Whether it's your own problem, or your own mistakes. I'm always trying to improve everywhere. Where we are right now is not down to one problem. For example, the car is quite heavy, the downforce could be better, the engine could be better, every area could be better. Then the problems multiply. Tyre wear is too high, that's why we lose time in the race.

So from where we are, we have to be realistic about our targets. At the moment, beating Lotus would probably be a realistic target, and if we achieve that we should be happy. We need to maximise the situation and for the long-term improve the car, score points and try to get close to the podium.

How do Sauber compare with Force India?

Sauber have very good facilities – they are similar to those of a top team. But of course it is also very expensive as it costs more to manage and requires more investment. Force India have a very small facility. It's not the best one – it's very old, but it's also very efficient. So the teams are very different in this area. Sauber have a lot of potential, but we need more support financially to realise that.

What are your thoughts on the new rule that will see rolling starts replaced with standing starts after Safety Car periods next season?

I don't think it's a good thing to do, particularly with the issues we have when the tyres lose temperature. If you have a Safety Car towards the end of the race, it could ruin your strategy if you're running long on a one-

FACTFILE

Date of birth 11 January 1983

Place of birth Starnberg, Germany

Team Sauber

Role Driver

2014 Switched to Sauber where in addition to driving, his current duties include a brand-ambassador role for watch company Certina

2013 Scored 29 points racing for Force India

2012 Took a year out of racing

2008-11 Spent four seasons racing for Force India in F1. His best performance was at Monza in 2009 where he qualified on the front row and finished fourth in the race

2007 Entered F1 with the Silverstone-based Spyker team

2006 Japanese F3 champion

2005 Second in the F3 Euroseries

2002-04 Formula Ford, Formula BMW

stop and are short of rubber on your tyres. Trying to maintain temperature in that tyre and doing a start on them will be a problem and you're very likely to have problems getting off the line. A start is always risky and there is the potential for stalling and someone can drive over you. It could be dangerous, but it's a show and it's the same for everyone. With changes like this, we have to live with it and get used to it.

How difficult has it been to adapt to driving this year's cars? For example, do you know why your compatriot Sebastian Vettel has been struggling so much compared with his team-mate?

We've seen a few drivers who have driven amazingly in the past few years who are now lacking in speed or are slower than their team-mate. The cars are very different, so they don't have the grip they had before. These cars are so much more nervous. For those with an aggressive driving style who push hard on the entry to the corner and really drive on the limit it's not easy: you need the grip for that.

Now the car is moving around on entry, mid-corner and exit and there's no real downforce. Right up to qualifying you are fighting with the balance of the car. This is why some drivers are struggling, because with more grip you feel more comfortable.

Out of Lewis Hamilton and Nico Rosberg, who do you think will come out on top in the fight for the title?

It's a very interesting battle there and I think it will continue to be interesting as we head towards the end of the season. We haven't had this too many times in the past where we've had two drivers in the same team going head-to-head for a championship. They are both very competitive with just small differences

between them and it's great to watch. It's going to be very difficult to pick a winner at this stage, especially with the double-points finish at Abu Dhabi.

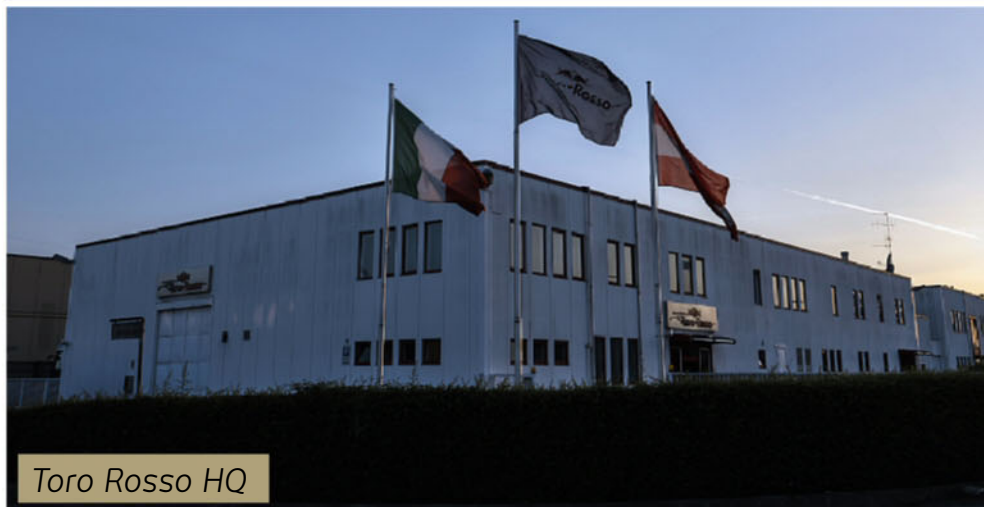
How well recognised is Peter Sauber in Switzerland? Do his compatriots consider him a hero?

Yes, you could say that. He's a very successful businessman and racer and after working in the sport for over 40 years he gets respect from everyone. If you're still doing it after 40 years and you are still there, there's respect. He has one of the most famous companies in Switzerland – everyone knows Sauber – they are very proud: it's almost like a national team. 

INSIDE TORO ROSSO

Scuderia Toro Rosso used to assemble and race Formula 1 cars that were designed by Red Bull, but since 2010 they've been a constructor in their own right. That's meant a big investment in new facilities at their Faenza factory. Team principal **Franz Tost** gives *F1 Racing* an exclusive tour

PICTURES GUIDO DE BORTOLI/GETTY IMAGES



▲ "We call this 'Building Number One' – it's the original facility from when we were Minardi. On the other side are two new ones, plus we're currently building 'Number Four'. Management, HR and the finance department are on the first floor, and the race engineers are on the ground floor. Reception is at the front, and the big door on the left opens onto the workshop where the cars are prepared."





Reception

◀ "Our reception is about 50m². We use the more artistic interpretations of the Red Bull logo here. The patterns are from earlier branding when 'Toro' had stripes behind it"



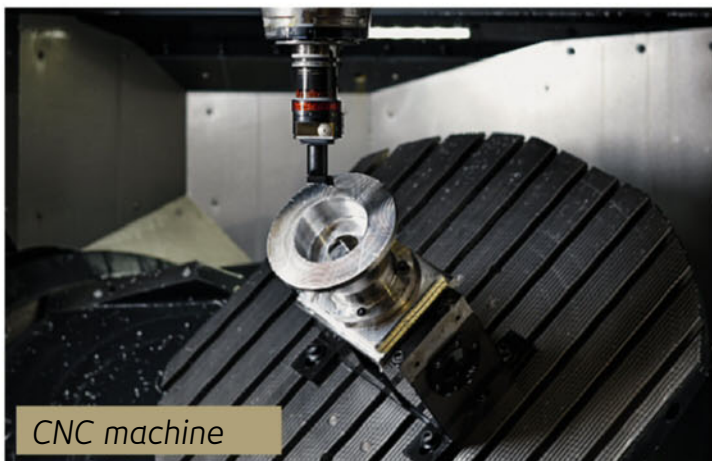
Milling machines

▲ "We have six computer-operated milling machines [in the dark-blue enclosures] and they run production processes overnight. Usually an operator has to stand by to make quality-control checks, so they're cleaned at night or after larger parts have been made. They are serviced at least once a year. The blue covers are for safety, because material flies around, as does the water used for cooling."



Autoclave facility

◀ "We have four autoclaves, each one a different size, to suit different applications. The biggest one is used to make the floor of the car, for example, and the monocoque, whereas wing components will be done in the smaller autoclaves. Of course, the large one is much more expensive to operate. When you're making smaller components, the time an autoclave is active is much shorter." →



CNC machine

▲ "This is one of our CNC [computer numerically controlled] machines, which is milling a component from solid aluminium. The computer control means sophisticated shapes can be accurately translated from the original designs. This component will be used on our windtunnel model."

▼ "This is where composite parts are cleaned and excess material is ground away. It's a noisy environment, with dust and debris coming off the parts, so ear- and eye-protection are vital – and, of course, a mask is necessary so you don't breathe in the dust."



Composite department

▼ "These guys are performing a routine check of one of our five-axis machines. Tolerances are checked between processes – and this is even more important for windtunnel parts because the scale is to hundredths of a millimetre. We use a special tool called a FARO arm for measuring this."



Quality control



The vacuum room

▼ "Here you can see how the vacuum bag works. It has a built-in valve connected to the air-pipe connects. The bag must have enough volume to enclose the surface of the component completely as the air is removed – you don't want the shape of the component to be distorted."



▲ "Trapped air can make laminated components separate, so they are brought here to the vacuum room. They are placed in a vacuum bag and the air is sucked out. The room is kept clean so no dust is introduced, and it's held at a constant temperature and a higher than normal atmospheric pressure."

Early days

Toro Rosso can trace their lineage right back to the Minardi team of the mid-1980s. We talk to **Pierluigi Martini** about that first grand prix outing



Pierluigi Martini

Race debut,
Brazil 1985

"My race debut didn't take place under the easiest of circumstances, as it was also the first race for the team. The car was 60kg overweight, I didn't have a team-mate, and we were the only team,

Tyrrell aside, to be using the normally aspirated Cosworth engine: everyone else had a turbo.

The biggest difficulty was that I didn't have anything to measure myself against, but there was still a lot of excitement and optimism. We were clear about our objective, which was just to try to finish the race: we knew we were never going to compete on performance, but we hoped it might be possible to benefit from reliability.

That didn't happen in the end: we qualified last, as expected, then retired two-thirds in with an engine problem. We had all sorts of problems over the season, and when we finally got our turbo, it made us want the Cosworth back.

I went back to F3000 at the end of 1985, but I never guessed this was the start of a long story with Minardi: I was back in F1 with them three years later, and we came sixth in Detroit in 1988, which is what I think of as my real debut."



INSETS: LAT ARCHIVE

▼ "Like the vacuum room, the laminating room is also held at higher than normal atmospheric pressure, and only one door can be opened at a time, to reduce air circulation and prevent dust getting in."

The laminating room



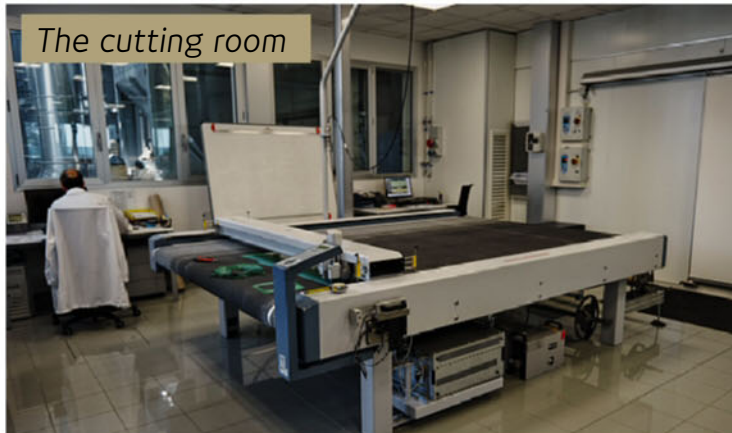
Assembly



▲ "In the laminating room we assemble cut pieces of material layer by layer around a mould – in this case a piece of aluminium for brake ducts. Each layer is applied according to the plan from the design office. From here they go to the vacuum room, then on to the autoclaves." →



▼ "Carbon fibre arrives in the cutting room as a roll of woven filaments. The designers set the pattern for each component, calculating how many layers are needed and what shape they will be. It's stretched over the cutting machine and patterns are cut with a laser, ready to be assembled."



The cutting room



▲ "These are the cut-out carbon-fibre components – the green material is a protective element that stops the resin-impregnated carbon fibre becoming contaminated with dust or hair. If anything did get trapped between the layers, components could start to delaminate when the car is out on track."



Autoclave

▲ "At the end of the production process, vacuum-bagged components go to the autoclave. It cures the parts and hardens the resin embedded in the carbon fibre, while squeezing the layers together. The temperature and length of time varies depending on what a component is made from."



The engine bays

◀ "This is where we build up the race cars, as well as show cars for exhibitions and special events. There are four stations, so four cars can be worked on at the same time. At the end of the process they're wheeled out of the main door and loaded onto the transporter." 🏎️

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Force India's Sergio Pérez and Nico Hülkenberg come from opposite ends of the style spectrum, but they make a potent combination. **Peter Windsor** gives a trackside analysis of their very different driving styles

OPPOSITE *BUT EQUAL?*

I like Sergio Pérez, not only because he is a Mexican street-fighter but because he is technically very unusual among F1 drivers: he has phenomenal feel for the rear of the car but allows for this by being very aggressive with the front tyres. He uses the front, in other words, to dictate the rear. I can't think of one other driver on the grid who manages a car this way – and that makes him, as I say, a guy who is always dramatic to watch.

Nico Hülkenberg, a truly underrated racing driver who deserves a race-winning car more than anyone on the grid is, by contrast, more conventional than Sergio. He doesn't lean too much on the front tyres: instead, he balances his corner entries with brakes-against-steering. He's usually on the power sooner and more aggressively than Sergio and thus uses a little more fuel and tyres – but not ruinously so. To my eye, he also uses more opposite lock per lap than Sergio and is therefore a little less able to manage his rear tyre degradation. Nico, though, has phenomenal car control. He uses it at some point on virtually every lap and particularly on qualifying laps under pressure, except at Spa this year where his Q1 pace was hit by an incorrect decision to run one set of tyres in order to save additional sets for the race.

Sergio struggles sometimes on corner entries but is immeasurably calm on exits, relying on little or no car control in this specific area. If he's got the front tyres to work, in other words, Sergio can fall into a metronomic rhythm of amazingly repeatable, incredibly fast lap times.

It also gives him the advantage of being able to make the rear tyres last for long periods of time – or to use softer rear compounds when most of his opposition, including Nico, are on a harder tyre. This is exactly what happened in Canada back in June, when Force India concluded that their best chance of beating Williams would be by running a one-stop strategy before holding up the traffic in the second phase of the race. That decided, it was then up to the drivers to choose their starting compound. Nico Hülkenberg opted for the logical combination – soft, supersoft. Sergio →

PHOTO: CHARLES COATES/LAT



Force India's fascinating pairing:
the aggressive Pérez (back) and the
understated Hülkenberg (front)

- ▼ **Contrasting approaches: Hulkenberg has phenomenal car control – he takes a wider line on turn-in and balances corner entry with brakes-against-steering. Team-mate Pérez leans the outside front into corners, entering more sharply and preferring to rely purely on front-end grip**

HÜLKENBERG



PÉREZ



had no doubt: supersoft, soft. He alone could make the supersofts work on a full load of fuel and then for the first half of the race. After that, he would be on the more raceable soft tyre, and thus in a good position to attack.

The downside to Sergio's style is that he doesn't readily manipulate his car into position by perfectly harmonising a decreasing brake pedal pressure against an increasing steering load: instead, he relies purely on front-end grip. He leans on the outside front into corners, demands a rotation, then goes to work with the throttle. As such, he is prone to locking inside fronts and to relying on optimum front tyre temperatures when the

conditions are less than ideal. If ambients and track surface temperatures are running wild – as in China this year, or in the dying moments of Q3 at Silverstone, where he went straight on at Becketts when staring at a top-six grid position, or in Hungary, where he ran so wide midway through the last corner of the lap that the exit kerbs were inevitably going to flick him into a spin – then the results can be underwhelming. Sergio, in short, is very sensitive to front tyre temperature. He has to work very precisely in order to get his front tyres to work in the right regions – and his style may cause them to grain if he's too aggressive, too soon.



“Perhaps Sergio won’t ever balance a car the way Nico Hülkenberg balances a car, but he could evolve into a Jenson Button, albeit with a slightly shorter approach to corners”

It’s often a similar story in the full wet, where Sergio’s throttle delicacy should, in theory, give him a pronounced advantage. This is generally lost amid his overuse of the front tyres.

Can Sergio improve in this regard? Certainly he can. Perhaps he won’t ever balance a car the way Fernando or Lewis – or Nico Hülkenberg, for that matter – balances a car, but Sergio *could* evolve into a Jenson Button, albeit with a slightly shorter approach to the corners. Jenson, too, often seeks decent front tyre temperatures – but he has learned over the years a method of generating reasonable numbers that generally works for him. Sergio is not yet at that level of consistency.

For Sergio, one of the biggest issues is the initial heating of the Pirelli tyres. That Canadian GP worked well for him due to the advent of the Safety Car on lap 2: this allowed him to ‘cure’ his new set of supersofts after the initial burst of heat. Without a Safety Car, Sergio would have been limited to what he could have done on the formation lap. We

often see Alonso and Räikkönen using full-lock, side-to-side understeer to bring in their fronts, but Sergio tends to limit his temperature work to hard braking in a straight line. Some engineers would agree with this on the basis that bringing a tyre up to temperature is all about heating the internals, not the tread surface.

Even so, given the demands Sergio places on the fronts, it’s difficult. He’s unlucky to be racing in an era of F1 tyre monopoly: if we still had competition between, say, Bridgestone and Michelin, I think he’d be racing with front tyres that would give him much more grip over a longer period.



▲ In Montréal this year, Pérez was able to make a ‘supersoft, soft’ one-stop strategy work, to challenge Nico Rosberg for the lead

And the smoothness of Sergio’s corner exits should not be understated. He is truly exceptional in this regard. How does he do it? It’s all down to his Jenson-Button-like feel for the throttle under acceleration. His acceleration telemetry is invariably linear (which is to say free of spikes). He rarely overloads the outside rear tyre. This is by far and away his strongest asset.

The obvious solution in 2014 is for Sergio to lengthen his corners a little by straightening up his approaches and doing a few yards more of his braking in a straight line – as Jenson does. This will make it easier for him to generate carcass tyre temperatures and still allow him to do what he does so well with the rear tyres.

The problem, I think, is that this will go against his nature. He’s an aggressive driver who does not enjoy braking in the sorts of straight lines that would let other drivers nose up the inside. He’s also naturally inclined to brake as late as possible into the apex: that’s what he does and has always done. Rebuilding that style would take considerable self-discipline – and a clear understanding of the dynamics. Force India’s strong, driver-orientated technical team definitely thinks along these lines, so the odds, going into 2014, were that he was not going to be allowed to keep overusing those fronts for ever and that he would make some clear advances. His drive at Spa, I think, was a good example of this: on a day when it was difficult to race too far away from the mainstream (in terms of tyre usage), and when the VJM07 wasn’t what it could be, Sergio was more consistently manipulative than ever he was in the Sauber or McLaren days.

So Sergio’s is an interesting combination. On the one hand he has this natural aggression towards the front of the car; on the other he’s beautifully smooth in the way he manages the rear. Boring he is not – a bit like the Hülkenberg-Pérez combo itself. 📌

HEAVY WEATH



ER

Rain can change the outcome of races – but so, too, can sunshine. *F1 Racing* goes behind the scenes with Formula 1's weather experts to see how *some* of the guesswork has been taken out of forecasting – even if that means setting up the radar by a cow shed...

WORDS DIETER RENCKEN

PICTURES STEVEN TEE/LAT

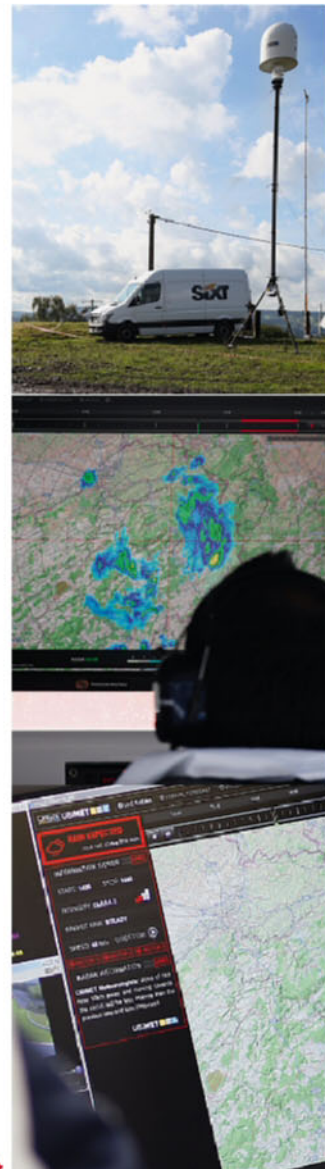
There's an old adage that the trouble with weather forecasting is that it's right too often to ignore, and wrong too often for us to rely on. No problem when popping to the shop for a loaf of bread, but when a grand prix win is at stake – eagerly followed by global audiences whose ratings run to nine figures – sucking-and-seeing simply doesn't cut it.

Second-guessing the weather has led to many a sure-fire victory washed away by wrong calls from the pitwall. And now stringent *parc fermé* regulations impose restrictions on set-up changes between qualifying and the race, the prospects of victory can start slipping away on the Saturday of a grand prix weekend. Then consider that changes in wind direction and velocity can affect cars' top speeds by around 12.5mph, and clearly advanced weather forecasting is a crucial strategic tool.

"Weather is a chaotic process, so predicting it is very difficult," says McLaren's CEO and COO Jonathan Neale, who shudders at the memory of serially sending David Coulthard out on the wrong rubber during the 2002 British Grand Prix. "We received texts from people in the stands who couldn't understand the balls-ups we were making, yet from where we were it was the right choice each time."

In the money-no-object manufacturer era, teams signed up for a multitude of meteorological services, the net effect being half a dozen weathermen hogging the same hilltops during race weekends. Yet their readings seldom tallied with the official numbers, simply because these are measured in the paddock (where access is, of course, controlled by the commercial rights holder), not beyond the circuit perimeter.

"Way back, there was no weather forecast at all," recalls Sauber's long-serving sporting director Beat Zehnder. "You looked at the sky and guessed what would happen. Then, as fast network connections became available, teams started having their own weather services. Not every team, but many had private radars. The funny thing was, in Spa, there's a little hill and there would be five almost identical radars next to each other because the radar has to be in a certain position." →



“You’ve got the data... then you’ve got to make a ballsy call” **Jonathan Neale, McLaren**

The perils of this were exposed during ‘Fuelgate’ at the 2007 Brazilian Grand Prix, when BMW-Sauber and Williams chilled their fuel to below the limit permitted by F1’s then technical regulations. The FIA used their own service and readings, which differed from those of the teams. “We learnt from that,” says Zehnder. “It was not clear where the ambient temperature is measured, but after that it was clear that it is the official weather forecast system of the FIA that counts.”

The solution was simple and economical: appoint one supplier of weather services, with costs to teams incorporated into entry fees. A three-man team – supervisor, forecaster and IT specialist – now works out of the FIA’s administration facility. Their office is easy to recognise: their antennae and radar receivers dwarf all others in the paddock.

This season there is a new contractor, Vienna-based Ubimet. The transition from previous to current supplier has been seamless, and – unusually for F1 – not a single dissenting voice has been heard, despite Ubimet’s links to Red Bull boss Dietrich Mateschitz, who holds a 50 per cent share in the company.

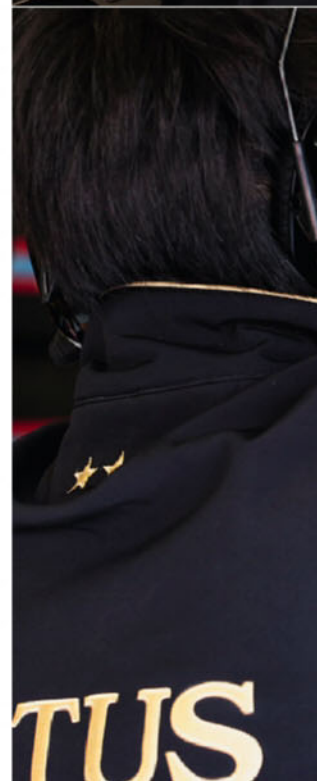
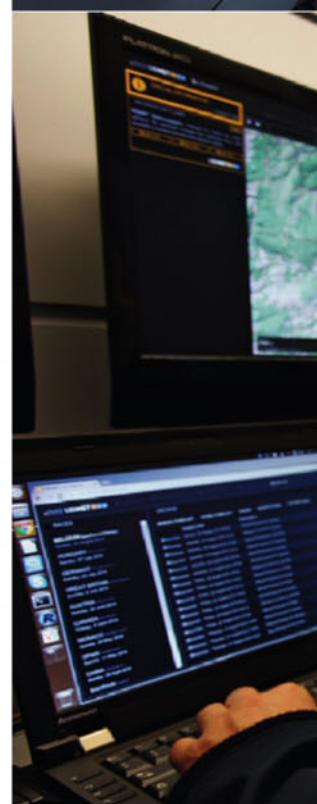
The team of forecasters arrives the Monday before each race and remain on site for a week. Track-temperature sensors are installed first of all to enable the team to build a historical record, with the rest of the equipment following in logical sequence. Eight nodes are installed, three at various points on the circuit, two in the FIA facility, and three in the pitlane, where the ambient and track-temperature sensors are located. For flyaway races the case count is cut by three, and all the kit is designed so it can be moved and installed by the three staff; the maximum weight of any one piece of equipment is 120kg.

Although radio transmission is used, the stations are wired, so cabling is involved. “At overseas races there are no FIA trucks, which means we have to lay cables within the paddock to set up our receivers,” says IT manager Christoph Neudhart, who is also responsible for the password-protected website through which teams and the governing body access data.

The company caters for the 11 teams, plus the FIA, with each account having quadruple access from a high-performance server. So teams have data access from the pitwall, in their trackside nerve centres and back at base – and they can communicate through other channels when necessary.

“We have regular contact with them, by email or face-to-face in the pitlane,” says Steffen Dietz, project co-ordinator. “We also attend team meetings to show them what we have and to respond to questions or possible improvements that they might have, because all teams work differently.”

The biggest challenge is identifying the prime position for the radar. “Its location must fulfil a lot of constraints,” explains Dietz. “First, we need a free horizon, and it’s not easy to find a spot with line of sight. For example, in Monaco there are mountains; in Singapore skyscrapers. What to do?”





With obstacles ranging from skyscrapers to mountains, depending on the venue, finding the ideal position for the weather radars is one of the biggest challenges



Google Earth is the first port of call, followed by an inspection of the local area. In Spa the search threw up a hillock 3km away. It had it all – a willing landlord, power for radar, line of sight – but the owner ran it as a campsite. They eventually struck a deal for an area alongside a livestock shed, and hired a security company to protect the installation.

Unlike, say, the BBC's weather service, Ubimet's offering provides localised forecast concentrating on a specific area to an extremely high level of accuracy and within the specific event's programme window. Initially they give a nine-day forecast, which becomes tighter as the week progresses.

"The first forecast for the weekend – Friday, Saturday and Sunday – goes out Wednesday evening, and from Thursday until race day, it's updated twice daily," says Dietz. "We do a forecast on race-day morning and, if required, we update again just before the race."

Teams receive information on cloud cover, rainfall probability and amount, humidity, air and track temperature and wind speed and direction. This information informs the Race Director of any need to postpone the start, call for a Safety Car start or red-flag an event.

Ubimet's rain sensors measure moisture ranging from fine drizzle to drops up to five millimetres in diameter, while trackside sensors let teams gauge wind speeds as cars round any given corner. Hence the arrows on the FIA's data screen, which provide wind speed and direction.

"That way teams can tell their drivers 'You'll have headwind on this straight and wind from the back at that turn', says Ubimet's senior meteorologist Andy Swan, who spent 21 years forecasting on oil rigs, and thus appreciates the importance of accuracy where hazardous, high-cost activities are conducted in localised areas.

Ultimately, it's down to teams to apply the information. "There's an allocated person on the pitwall," says McLaren's Jonathan Neale. "For us it's Dave Redding, [McLaren team manager], whose job it is to track that information. He watches the screens and when the weather is getting close, alerts the systems so the drivers and race engineers know we're expecting rain in the next two or three minutes, that it might last for five minutes or it might last all afternoon, and we can be ready.

"You've got the data... then you've got to make a ballsy call."

The information, then, is there; how the teams choose to act on it is, as it should be in Formula 1, very much their choice. Whatever the call, though, they ignore Ubimet's data at their peril. 🚩

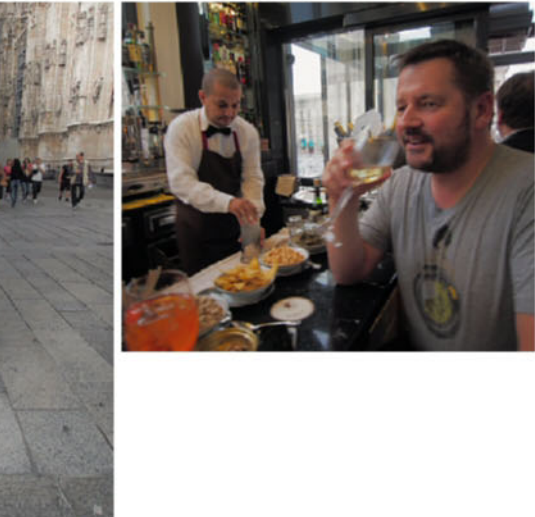


An Englishman in

Mil



an



Pirelli are a quintessentially Italian company, but their motorsport director, **Paul Hembery**, is unashamedly English – especially when it comes to the right way of making a cup of tea

WORDS ROBERT HOLMES
PICTURES MAX PEEF

Tourists from Japan rub shoulders with African jewellery vendors, the loudest voices are generally American, while a group of Middle Easterners are marching for peace in Gaza, carrying flags emblazoned with a single white dove. The faces you see in designer stores are often Russian, and you won't walk far before bumping into an Albanian. This is the most cosmopolitan city in Italy. Yet it is still, unmistakably, Italian. →

Hembery has three months of office time every year and the rest of his time is spent travelling: he's redefined the art of multi-tasking

Everywhere, there are people: all types of people – but mostly beautiful people. They ride Vespas, they eat *gelato* and they gaze impassively at their majestic surroundings from behind sunglasses.

Milan is a cross-section of global society, distilled within one beautiful piazza that captures the essence of what the city is all about. The Piazza del Duomo is home to the city's cathedral, the Duomo di Milano: a masterpiece that took six centuries to complete and is the largest cathedral in Italy – as well as the fifth largest in the world. The architects and engineers who built the Duomo came from all over Europe but they had one thing in common: the ability to think bigger and higher than anybody else.

Centuries later – and perhaps as a direct result of its enterprising heritage – Milan emerged as the industrial powerhouse of Italy. By 1922, the temple of speed known as Monza had been constructed in parkland just outside the city.

One of the companies established during this frenetic 19th-century industrialisation was Pirelli, which made the tyres used on the winning Fiat of Pietro Bordino, the victor of that inaugural grand prix in Monza.

As victories go, it couldn't have been more Italian. But things change. We'll probably have to wait some time to see a grand slam of that nature in Italy again – and now the man in charge of Pirelli's motorsport department is English.

Nominally, at least. Most people in Milan call Paul Hembery – Pirelli's ebullient motorsport director – 'Paolo', or sometimes 'Pablo' – which is Spanish rather than Italian (perhaps as a Latinised nod to his foreign-ness?)

But there's no doubt that he feels very much at home in the centre of Milan. "Pirelli's been part of my life for nearly 25 years," says Hembery. "I do think of it as home to some extent: it would be hard not to."

But 'home' is a relative concept. He has about three months of office time each year on average, then the rest is taken up with travelling. "Occasionally I come back to England to check my house is still standing and nobody's moved in during my absence," he points out. "I've given up on goldfish: they die after a few weeks..."

Formula 1 is clearly the pinnacle of motorsport, and the arena where Hembery – never one to be shy about stating his views – made his name. But that's still only a part of his job (albeit an extremely significant part): the rest of the time is spent looking after the 250 or so other championships in which Pirelli have worldwide involvement – from rallying to Brazilian stock cars – and shaping future strategy, relating to product and industrial plans.

He's redefined the art of multi-tasking: at one stage he was combining the role of motorsport director with that of Pirelli Asia-Pacific CEO.



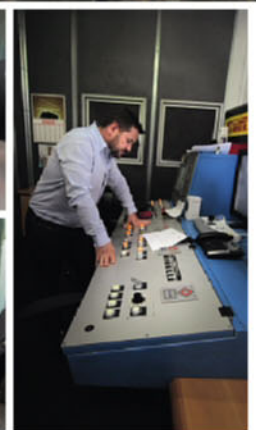
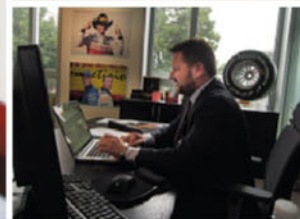
Like most successful people, Hembery is restless – things get done quickly and decisively. You need a certain drive to do that, the same drive that perhaps could have taken him to a promising rugby career had injury not intervened. But had he followed that path, he probably wouldn't be where he is now.

"As a kid growing up in Bristol, it was all about rugby and football for me," he remembers. "Motorsport was something I got into by chance. Some friends took me out to see the RAC Rally, as it was then called, and I remember standing in the forest, in the pitch black and freezing cold – I was complaining a lot – and then suddenly this car appeared from out of nowhere. The lights, the sound... it was just mesmerising. I remember the hairs on the back of my neck standing up. In a weird coincidence, it turned out that the car I was watching was Markku Alén in the Pirelli-sponsored Lancia Stratos. And when we did a tyre launch about 30 years later, I was driven on an old Sanremo Rally stage by Markku in the same car. So it's funny how life can come full circle."

As always, a degree of serendipity is involved. Hembery first came to Milan in 1993 – working in advanced product development, specifically SUV tyres – but in 1999 was invited to head up the newly restructured motorsport department.



"The MD had in his mind that motorsport was a British thing – and I was the only British person he could find knocking round the corridors of Milan!"



“The managing director at the time had in his mind that motorsport was a very British thing,” explains Hembery. “And I was the only British person he could find knocking round the corridors of Milan! He asked me if I liked motorsport, I said ‘yes’, and he said ‘Then you’ve got the job.’ He gave me the challenge of either making it work or closing it down. So that’s really how it all began.”

It was the start of a new life for Paul Hembery that meant, among other things, racking up more than 380 flights into Milan’s Linate airport on British Airways to date (that’s not counting Malpensa, where all the intercontinental flights leave from). It meant keeping a wardrobe full of clothes in the office and sacrificing time with friends and family, but ultimately it led him to F1. Tyre makers often blend into the background in F1, but whatever the slant taken on it, nobody can deny that this has been the highest-profile engagement by a tyre company yet.

Which makes it all the more remarkable that it all came about so very unexpectedly. “We had a call from Mr Ecclestone at the start of 2010, asking if we would be interested in Formula 1,” recounts Hembery. “Our answer was: ‘Possibly – in two or three years.’ But then he said no, he was actually talking about next year. That caught us by surprise, but we did it anyway.

I think that demonstrates the bravery of the whole company, typified by the approach of our president Marco Tronchetti Provera, who gave his full and total support to the whole Formula 1 project from the start. Without that, particularly in a multinational business, you will achieve little. You hear a lot of stereotyped views about Italians, but the truth is completely the opposite: our Milan team is brave and hard-working and extremely professional.”

Certainly Pirelli’s entry into F1 was a high-risk strategy, but had it not been for Hembery, the chances are that the company would never have bothered. “Look at it this way: there were more reasons for us not to do it than to do it, especially with the timing involved,” points out Hembery. “But we managed to build a solid business case to persuade the board to let us do it. And I think that decision has been vindicated. The easy decision would have been to say ‘no’. But it felt like the right thing at the right time.”

The F1 operation is run out of Pirelli’s headquarters just outside the city centre, from an award-winning glass palace built around one of the original factory’s concrete cooling towers.

Hembery’s office is quite spartan, enlivened by some Pirelli calendars (what else?) as well as a few personal bits and pieces. He owns what is probably the only electric kettle in the entire

building – the art of tea-drinking being one of his specifically English areas of expertise, which leaves most of his Italian colleagues baffled.

When it comes to food, though, his preferences are very firmly Italian. Just around the corner from Pirelli HQ is the wonderfully eclectic Trattoria Arlati, decorated with eccentric panache (think huge sculptures of elephants next to old opera posters), which is the usual venue for business lunches. A number of team principals have been there, seduced by the freshest of mozzarella and fillet of beef so tender you’d need a vet to certify it dead.

Almost as synonymous with Milan as gastronomy is fashion, and Pirelli actually have their own clothing brand, PZero, stocked in their boutique (which, incidentally, features a Formula 1 simulator) in downtown Milan, just a few minutes away from the Duomo.

Part of the job description when you’re an honorary Italian is to take a close interest in such matters... which is why you will often find Hembery in leisure mode, wearing T-shirts adorned with images of tyres.

What he would probably prefer to be wearing, however, is a Bristol City shirt: he follows his home football team from afar with occasional public displays of exasperation. Although he managed to get away to see only →

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three matches last season, he still holds a season ticket.

"I said something about Bristol City in an interview once – it probably wasn't entirely complimentary – and I was a bit surprised when the owner turned up in our motorhome in Abu Dhabi," remembers Hembery. "He said that he happened to be in town for the grand prix and he'd read my interview... luckily we're good friends now. So much so that he came to the Austrian Grand Prix as our guest this year."

Like most people who travel the world for a living, during his time off Hembery likes nothing better than to stay put.

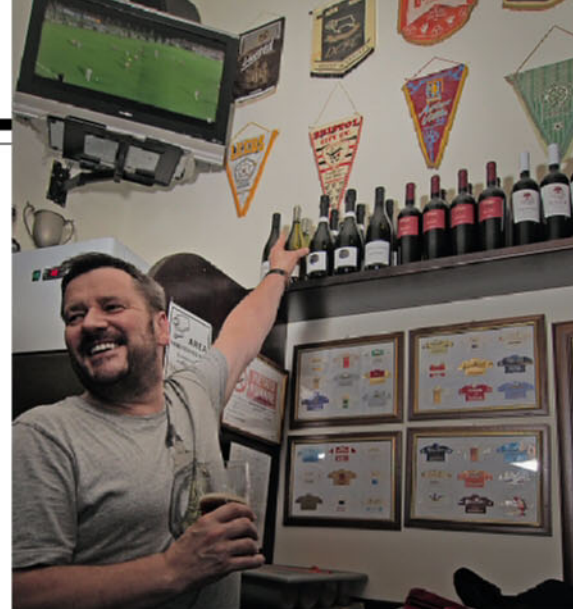
"Particularly in springtime, I love just staying in Milan over the weekends: you have fantastic access to the lakes. Bellagio and Menaggio are two places I adore, especially when there's still a bit of cold in the air and snow on the hills. You can put on a big coat, sit outside and absorb the scenery: that's really relaxing."

Back in the city, Paul can sometimes be found in what's known simply as The English Football Pub, catching a game on Saturdays or after work – and yes, they even have a Bristol City pendant on the wall. Identical to the one he had hanging in his bedroom as a kid.

Unfortunately, such downtime is the exception rather than the rule. "Most of the time I'm in the office – we work quite late and there are a few functions in the evening sometimes; it depends really," concludes Hembery. "But no one who works in a major multinational or a sporting environment has a typical day, as the challenges you face are always so different. The only typical aspect of my day is drinking espresso at about 9.30 in the morning: that never varies."

From the way he speaks (in fluent Italian), to the clothes he wears and the things he does (such as trips to the opera) it's clear that Paul Hembery loves Italy. But who wouldn't? It's a wonderful country dripping with culture, with the added benefit of delicious food, good weather and incredible wine. Which, much as it has its charms, isn't always the case in Bristol.

Hembery's home from home: 'The English Football Pub' (top) does what it says on the tin – and comes complete with a Bristol City tabard, while Arlati (below) is his top tip for fine dining



Paul's guide to Milan:

September is one of the best times to visit Milan. "I'd spend some time in the city and some time out by the lakes," advises Hembery. "The weather is usually still really good, so you can make the most of it."

For food, try Arlati just outside the city centre. (Via Alberto Nota 47, www.trattoriaarlati.it) "I've been going for about 20 years," says Hembery. "It's unassuming from the outside, but when you go inside, it's a wonderful experience." Also high on his list of suggested eateries are the Armani Caffè on Via Croce Rossa 2; Giacomo Bistrot on Via Pasquale Sottocorno 6; and Ristorante Ribot on Via Marco Cremosano 41.

The central point of Milan is the Piazza del Duomo and next to it is the Galleria Vittorio Emanuele II, a 19th-century shopping arcade. "Shopping in Milan is one of the main things people do – it's an experience," adds Hembery. Pirelli's flagship store (store.pirellipzero.com) is close to the Galleria at Corso Venezia 1.

For the best view of the Piazza del Duomo, have a drink at the Terrazza Martini, which reveals a stunning panorama of Milan (Piazza



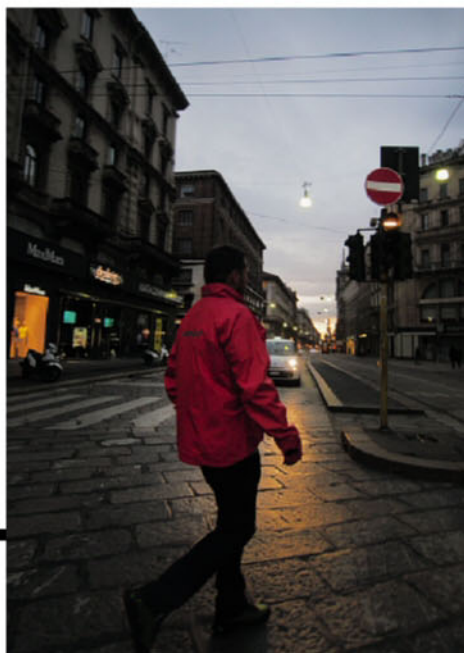
"The only typical aspect of my day is drinking espresso"



Armando Diaz 7, www.martinierossi.it/terrazze/milano). The terrace of the Park Hyatt Hotel (Via Tommaso Grossi 1) is also great for views.

Parco Sempione in the middle of the city has its own castle, Sforzesco. "It's a nice place to get a *gelato* in the evening and walk around," says Hembery. "And if you want to stay out late, there's the Just Cavalli nightclub (milano.cavallclub.com) on the outskirts of the park on Via Luigi Camoens – it's where we had our after-party following the Italian Grand Prix."

You might, however, prefer a traditional English pub complete with football. In which case, you should of course make your way to The English Football pub at Via Valpetrosa 5 – and look out for the Bristol City pendant. 🍷



"If your name is known, it's assumed you will win straight away. This pressure can make you great or destroy you: there's no in-between. You learn to evolve much quicker... if you don't, you're done"

Stepping out from the shadow of his father, Gilles, to achieve greatness in his own right, was no easy task, as 1997 champion **Jacques Villeneuve** reveals

PORTRAITS DREW GIBSON

Many things connected with Jacques Villeneuve could be considered unconventional: the grunge look; the oversized driving suits and racing boots with the tongues hanging out; engineers dealing with set-up requests that veered from the norm. He won a world championship in his second season of F1, but his subsequent grand prix career attracted controversy more than celebration.

We're meeting near his home, high above Lake Geneva, on a summer's day. But visibility is less than 20 metres because of drizzle and fog. Typically, he's chosen L'Alchimiste, a modest family restaurant in full swing as the locals from the village gather for lunch. It's a place Jacques knows well, having spent most of his teenage years here in Villars-sur-Ollon following the death of his father, Gilles, during qualifying for the 1982 Belgian Grand Prix.

Jacques emerged from the shadow of the much-loved Ferrari driver to become his own man by sharing his father's love of speed. The urge to compete continues to be fulfilled by international rallycross; a willingness to say it like it is, is satisfied by F1 punditry for French



and Italian TV networks – and, hopefully, a relaxed chat with *F1 Racing*.

Maurice Hamilton: So here we are, in a place where I guess you did a lot of your growing up.

Jacques Villeneuve: Yeah, exactly. I went to boarding school just across the road. This is where I had sex for the first time, my first beer, all this kind of stuff between the ages of 12 and 17. It was good fun. There was a mountain; skiing – it was a blast.

MH: I take it you must feel comfortable here, and even though it was at a difficult time of your life when you first arrived here, that's why you've come back?

JV: It was a strange time because, before my dad died, I'd been living away from home for more than a year. Family life was exploding after his death and, apparently, the energy wasn't good so my mother [Joann] sent me away. It's confusing; it's all a bit fuzzy back then.

MH: You were very young.

JV: I was 11. I do remember when he passed away because that's a very clear memory. It was the first race my mother didn't go to. I remember we were walking back from school. Growing up, we would only get a toy at Christmas or on birthdays. At the time, there were these little portable black and white video games. I kept pestering my mother and, finally, we stopped and bought one. We got home and the phone call arrived. That memory is super clear. I remember her picking up the phone and, even without saying anything...

MH: You knew?

JV: Yes, I knew. Someone came to stay with us [Jacques and his sister Melanie]. After that, we took a military flight to Canada, which, for an 11-year-old, was a cool experience even though it wasn't at all comfortable. It was very hard for maybe a week or two but, at the same time, it →

Jacques Villeneuve, 43:
1997 F1 world champion
turned Rallycross racer and
part-time TV pundit



really had a big effect on who I am today because I had to become the man of the family when my mother and my sister were kind of losing it.

It's a terrible thing to say, but it's true because it really helped me to become a man; to become the racer I am. So it was very sad, very hard because he was also my hero. If I got five seconds of his attention, I was in paradise. Sometimes my mother would force him to take me with him in the helicopter; it would just be me and him. I

the tricks of living in a society; dealing with the police; people watching you; how to push the limit; how not to push the limit; how to play to the rules.

Suddenly I came into my own. All the links were gone and it allowed me to cut off completely and maybe that's why there aren't so many memories of my dad, because somehow I just turned a page. That's how I managed to survive it, I guess, in a healthy way. I'd like to think he

day, an opportunity arose and I started it. She couldn't stop me, so she decided to help me.

MH: I guess she realised there would have been no point because you would have done it anyway.

JV: Exactly. I was 17 and if she had said no, at 18 I would have said: "Okay, bye. I'm off."

MH: From what you've said, you were your own man here but, when you went to Italy to start racing, people were asking about your dad a lot more. How did you cope with that?

JV: It should have had a bigger effect, but I didn't realise. I'm lucky because my family was adopted by Italy. My dad was a part of the Italian family; much more than in Canada or anywhere else. So there was a kind of respect. They saw me as a little kid having fun. I looked like a 12-year-old back then, so they protected me a little bit, which was nice. I was with a good team. A lot of people were wanting to see a continuation of Gilles and what he hadn't achieved. I was saying I didn't care to the point where I didn't want to talk about it. People were getting angry because that was not the answer they wanted.

MH: What was the racing like at that time?

JV: Really good. F3 was a great place to start because there was something like 45 cars in the championship. I hadn't done karting; I hadn't done anything and I didn't realise what I was jumping into. In my mind, I was a race car driver, even when I was 12. It never crossed my mind I actually had to learn. I knew that one day I would be world champion. There was never a moment of doubt. I wasn't even questioning the how or when or if it was going to happen.

It's strange to think like that now. If someone came to me saying the same thing today, I would tell them: "Be careful; you should study a bit more." It was a very good learning experience because it was make or break from the first year.

Damon Hill and other drivers in the same position probably discovered that if you have a name when you start, your first race is already accounted for. If you don't have a name, no one notices. You could be on your third season and people think you're new. But if your name is known, it's somehow assumed you'll win straight away. This pressure can either make you great or destroy you: there's no in-between. You learn to evolve much quicker with pressure. You become a man very quickly. If you don't, you're done.

MH: Okay, you had no doubts before you arrived, but did you have any once you started racing?

JV: Nope. Never had a doubt. It never crossed my mind. I took all my skiing experience and



Eight-year-old Jacques with his father, sister and mother – possibly wearing the top that subconsciously inspired his helmet design

"My father taught us it's today and tomorrow that counts, not yesterday. It's something I retained"

would sit for hours, not saying anything, and I was happy. It was a very difficult moment but, growing up, my father always taught us it's today and tomorrow that counts, not yesterday. That's how he was. It's something I retained.

MH: What brought you here in the first place?

JV: Patrick Tambay was the first person we lived with when we moved to Europe. After the accident, he suggested to my mother to put us here. I was wanting to ski race, so this was perfect; I loved it here from the first moment. It was like a mini society where you learn about

probably would have been happier to see me reacting in this way. Does that makes sense?

MH: Yes, it does. I can imagine Gilles would feel that way because he was a risk taker – but in a calculated way. I'm sure he would have approved of your ski racing.

JV: My mother was hoping I wouldn't go into motor racing. I don't think it was because of the physical danger, but more because she knew I would have a lot of pressure. She didn't know if I'd be good enough, and that could be destructive. She was keeping me away but, one

knew it was a matter of figuring out how to get better. You just have to understand the mechanism of it, that's all. It's logical. Why am I slow here? You just build on it. Things come if you don't give up, if you focus on it. If you have a step to climb, then figure out how to climb it. That's always been my approach, and it worked.

MH: What led to the move to Japan? Was it a financially good move or was this a career step?

JV: I always had a sponsor. I got lucky because, when I started, it was when Camel wanted to have the sons of famous fathers. I signed a contract at 17. It was crazy. Imagine that now!

I did see that year in Japan as my university year because it was the heyday of racing in Japan; there were so many ex-pats there. I was team-mates with Tom Kristensen and Ricard Rydell. Eddie Irvine was in 3000; Ross Cheever and Roland Ratzenberger were there as well.

There were only nine or ten races in the championship but we tested more than we raced and that really helped me to make a step. Also it forced me to work with an engineer who basically didn't speak English; an older Japanese guy with three teeth – but he was brilliant. That forces you to think more because you have to get information and explain it in a way that is not in English, Italian or French terms. You start imagining how the car is functioning physically; you almost visualise the suspension movement. What would you do to make it better? It's not just understeer or oversteer; that's meaningless. Not speaking the language forces you to go to places you normally wouldn't go to in your brain.

MH: Was this when you were also in sportscars?

JV: Yeah, I was testing a lot in the turbo Toyota Group C; a big, mean machine. Toyota were wanting us to do good stuff with them. This was when Roland Ratzenberger took me under his wing. He was really pushing me to go faster. Most drivers will try to make you go slower because they're afraid for themselves but Roland was really helping out. A few times he would come and park in Tokyo, then sleep in his car.

I appreciated what he was doing. All through my career, I was always like the little kid being helped by someone older. I don't know if they took pity because I looked so young but there was always an older guy, like at school, to protect me. I always had that while coming through the ranks in racing, all the way to the Atlantics.

MH: What's your reflection on when you went to North America and did Formula Atlantic before going into IndyCar?



JV: When I was in Japan, I was invited to do a race in Trois-Rivières in Canada and ended up on the podium. That's where it started. Players [the tobacco sponsor] wanted me to race in North America, but Toyota wanted me to stay in Japan. But there was an IndyCar contract as part of the Players three-year deal. That's why I went.

MH: When you were in Trois-Rivières, was there a lot of talk about your dad, because he'd been a bit of a hero at that race? Were you aware of it?

JV: No I wasn't. I really didn't care. I was young, having fun racing. I was living my dad's dream.

He had been passionate about his racing; he was living it fully and that's why he was so respected. He wasn't playing at being a race car driver; he was a pure race car driver. So, why should I be different? As a kid, I learned from him to always respect danger; know where it is and then push the limits and just be better than the others. But don't be afraid to push the envelope.

MH: Going back to that first Atlantic race, how did the IndyCar deal come together so quickly?

JV: It nearly didn't! When Players got us in the office to start working on the IndyCar deal, I →

walked away. I was going back to Japan because they wanted me to change my helmet design. I said: "No, I'm not changing my helmet. Bye!" They thought I was joking. I get annoyed when I see drivers change their helmet every race. It's to sell more memorabilia; it's just business.

MH: I agree. The helmet is your signature; it's you.

JV: It's your soul. The other issue is you don't recognise helmets now. They're like a blub of colours. Meaningless.

MH: Where did the pink come from on your helmet? It's very distinctive.

JV: I had a memory of my father designing his own helmet. He had a white helmet and he used crayons to make the design. I took a piece of paper to design mine. My mother was studying to design clothes and stuff at the time, so she had a lot of colours. So I just took colours and that's what came out.

You never know what's at the back of your brain, though. I saw a picture not long ago from when I was very small. My mother was wearing a sweater – and it had the same colours in the same order. I only saw this picture three years ago. The subconscious is an incredible tool, so maybe it came from there, or maybe it's pure coincidence; I don't know. The helmet has been 99 per cent the same although, through the years, the colours varied a little bit because of the different makers.

MH: I want to jump ahead a little. You won the Indy 500 and suddenly you're being connected with F1. Was it as simple as that?

JV: I guess it was. The Indy win was very important for Frank Williams, and he arranged the test after that. When I got into an F1 car, that was a huge step.

MH: In what way?

JV: The rhythm in the car; everything was happening so fast. The car was light and nimble: "Whoa, whoa. What's happening? What's going on?" But then you get used to it.

MH: So, F1 was always your goal and you're with Williams; top team, Renault engines, the whole lot.

JV: I didn't think of it like that. When you're busy doing your own race season, you don't really pay attention to what's going on elsewhere. In F1 you can be the best one year and the next year you're in the shit. Bernie Ecclestone was active in me getting to F1 and it turned out well.

MH: Melbourne: first race; you're on pole; you would probably have won but for an oil leak.

JV: Yeah. A tube was put in the wrong place, got squished and the oil was coming out. Actually, it



Victory in the 1996 Indy 500
– the win that brought
Jacques to the attention
of Frank Williams

"The Indy win was very important for Frank Williams, and he arranged the test after that. Getting into F1 was a huge step"

would have changed the championship if I'd won that race because, psychologically, it would have had an effect. And it would have made an eight-point difference; four more for me, four less for Damon Hill. But it's good to have a year to learn and then a year to win. I've no issue there. That was the first time I had an engineer that was not like an older guy or an experienced guy. I think Jock Clear had less experience than me in racing.

MH: You built up a terrific rapport with Jock.

JV: Yes, because Jock's a sportsman. He was a rugby player, so the psychology was there. He

understood it and that's why he was good with Michael Schumacher and that's why he's been good with Lewis Hamilton. It's more than being an engineer; it's not just the numbers.

I found the pace difficult in F1. In IndyCar, we were used to Safety Cars, so there was no point in building a 20-second lead. You built a three-second lead and you stayed there, managing your fuel, your tyres. That's why, at my first F1 win at the Nürburgring, Michael Schumacher finished on my gearbox. I was just managing my pace and I found I had to change that a little bit.



Villeneuve in his Williams at the 1996 Monaco GP – a race he failed to finish after Forti's Luca Badoer drove into him

MH: When you won the championship, Damon had moved on and you had Heinz-Harald Frentzen as team-mate. How did they compare?
JV: I learned a lot from Damon, he was such a hard worker. He was really fast. The step I had to take from Atlantic to IndyCar was just as big when I went from IndyCar to F1. I used Damon to help me get there. It was good to have someone like that next to me and it got me ready for the following year, because when Frentzen was signed, he was signed to win the title.
MH: Would you really put it as simply as that?
JV: Yeah, that's how it was said. And that was the wrong thing for them to say because I just destroyed him. The psychological games started – a little bit like Nico Rosberg is doing with Lewis. If you have three teams that can win, you don't need to play that game against your team-mate. But if there's only you or your team-mate who can win – and early in the season it looked like that's the way it would be because we were a

lot faster than the Ferraris – and then, somehow, they found a lot of speed, mostly coming out of corners, which was very strange. But, before that happened, the battle started against him [Frentzen]. My team-mates were always caught sleeping at the start of each season because I would never go fast in winter testing. I was busy working on the setup, not a quali lap. Come first qualifying, I would be quick. Then it was just a question of pounding away. I don't know how many times Heinz-Harald thought he had pole and then, on the last lap, I would nick it away from him. After a while, that wears you down.
MH: He was susceptible to that in any case.
JV: Yes he was. Patrick Head helped because he is a tough cookie; the more you stand up to him, the more he respects you. Either that or you get crushed. That's what happened to Frentzen. Patrick made him cry. Patrick at one point said: "Well you should just be more like Jacques and not listen to me."



Villeneuve with Williams race engineer, Jock Clear, who recently engineered Lewis Hamilton at Merc

MH: You moved on to BAR as they joined F1. Was the project overambitious?
JV: No, it wasn't. Look what we managed to build in a short time; not many people have done that. If you look at the first season [1999], the car was quick, but lethal. It was the Mecachrome engine and it was vibrating like crazy – and the car was marginal. So, the vibrations would destroy what little you had; break apart the →

INSETS: STEVE THERINGTON/LAT; LAT ARCHIVE

Villeneuve and team-mate Frentzen in 1997: "Frentzen was signed to win the title... I just destroyed him"



"Patrick Head made Frentzen cry. Patrick said: "Well you should be more like Jacques and not listen to me"

hydraulics and so on. The car was quick: I'd be in the top six but I only finished one race in the points. Ricardo Zonta ended up in the grandstand at Silverstone because something broke on the car. Every race I was worried I would get hurt because I was waiting for something to break. You can't go racing like that. It was a great group of people but the car was too marginal. The mistake was promoting us as going to win straight away. I ended up believing it; you say: "Why not?" We started a great project then when Honda came in, we thought 'Bingo!'

MH: What went wrong?

JV: I don't know. I think this was because it wasn't the 1980s when Honda were the only company making a professional engine for Formula 1. And it wasn't helped by the Japanese mentality that just didn't allow them to tell their bosses something was wrong, so the people in Japan believed everything was okay. They also attached a lot of significance to horsepower. So there was zero torque in order to get just a tiny bit more horsepower at the top; it was the opposite of Renault.



When we got two podiums, it looked as if we were progressing. After the third year, I spoke to Flavio Briatore about joining Renault. The two contracts were the same. There were no money issues one way or the other and I was 50/50. It was a tough call because BAR were the team I had built and Honda begged me to stay. At the last minute, I agreed to stay and it looked like it was the right decision because, the following year, Renault were nowhere.

Hindsight is easy. At that point, I didn't know Craig Pollock was going to be pushed away from

BAR so, suddenly, my protection was gone, with David Richards coming in. I also didn't know that Honda would turn their back on me in three months. Suddenly, I was the black sheep and I couldn't fight back. The car was breaking down every race, so that was it. The team were saying they had got rid of me because of money and yet they were paying Jenson Button more when he came in. It was all politics. The sad thing is, the media fell for it. Once that happens, you can't fend for yourself.

MH: Would you say this was one of the most disappointing points in your career?

JV: I would. I had worked so hard for that team. For a couple of seasons, I was the driver with the most test miles. I was working my ass off. Even if we were 18th, I would take the risks; there wasn't one moment when I gave up. I never criticised the team and I have to say I was driving better than I had been in '97. I could take the lack of results because I knew how hard I had been working. But the lack of comprehension outside the team about what was really going on was more difficult to take.

MH: You did drive for Renault for three races at the end of 2004 before a couple of seasons with Sauber. How do those experiences stack up?

JV: I had signed for Sauber for 2005 but persuaded them that going with Renault for three races would be a good experience, particularly as they were running Michelin and I was able to help persuade Michelin go to Sauber [who were on Bridgestone] for 2005 while, at the same time, learning about the tyre. It also allowed me to work with Fernando [Alonso], which was a very good experience. My engineer was Alan Permane and this, to me, was like working back in the day. In the space of three races, it was a new car; we changed everything. They gave me so much freedom and the fact that they believed what I was saying was a nice aspect. The way that group of people worked was amazing. I found Fernando to be a fantastic team-mate; super helpful. Even the times when I was ahead were not an issue.

MH: If you got to know Fernando that well, you must have watched his move to McLaren with interest in 2007?

JV: At McLaren, he got a bit of what I got when Jenson was brought into BAR. It was like they said to Fernando: "Lewis is our future; you're just the world champion, so shut up." Basically, they were using Alonso to build up Lewis; that's what he didn't like. So, he decided to bring the



At BAR-Honda (above) in 2003, a pairing that soured after the arrival of boss Dave Richards (right, centre)

team down – and he was right. You don't need to push the new guy that early; he'll be right in three years. Just wait and let your world champion do what he has to do. I think that's where McLaren were wrong. Fernando did the only thing he could do.

MH: And Sauber? You did two seasons.

JV: I got there and was told: "Shut up and drive; we know what's best for the car. We don't want your input on the setup." That was due to Willy Rampf. The rest of the engineers were great and I always got on with Monisha Kaltenborn. I complained through the media about requests for changes not being met and, when they wrote it, Sauber were obliged to put on the dampers I was wanting – and the car was faster. So, they got even more angry. From then, it got sour, just because of one or two people on the engineering side. But every time I go back now to the team, it's like family, which is great.


MH: I'm surprised you are as cheerful as you are.

JV: Hey, there's always tomorrow. I'm healthy; I've got four boys; I'm making money; I'm still racing when a lot of people aren't racing; I still have the passion. That's why I get frustrated because I love the sport, the racing, the competition. When I see some of the things that happen in F1 and the lack of common sense, it really gets to me. Maybe I'm too passionate.



Over the past few years I've been driving so many things, and that's made me a better driver; it's actually quite fun and exciting. Racing in this year's Indy 500 and getting back up to speed was weird. For the first 20 laps, I was thinking: "I'm going fast; I'm doing okay." And I was only doing 180. "Shit! How will I get to 200?" It was physical; I couldn't breathe and everything was blurred. I came back one week later and I was up to speed, no problem. It's a matter of the brain assimilating everything; it's still there, somewhere. I would do a setup change and I remembered 19 years ago: the same line, the same feel... everything. We come up with this information and we really don't know where it's come from.

MH: You've certainly got a lot of experiences to fall back on, starting with your school days right here. You've got great recall; thank you for sharing.

JV: It's been fun. Thanks. 

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A second hat-trick for Lewis

Hamilton extends his lead over Rosberg, but all thoughts are with Jules Bianchi

GRAND PRIX REPORTS



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The crowd are on Lewis's side as he works his Monza magic



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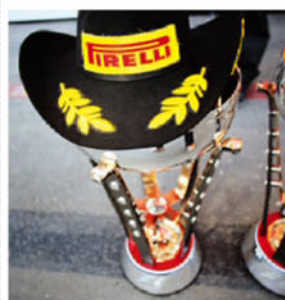
A floodlit victory as Lewis again heads Nico in the standings



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Murray remembers those team-mates who selflessly put the good of their teams above their rivalries



RACE DEBRIEF

by Stuart Codling

Italian Grand Prix

07.09.2014 / Monza



Rosberg goes off-pista

A rare slip from Nico passes the advantage back over to Lewis Hamilton at *la pista magica*

Never before has Lewis Hamilton been so popular with the unashamedly partisan crowd at Monza; nor, indeed, have those fans who gather each year beneath the whispering trees of *la pista magica* greeted so warmly any misfortune that befell those who stood against him. Here, at Formula 1's temple of speed, the fastest man won, conjuring an against-the-odds win not through strategic chicanery but by surefootedly applying pedal to metal.

Drama attends pivotal moments of Hamilton's career like a Greek chorus, and here he was nearly undone on the grid by a software glitch that undid his hard-earned pole position. As the lights went out, Rosberg's W05 Hybrid sprang smartly away from the line, effortlessly outpacing Hamilton, who was caught in a stuttering mess of wheelspin as his 'race start' mode failed. One row behind, Valtteri Bottas also went backwards, shedding eight places before turning

in to the Rettifilo, while Spa winner and stealth title contender Daniel Ricciardo compounded a slightly disappointing qualifying – by his standards – by dropping from ninth to 12th.

In the top-ten shuffle Kevin Magnussen briefly elevated his McLaren to second place, but the MP4-29 proved disappointingly easy meat in a straight line: both Felipe Massa and Hamilton breezed past on the run out of the Curva Grande on lap five with no DRS assistance. Five laps on, Hamilton edged past Massa under braking for the Rettifilo to roars of approval from the crowd, who, just moments earlier, had been equally voluble in their approval of race leader Rosberg running straight on and having to thread his way through the polystyrene hoardings.

"Do not," cautioned Rosberg over the team radio, "tell me the gap."

Hamilton's recalcitrant control software gave him a slow exit from his pitstop but he was soon

on the attack again. The feeling in the number 44 cockpit is best summed up by Hamilton's response to a proposal from the pitwall to "hang back", gain the benefit of the tow without losing downforce, save his tyres to the end and attack then: he set his fastest lap of the race – *the* fastest lap of the race – and put his rival under the cosh. There would be no repeat of Spa: Rosberg cracked and, soundtracked once again by the crowd's delight, ploughed straight on at the first chicane as Hamilton slotted neatly through and sprinted clear. Job done.

All other things being equal, at a power-dominated track such as Monza the most powerful engines ought to dominate. Thus, behind the two 'works' Mercedes, Massa quietly plugged away in clear air to a podium finish for Williams that would leave the *tifosi* conflicted: here was a longtime Ferrari loyalist scoring points that would demote the troubled Scuderia

to fourth in the constructors' championship. Bottas hauled himself up to fourth by lap 23, then dropped to ninth when he made his single stop, leaving him with it all to do again.

The technical nuances of the thrilling battle for eighth place between Sergio Pérez and Jenson Button will offer plenty of raw material for the engineers at Woking to pore over. They've spent much of the season performing acoustic analysis of the FW36 to see where Williams are extracting more from their Mercedes power unit; now the traction and mid-range punch of the Force India VJM07 will come under the microscope. On several occasions Button shut out Pérez at Rettifilo, only for Pérez to pull alongside on the run to the Curva Grande. Superior mechanical grip, or a function of gearing?

Pérez and Button were elevated to seventh and eighth after Magnussen was hit with a penalty, somewhat unfairly in the opinion of many observers, for "parking the bus" with too much vigour when Pérez was challenging him for position. He was ranked 10th at the flag behind Kimi Räikkönen, who salvaged points on an otherwise miserable day for Ferrari.

As at Spa, there were Renault-powered interlopers in among the Mercedes massive. And here, too, Daniel Ricciardo shone, with an extraordinary performance that made his illustrious team-mate's run to sixth place look merely very good.

Sebastian Vettel had parlayed eighth on the grid to fifth on the road when, with Valtteri Bottas looming behind, Red Bull went for an aggressively early stop (on lap 19) rather than fight the Williams. Vettel duly made the undercut work and, as the pitstops shook out, he remained clear of the pursuing pack, at the cost of having to run 34 laps on one set of tyres. Ricciardo, running in 11th before the pitstop sequence began, stayed out until lap 26.

"Daniel was running in clear air so there was nobody to undercut," said team boss Christian Horner. "We kept him out as long as we could so he would have fresher tyres in the second half. We thought maybe he could attack Räikkönen. What Daniel did was really impressive."

What Daniel did was to attack Räikkönen... then Button, then Pérez, then Magnussen, then, ultimately, Vettel – each dispatched with a panache that made the manoeuvres look easy.

"He really drove with precision," Horner continued. "Daniel keeps on surprising us. We couldn't have asked for more. Fifth and sixth was the optimum."

"I figured the Mercedes would be off at the front probably having a pretty boring race," smiled Ricciardo. "So I made it fun."

This was, indeed, a day that belonged to racers, as any grand prix at Monza should. **F1**

The story of the race

V A technical glitch causes Hamilton to drop to fourth place as Rosberg seizes the lead from him

MONZA



> Magnussen takes second place at the start but quickly loses out to Massa and Hamilton



< Hamilton snatches P2, then pressures Rosberg into errors at the first chicane to take the lead

V On the same lap Alonso has his first mechanical failure in 86 races, retiring with ERS issues



> Magnussen blocks an attack from Bottas at the first chicane, earning a time penalty



< Pérez wins a multi-lap duel with Button for seventh, but Ricciardo passes them both

> Ricciardo overhauls Vettel, whose tyres are several laps older, to take fifth place

























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Italian Grand Prix stats

The lowdown on everything you need to know from the weekend at Monza

THE GRID

	1. HAMILTON MERCEDES 1min 24.109secs Q3		2. ROSBERG MERCEDES 1min 24.383secs Q3
	3. BOTTAS WILLIAMS 1min 24.697secs Q3		4. MASSA WILLIAMS 1min 24.865secs Q3
	5. MAGNUSSEN McLAREN 1min 25.314secs Q3		6. BUTTON McLAREN 1min 25.379secs Q3
	7. ALONSO FERRARI 1min 25.430secs Q3		8. VETTEL RED BULL 1min 25.436secs Q3
	9. RICCIARDO RED BULL 1min 25.709secs Q3		10. PÉREZ FORCE INDIA 1min 25.944secs Q3
	11. RÄIKKÖNEN FERRARI 1min 26.110secs Q2		12. VERGNE TORO ROSSO 1min 26.157secs Q2
	13. HÜLKENBERG FORCE INDIA 1min 26.279secs Q2		14. SUTIL SAUBER 1min 26.588secs Q2
	15. GUTIÉRREZ SAUBER 1min 26.692secs Q2		16. MALDONADO LOTUS 1min 27.520secs Q1
	17. GROSJEAN LOTUS 1min 27.632secs Q1		18. KOBAYASHI CATERHAM 1min 27.671secs Q1
	19. BIANCHI MARUSSIA 1min 27.738secs Q1		20. CHILTON MARUSSIA 1min 28.247secs Q1
	21. KVYAT* TORO ROSSO 1min 26.070secs Q2		22. ERICSSON** CATERHAM 1min 28.562secs Q1

*Ten-place grid penalty for using sixth engine of the season
**Required to start from the pitlane for ignoring double waved yellows

THE RACE



THE RESULTS (53 LAPS)

1st	Lewis Hamilton Mercedes	1h19m 10.236s
2nd	Nico Rosberg Mercedes	+3.175s
3rd	Felipe Massa Williams	+25.026s
4th	Valtteri Bottas Williams	+40.768s
5th	Daniel Ricciardo Red Bull	+50.309s
6th	Sebastian Vettel Red Bull	+59.965s
7th	Sergio Pérez Force India	+62.518s
8th	Jenson Button McLaren	+63.063s
9th	Kimi Räikkönen Ferrari	+63.535s
10th	Kevin Magnussen McLaren	+66.171s*
11th	Daniil Kvyat Toro Rosso	+71.184s
12th	Nico Hülkenberg Force India	+72.606s
13th	Jean-Éric Vergne Toro Rosso	+73.093s
14th	Pastor Maldonado Lotus	+1 lap
15th	Adrian Sutil Sauber	+1 lap
16th	Romain Grosjean Lotus	+1 lap
17th	Kamui Kobayashi Caterham	+1 lap
18th	Jules Bianchi Marussia	+1 lap
19th	Marcus Ericsson Caterham	+2 laps
20th	Esteban Gutiérrez Sauber	+2 laps**

*Inc. 5sec penalty for forcing Bottas off track **Inc. 20sec penalty for collision with Grosjean

Retirements

Fernando Alonso Ferrari	28 laps – power unit
Max Chilton Marussia	5 laps – spin

THROUGH SPEED TRAP



Fastest: Daniel Ricciardo, 224.99mph
Slowest: Adrian Sutil, 204.49mph

TYRE COMPOUNDS USED



CLIMATE

Sunny 25°C

TRACK TEMP

44°C



FASTEST LAP

Lewis Hamilton, lap 29, 1min28.004secs



FASTEST PITSTOP

Kevin Magnussen, 24.214secs (entry to exit)

DRIVERS' STANDINGS

1st	Nico Rosberg Mercedes	238pts
2nd	Lewis Hamilton Mercedes	216pts
3rd	Daniel Ricciardo Red Bull	166pts
4th	Valtteri Bottas Williams	122pts
5th	Fernando Alonso Ferrari	121pts
6th	Sebastian Vettel Red Bull	106pts
7th	Jenson Button McLaren	72pts
8th	Nico Hülkenberg Force India	70pts
9th	Felipe Massa Williams	55pts
10th	Kimi Räikkönen Ferrari	41pts
11th	Sergio Pérez Force India	39pts
12th	Kevin Magnussen McLaren	38pts
13th	Jean-Éric Vergne Toro Rosso	11pts
14th	Romain Grosjean Lotus	8pts
15th	Daniil Kvyat Toro Rosso	8pts
16th	Jules Bianchi Marussia	2pts
17th	Adrian Sutil Sauber	0pts
18th	Marcus Ericsson Caterham	0pts
19th	Pastor Maldonado Lotus	0pts
20th	Esteban Gutiérrez Sauber	0pts
21st	Max Chilton Marussia	0pts
22nd	Kamui Kobayashi Caterham	0pts
23rd	André Lotterer Caterham	0pts

CONSTRUCTORS' STANDINGS

1st	Mercedes	454pts	9th	Marussia	2pts
2nd	Red Bull	272pts	10th	Sauber	0pts
3rd	Williams	177pts	11th	Caterham	0pts
4th	Ferrari	162pts			
5th	McLaren	110pts			
6th	Force India	109pts			
7th	Toro Rosso	19pts			
8th	Lotus	8pts			



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RACE DEBRIEF

by Stuart Codling

Singapore Grand Prix

21.09.2014 / Marina Bay Street Circuit



Hamilton's light fantastic

Lewis blazed a neon-lit victory trail in Singapore, leaving Rosberg to wonder who'd pulled the plug

Who knew what to expect from this edition of the Singapore Grand Prix, with its duelling Mercedes protagonists separated by 0.007secs on the grid, under skies that were by turns empty but for blazing sunshine, teeming with unseasonal rain or heavy with smog? It was almost as if the elements themselves were being determined by the spin of the roulette wheels at the casinos nearby.

Also spinning, in the air: the rear wheels of Nico Rosberg's Mercedes-Benz W05 Hybrid as it sat on its jacks in the garage, the seconds ticking down to the race start, mechanics busying themselves with trying to locate an intermittent glitch in communications between the steering wheel and the rest of the car.

Luck – the roll of the dice, the spin of the wheel – would play a part in the outcome of this race, but so too would old-fashioned daring. As Lewis Hamilton, alone on the front row,

took off neatly from pole, Sebastian Vettel took advantage of Rosberg's absence ("It's quite weird to stop with no car ahead but not being on the front row," he remarked) to blast through from the fourth grid slot into second. The other RB10, piloted by Daniel Ricciardo, was slower away from third, hampered by a battery that would not discharge fully. This problem would hamper the long-shot title challenger throughout the race.

The outside line at Singapore's Turn 1 has worked for Fernando Alonso before and so it would again, though he carried far too much speed and plunged through the run-off – briefly snatching second place from Vettel and warranting a check from the stewards for overstepping the track limits. Said officials, superintended by no-nonsense 1980 world champion Alan Jones, took barely a minute to dismiss the incident, for Alonso wisely ceded the position to Vettel and nothing more was said.

Ricciardo couldn't follow his team-mate, which forced him into a consolidation run – out of Alonso's slipstream to maximise cooling air – until the first stops. So it was that every tenth Vettel could pull out of Alonso during this first stint carried him further away from the possibility of Red Bull issuing team orders, and he drove accordingly.

Rosberg, meanwhile, was flying blind in the dark: "The only thing on the dash that's working is your gearshift paddles, okay?" The normally calm voice of Tony Ross took on a resigned tone as he issued this and further bulletins regarding the W05's burgeoning transmission maladies.

He was already struggling to pass Marcus Ericsson, of all people. So as Rosberg pulled in to the pits for his tyre stop and another change of steering wheel, the inevitable happened. Flick-flick on the newly installed paddles; no response. Try again. Nothing. A frantic wave of two cyan-

gloved palms from the cockpit. The pain was clear in Rosberg's eyes as the instruction to "park it" buzzed in his ears.

So it seemed another race – for the win at least – had become a matter of 'management' and 'maintaining the gap' while the real fight was for second place. Both Red Bulls and the Ferrari pitted together on lap 12 for used supersoft Pirellis and left in the same order, but, at the next round of pitstops, Alonso and Ferrari worked the undercut beautifully to emerge ahead.

Crucially, while Alonso was on supersofts Red Bull had switched to softs, and when the Safety Car made its entrance on lap 31 so marshals could clear debris (Sergio Pérez had lost his front wing as a result of a misunderstanding with Adrian Sutil; some may view that as karma for his earlier chop on Romain Grosjean), Ferrari had to think quickly. Pitting for softs *immediately* cost Fernando two places but, clearly, he had to make the change to the other compound: to delay would have proved ruinous.

"Had we stayed out we would have had to pit later [under green-flag conditions] and finished eighth or ninth," he explained through gritted teeth to a Spanish journalist, who had heaped ordure on the strategic call.

Hamilton had only just made his own second stop, also fitting used supersofts, so Mercedes left him out – and suddenly the battle for the overall win was very much alive.

The length of the Safety Car period – seven laps – ultimately played into Mercedes' hands. Come 'hammer time' Lewis sprinted clear, squeezing the maximum from his tyres to try to build up enough of a gap before they were spent. That gap was 27 seconds.

As Hamilton tried to stretch his lead, Vettel edged away from Ricciardo by degrees while Alonso held on behind – then closed in. Massa and Bottas receded in the Ferrari's wake as the Williams drivers eked out their tyres to the end.

Lewis began to fear that his tyres were going off – with the necessary margin still six seconds away. "We can *not* get to 27," he stated, matter-of-factly, on the radio. "I'm not sure if these things are going to explode or not."

What he couldn't see was that Vettel was also in peril, falling a second a lap off his previous pace. Emerging from the pits into the diminishing slot between the two Red Bulls, a whisker ahead of Ricciardo, Lewis barged past Vettel at the earliest opportunity.

"It seemed like Lewis couldn't wait to get back in the lead," was the world champion's rueful verdict. "We weren't sure our tyres would get to the end. We got lucky."

Hamilton, now back in the lead of the championship, might argue that you make your own luck. 🚗

The story of the race

▼ Rosberg's troubled Merc sticks in neutral on the formation lap because of a fault with the wiring loom

MARINA BAY



▲ Vettel slots in to second place on the first lap after Alonso overshoots at Turn 1

▲ Rosberg retires from the race during his first pitstop

▶ Alonso snatches second place at the second round of pitstops



▶ Pérez suffers a front-wing failure following a collision with Sutil's Sauber



▶ Alonso pits behind the Safety Car, dropping back behind Vettel and Ricciardo



▶ Hamilton has to battle for the lead again after his final stop



▲ A late stop for softs helps Jean-Éric Vergne take sixth in spite of penalties

▶ Pérez fights back to seventh place after a wing change





















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Singapore Grand Prix stats

The lowdown on everything you need to know from the weekend at Marina Bay

THE GRID

	2. ROSBERG MERCEDES 1min 45.688secs Q3
	4. VETTEL RED BULL 1min 45.902secs Q3
	6. MASSA WILLIAMS 1min 46.000secs Q3
	8. BOTTAS WILLIAMS 1min 46.187secs Q3
	10. KVYAT TORO ROSSO 1min 47.362secs Q3
	12. VERGNE TORO ROSSO 1min 46.989secs Q2
	14. GUTIÉRREZ SAUBER 1min 47.333secs Q2
	16. GROSJEAN LOTUS 1min 47.812secs Q2
	18. MALDONADO LOTUS 1min 49.063secs Q1
	20. KOBAYASHI CATERHAM 1min 50.405secs Q1
	22. ERICSSON CATERHAM 1min 52.287secs Q1
	1. HAMILTON MERCEDES 1min 45.681secs Q3
	3. RICCIARDO RED BULL 1min 45.854secs Q3
	5. ALONSO FERRARI 1min 45.907secs Q3
	7. RÄIKKÖNEN FERRARI 1min 46.170secs Q3
	9. MAGNUSSEN MCLAREN 1min 46.250secs Q3
	11. BUTTON MCLAREN 1min 46.943secs Q2
	13. HÜLKENBERG FORCE INDIA 1min 47.308secs Q2
	15. PÉREZ FORCE INDIA 1min 47.575secs Q2
	17. SUTIL SAUBER 1min 48.324secs Q1
	19. BIANCHI MARUSSIA 1min 49.440secs Q1
	21. CHILTON MARUSSIA 1min 50.473secs Q1

THE RACE



THE RESULTS (60 LAPS)

1st	Lewis Hamilton	Mercedes	2h00m 04.795s
2nd	Sebastian Vettel	Red Bull	+13.534s
3rd	Daniel Ricciardo	Red Bull	+14.273s
4th	Fernando Alonso	Ferrari	+15.389s
5th	Felipe Massa	Williams	+42.161s
6th	Jean-Éric Vergne	Toro Rosso	+56.801s*
7th	Sergio Pérez	Force India	+59.038s
8th	Kimi Räikkönen	Ferrari	+60.641s
9th	Nico Hülkenberg	Force India	+61.661s
10th	Kevin Magnussen	McLaren	+62.230s
11th	Valtteri Bottas	Williams	+65.065s
12th	Pastor Maldonado	Lotus	+66.915s
13th	Romain Grosjean	Lotus	+68.029s
14th	Daniil Kvyat	Toro Rosso	+72.008s
15th	Marcus Ericsson	Caterham	+94.188s
16th	Jules Bianchi	Marussia	+94.543s
17th	Max Chilton	Marussia	+1 lap

*inc. 5sec penalty for leaving the track and gaining an advantage

Retirements

Jenson Button	McLaren	52 laps - power box
Adrian Sutil	Sauber	40 laps - water leak
Esteban Gutiérrez	Sauber	17 laps - electrical
Nico Rosberg	Mercedes	13 laps - wiring loom
Kamui Kobayashi	Caterham	0 laps - dns/power unit

THROUGH SPEED TRAP



Fastest: Felipe Massa, 190.26mph
Slowest: Nico Rosberg, 168.76mph

TYRE COMPOUNDS USED



Supersoft Soft Intermediate Wet

CLIMATE

Clear/moon 30°C

TRACK TEMP

37°C



FASTEST LAP

Lewis Hamilton, lap 39, 1min50.417secs



FASTEST PITSTOP

Jenson Button, 28.627secs (entry to exit)

DRIVERS' STANDINGS

1st	Lewis Hamilton	Mercedes	241pts
2nd	Nico Rosberg	Mercedes	238pts
3rd	Daniel Ricciardo	Red Bull	181pts
4th	Fernando Alonso	Ferrari	133pts
5th	Sebastian Vettel	Red Bull	124pts
6th	Valtteri Bottas	Williams	122pts
7th	Jenson Button	McLaren	72pts
8th	Nico Hülkenberg	Force India	72pts
9th	Felipe Massa	Williams	65pts
10th	Sergio Pérez	Force India	45pts
11th	Kimi Räikkönen	Ferrari	45pts
12th	Kevin Magnussen	McLaren	39pts
13th	Jean-Éric Vergne	Toro Rosso	19pts
14th	Romain Grosjean	Lotus	8pts
15th	Daniil Kvyat	Toro Rosso	8pts
16th	Jules Bianchi	Marussia	2pts
17th	Adrian Sutil	Sauber	0pts
18th	Marcus Ericsson	Caterham	0pts
19th	Pastor Maldonado	Lotus	0pts
20th	Esteban Gutiérrez	Sauber	0pts
21st	Max Chilton	Marussia	0pts
22nd	Kamui Kobayashi	Caterham	0pts
23rd	André Lotterer	Caterham	0pts

CONSTRUCTORS' STANDINGS

1st	Mercedes	479pts	9th	Marussia	2pts
2nd	Red Bull	305pts	10th	Sauber	0pts
3rd	Williams	187pts	11th	Caterham	0pts
4th	Ferrari	178pts			
5th	Force India	117pts			
6th	McLaren	111pts			
7th	Toro Rosso	27pts			
8th	Lotus	8pts			



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RACE DEBRIEF

by Anthony Rowlinson

Japanese Grand Prix

05.10.2014 / Suzuka



Suzuka's darkest day

A wet and gloomy Japanese GP became darker still, following Jules Bianchi's terrible accident

That Sunday morning, Jules Bianchi's future took on a secret shine. He'd been strongly linked with a move to Sauber for 2015, continuing his elevation through the Ferrari-powered F1 ranks towards a likely graduation into scarlet for 2016.

A gifted young racer, with matinee-idol-fine features, he seemed increasingly to be one of those assured future stars who, while learning their craft with an F1 minnow today, would tomorrow be contending, in the thick of it.

"If a seat were to become available at Ferrari, would you feel ready to go there?" he was asked during a press conference on pre-race Thursday.

"Well, yes, of course I feel ready," he replied, with calm, though not cocky, assurance. "I have been working for that since I'm in the [Ferrari] Academy in 2009 and I feel ready for sure. It looks like the logical step for me."

But on lap 42 of the 2014 Japanese Grand Prix, everything changed. Bianchi's Marussia

MR03, car number 17, left the track at Turn 7 and struck a circuit rescue vehicle, deployed to remove the Sauber of Adrian Sutil, which had spun into the barriers a lap before.

In the resulting collision Bianchi suffered a diffuse axonal head injury and was taken after extrication to the circuit medical centre. From there he was transferred by ambulance to the nearby Mie General Hospital, where he underwent surgery for a "severe head injury". He was in a critical but stable condition, in intensive care, as *F1 Racing* closed for press.

The seriousness of Bianchi's injury became apparent the moment circuit TV cameras flicked to an image of Marussia CEO Graeme Lowdon stepping stone-faced from the pitwall to sprint to the medical centre. In an instant, even before news of Bianchi's condition had been confirmed, the race result had ceased to be of any importance. But a race *had* been held, and

in the context of this year's close-fought world championship it was an important one – even if, in the context of a life-threatening injury to one of its contestants, it didn't matter at all.

Lewis Hamilton won, in a brilliant display of controlled aggression and deft mastery of exceptionally treacherous wet conditions, on this most challenging of circuits. And in so doing, he edged away again from his team-mate and title rival Nico Rosberg to extend his championship lead to ten points with four races to go.

He likened the groove he found to that which he enjoyed at the 2008 British Grand Prix – a race he won by more than a minute en route to his first world title. And while this performance was nothing like as dominant – his margin to second-placed Rosberg was nine seconds – he still had to produce something rather special to win, by snatching the lead from pole man and early leader Nico.

That something came on lap 29, with a swashbuckling round-the-outside pass into Turn 1, finger-tipping the T1 perimeter before making good his escape up and through the esses. It impressed another famous British F1 crusader – Nigel Mansell, podium MC for the weekend – even if Lewis himself was modest about the move: “It was fairly straightforward, really,” he said. “I had a lot more pace than Nico and fortunately I was able to get quite close, particularly in the last corner, where he had a small oversteer moment and I didn’t. The DRS enabled me to get alongside and I was fairly confident with the balance of the car so I put it there and stuck it out.”

On wins like this, by drivers fully in the zone, world titles are built and if Lewis continues his run of currently peerless form, he’ll emerge from the Abu Dhabi GP in late November as a worthy champion, having vanquished a fine opponent. For so long this season the title balance has teetered this way and that between Hamilton and Rosberg, but now, having taken his second hat-trick and his eighth seasonal win so far, Lewis is beginning to look like a champion-elect.

There were other stirring performances on an afternoon on which most pre-race chatter centred around the likeliness of Typhoon Phanfone making landfall and cancelling the GP. It remained off-shore for the duration, although its outlying fingers drenched the circuit and allowed the likes of Jenson Button – an early third and eventual fifth – to shine. Both Red Bulls, grippy through the torrents, were strong, too, and this time Sebastian Vettel prevailed over Daniel Ricciardo, though both looked racy.

Their elevation came largely at the expense of the Williams pair, who had qualified three-four, but finished six-seven, Bottas-Massa. Head of vehicle performance Rob Smedley explained that the FW36, so fleet in the dry, was unable to match the less powerful RB10s on a wet track, owing to lack of outright downforce. “The car’s balanced,” he said, “it slides in a four-wheel drift, but the Red Bulls have got enough grip here just to drive around us.”

Smedley’s comments, like those of other professionally performing team personnel embroiled in the usual post-race hubbub, were delivered efficiently, accurately, though this time without heart.

No family can feel joyful when one of its sons is lying critically injured on a hospital bed and the mood in the Suzuka paddock as night fell early was far gloomier than anything that even Phanfone could deliver.

“How was your race today, Jenson?” asked one too-keen media interrogator.

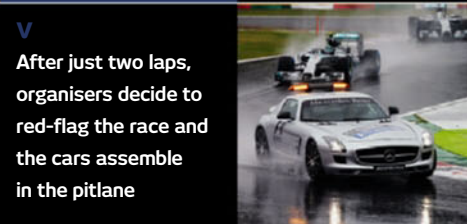
“I can’t answer that question,” he said.

“It doesn’t matter at all.” 🚫

The story of the race

▼ In torrential rain, the race starts on schedule behind the Safety Car

SUZUKA



▼ After just two laps, organisers decide to red-flag the race and the cars assemble in the pitlane



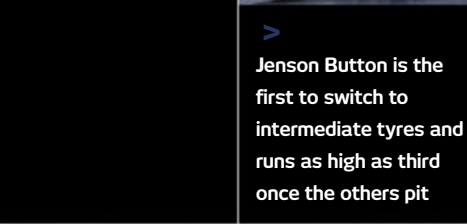
▶ The race restarts behind the Safety Car, which finally releases the field on lap 9



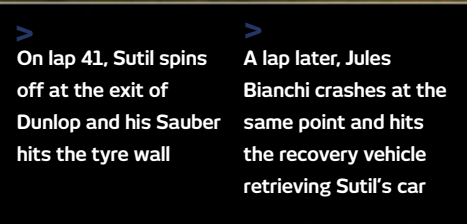
▶ Rosberg takes an early lead over team-mate Hamilton at the head of the field



▶ Jenson Button is the first to switch to intermediate tyres and runs as high as third once the others pit

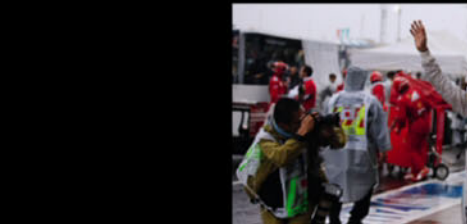


◀ Using DRS, Hamilton blasts past Rosberg to take the lead of the race on lap 29



▶ On lap 41, Sutil spins off at the exit of Dunlop and his Sauber hits the tyre wall

▶ A lap later, Jules Bianchi crashes at the same point and hits the recovery vehicle retrieving Sutil’s car

























◀ The race is red-flagged on lap 45 and isn’t restarted. Hamilton wins from Rosberg and Vettel

MAIN PHOTO: STEVEN TEE/LAT; ILLUSTRATION: ALAN ELDREDGE; INSETS: CHARLES COATES/LAT; STEVE ETHERINGTON/LAT; ALASTAIR STALEY/LAT; ANDY HONE/LAT

Japanese Grand Prix stats

The lowdown on everything you need to know from the weekend at Suzuka

THE GRID

 1. ROSBERG MERCEDES 1min 32.506secs Q3	 2. HAMILTON MERCEDES 1min 32.703secs Q3
 3. BOTTAS WILLIAMS 1min 33.128secs Q3	 4. MASSA WILLIAMS 1min 33.527secs Q3
 5. ALONSO FERRARI 1min 33.740secs Q3	 6. RICCIARDO RED BULL 1min 34.075secs Q3
 7. MAGNUSSEN McLAREN 1min 34.242secs Q3	 8. BUTTON McLAREN 1min 34.317secs Q3
 9. VETTEL RED BULL 1min 34.432secs Q3	 10. RÄIKKÖNEN FERRARI 1min 34.548secs Q3
 11. PÉREZ FORCE INDIA 1min 35.089secs Q2	 12. KVYAT TORO ROSSO 1min 35.092secs Q2
 13. HÜLKENBERG FORCE INDIA 1min 35.099secs Q2	 14. SUTIL SAUBER 1min 35.364secs Q2
 15. GUTIÉRREZ SAUBER 1min 35.681secs Q2	 16. GROSJEAN LOTUS 1min 35.984secs Q1
 17. ERICSSON CATERHAM 1min 36.813secs Q1	 18. BIANCHI MARUSSIA 1min 36.943secs Q1
 19. KOBAYASHI CATERHAM 1min 37.015secs Q1	 20. VERGNE* TORO ROSSO 1min 34.984secs Q2
 21. CHILTON MARUSSIA 1min 37.481secs Q1	 22. MALDONADO* LOTUS 1min 35.917secs Q1

*Ten-place penalty for using additional sixth power unit

THE RACE



THE RESULTS (44 LAPS)

1st	Lewis Hamilton Mercedes	1h51m 43.021s
2nd	Nico Rosberg Mercedes	+9.180s
3rd	Sebastian Vettel Red Bull	+29.122s
4th	Daniel Ricciardo Red Bull	+38.818s
5th	Jenson Button McLaren	+67.550s
6th	Valtteri Bottas Williams	+113.773s
7th	Felipe Massa Williams	+115.126s
8th	Nico Hülkenberg Force India	+115.948s
9th	Jean-Éric Vergne Toro Rosso	+127.638s
10th	Sergio Pérez Force India	+1 lap
11th	Daniil Kvyat Toro Rosso	+1 lap
12th	Kimi Räikkönen Ferrari	+1 lap
13th	Esteban Gutiérrez Sauber	+1 lap
14th	Kevin Magnussen McLaren	+1 lap
15th	Romain Grosjean Lotus	+1 lap
16th	Pastor Maldonado Lotus	+1 lap*
17th	Marcus Ericsson Caterham	+1 lap
18th	Max Chilton Marussia	+1 lap
19th	Kamui Kobayashi Caterham	+1 lap
20th	Jules Bianchi Marussia	+3 laps/dnf - accident
21st	Adrian Sutil Sauber	+4 laps/dnf - accident

*inc. 20sec penalty for speeding in the pit lane

Retirements

Fernando Alonso Ferrari 2 laps - electrics

THROUGH SPEED TRAP



Fastest: Nico Rosberg, 170.01mph

Slowest: Fernando Alonso, 103.34mph

TYRE COMPOUNDS USED



Medium

Hard

Intermediate Wet

CLIMATE



Wet

20°C

TRACK TEMP



24°C

FASTEST LAP



Lewis Hamilton, lap 39, 1min 51.46secs



FASTEST PITSTOP

Sebastian Vettel, 23.443secs (entry to exit)

DRIVERS' STANDINGS

1st	Lewis Hamilton Mercedes	266pts
2nd	Nico Rosberg Mercedes	256pts
3rd	Daniel Ricciardo Red Bull	193pts
4th	Sebastian Vettel Red Bull	139pts
5th	Fernando Alonso Ferrari	133pts
6th	Valtteri Bottas Williams	130pts
7th	Jenson Button McLaren	82pts
8th	Nico Hülkenberg Force India	76pts
9th	Felipe Massa Williams	71pts
10th	Sergio Pérez Force India	46pts
11th	Kimi Räikkönen Ferrari	45pts
12th	Kevin Magnussen McLaren	39pts
13th	Jean-Éric Vergne Toro Rosso	21pts
14th	Romain Grosjean Lotus	8pts
15th	Daniil Kvyat Toro Rosso	8pts
16th	Jules Bianchi Marussia	2pts
17th	Adrian Sutil Sauber	0pts
18th	Marcus Ericsson Caterham	0pts
19th	Pastor Maldonado Lotus	0pts
20th	Esteban Gutiérrez Sauber	0pts
21st	Max Chilton Marussia	0pts
22nd	Kamui Kobayashi Caterham	0pts
23rd	André Lotterer Caterham	0pts

CONSTRUCTORS' STANDINGS

1st	Mercedes	522pts	9th	Marussia	2pts
2nd	Red Bull	332pts	10th	Sauber	0pts
3rd	Williams	201pts	11th	Caterham	0pts
4th	Ferrari	178pts			
5th	Force India	122pts			
6th	McLaren	121pts			
7th	Toro Rosso	29pts			
8th	Lotus	8pts			



For comprehensive F1 statistics visit www.forix.com

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The United States GP preview



Round 17 / 31 October – 2 November / Austin

A modern classic that draws its inspiration from all the best bits of other tracks



THE ENGINEER'S VIEW

Pat Symonds,
Williams' chief technical officer

The United States Grand Prix has been an on-off affair since it made its debut as the American Grand Prize in 1908. The race has been held at ten different locations throughout its history, with the most recent being the Circuit of The Americas in Austin, Texas.

One of only a handful of anticlockwise circuits on the Formula 1 calendar, this track presents various special demands. Drivers will endure

greater physical stresses on their bodies through the higher than usual number of left-hand turns, which cause lateral forces in the opposite direction to normal. Pit crews will also have some adapting to do as cars will also be arriving from the opposite direction.

The circuit configuration contains a collection of 'classic' corners taken from other tracks, including a section similar to Silverstone's Maggotts-Becketts-Chapel sequence, a re-creation of the much-missed multi-apex Turn 8 from Istanbul, and the arena curves from Hockenheim. Looking beyond those corners, further inspiration comes from the Senna 'S' Curves at Interlagos and the Sebring-Auspuff Kurve from the Österreichring. Overall, there are plenty of exciting corners, but because

there are so many of them, there's quite a low average speed around the circuit.

The circuit itself incorporates some major elevation changes over the lap, with the run-up to Turn 1 on the start/finish straight posing particular problems due to the apex being located on the crest of the hill. The somewhat blind entry makes judging the braking and turning-in points particularly difficult.

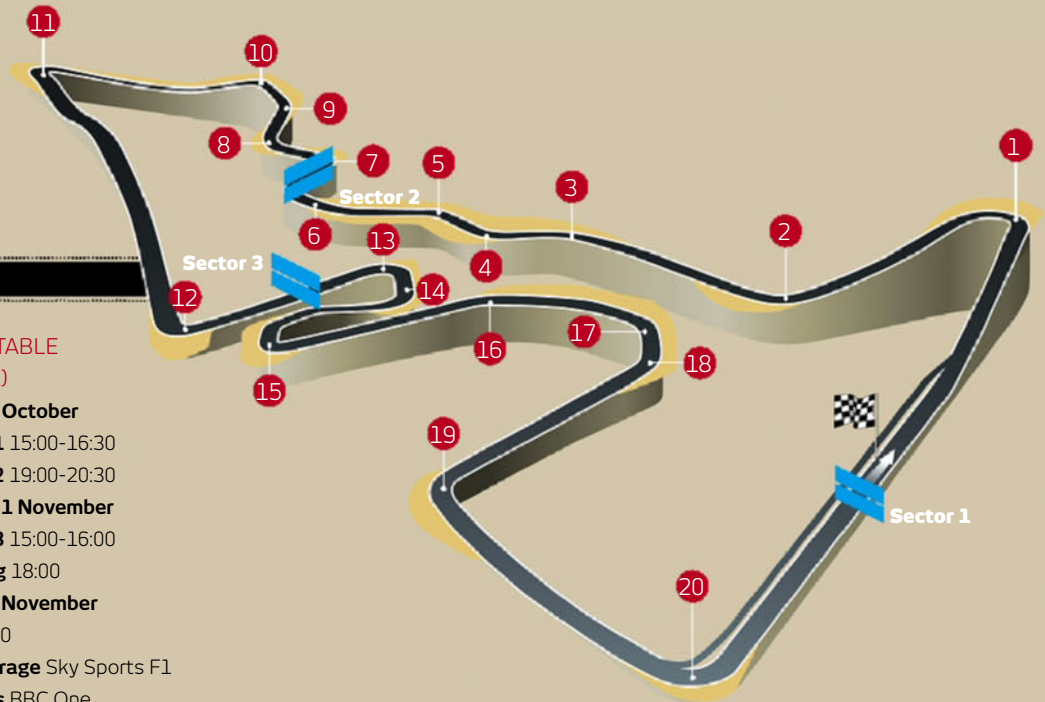
The race itself is sure to provide plenty of excitement, with one particularly good overtaking opportunity in the braking zone at the end of the main straight. And with the track being significantly wider than average, there is plenty of room for drivers to make moves at many different points, while decent run-off areas mean there's little punishment for having a go.



US GP RACE DATA

Circuit Name Circuit of The Americas
First GP 2012
F1 races held 2
Laps 56
Circuit length 3.425 miles
Race distance 191.633 miles
Direction Anticlockwise
Winners from pole 1

TV TIMETABLE (UK TIME)
Friday 31 October
Practice 1 15:00-16:30
Practice 2 19:00-20:30
Saturday 1 November
Practice 3 15:00-16:00
Qualifying 18:00
Sunday 2 November
Race 20:00
Live coverage Sky Sports F1
Highlights BBC One



WHAT HAPPENED IN LAST YEAR'S RACE...?

Winner Sebastian Vettel
Margin of victory 6.284s
Fastest lap 1m 39.856s, S Vettel
Race leaders 2
Pitstops 27
Overtakes 18

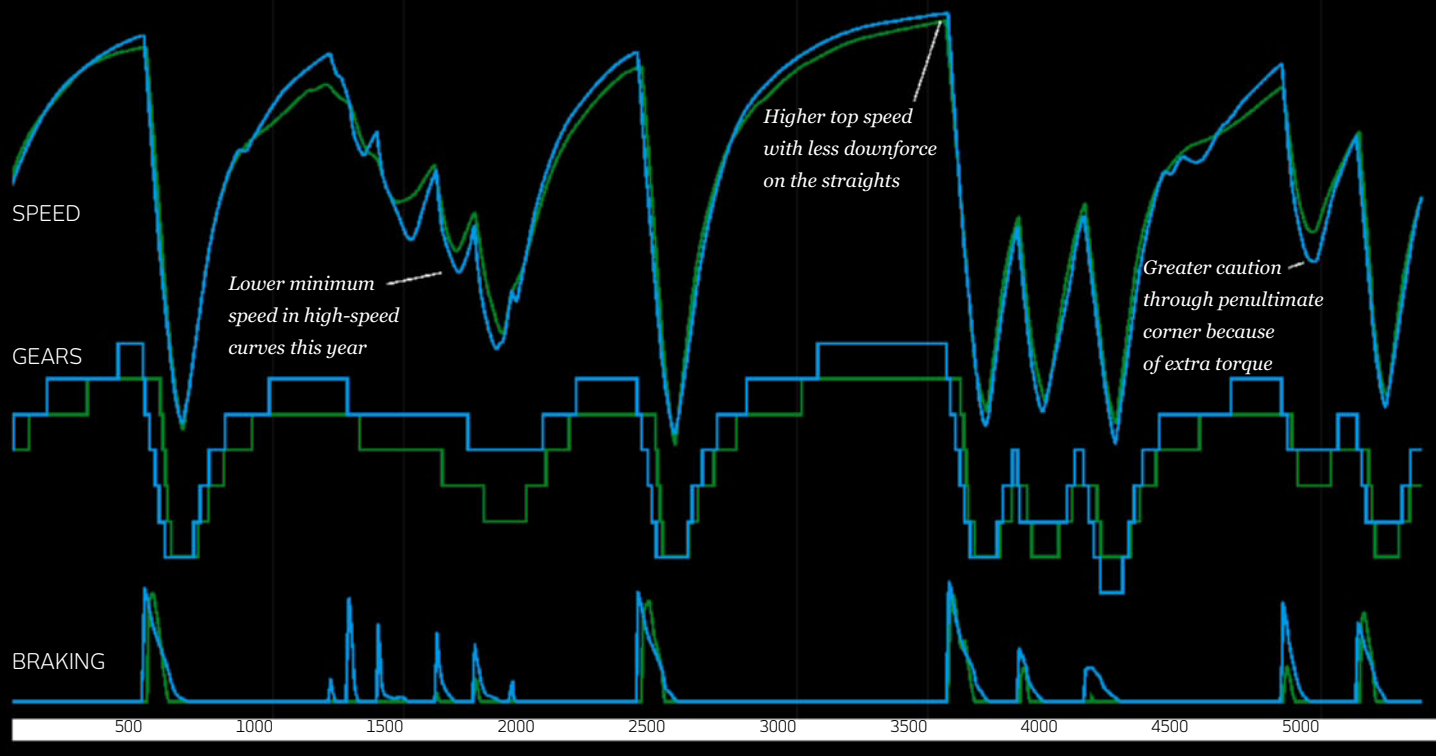


This was another dominant victory for Sebastian Vettel – his eighth in a row. Behind him there was another standout performance from Valtteri Bottas. He managed to haul his machine into the top ten and took Williams' highest points finish of the season with eighth place.

AUSTIN TELEMETRY

2014 ■ 2013 ■

HOW A LAP IN THE NEW 2014 CARS WILL COMPARE TO LAST YEAR



Start T1 T6 T8 T11 T12 T14 T15 T19 T20 Finish

ILLUSTRATION: ALAN ELDREDGE. PHOTOS: CHARLES COATES/LAT; ANDY HONE/LAT; GLENN DUNBAR/LAT

The Brazilian GP preview



Round 18 / 7-9 November / São Paulo

The usually engine-friendly high altitude could pose problems for 2014 turbos



THE ENGINEER'S VIEW

Pat Symonds,
Williams' chief technical officer

The Brazilian Grand Prix has often had pride of place as the season-closer, but once again this year it has been relegated to the penultimate slot. At only 2.6 miles long, it is one of Formula 1's shortest circuits, but that doesn't make it any less challenging.

The circuit has two opposing natures with a twisty central section splitting two other sectors dominated by long straights. The straights

require good top speed while the middle sector contains a slow, tight and twisting sequence of corners that favour higher downforce. This can lead to a few compromises when setting up the car, especially for the race, as the best passing place is under braking at the end of the long pit straight. This means that cars are often set up a little more for top speed than ideal lap time.

With one of the longest pitlanes, starting on the kink before the start-finish straight and exiting before Turn 4, you might expect a large pitstop loss here, but this is largely nullified by missing out the first three corners during a pitstop. As softer tyres are normally brought here this often means a two- or three-stop strategy. Uppermost in the strategist's mind, though, is the changeable weather that often leads teams

to extend stints and time their stops to coincide with forecast changes.

For many years Interlagos has been seen as an easy circuit for engines as the reduced air density of the 800m altitude dropped power and engine-stress levels. But for 2014, turbochargers must spin to their limits to compress the rarefied air to make best use of the 100kg/hr fuel-flow limit. In doing this, they keep all other engine components absolutely at their own limits.

This doesn't mean engines are unimportant here. If anything, a good engine means less compromise on downforce to attain high speed into the overtaking points. With cars optimised for overtaking or defending during the race, the setup will push drivers into daring manoeuvres – bringing excitement and anticipation to all.



BRAZILIAN GP RACE DATA

Circuit Name Autódromo

José Carlos Pace

First GP 1973

F1 races held 31

Laps 71

Circuit length 2.677 miles

Race distance 190.082 miles

Direction Anticlockwise

Winners from pole 11

TV TIMETABLE

(UK TIME)

Friday 7 November

Practice 1 12:00-13:30

Practice 2 16:00-17:30

Saturday 8 November

Practice 3 13:00-14:00

Qualifying 16:00

Sunday 9 November

Race 16:00

Live coverage Sky Sports F1

Highlights BBC One



WHAT HAPPENED IN LAST YEAR'S RACE...?

Winner Sebastian Vettel

Margin of victory 10.452s

Fastest lap 1m 15.436s, M Webber

Race leaders 1

Pitstops 47

Overtakes 57



This was a record ninth win of the season for Sebastian Vettel, but all eyes were on popular Aussie Mark Webber, who was bringing down the curtain on his F1 career. Webber made it to the podium in second place and in an emotional farewell he took off his helmet on his slow-down lap.

INTERLAGOS TELEMETRY 2014 2013

HOW A LAP IN THE NEW 2014 CARS WILL COMPARE TO LAST YEAR

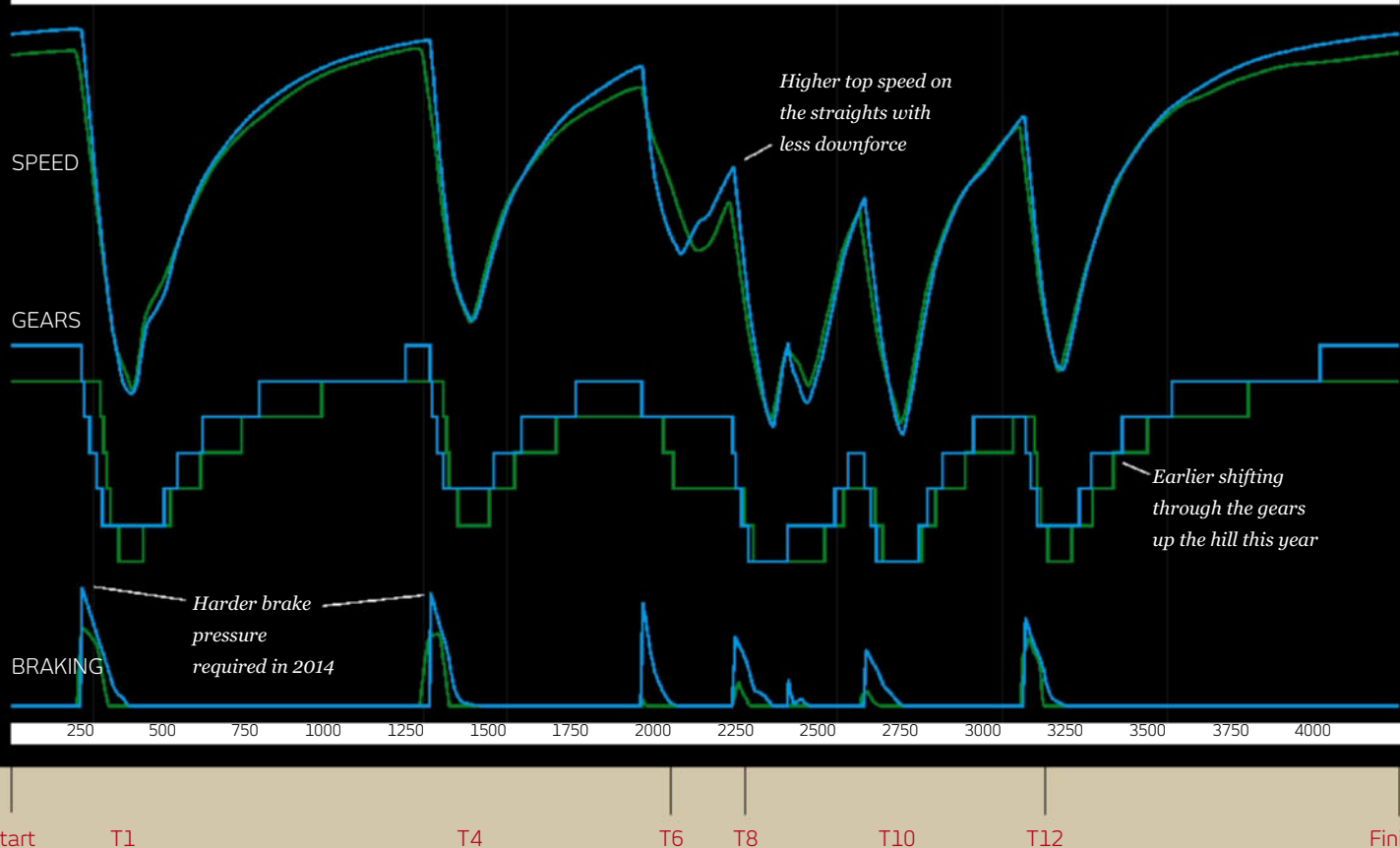
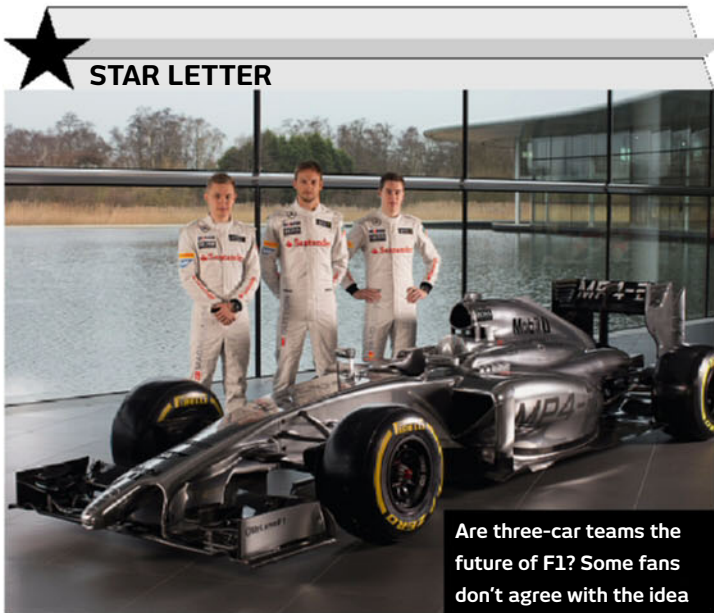


ILLUSTRATION: ALAN ELDRIIDGE. PHOTOS: ANDREW FERRARO/LAT; GLENN DUNBAR/LAT; ANDY HONE/LAT



STAR LETTER

Are three-car teams the future of F1? Some fans don't agree with the idea

Three cars is one car too many

I have always been in favour of changes in Formula 1, including new power units, young drivers and, I reluctantly accept, double points for the final race, but the much talked about three-cars-per team idea is where I draw the line.

There are once again several teams who are now on the verge of going out of business or being sold on to new owners for the umpteenth time. Once again, both the FIA and Bernie Ecclestone will only listen to the 'Rich and Powerful Few.'

The smaller and less powerful teams are, and always have been, one of the main reasons why so many fans follow the sport. The FIA and Bernie should be doing more to help these teams instead of just standing by and watching them go out of business.

If this madness continues, I for one, a fan for more than 50 years, will find another sport to follow, perhaps Formula E.

Tony Shruballs
Wiltshire, UK



STAR PRIZE

Tony Shruballs wins a pair of three-day general admission tickets to the 2015 Formula 1 Santander British Grand Prix. For more details, visit www.silverstone.co.uk/events. Hotline number: 0844 3728 300

if a driver's race is ruined because of an incident, but that is motor racing. To believe that Rosberg hit Lewis on purpose is ludicrous: these are professionals hungry to be world champion and no driver with a brain would do something so malicious as to ruin their rival's race at the risk of ruining their own.

I only hope we see more wheel-to-wheel racing and that drivers are left to do what they do best without team orders or interference.

It's great to have F1 back.
Kerrie Goode
By email

A greater understanding

I have subscribed to *F1 Racing* since its inception and the approach has always been very polished and deeply informative. But the Maurice Hamilton interview with Pat Symonds (*F1 Racing*, September), set a new benchmark for the magazine, as to the method of the interview and in terms of Mr Symonds' comprehensive and thoughtful responses.

I always considered Mr Symonds' appointment as your technical consultant a bit odd given the events surrounding 'Crashgate'. However, his incisive and considerate reflections on these events has enhanced both my understanding of the situation and my sensitivity to his position. Could the esteemed Mr Windsor be next to describe the difficult circumstances of the US F1 team?

Thank you for producing such a fine publication and thanks for the contributions of all those involved.
Dale Humphrey
Madison, USA

F1 has a rival

When a new motorsport series is announced, I always react with pessimism. AIGP, Premier 1 Grand Prix and Superleague Formula have all launched to huge fanfare then faded into oblivion. Why? Money, obviously. But back then, the words 'environment', 'hybrid' and 'green' were bandied about no more than any other word in the dictionary.

Safety for safety's sake

I disagree with Peter Windsor's support of IndyCar-style double restarts (*F1 Racing*, September). Yes, they did use them in the US but soon made a U-turn when it transpired that too many drivers were being unfairly caught up in further incidents because of them.

I think what needs to happen regarding this matter is... absolutely nothing. Everyone ought to remember that Safety Car periods are solely for the purpose of safely neutralising a race; they're not there to falsely provide a quick-fix of excitement.

F1 should stick with single-file restarts, which encourage drivers to be more proactive in taking the chance to overtake on a restart and not get caught napping. Let's just get the race restarted as quickly, safely and fairly as possible.

Ian Payne
By email

Speed restrictions

If stewards consider a driver should be punished for 'exceeding the track limits' would a withdrawal of DRS for two laps be an option to discourage this practice? This would withdraw a tool from the drivers without involving a drive-through or post-race penalty, and if they have gained a place they can still be made to give it back.

Graham Scott
By email

A return to form

Finally, F1 is back at its best. Teams allowing drivers to race, and proper wheel-to-wheel racing. The incident at Spa between Rosberg and Hamilton was unfortunate, but doesn't that show how much both drivers want to be world champion? It's a disappointment

And now we have Formula E.

Although F1 is currently doing its bit to introduce greener technology into its cars, I can't help but feel it is doing so with reluctance and at too slow a pace. Already we have battery-powered racing cars reaching speeds of 150mph (albeit with a car change during races), so what will we have in five years?

I must say that I'm not a fan of the driver voting on social media (for extra power during the race), but you understand where the new series' intentions lie: to get the fans involved. Gimmick or no gimmick.

For F1 to retain its core fanbase and attract new followers – which Formula E is certainly doing at the moment – it needs to listen to the fans. It needs to stop introducing draconian rules to such an extent that it actually prevents drivers from racing. I'd hazard a guess that 95 per cent of the rules drafted in over the last ten years have met with disapproval from fans. And what happens? They switch off and walk away. And with Formula E seeming to be the next best thing, F1 has some serious competition.

Sponsors need fans to promote their products to. Without fans, the sponsors won't come. It doesn't take a genius to work that out.

Will Formula E thrive? Only time will tell, but F1 better get its thinking cap on or we'll have more to worry about than half-empty grandstands and a drop in viewers. There could soon be no F1 at all.

Craig Curtis

By email

F1 at what cost?

So the teams have finally realised that high ticket prices are keeping the fans away from some circuits.

The fact is, though, promoters need to charge these prices to cover the fees Bernie negotiates on behalf of FOM. Many comments have been made about inflation-busting increases in race fees combined with restrictions on money the promoter can retain, such as entry fees. Some circuits even stop you taking in your own food, so fans are now realising that the ticket price is only the tip of the iceberg.

At the same time, teams are asking for more of the earnings to go to prize money to help cover their costs, which they all agree are too high, but they can't agree on where reductions should be made.

So let's see some stability in the regulations and the FIA enforcing cost-capping to keep more teams viable. Let's see a calendar that has input from FOM's logistics team. Yes you want a little distance between races, but the back and forth of some of the fly-away races is just wasteful.

While plenty of circuits want to hold a race, many have been priced out of it. India's gap year appears to have been extended, and New Jersey is nowhere to be seen on the 2015 calendar.

Money doesn't talk in F1, it shouts, and as it no longer needs to shout over the engines it's time to make it a little quieter for all.

Neil Williams

Stevenage, UK

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NEXT MONTH...



JENSON BUTTON

"I don't feel old!" With his F1 future in doubt, the GP veteran explains why he still has so much to offer

- > Peter Windsor on what it'll take to get Ferrari winning again
- > Juan Pablo Montoya opens up to Maurice Hamilton
- > Revealed: the tech secrets of the Williams FW36

ISSUE ON SALE 13 NOVEMBER*



Teams and circuits in F1 are in desperate need of more money – and soon

*CONTENTS SUBJECT TO CHANGE

MURRAY WALKER



UNLESS I'M VERY MUCH MISTAKEN...

"At the 1984 Portuguese Grand Prix, the last of the season, I conducted one of my most dramatic post-race interviews..."

Crushed between McLaren's world champion team-mates Niki Lauda and Alain Prost in a tiny room crammed with the world's media I chatted with a happy Lauda and a downcast Prost, who had lost the championship by a mere half point. But was Alain throwing a wobbly? No. In an atmosphere of mutual respect he thoughtfully expressed his disappointment and, without self-pity, gracefully conceded the title to Lauda.

I've talked a lot about team-mates who became bitter enemies – notably Senna and Prost, Jones and Reutemann, Piquet and Mansell and Gilles

Villeneuve and Pironi. But it isn't always like that. Over the years, many have got on well together and pulled in the same direction for the sake of their teams.


At Monza in 1956, when teams were allowed to substitute drivers during a race, Britain's Peter Collins let Juan Manuel Fangio take over his Ferrari and, in doing so, permitted the great Argentine to win his fourth of five titles. "I'm younger so I've got more time than he has," said the selfless Collins, who was tragically killed two years later at the 1958 German GP.

Just as Fangio and Collins were true team-mates so were Fangio and Stirling Moss in the all-conquering 1955 Mercedes-Benz team. Moss was content to learn by circulating so close to Fangio that the redoubtable Mercedes team manager Alfred Neubauer worried they'd collide – although they never did. Two years on, at the British GP when race-leader Moss hit trouble, his team-mate Tony Brooks willingly pitted his car to let Stirling take over. Their reward was the first-ever win for British drivers in a British car at the British GP.

When you're a racing driver, you're there to win and the first person you have to beat is your team-mate. But even with such intense rivalry it is still possible to be competitive and remain friends. Senna may not have got on with Prost but he certainly did with Gerhard Berger – maybe because he feared Alain more than Gerhard so became obsessed with beating him.

In 1978, the fabled black and gold Lotus 79, driven by Mario Andretti and Ronnie Peterson, was dominant, but although Ronnie was at least as fast as Mario he, like Moss in 1955, dutifully followed his team leader rather than risk a collision and there was no enmity between them. And one of the most amicable F1 partnerships of all was that of 1973 team-mates Jackie Stewart and François Cevert. Sir Jackie acknowledges that, by the end of the year, the Frenchman was his equal, but Cevert, like Collins before him, was happy to wait. Sadly, again like Collins, he was killed before achieving the championship that would almost certainly have been his.

Another example of the way drivers of equal ability *can* compete against each other without recrimination is that of Jody Scheckter and Gilles Villeneuve, Ferrari team-mates in 1979, who raced without acrimony to the end of the season with Scheckter winning the title thanks to Villeneuve deferring to him at Monza.

So where does all of this leave us now? Are Lewis Hamilton and Nico Rosberg more like Senna and Prost or Scheckter and Villeneuve? Whatever, we fans must be forever grateful that their Mercedes team bosses let them fight it out on the race track. This has been one of the most exciting seasons I can remember, and whoever takes the honours – be it Lewis or Nico – they will truly deserve it. 



"After the 1984 Portuguese GP, Prost thoughtfully expressed his disappointment and, without self-pity, conceded the title to Lauda"



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