



WORLD EXCLUSIVE

**F1 RACING
JOINS FERRARI**

It's access all areas
at F1's hottest race

MERC'S SILVER BULLET

Why Lewis will save Mercedes

(...and why he *had*
to leave McLaren)

Plus

US GP SPECIAL

Peter Windsor
with Dan Gurney
AND F1's most
beautiful car

RIDE OF THE VALTTERI

We hit the track
with F1's latest
Flying Finn

SCHUMACHER: THE VERDICT

Pat Symonds
rates Michael's
second coming

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FRONTIER.

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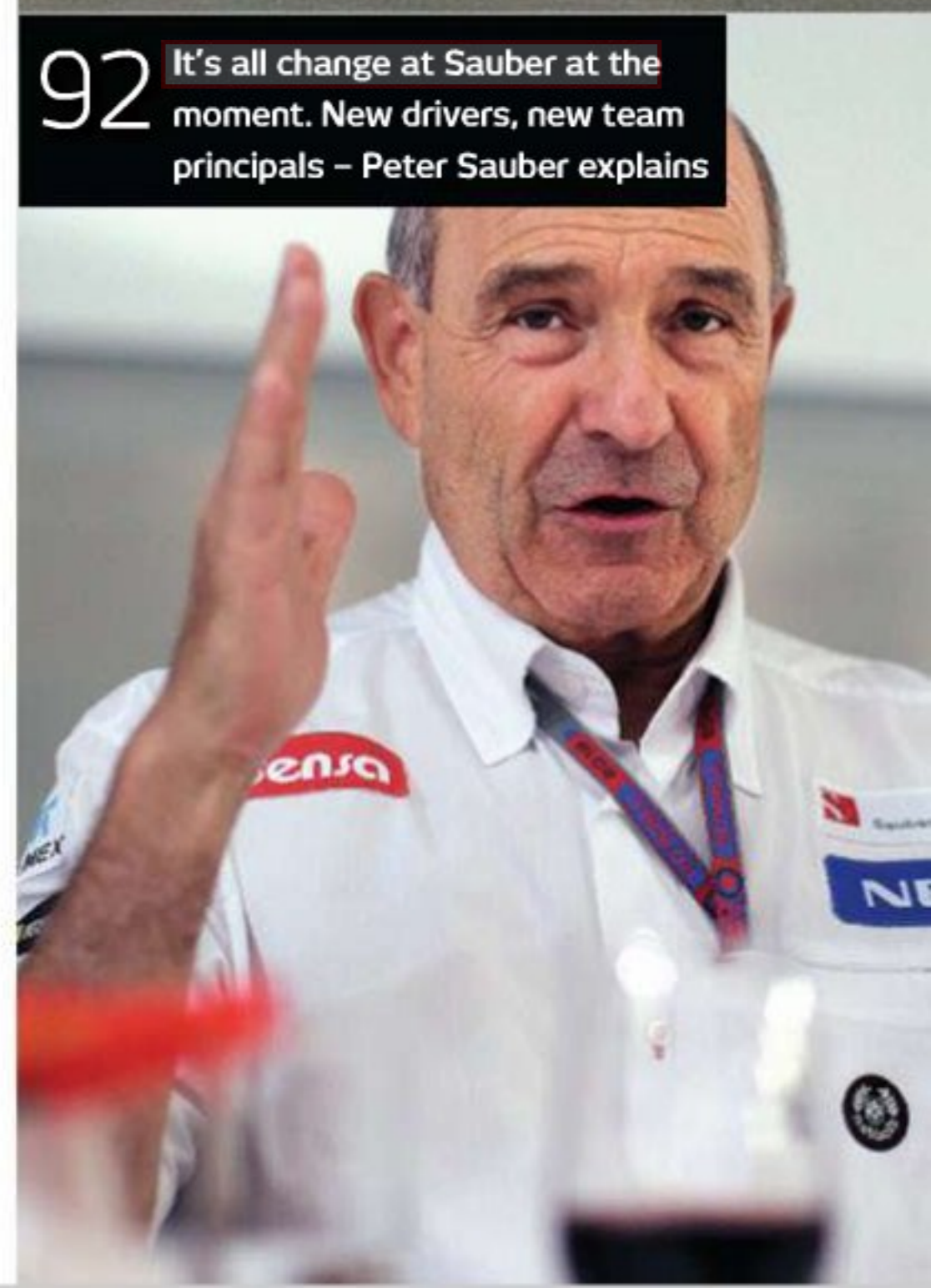
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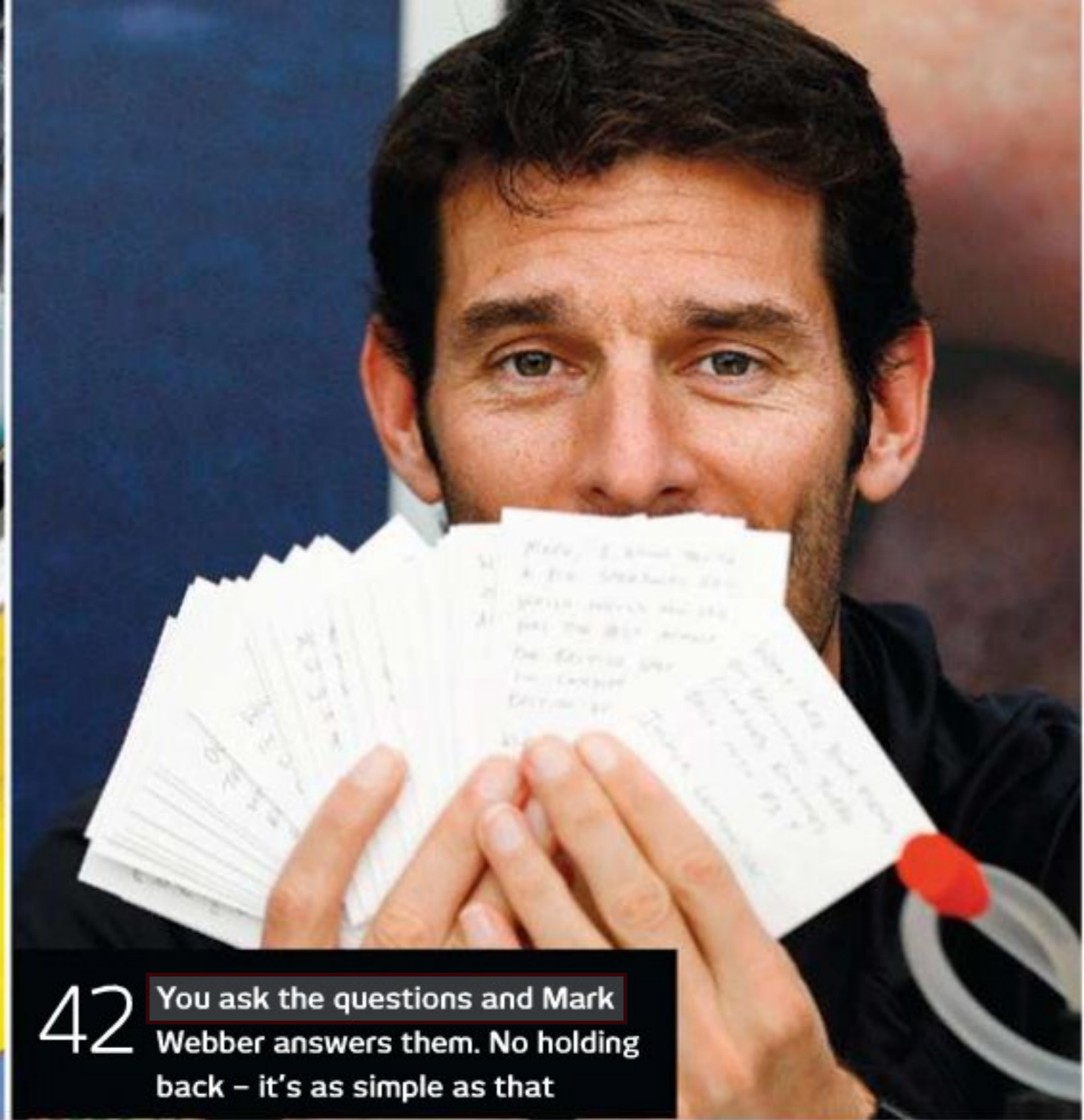
100 Peter Windsor talks to America's Dan Gurney: grand prix winner and a brilliant engineer...



92 It's all change at Sauber at the moment. New drivers, new team principals – Peter Sauber explains



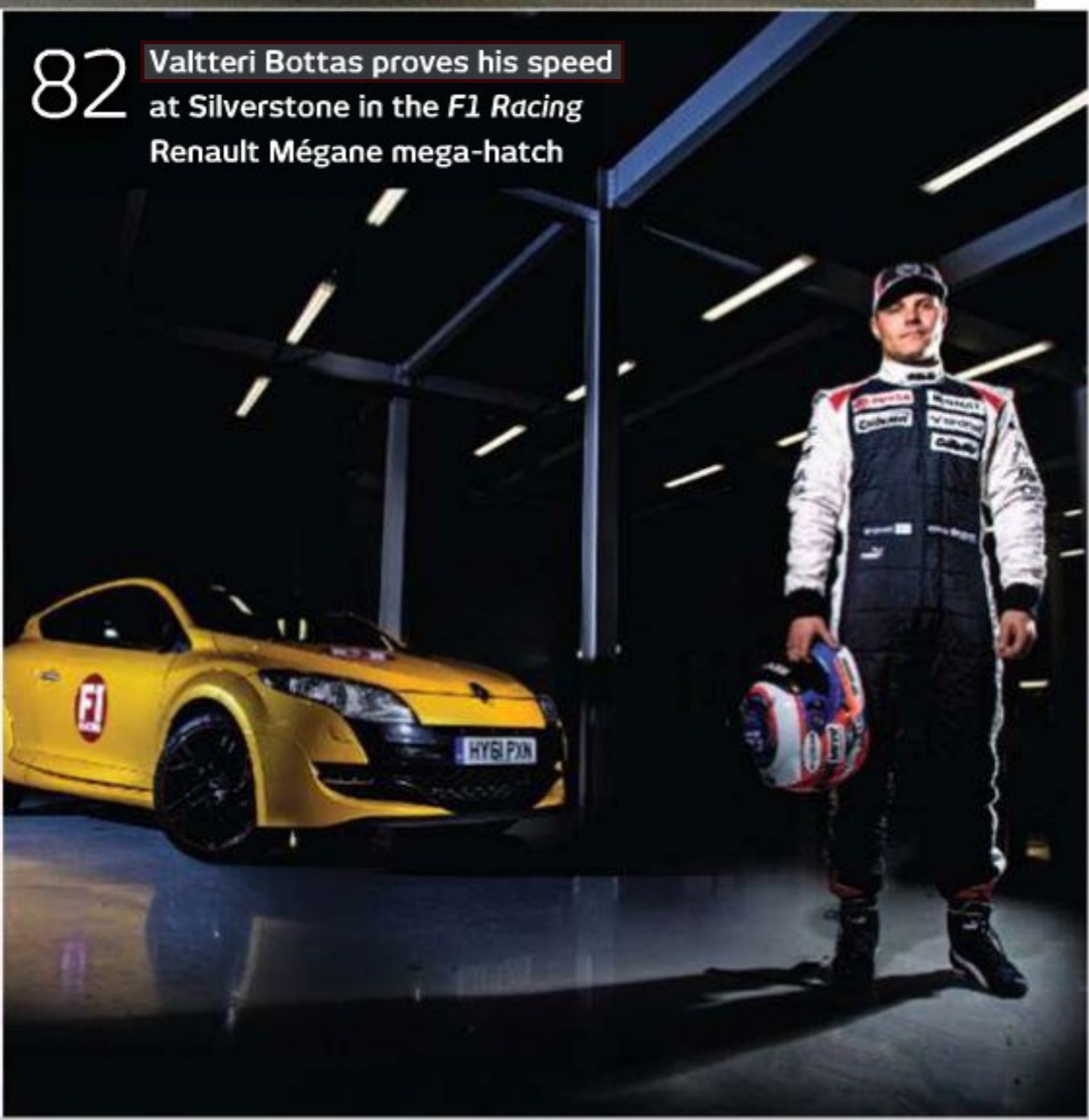
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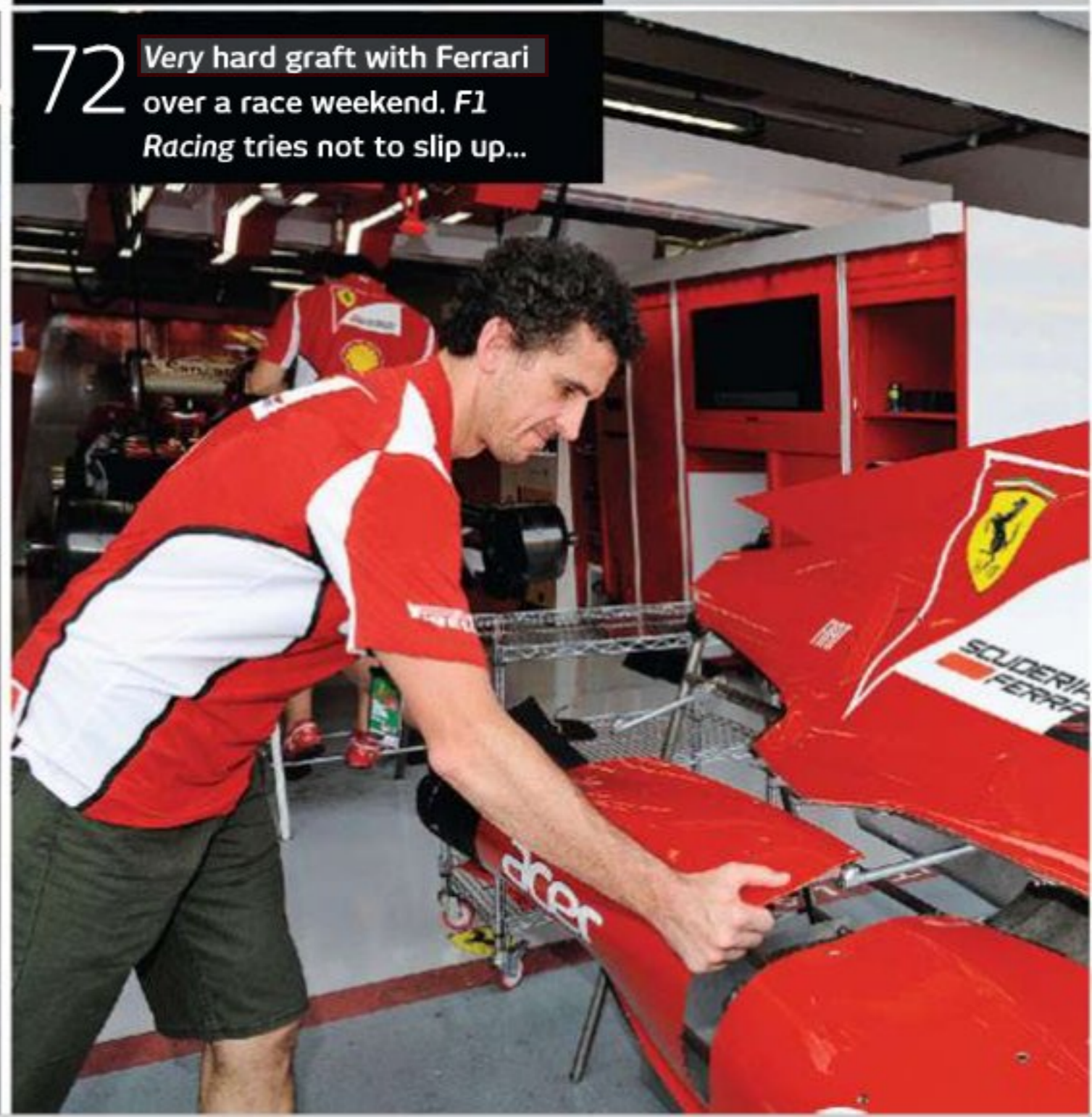
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72 Very hard graft with Ferrari over a race weekend. F1 Racing tries not to slip up...



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Ignition / Anthony Rowlinson / 12.2012

Alonso vs Vettel: the thrilling finale to an incredible season

Ten points. After 18 races from Melbourne to Abu Dhabi, that's all there is between the two protagonists left in the title hunt. A bare fifth place, which in old money would have paid out just two points, separates Vettel (on 255) from Alonso (245). This, surely, is a true indication of how thrilling 2012 has been.

Abu Dhabi encapsulated much of what has made this year so compelling: the furious speed of Vettel now his RB8 has been honed to his liking; the terrifying relentlessness of Fernando Alonso; the Iceman's stealthy cool (what a win!) and the frustrated brilliance of Lewis Hamilton, who's the subject of this month's ace cover story on [p46](#). Any of these men would make a worthy 2012 world champion but, on the eve of the US GP, which is making a welcome return, it all boils down to red vs blue, Alonso vs Vettel – a mouthwatering two-race shoot-out, with the prize of 'triple champ' laurels awaiting the victor. Would anyone deny that either of these two deserve mention alongside F1's other three-time champs, Sir Jack Brabham, Sir Jackie Stewart, Niki Lauda, Nelson Piquet and Ayrton Senna? Not me.

While the culmination of this year's title tussle is doubtless occupying your thoughts, we hope to detain you with some excitement of our own over the pages of this month's issue. For starters, we gained exclusive inside access to Ferrari for the entire Singapore GP weekend and you can find out exactly how it feels to

work for the Scuderia on [page 72](#). Then there's the on-the-limit ride around Silverstone we took with upcoming Williams hot-shot Valtteri Bottas in our Renault Mégane mega-hatch [\(p82\)](#). We've also filmed this little adventure and you'll be able to find a highly entertaining edit on F1 Racing's own YouTube channel, at www.youtube.com/f1racingmag.

Meanwhile, on [p64](#), technical correspondent Pat Symonds offers a fascinating retrospective on the two F1 careers of Michael Schumacher, the man he helped engineer to his first two world titles at Benetton. Pat's in no doubt as to how brilliant Michael was at his peak, although some of you, we suspect, might disagree.

There's also a special US flavour to this issue, in honour of the returning US GP. So on [page 38](#), you can read about the beautiful Eagle-Weslake T1G, the only US-built F1 car to have won a championship GP (Indy 500 F1 races excluded), making it significant as well as drop-dead gorgeous. Later, on [p100](#), Peter Windsor writes an affectionate paean to his friend Dan Gurney, one of only five Americans to have won GPs (excluding 1950-60 Indy specialists, such as Troy Ruttman and Bill Vukovich, whose exploits entangle F1 statisticians!).

Many reckon Dan was the most talented US racer of all: "I'd love to be a particle of air split by an Adrian Newey design," he comments. A racer pure.

Anthony Rowlinson, editor

Contributors



Pat Symonds

The technical brains of the operation

Pat engineered Schumi to success in 1994 and 1995. Now he looks back on the German ace's two very different careers on [page 64](#)



Maurice Hamilton

A legend in his own lunchtime

Mo took a box of cigars to break the ice over a long lunch with Peter Sauber. Thing is, F1's best-loved cigar fan has given up. Oops...



Lorenzo Bellanca

Quite handy with a camera, actually

Principal photographer Loz has plenty of great shots in this month's mag – including our 'inside Ferrari' exclusive on [page 72](#)



Andrew Benson

BBC Sport's chief Formula 1 writer

For the inside line on Lewis's move to Merc, we turned to the BBC's main F1 man for his unrivalled insight into the driver market [\(p46\)](#)



Thanks to Matt Bishop, Renato Bisignani, Hans-Peter Brack, Janet Bradley, Ann Bradshaw, Luca Colajanni, Steve Cooper, Russell Day, Sophie Eden, Alan Eldridge, Jennifer Garrad, Ross Gregory, Graham Greig, Helke Hientzsch, Will Hings, Danny Knight, Jed Leicester, Bradley Lord, Maria Serrat, Ricky Sowten, Lynden Swainston, Jason Swales and Roberta Vallorosi

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TECHNOLOGY OF CHAMPIONS

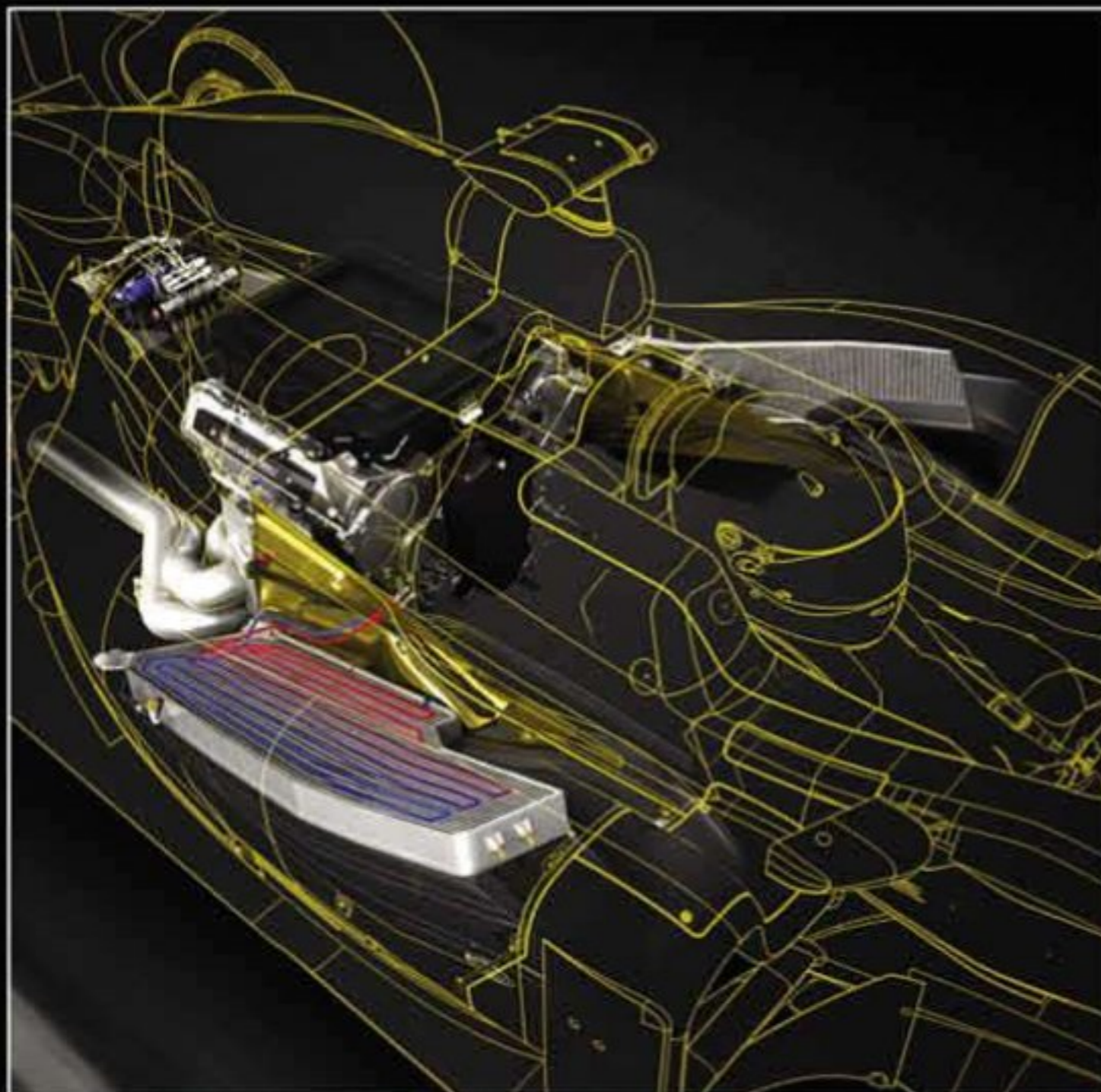
Mobil 1™ Oil: An Aerodynamic Aid

With exhaust-blown diffusers effectively a thing of the past, the Mobil 1 engine oil in the Vodafone McLaren Mercedes MP4-27 race car has enabled the team to increase rear downforce by improving aerodynamic performance.

Quest to be the Best - Martin Whitmarsh, Team Principal, Vodafone McLaren Mercedes, recently commented at the launch of the MP4-27, "While there are clear visual changes to this year's car, there's greater change beneath the skin, with lots of fresh thinking applied." With no stone left unturned in the quest to be the best, Mobil 1 engineers have developed a breakthrough engine oil for 2012 that allows a significant increase in the engine operating temperature.

Cool Performance - The MP4-27 uses oil and water radiators to help cool the engine. Located in the right-hand side pod, the oil radiator and Mobil 1 technology provide an almost equal share of the engine cooling requirement.

Running Hotter - There are several advantages of being able to run the engine hotter. Drag can be reduced by re-optimisation of the radiator and aero packaging. Increased rear downforce can also be achieved through aerodynamic improvements to the exit ducts.



Grand Prix Engine Oil Cooling Package Explained. The Mobil 1 engine oil flows through the radiator cooling down by approximately 40°C, whilst the air channelled through the side pod inlet heats up about 75°C.

In to Win - The excellent thermal performance of Mobil 1 technology is one feature that allows both higher operating temperatures whilst still protecting the engine and is a real advantage. When the winning margin can be fractions of a second, using the right engine oil can make the difference.

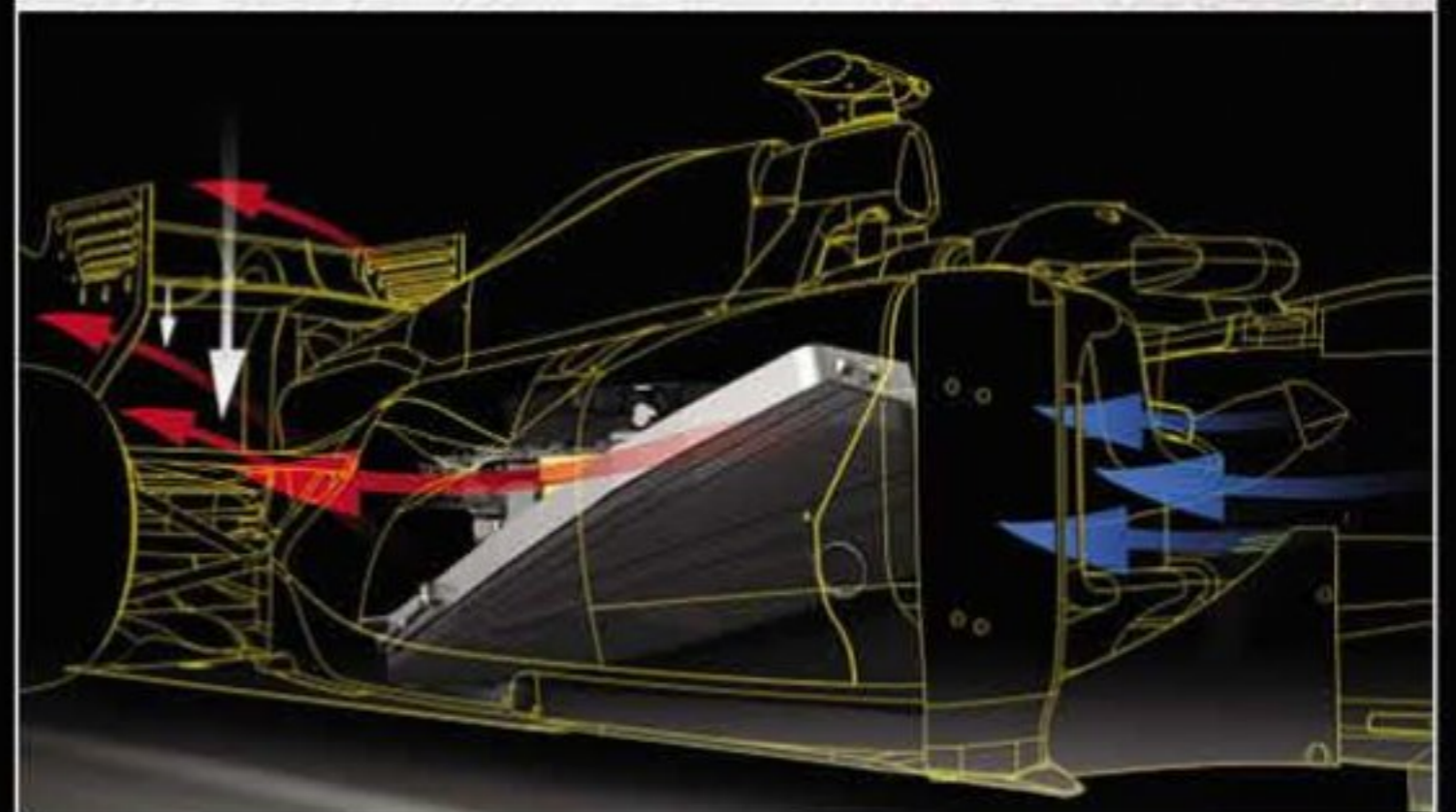


**Vodafone McLaren Mercedes
Powered by Mobil 1 Engine Oil**

Race Technology in Your Car - The tough testing ground of Grand Prix racing provides the ideal environment for Mobil 1 engineers to develop advanced engine oils which can help optimise the performance of your car. Similar to the advancements in Grand Prix race cars, recent developments in road cars often put increased pressure on the oil in your car to perform. Mobil 1 synthetic engine oils are formulated to help keep your vehicle running like new. For more information on Mobil 1, the world's leading synthetic engine oil brand, visit mobil1.com

The 2012 Canadian Grand Prix marks the 300th Grand Prix in which ExxonMobil has been a technology partner of Vodafone McLaren Mercedes.

Side Pod. Increased downforce and reduced drag equals faster lap times.



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Parade

Push on regardless Half an hour into Friday's second practice session in India, Lotus's Romain Grosjean is just starting to ask more of his harder-compound Pirellis. In the middle of the multi-apex Turn 10 right-hander, the Frenchman has a wild moment as his E20 sits on the edge of adhesion

Where Buddh International Circuit, India **When** 2.35pm, Friday 26 October

Photographer Lorenzo Bellanca/LAT

Details Canon EOS-1DX, 600mm lens, 1/640th at F6.3





ETIHAD
AIRWAYS

1st
ARU DIABI

Axa
TrinaSolar

TOTAL
RAUCH
GEOX

Red Bull



Parade

Sweet taste of success Kimi Räikkönen returned to the top step of the podium in Abu Dhabi and while he might have preferred a bottle of champagne to the rose water supplied, his brilliant drive demonstrated that time away on the forest stages hasn't blunted his speed or determination

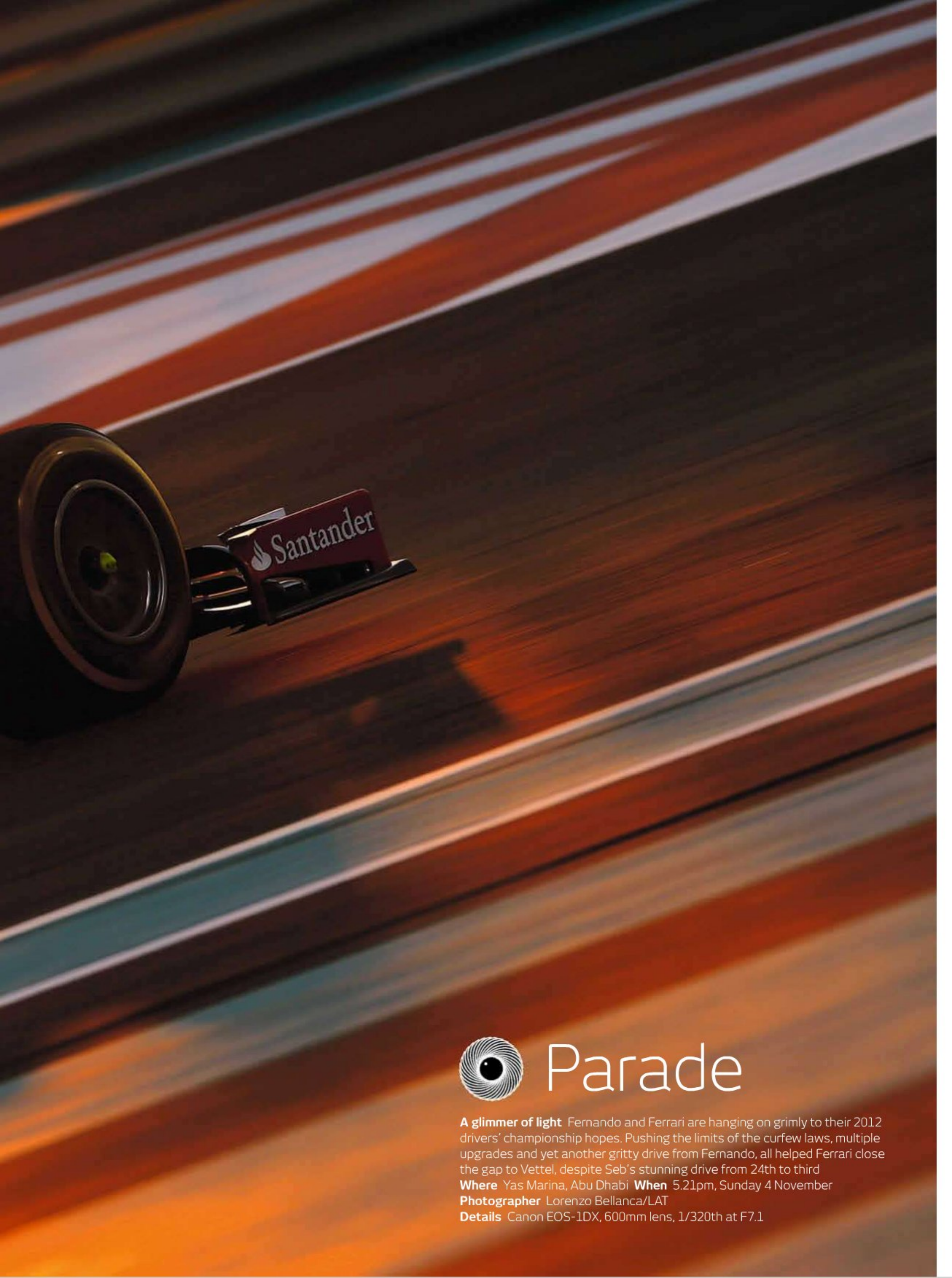
Where Yas Marina, Abu Dhabi **When** 7.02pm, Sunday 4 November

Photographer Lorenzo Bellanca/LAT

Details Canon EOS-1DX, 420mm lens, 1/640th at F4







Parade

A glimmer of light Fernando and Ferrari are hanging on grimly to their 2012 drivers' championship hopes. Pushing the limits of the curfew laws, multiple upgrades and yet another gritty drive from Fernando, all helped Ferrari close the gap to Vettel, despite Seb's stunning drive from 24th to third

Where Yas Marina, Abu Dhabi **When** 5.21pm, Sunday 4 November

Photographer Lorenzo Bellanca/LAT

Details Canon EOS-1DX, 600mm lens, 1/320th at F7.1



Two impressive red lines.

The new 911 Carrera models.

The redline of a Porsche 911 has always been impressive. For almost 50 years now, each new generation has pushed the boundaries of performance further and further. The new 911 Carrera 4 models are no exception. As well as their legendary all-wheel drive handling, they feature broad shoulders, making for a striking presence.

And the iconic red LED light strip across the rear, means other road users can now appreciate the red line of a 911 too.

To find out more visit www.porsche.co.uk/redlines



Model shown is a Carrera 4S Coupe at £88,774.00 including first year road fund licence and first registration fee. Fuel consumption figures for the new 911 Carrera 4S Coupe in mpg (l/100km): Urban 19.9 (14.2); Extra Urban 37.7 (7.5); Combined 28.5 (9.9). CO₂ emissions (g/km) 234.



PORSCHE

FITFASES

News. Opinion. Analysis.

ANALYSIS

How Red Bull turned the screw

With four wins and a P3, Vettel's been almost unstoppable since Singapore. Here's how...

Red Bull's upswing in performance since Singapore has been remarkable. While the RB8 has been a contender all season, Red Bull have once again upped their game at exactly the right moment to pull clear of closest rivals Ferrari and McLaren. There's no doubt that the tyres have been much less of a differentiator at recent events than they were earlier in the year, and this has helped

establish a more predictable pecking order. But how have Red Bull found the edge?

"I don't think they found one particular silver bullet," says Pat Symonds, Marussia consultant and *F1 Racing* technical editor. "I think it's good detail work in numerous areas that has nudged them ahead of the others."

Here we look at three key areas in which that attention to detail has really paid off.

Front wing



If you're looking for good detail work, Red Bull's revised front wing – which appeared in

Singapore, just before Vettel's four straight wins – is a good place to start. They added four new fins under the front profile of the wing, a new twin flap, revised their front-wing endplates and re-profiled the pillars connecting the nose to the wing.

"The front wing is the first part of the car to hit the air and how the air comes off that wing affects what happens to the rest of the car," says Symonds. "But it also matters what you do with the rest of the car because you cannot change any one part in isolation. As Red Bull developed their exhaust, they were probably able to exploit things on the front wing that wouldn't have worked if the exhaust didn't work. Everything sits within this symbiotic relationship – the exhaust is happy because the front wing is bringing it air in the right places and so on."





THE HULK MOVES ON...

Sauber have confirmed that Nico Hülkenberg will be joining them from Force India for 2013. The 25-year-old German has been driving for Force India, first as a reserve driver and then as a racer, since he departed Williams at the end of the 2010 season



...WHILE KIMI, RICCIARDO AND VERGNE STAY PUT

Kimi Räikkönen has signed a one-year extension with Lotus, while Toro Rosso are holding on to their young pairing of Daniel Ricciardo and Jean-Eric Vergne for another year

Exhaust



Having trialled different exhaust layouts, Red Bull have settled on the slot design

used by McLaren, Sauber and Mercedes. This makes use of the Coanda effect, which, as Symonds explains, "is a way of getting the exhaust flow to where it was before the regulations moved the exhaust outlets".

The slot works with the sloped surface of the sidepod to create a downwash of airflow over the exhaust exit, deflecting the exhaust plume down between the side of the diffuser and the rear tyre. This helps 'seal' the diffuser aerodynamically and boosts downforce. Red Bull seem to have got their version working better than most.

Double-DRS



Mercedes and Lotus have both run double-DRS systems this year with varying

results. Red Bull's system came to attention in Japan. It required a redesigned rear-wing endplate to house the duct that takes in air (uncovered when DRS is activated) and the pipes that let air to flow down through the wing and out over the beam wing. This boosts speed by reducing drag.

"Getting the double DRS working is worth quite a bit of time, particularly in qualifying," says Symonds, "but it's not helped Vettel that much in races as he's mostly been out front. But it's not very hard to do and is well suited to Red Bull's aero layout."

Red Bull's potential Achilles' heel

Vettel may still seem a shoo-in for the title but he could still be derailed by unreliability. So far this season he has failed to finish only in Valencia and Italy, but on both occasions it's been for the same reason – a faulty alternator. Post-Monza, when Vettel suffered two alternator failures (one in practice, one in the race), Renault switched their teams back to a 2011-spec alternator. Since then, Red Bull have had no problems and Vettel has stormed to the top of the standings. But because of the mileage on the old units, RBR may have to revert to a modified 2012-spec alternator for the US GP. Renault are confident they've fixed the issue, but Ferrari will be poised to capitalise on any further problems.



PHOTOS: STEVEN TEE/LAT; GLENN DUNBAR/LAT; MARK THOMPSON/GETTY IMAGES; SUTTON IMAGES; XPR/CC

ANALYSIS



Concorde talks ongoing

Bernie Ecclestone, the teams and the FIA are currently embroiled in thrashing out the terms of a new Concorde Agreement that will take F1 into 2020. Here's the lowdown...

Why are these discussions so important for F1?

The current Concorde Agreement – the covenant that sets out the commercial, sporting, technical and legal obligations of the teams, the FIA and F1's commercial rights holder (Bernie Ecclestone) – expires at the end of 2012 and the interested parties have spent much of the year debating the framework for the 2013-2020 agreement.

The Concorde Agreement was introduced in the early 1980s after disagreements between FISA (an autonomous subcommittee of the FIA, which governed motorsport) and FOCA (the Formula One Constructors' Association) about how to divide revenues. FISA-FOCA hostilities finally thawed when the parties signed the first Concorde Agreement.

You need only look to 2009 – when there was no prevailing Concorde Agreement – to see the type of chaos that can ensue without an agreement. In that case it was Formula 1 almost splitting into two rival championships.

What does each party want from the agreement?

Although money is a major factor in the latest negotiations, it's not the only consideration. Bernie Ecclestone, as the representative of the commercial rights holder (CRH), needs to know that for a set period of time he has a committed entry of quality teams, so he can make long-term deals with promoters, TV companies and sponsors. As such, Ecclestone has spent much of the year discussing commercial terms with most of the teams.

As well as ensuring they receive a fair share of the revenue, the teams want assurances that they will continue to have a big say on the future rules of F1. The remaining party, the FIA, is looking to ensure that it receives sufficient revenue. It intends to do this partly by increasing teams' championship entry fees, with the most successful teams from the previous season paying the most. Likewise, drivers face hikes in their superlicence fees.

How is the new Concorde Agreement shaping up?

F1 Racing hears revenue will be split 50/50 between most teams (on a performance-related scale) and the CRH, with the likes of Ferrari and Red Bull receiving a greater share based on historic value/performance.

A recent sticking point in negotiations has concerned potential changes to the governance of the sport that will affect the process by which future rules are decided. At the moment, proposed rule changes are ratified by the 26-strong F1 Commission. However, Ecclestone wanted to revise the F1 Commission to be an 18-person body, made up of representatives from six teams (Ferrari, Red Bull, McLaren, Mercedes, Williams and Lotus), plus six FIA members and six FOM members. It now looks as if the F1 commission will contain representatives from all teams, but they will only be able to approve or reject – not amend – proposals put forward by the 18-person group. Negotiations rumble on...

/ French Grand Prix poised for 2013 return / F1 snakes and ladders

NEWS

French GP lined up to replace New Jersey

Absent since 2008, the French GP could return next year due to US construction woes

The French GP is set to return to the calendar for the first time in four years next season, with F1 supremo Bernie Ecclestone telling French officials: "We have a pen and are ready to sign."

Ecclestone is looking to plug a hole in the 2013 calendar after organisers of the planned grand prix in New Jersey postponed their race for a year due to problems with construction.

The news that Ecclestone is looking to bring back the French GP will have been warmly received by Magny-Cours and Paul Ricard, with both circuits having previously expressed an interest in reviving the event. Both tracks were remaining tight-lipped about the current situation when contacted by *F1 Racing*, but

their silence is an indication that both are indeed pushing for the hosting rights.

Magny-Cours hosted the last French GP in 2008 and recently held a young driver test attended by Mercedes, Ferrari and Force India. However, as we went to press, the indications were that the ultra high-tech facility at Paul Ricard was leading the race to host the event. The track, at Le Castellet near Marseille, has not hosted a grand prix in its current guise and has minimal facilities for spectators, but it is considered to be one of the safest circuits in the world and that could be a factor that works in its favour.

The big issue is, of course, whether circuit officials can now come up with suitable funding...



Paul Ricard last hosted the French GP in 1990. Could it be back in with a chance 23 years on?

WINNERS + SPINNERS

UPS AND DOWNS ON THE F1 ROLLER COASTER

GOOD MONTH FOR

Eddie Jordan The former team boss has just sold his 37-metre superyacht to TV presenter Chris Evans for £5.5million. But rumour has it that EJ's now in the process of upgrading to a £20million 50-metre superyacht...



Seeing the sights Felipe Massa was just one of many Formula 1 types, who grabbed the opportunity for a jaunt over to see the Taj Mahal before the Indian Grand Prix

Women in F1 Susie Wolff makes her Formula 1 test debut for Williams, while Marussia tester Maria de Villota appears in public for the first time since losing an eye in a horrific testing accident

Getting back in the saddle The 1996 world champion Damon Hill makes a return to the F1 cockpit, driving a Red Bull RB6 in a demo at Barcelona



BAD MONTH FOR

Following in your son's wheeltracks Sebastian Vettel may be well on the way to title number three but dad Norbert isn't finding racing so easy. Vettel Sr finished last on his track racing debut in the Volkswagen Scirocco Cup.

New McLaren drivers In the four races following Sergio Pérez's signing for McLaren, the Mexican failed to score any points - retiring or making contact in each race



F1 Mastermind

Your chosen specialised subject: the world's greatest sport



- 1 In what year did Sauber make their Formula 1 debut?
- 2 Two Belgian drivers have won an F1 grand prix. Name them.
- 3 How many victories did John Surtees (below, left) score in his 1964 title-winning season?
- 4 At which Formula 1 circuit did Fernando Alonso record his maiden grand prix victory?
- 5 Who scored more F1 podiums – Jean Alesi or Gerhard Berger?
- 6 David Coulthard (below, right) scored 12 pole positions over the course of his F1 career – but how many of them were for Williams?
- 7 In what year did Suzuka host its first world championship GP?
- 8 Nokia were the title sponsors of which team in 1995?
- 9 Alain Prost scored his final F1 victory at which race?
- 10 How many different teams did Nelson Piquet score podiums for?



THIS BOY CAN DRIVE

Keeping an eye out for the superstars of tomorrow



Daniel Juncadella Who is he?

A 20-year-old Spaniard who has recently won both the F3 Euro Series and the FIA European F3 title. His prize? A Formula 1 test with Ferrari.

How good is he?

Juncadella hasn't managed to blow everyone away this year, but his results suggest that he's improving all the time. A better barometer of the youngster's ability might be the fact he won last year's prestigious Macau Grand Prix.

Anything else we need to know about him?

His full name is Daniel Juncadella Pérez-Sala. If the last bit of his name sounds familiar, that's because his uncle is Luis Pérez-Sala, former Formula 1 driver and current HRT team principal.

F1 chances

He's not expecting his Ferrari prize drive to lead to anything, but his family connections in Formula 1 could prove extremely useful in the future. Let's see how he fares in more powerful single-seaters first.

STATS

Ferrari's worst podium droughts

Felipe Massa's podium in Japan was his first in 35 races, but he's not the only Ferrari driver to endure a lengthy stint off the rostrum...



Felipe Massa

»»» 35 races
(Korea 2010 - Japan 2012)



Gilles Villeneuve

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 19 races
(USA 1979 - Monaco 1981)



Didier Pironi

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 18 races
(USA 1981 - San Marino 1982)



Michele Alboreto

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 17 races
(Austria 1985 - Austria 1986)



Eddie Irvine

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 17 races
(Australia 1996 - Argentina 1997)



Wolfgang von Trips

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 15 races
(France 1958 - Netherlands 1961)



Jody Scheckter

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 15 races
(Italy 1979 - USA 1980)



Jacky Ickx

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 14 races
(Germany 1972 - Italy 1973)



Stefan Johansson

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 14 races
(USA 1985 - Belgium 1986)



Gerhard Berger

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 14 races
(Italy 1988 - Italy 1989)



Ivan Capelli

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 14 races
(South Africa 1992 - Portugal 1992)



Jean Alesi

»»»»»»»»»»»»»»»»»»»»»»»»»»»»»» 14 races
(Canada 1992 - Monaco 1993)

Answers: 1 1993 2 Jacky Ickx and Thierry Boutsen 3 Two 4 Hungaroring 5 Berger (48-32) 6 Five 7 1987 8 Tyrrell 9 1993 German GP 10 Four (Brabham, Williams, Lotus, Benetton).

TECH

Teams face crucial 2013 tyre test

Pirelli will give teams a taste of 2013 rubber at the Brazilian GP – providing it doesn't rain

Friday practice at this year's Brazilian GP will be of even greater importance than usual as Pirelli hand the teams their first taste of the 2013-specification tyres.

"The new tyres are out of the same mould so the shape is the same, but they're quite different in construction," explains Pat Symonds, *F1 Racing's* technical editor. "The cornering stiffness is a little higher but because the vertical stiffness is a bit lower at both the front and the rear, they're going to deform a little more at speed. That's important, particularly at the rear, because the shape of the sidewall area that affects aerodynamics so much is going to be different and the rear tyre wake goes straight into the diffuser."

As such, you can expect the teams to spend time trying to understand how the flow in the diffuser changes when they fit the new tyres. They can do this by using laser scanning or by attaching a pressure rake on the diffuser.



Symonds thinks it's hard to say how big an effect the new tyres will have on design: "The tyre shape is constantly changing, so it's good practice – and something a lot of teams work on – to try to develop aerodynamics that are not sensitive to tyre shape. The new tyres will affect teams in different ways depending on how sensitive their cars' aerodynamics are to the tyres."

The 2013 tyres are also heavier, by 0.25kg at the front and 1.25kg on the rear. "The cars at the front carry ballast, but the new tyres will make the cars 3kg heavier and that will eat into their ballast. It's another little thing to consider," says Symonds

With so much to learn, the teams will be hoping practice stays dry. If not, they'll have to wait until February to try the new tyres.

STATS

How Pirelli have used their tyre compounds in 2012

Supersofts have barely had a look in, with F1's rubber supplier opting mostly for softs and mediums

Supersoft 4 races (Monaco, Canada, Singapore, Korea)



Soft 15 races (Australia, China, Bahrain, Spain, Monaco, Canada, Europe, Britain, Germany, Hungary, Singapore, Japan, Korea, India, Abu Dhabi)



Medium 12 races (Australia, Malaysia, China, Bahrain, Europe, Germany, Hungary, Belgium, Italy, Abu Dhabi, USA, Brazil)

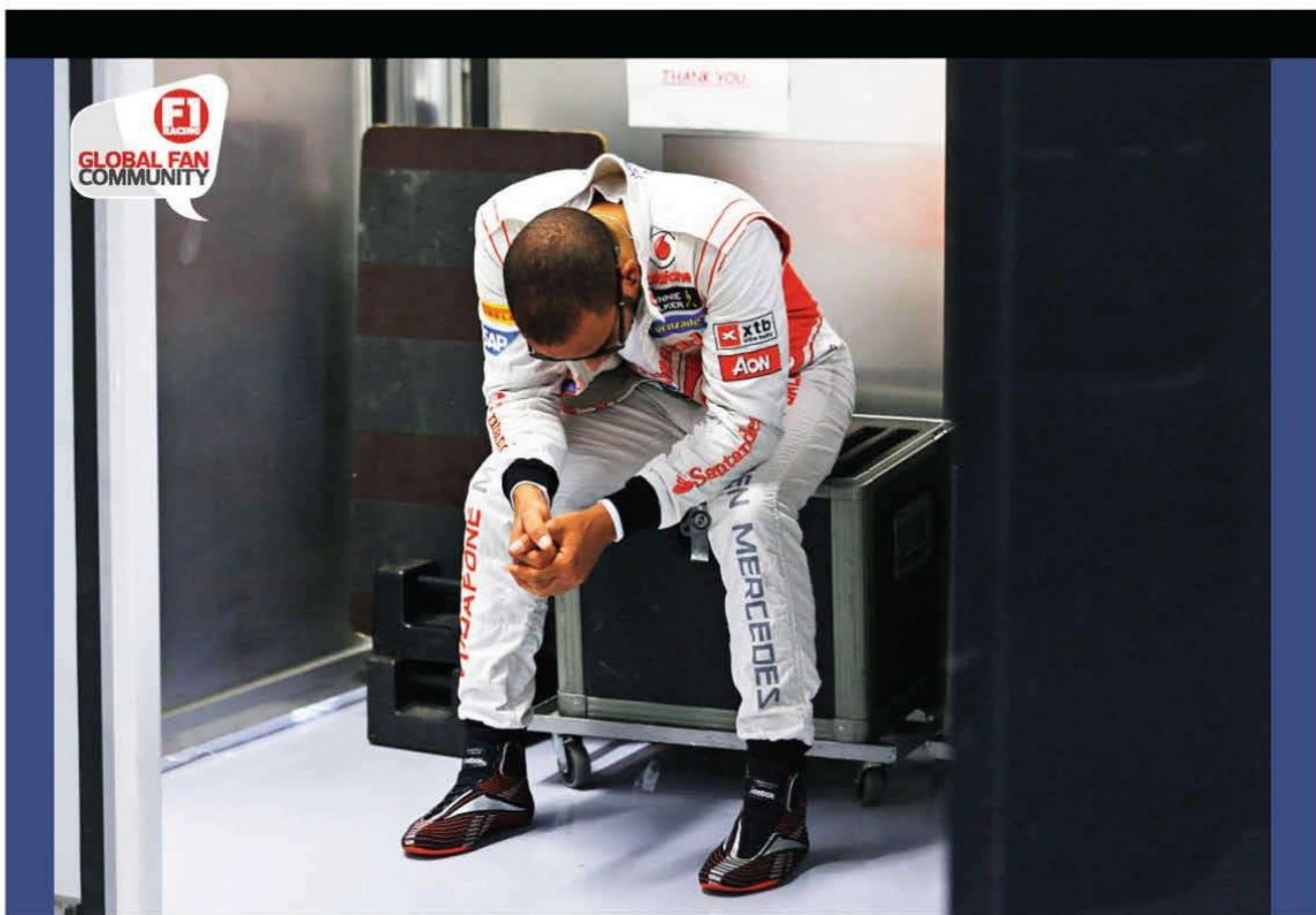


Hard 9 races (Malaysia, Spain, Britain, Belgium, Italy, Japan, India, USA, Brazil)



PHOTOS: ANDREW FERRARO/LAT ARCHIVE

PITPASS / There's no going back for Lewis Hamilton



“Hamilton has made a bad career move”

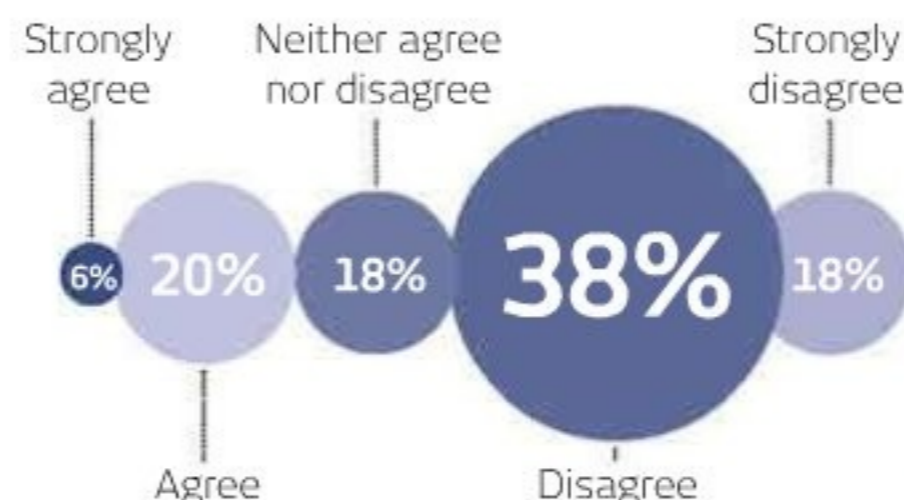
He's made the move from McLaren to Mercedes for 2013, but the majority of you believe he's made the wrong choice

Lewis Hamilton's decision to leave McLaren for a team who have won just one race in three years has been the biggest talking point of the season. But we wanted to know whether you, the fans, think the 2008 world champion has made a good career move. Some 6,448 of you responded to our latest survey with the majority (56 per cent) disagreeing or strongly disagreeing that joining Mercedes is the right career move for Hamilton. Conversely, only 26 per cent agree or strongly agree that he's made a good decision, with 18 per cent undecided.

However, fans do approve of McLaren's and Ferrari's moves in the driver market. McLaren signed Sergio Pérez to replace Hamilton, while the Scuderia have chosen

to retain Felipe Massa for an eighth season. Some 58 per cent of you agree or strongly agree that Ferrari have made the right choice, while a majority – 48 per cent – think Sergio Pérez is the right man to replace Lewis Hamilton at McLaren.

“Joining Mercedes was the right career move for Hamilton”



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Monika Gesicka, *Poland*

Lochie Lawrence, *Australia*

Yuriy Ovsyannikov, *Russia*

Andrew Richards, *UK*

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Vettel now your title favourite

Alonso may have been your champion elect all season, but now a certain finger-waving double world champion has wrested the top spot away from him



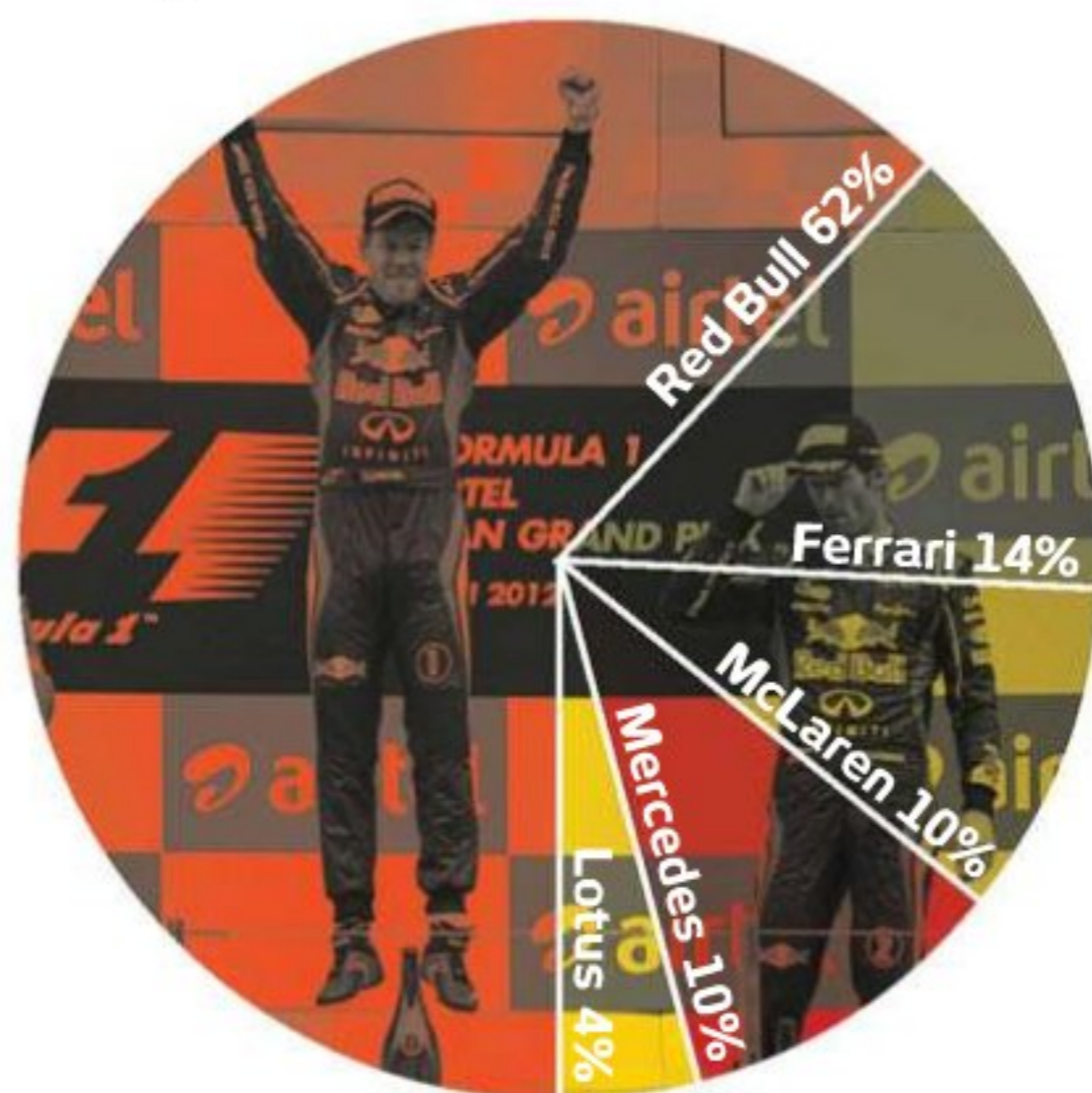
*X INDICATES A DRIVER NO LONGER IN CONTENTION FOR THE CHAMPIONSHIP



Which of these teams will have the strongest driver line-up in 2013?

Fans agree: Red Bull have the strongest 2013 line-up

Vettel and Webber will continue as team-mates for a fifth consecutive year in 2013. Other pairings have changed, but you think Red Bull are in the best shape



Red Bull
Sebastian Vettel & Mark Webber



Ferrari
Fernando Alonso & Felipe Massa



McLaren
Jenson Button & Sergio Pérez



Mercedes
Lewis Hamilton & Nico Rosberg



Lotus
Kimi Räikkönen & Romain Grosjean (TBC)

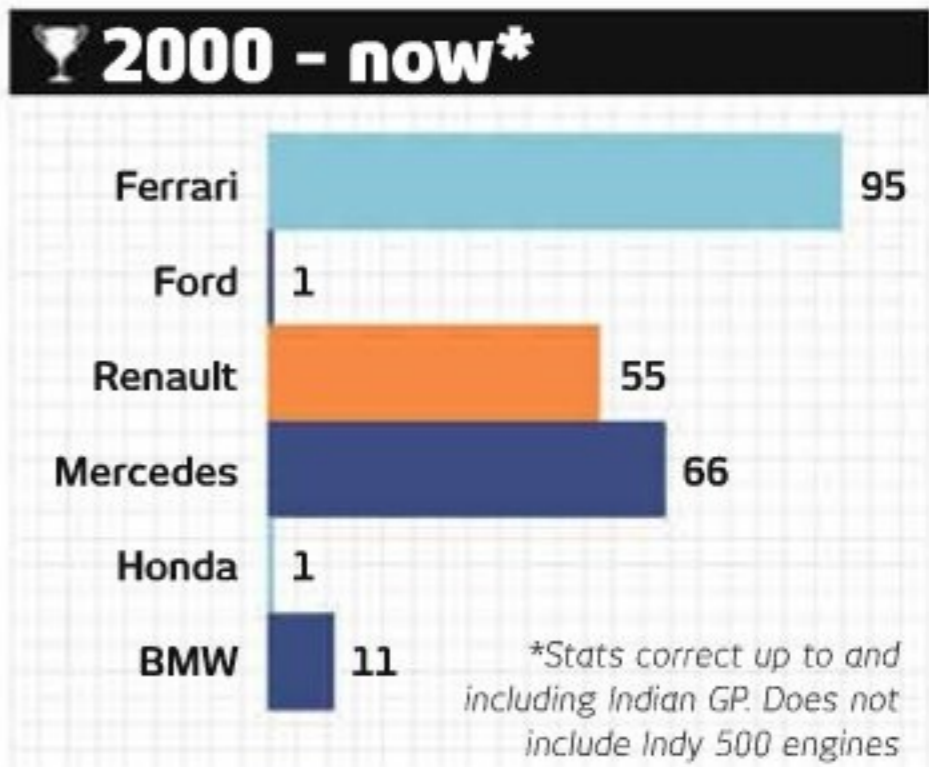
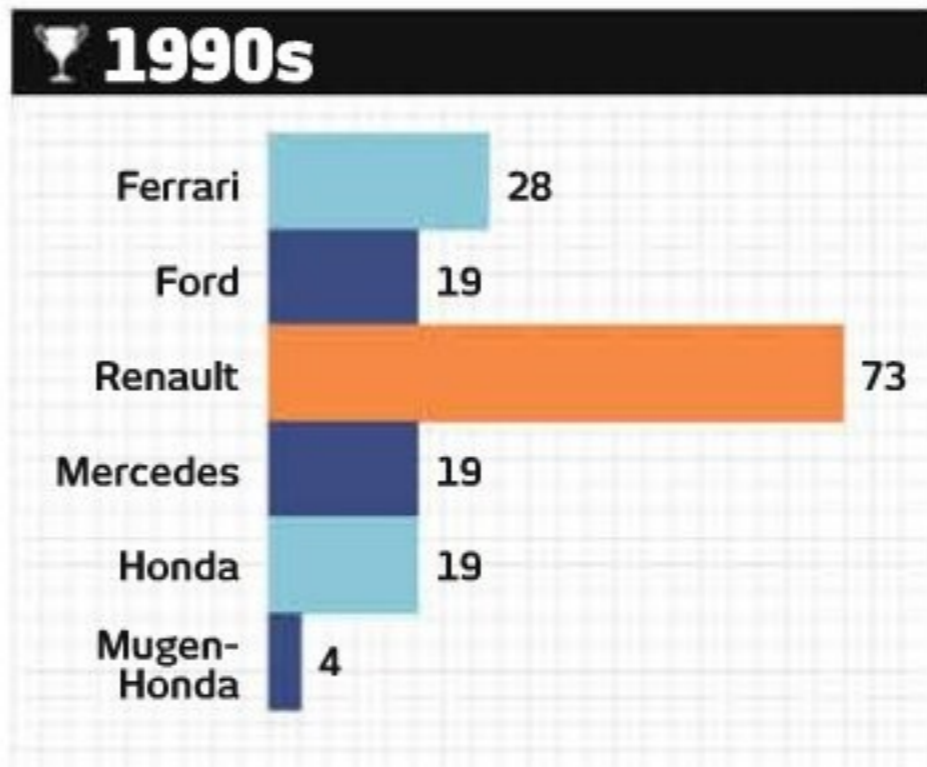
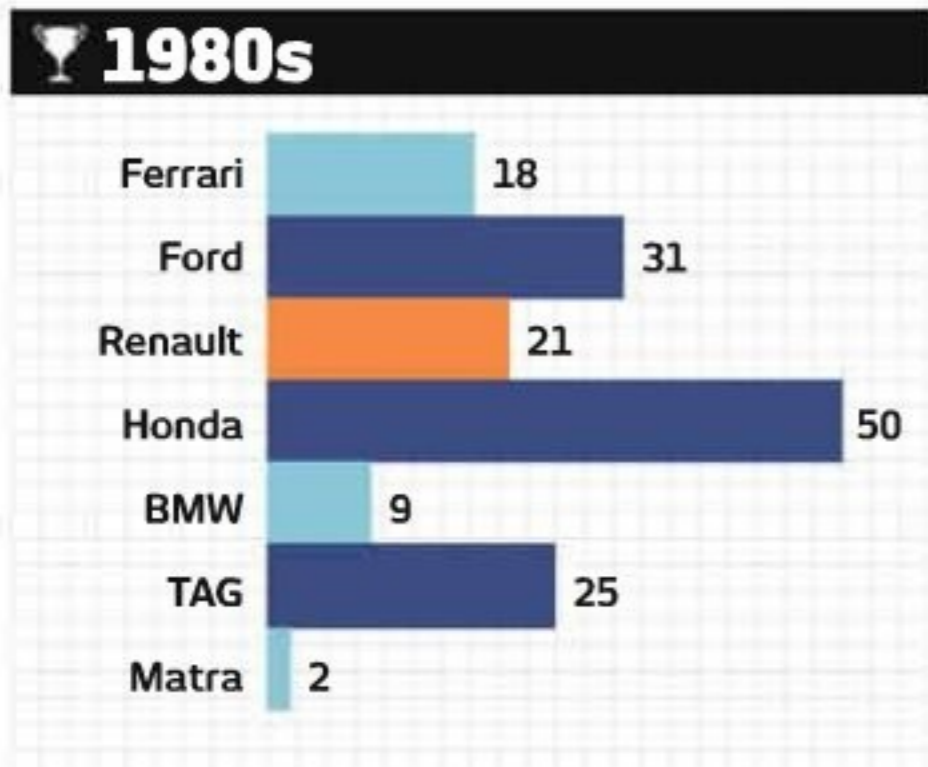
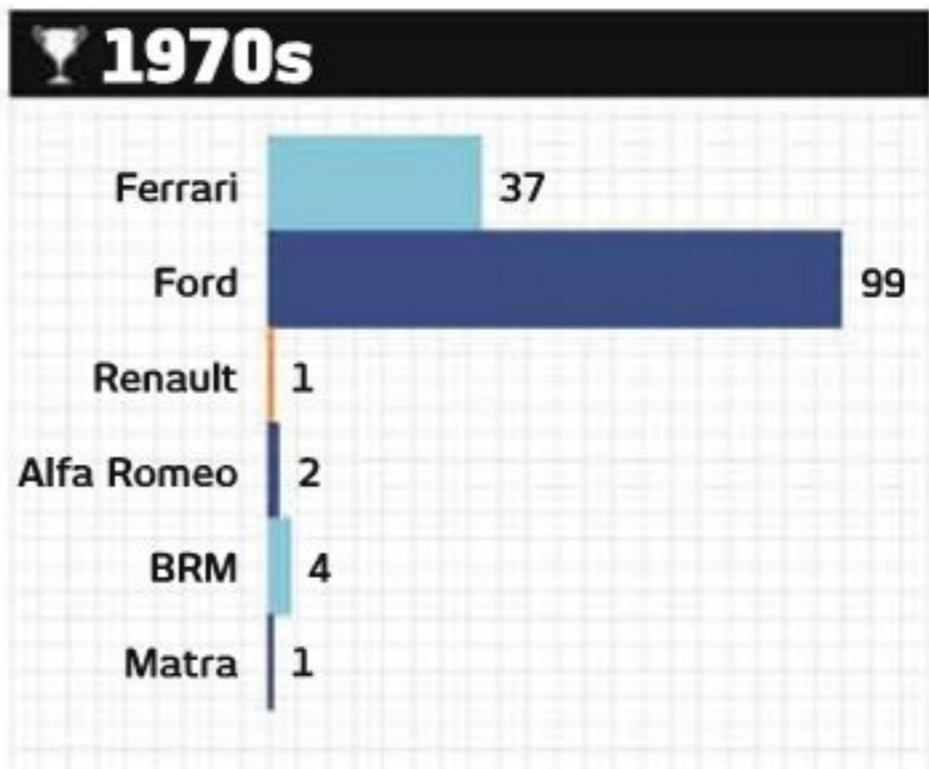
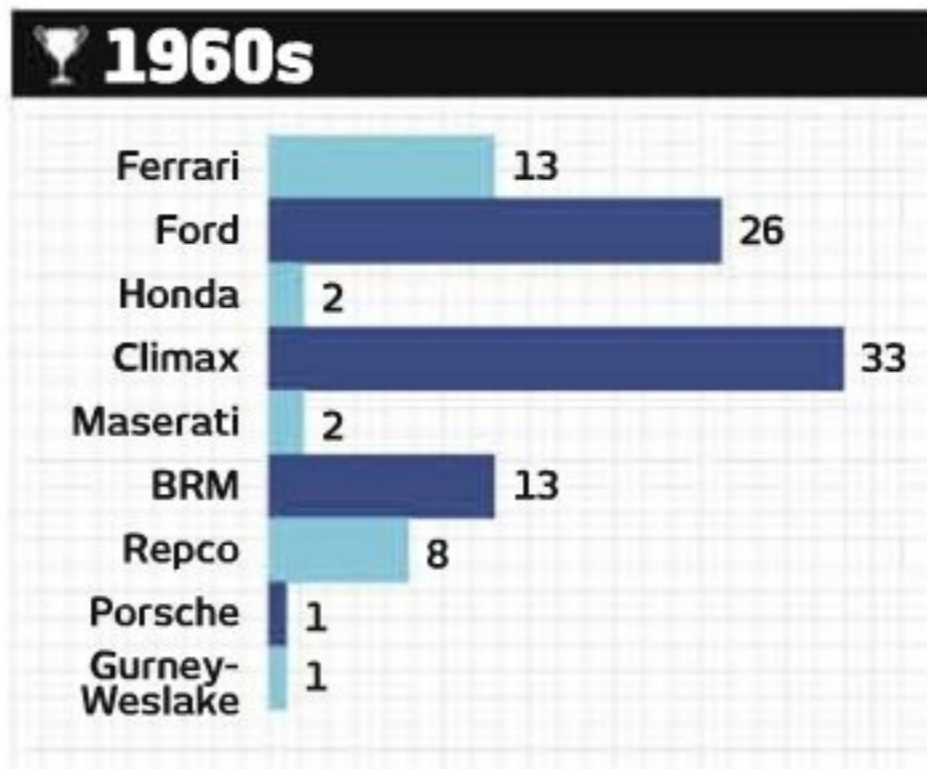
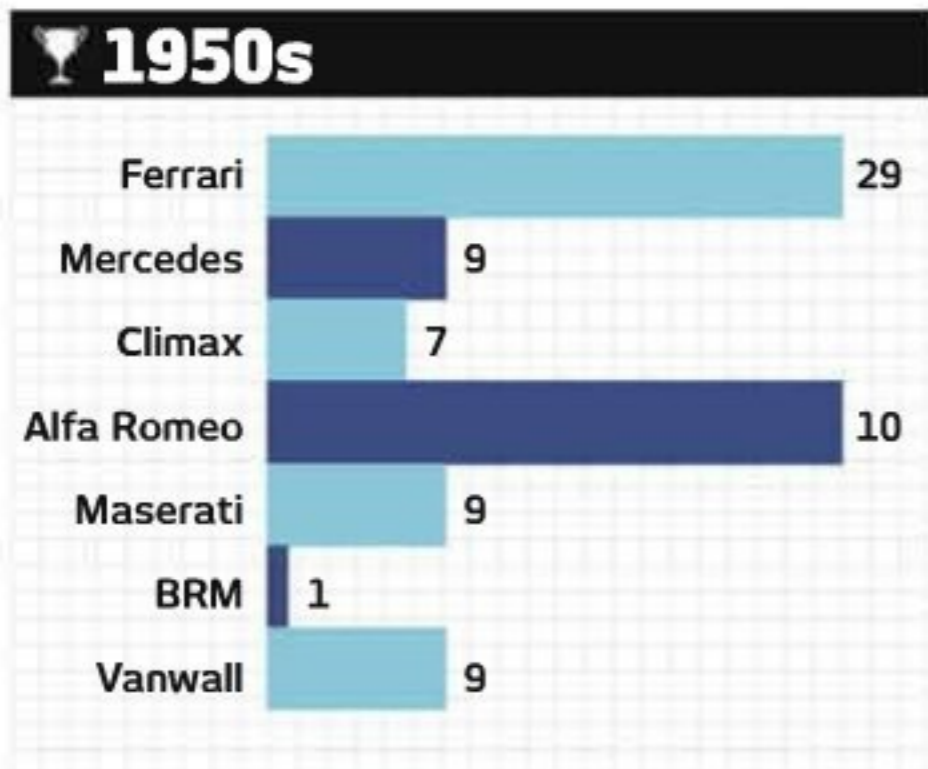


PHOTOS: STEVEN TEE/LAT; CHARLES COATES/LAT; GLENN DUNBAR/LAT; ANDREW FERRARO/LAT; ANDY HONE/LAT

PITPASS / Renault's engine success in F1 / Another race for the calendar?

STATS

Power shift Vettel gave Renault their 150th win as an engine manufacturer in India. But only Ferrari have managed to win in every decade



NEWS

Thailand confident of 2014 race deal

The country that gave us Red Bull wants a GP



Red Bull's 2010 street demo in Bangkok drew 100,000 spectators

Bangkok has long been considered one of the great cities of the world, but in 2014 it could also become a grand prix destination with Thai officials confidently predicting that an F1 race contract will be signed later this year. "It is likely to be a one-year contract with an option to extend," said Kanokphand Chulakasem, governor of the Sports Authority of Thailand.

Formula 1 supremo Bernie Ecclestone is understood to have met with Kanokphand and an adviser to the multimillionaire co-owner of Red Bull, Chalerm Yoovidhya, over the Singapore GP weekend to discuss plans for Bangkok's streets to host F1's second night race.

According to reports in Thailand, Red Bull, whose roots are in Thailand, would share around 40 per cent of the costs of the event with other private companies. The Thai government would pay the remaining 60 per cent.

But Thai officials could be getting ahead of themselves. With the 2014 calendar already looking very full, it's hard to see where the race could possibly slot in. Organisers are assessing several possible track locations in the city – but what they really need now is a signed race contract to guarantee them a grand prix.

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Pat Symonds'

PITPASS TECH

Explaining the hidden brilliance that drives Formula 1 forward

THE SCIENCE BEHIND...

Windtunnels

A simple question to start: why do teams use windtunnels?

There are two items that contribute more to the performance of a Formula 1 car than anything else: tyres and aerodynamics. As the teams are no longer allowed any involvement in developing the tyres these days, the main performance differentiator is the aerodynamics. And by far the best way to develop aerodynamic downforce and efficiency is by use of a windtunnel to perform semi-empirical experiments.

How do F1 windtunnels differ from those used in other industries?

One feature found in all motorsport windtunnels (but rarely in others) is the moving ground plane. Because the underbody and rotating-wheel aerodynamics are so important on a Formula 1 car, it is important to represent the car moving over the ground as well as through the air. This is done by supporting the model on a moving belt. The first moving ground that I designed used a belt that was actually an upscaled version of that used in a supermarket checkout. The big difference is that the belts move at 112mph and getting them to run true at this speed is quite an art. Today the belts are made of steel and are much more durable.

How big is an F1 windtunnel?

It is important that the model occupies only a small fraction of the working section area. We are all used to seeing the 'rooster tail' that trails behind a car in the wet. On track that plume has no boundary, whereas in the tunnel it can be reflected back off the roof of the tunnel and cause inaccuracies. The model needs to be well separated from the walls and roof of the tunnel. Typically, a tunnel for a 60 per cent model will occupy a floor area of around 65m x 30m and the cross section of the working section will be around 4m x 3.7m wide and possibly 15m long. This means that the frontal area of the car

represents less than four per cent of the cross section working area. As an F1 car has a frontal area of about 1.5m², you would need a tunnel with a working section of nearly 7m x 6m to give a similar result.

There are disadvantages to running small models (and indeed running them at lower than operational speeds) in that true similitude is not achieved due to something called the Reynolds number effect. In simple terms, this means that air behaves slightly differently depending on the ratio of inertial to viscous forces. Generally, a model of 50 per cent size running at 50 metres per second achieves enough similarity to be acceptable.

What are the sort of parameters that you are looking to measure in a windtunnel?

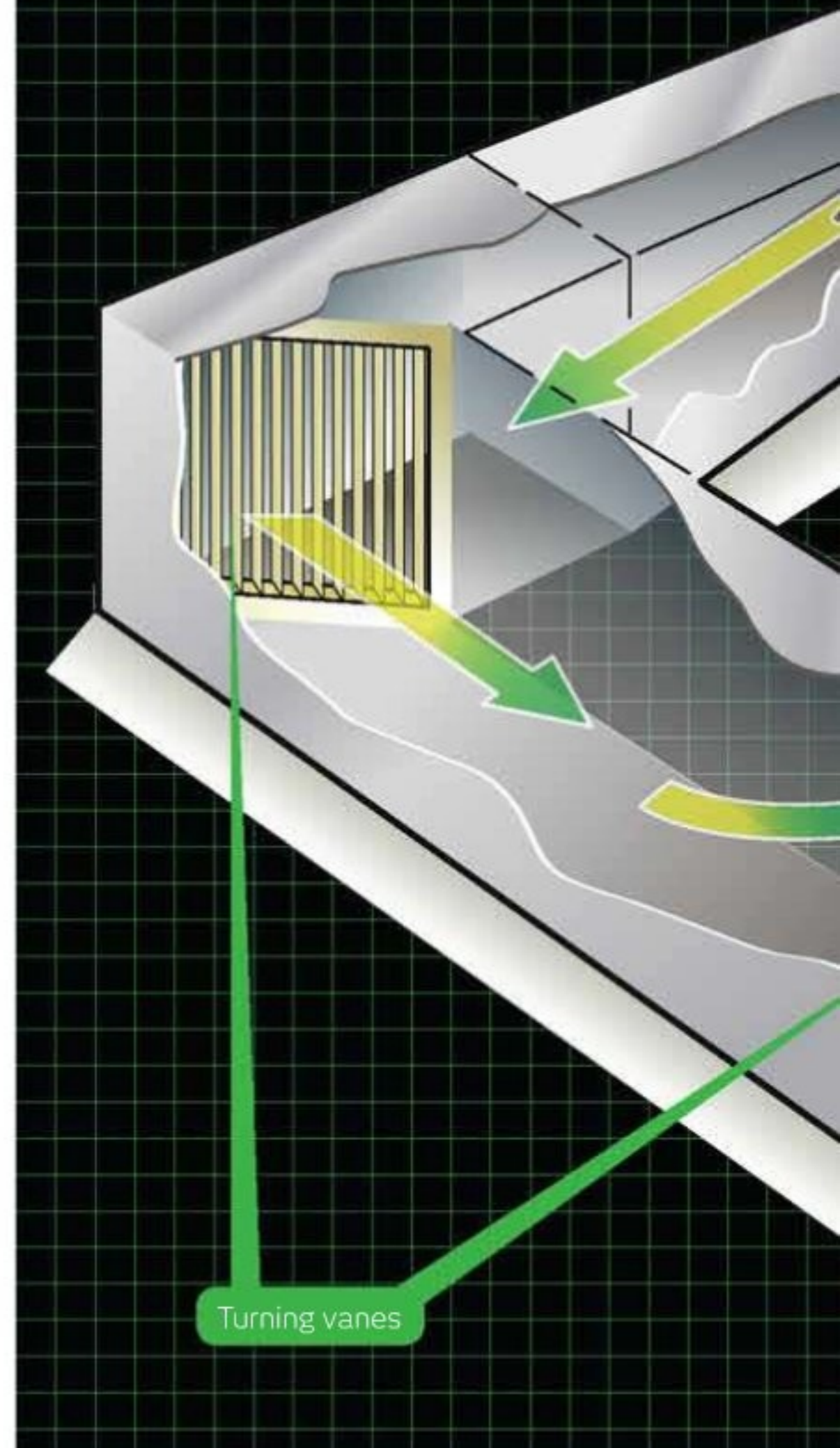
The obvious answer is 'drag and downforce' but the balance at the front and the rear is equally important. Additional forces and moments acting along or about each of the axis are also recorded and analysed to determine the important resultant forces.

One of the shortcomings of windtunnel testing is that it is largely empirical, which means that experiments are done in isolation and while the outcome will be fully understood, the means by which the improvement (or otherwise) has occurred will not always be obvious. To try to aid understanding a number of pressures are also measured – typically well over a hundred of them. Analysis of these will assist the aerodynamicist in understanding the flow regime present on the model.

Are there any other ways to observe what is happening in the windtunnel?

You can use Particle Image Velocimetry, often abbreviated to PIV. This is a technique in which the airflow in the tunnel is seeded with tiny

Inside a closed-circuit windtunnel





CLOSING THE LOOP

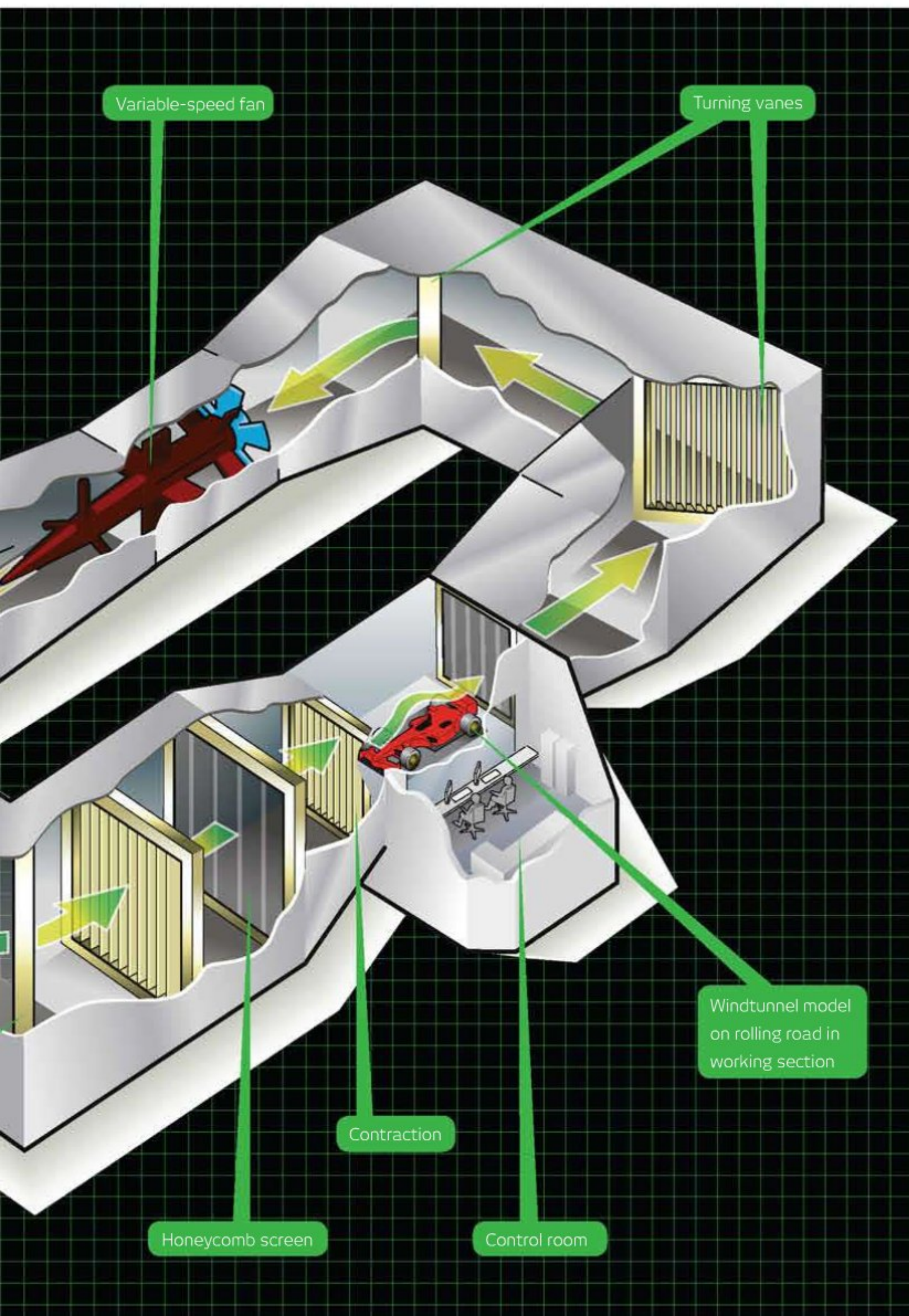
F1 windtunnels all recirculate air in a large tube in what is known as a closed-circuit layout. Viewed from above, this tube is rectangular in shape and turning vanes are used in its corners to direct the air smoothly around the bends. A huge axial flow fan

and motor are placed in one of the longer legs of the rectangle and the model is put in the other long leg.

The sectional area of the tube changes along its length. The model sits in the 'working section' – generally the smallest

part of the tunnel. Just prior to this is the biggest section known as the settling chamber.

The secret of a really good windtunnel is to let air accelerate from the settling chamber into the working section with a very good flow quality.



bubbles made of polystyrene latex, which behave in much the same way as air. Their movement can be studied by shining a laser on them and filming the motion. Sophisticated software can then be used to determine the flow directions and velocities, which are not only useful for studying the detached flow characteristics but can also be used for comparison with CFD results as a further means of verification.

For flow that remains attached to the body flow-visualisation paints are used, which are exactly the same as those used on the real cars during practice sessions. These show not only the flow direction but also indicate when the flow becomes detached from the body surfaces.

How fast do the air and the rolling road move in a windtunnel?

F1's Resource Restriction Agreement limits the model size to 60 per cent and the air speed to 50 metres per second (112 mph). The only exception is for the permitted four days of full-size testing, which can take place either on a test track or in a full-size tunnel.

If there were no Resource Restriction Agreement, the high cost of windtunnel testing would become even higher. For example, when we built the windtunnel at Benetton, one of the most expensive aspects was building an electricity substation to provide enough power.

A windtunnel large enough to run a 60 per cent model at 50 metres per second consumes around 870kW of power. Interestingly, as the power consumed is proportional to the cube of the speed of the tunnel, the electricity cost would be roughly halved by dropping the speed from 50 to 40 metres per second.

Marussia experimented with not using a windtunnel – so how long will windtunnels remain in F1?

Windtunnels are more accurate than CFD for most areas of the car, although the two co-exist as complementary sciences. CFD improves by the year due to improved codes, faster computers and better understanding, but it will be decades before it becomes the primary tool. 🏎️

Turn to pages 110, 116 and 120 for Pat's analysis of the Korean, Indian and Abu Dhabi Grands Prix >>



Peter Windsor RACER'S EDGE

The 'voice of F1 Racing' offers his original take on the sport

**DOES
KOBAYASHI
HAVE A
FUTURE AT
SAUBER?
I SAY:
#KEEPKAMUI!**

Twitter is an acquired taste, I know, but I do like the world of the hashtag. Tom Gaymor, the excellent motorsport commentator for Eurosport, has it down pat: *#YoungBloods!* he'll tag, when extolling the virtues of a couple of newcomers in GP3 or World Series by Renault. *#Disappointed* he'll exhale, lamenting the demise of F1 test days. The hash orientates Twitter followers to a common thread. The beauty of it is its singularity. You can't use two words when one will suffice.

So here's a sample of mine for the month ahead: *#BringBackSutil!* The guy is fast; the good people behind him still believe in him (and have remained loyal to him); and he deserves a second chance. Everyone deserves a second chance – even if most F1 people do love to believe themselves to be breathtakingly faultless.

I think we could also add *#WhoIsTheBoss?* when we think of Mercedes GP. I mean, Niki Lauda's a great guy and all that – and he's never been slow to identify a new opportunity. I wonder, though, about his new, non-executive role at *#SilverArrows*. What will he do there, exactly? Niki's timing is impeccable. With *@LewisHamilton* driving for Mercedes, and with Ross Brawn's team emerging from two years of learning how *not* to do it, how can Niki look anything but regal in 2013? Lewis will win races (because he is Lewis) and Ross will eventually get it together (because he remains a well-structured manager of people... if not an Adrian Newey). There's money aplenty over in Stuttgart and I'm sure it'll be backed up by kilos of *#Korporatespeak*, so there will be plenty of *#HappyTimes* to come post-race *@MercedesAMGF1* in 2013.

What, though, are they saying by hiring Niki? That Ross couldn't communicate with Mercedes' Norbert Haug, who, in turn, couldn't communicate with the board? Is *that* why they need Niki? To be the conduit between Ross and Norbert? Or does the gap lie between Norbert and *his* paymasters?

I say all this in the context of the job that Christian Horner and Adrian Newey have done at Red Bull: Christian moved Adrian in, complete with trusty drawing-board, and together they built precisely the team they wanted. They kept overheads to a minimum. They stuck to their decisions and to their commitments. They thought deeply about drivers. They extracted the best from the irascible Helmut

Marko, who, in turn, induced the best from Dietrich Mateschitz. Simple. Logical. Effective.

Motor racing isn't complicated – as Red Bull are demonstrating today, and as teams like Williams, McLaren, Ferrari, Brabham and Lotus have shown us at various times in the past. It's about good people doing what they love, with the emphasis on the 'doing'. Add layers of management or corporate sludge and you quickly end up with a Jaguar, a BAR, a Beatrice... or a Mercedes.

I was at Clermont when Helmut Marko lost the sight in one eye in 1972. My feelings at the time were pretty standard for those days – 'Well, at least it's just an eye' – but I kept my relationship with Helmut: the odd handshake and the occasional brief catch-up was about the extent of it... but a shrug says a thousand words with a guy like Helmut. It was Niki, though, who dominated much of my time in F1 back then. Good though Carlos Reutemann was back in the Ferrari days, he was no match for the sharpness of Niki combined with the magic of Ermanno Cuoghi.

Now, as I see all this Niki stuff with Mercedes, I wonder what it was all about. Helmut – tough, demanding, lean, committed – has delivered a hundredfold. Niki's record as a Ferrari consultant in the mid-1990s was not great (re-hiring John Barnard was about as imaginative as suggesting that Ferrari continue to paint their cars red); and it's perhaps wise to forget Niki's Jaguar days (unless you are James Courtney, of course, in which case you're entitled to ask *#Where'sMyDrive?*). Does Ross Brawn really need to hear from Niki that "we are building a completely new car for 2013"? That "the 2012 car isn't good enough for development"? If he does, then clearly there isn't room for both a Ross and a Niki. Or a Norbert. *#WhoIsTheBoss?*, as I say.

"Twitter is an acquired taste, I know, but I do like the hashtag... the beauty of it is its singularity"

A final word, this one about *@kamui_kobayashi* and Sauber: I know that Monisha Kaltenborn's recent comments – "We were sad not to be able to keep Sergio" – imply that no money changed hands when the Mexican signed for McLaren, but you have to ask yourself, in that case: *#IfNotWhyNot?* Give a lad

The Horner/Newey relationship at Red Bull has worked well: as has been borne out by the results





Kobayashi is by no means bland, and managed a podium this year at his home race. So why hasn't he brought in any serious Japanese sponsorship?



Niki Lauda (with Jackie Stewart) back in the ill-fated Jaguar days. His Mercedes venture will hopefully bring greater success

like Sergio a chance and the least any self-respecting F1-orientated lawyer should expect in return is a seven-year binding contract with said property – even if he is bringing in money.

Anyway, moving on, I suspect that Kamui was signed by Sauber with exactly the same intent: the guy is obviously a racer; Sauber planned to build some decent Japanese sponsorship around him; and then, as a bonus, they expected to be able to sell him to an eager buyer. And this is the problem for Kamui: he, his managers and the Sauber team have, to date, been unable to raise any serious money from Japan, which, in turn, begs the question: what *have* Kamui's managers been working on these past three years? I mean, it's not as if the guy is low-profile, bland or boring. Worse still, there are no other teams who are queuing up to buy his services. Simply put, there are too many good drivers around who have managed to generate healthy budgets.

Yes, Kamui's driving can still be a bit rough in a couple of areas, as we saw recently in Korea and India. And he's still a bit edgy when the back end's a bit loose as we saw in Singapore and Monza Friday. In mitigation, Kamui is certainly less 'busy' behind the wheel than Sergio these days; Sauber until now have been unable to afford a proper simulator; and of course he drove beautifully in Japan to beat Jenson Button to P3. Kamui naturally believes that he is quick enough to win with the right car – never mind the finesse. Speed and aggression will suffice.

Except they won't – not in this current climate. Three years on from those halcyon moments in Suzuka (Friday), Brazil and Abu Dhabi, when he electrified us with his debut drives for Toyota (thanks to the vision of former Toyota Motorsport president John Howett), Kamui lives in the hope that Sauber will give him another year. To do so, the team must reject some pretty talented drivers who *have* managed to raise some backing and run not one but *two* drivers purely on merit. That's a big ask – but if Vijay Mallya can do it then surely the *Gnomes of Zurich* (as per the book read avidly by Piers Courage in 1969) can do it for Hülkenberg-Kobayashi.

#KeepKamui! 🇯🇵

PHOTOS: CHARLES COATES/LAT; STEVE ETHERINGTON/LAT; CLIVE ROSE/GETTY IMAGES

Until Maria Teresa de Filippis had become the first woman to successfully compete in F1™ racing, her mentors would not rest. (Monza, 2011.)



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Dieter Rencken

POWERPLAY

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

A TRIO OF TALENTS – AT LEAST – MAY LOSE THEIR F1 DRIVES AT THE END OF THIS SEASON, TO DRIVERS WITH MORE CASH. BUT IT DOESN'T HAVE TO BE THIS WAY...

“Those who make it to the top through talent alone are most at risk, for seldom have they needed to seek dollars to fund their careers”



It may have been a targeted statement, but it was no less incisive for that: “[We] need time to consolidate our financial possibilities and understand if there’s [any] sense in continuing talks. If there’s no money, then there’s no driver,” admitted Russian driver-manager Oksana Kosachenko when asked what chance there was of Vitaly Petrov being on the 2013 grid. Consider: her driver has far from disgraced himself at the top level, having outqualified team-mate (and GP winner) Heikki Kovalainen; scored a fastest lap and a podium finish with Renault; and won races en route to second place in the 2009 GP2 championship.

Petrov hails from one of the world’s largest emerging economies, a country that will host F1 GPs from 2014. Yet he faces unemployment unless accompanied by a shedload of roubles. This for a single season (with Caterham) in one of the world’s wealthiest sports – one followed passionately by hundreds of millions of fans across the globe.

If ever there was an indictment of Formula 1’s business model, it is this – particularly as Vitaly’s case is far from unique. There are similar tales of woe up and down the paddock, with hardly a 2013 seat being on offer unconditionally. In fact, over the course of silly season negotiations, it has become the norm to place assets before ability; purse before performance.

Pay drivers are not a novelty in F1, with many a driver having made the grade thanks only to their financial accompaniment. Niki Lauda borrowed against a life insurance policy to fund his March drive; Michael Schumacher’s Jordan debut, too, was paid for. But generally, the route into F1 used to be purely skill-driven. True, the system also produced the likes of Giovanni Lavaggi – ‘Johnny Carwash’ – and Jean-Denis Délétraz, but they managed only ten starts between them before their lack of top-line talent was exposed. Generally, once drivers have proved themselves, financial issues depart the cockpit. In short, F1 was a meritocracy – and it showed.

No more: Spanish GP winner Pastor Maldonado (left) is still required to shell out gazillions in Venezuelan bolivars to retain his Williams seat. Kamui Kobayashi could find himself out of F1 unless he finds bags of yen fast – and that’s despite scoring a fine podium on home soil – while Kovalainen is another one on the sport’s endangered list.

A case could indeed be made that virtually every team presently has driver-linked funding. While

Ferrari may bridle at the suggestion, would Santander be in the sport were they not able to nail their colours to Fernando Alonso? Sergio Pérez’s future at McLaren, meanwhile, is linked to Telmex support.

Pérez is a classic example of a driver with abundant skill, plus appreciable backing that’s likely to remain with him throughout his career. Escudería Telmex, the motor-racing talent vehicle founded by Mexico’s Slim family to promote their country’s gifted racing youth, is committed to the sport, and Carlos Slim Domit, son of Telmex magnate Carlos Slim Helú, sits on the FIA’s Senate. So, despite three superb podiums with Sauber in his sophomore season (and impressive outings in his rookie year), the question is: would McLaren, who in recent years could hardly be accused of placing finances ahead of talent, have snapped up the Mexican quite as quickly had he come without backing? After all, Ferrari, who contracted Sergio through their driver academy, just this year indicated he was too inexperienced for a top-team ride.

Those who make it to the top through talent alone are most at risk, for seldom have they needed to seek dollars to fund their careers, having been supported by young driver programmes from Red Bull (Alguersuari), Renault (Kovalainen) and Toyota (Kobayashi). Genuine talents are not necessarily business brains, so when they compete for drives against lesser drivers, whose vast budgets are raised by seasoned managers, they face huge pressure to source funding. And quickly, too, as teams increasingly see drivers not as cockpit specialists, but as active sponsors. Why? Because most are more cash-strapped than ever, a situation blamed on the global economic crisis.

That said, calendars are lengthening and viewer numbers increasing, creating better marketing opportunities. And this as restrictions on expenditure, reductions in testing and ‘old iron’ engines at bargain prices have cut the cost of competition to more affordable levels. Trouble is, all that is skewed by the fact that Bernie Ecclestone and CVC Capital Partners, last year siphoned off more than £350million in disbursements, loan settlements and interest payments, leaving F1’s dozen teams to share the other half – an average of £30m each, or about what a brace of pay-drivers is currently called upon to stump up. How easy it would be for teams to select drivers purely on merit, were they given a bigger slice of the commercial pie...

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Bruno Senna

VISOR DOWN

From cockpit to page, Senna writes exclusively for *F1 Racing*

HOME IS WHERE THE HEART IS

I miss Brazil and I'm looking forward to seeing my friends and family when we race in São Paulo for the final grand prix of the year. I love returning to my home country and, at the moment, there is a great deal of energy and optimism ahead of the nation hosting both the World Cup in 2014 and the Olympic Games in 2016. Just to hold one of those events is amazing, but I can tell you one thing, I don't think we'll be completely prepared for it, as the Brazilian people are not natural planners!

To give you an example, when I first came to England I couldn't understand why if I hadn't booked a table for dinner I wasn't able to eat. In Brazil, we go out to a restaurant on a whim and if you get there early enough, you always get a table. In England you always plan everything, but in Brazil we just go with the flow. So what's going to happen is that six months before the start of the World Cup we won't be ready, then there will be a massive rush to get everything finished. But, of course, it will all be fine in the end and then the Olympics will benefit because airports, roads and public transport will have been sorted out.

There are some great places to visit in Brazil. Everyone talks about the entertainment value of the Copacabana beach in Rio, but would

you believe me if I told you I've never been there? A better place to visit, if you have the money and time is an archipelago 220 miles off the Brazilian coast called Fernando de Noronha. It's a world heritage site and is probably one of the most beautiful places in the world.

"If you look hard enough, you'll find a place in the jungle called Fordlândia – a failed former industrial town. It's a bizarre place with American-style streets"

It's totally unspoilt and absolutely stunning.

Another great place to visit is Pantanal, one of the largest tropical wetlands in the world. Depending on the time of year you visit, you can see so many different types of animals and exotic birds, plus the monkeys will come and play with you! There are no fancy hotels there as it's deep in the heart of the rainforest. And if you look hard enough

you'll find a place in the jungle called Fordlândia. It's an industrial town established by Henry Ford in the 1920s to produce rubber to make tyres for his cars. It ultimately failed, but it's a bizarre place with American-style streets and wooden houses with thin walls. It's absolutely unique as in Brazil most of our homes are made of bricks and concrete.

Brazil has just overtaken the UK as the world's sixth-largest economy, so it's a strong power at the moment. The problem we have is that wealth is not evenly distributed, so there is a huge gap between the rich and the poor and I don't believe you have such a contrast anywhere else in the world. In São Paulo you don't have to walk far to find huge buildings right next to a large favela shanty town. In terms of numbers, we are getting a larger middle class, but I suppose the question is: how do you define what they are?

The Senna Foundation is still going strong and helps more than 2.5 million children and teenagers a year. Since its inception, it's helped around 14 million people and quite a few states integrate the Foundation's projects into the school curriculum.

The race weekend at Interlagos is the last one of a long season and, as always, it will be fun but quite intense as it's my home race. I plan to arrive Monday night from Austin and then the next few days are filled with sponsor commitments and PR appearances for Williams. After the weekend, I'll stay for another week of activities before heading back to Europe. I won't really get a chance to relax until I come back to Brazil to spend Christmas and New Year with my family.

Living in Monaco, I miss my friends back home, but a lot of them have moved on – they now have wives and some have kids. Still, when we get together we always enjoy eating out and the best thing I can recommend is one of our national dishes, *feijoada*, which is a black bean dish. The beans are similar to baked beans, but they just melt in the mouth; they are delicious – I'm getting hungry just thinking about it.

For many reasons the Brazilian GP will be a great occasion and I'm hoping we can get a really good result there and finish the season on a high.

"I'm looking forward to when we race in São Paulo for the final GP of the year. I love returning to my home country"



PHOTO: FRANS LANTING/CORBIS

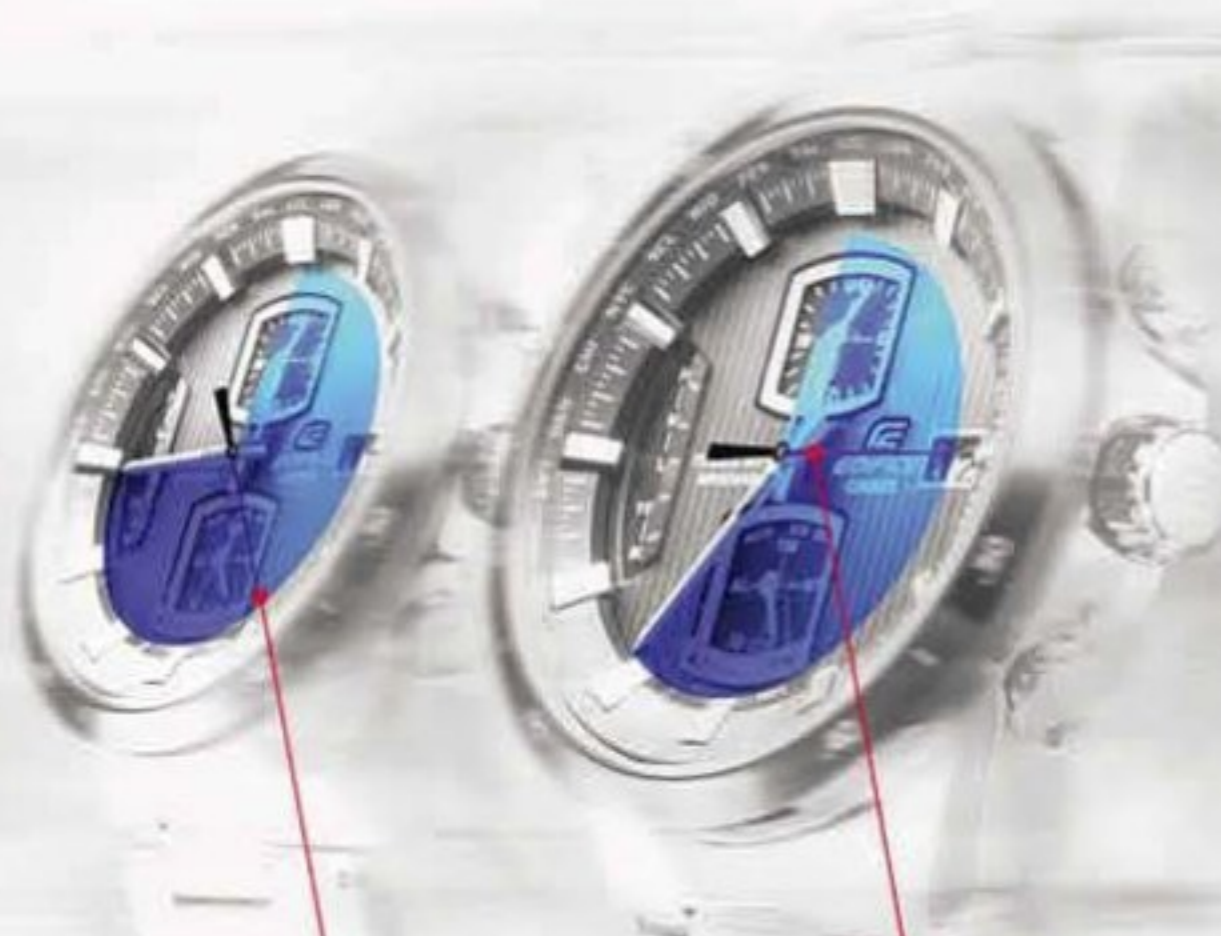
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PHOTOS: STEVE ETHERINGTON/LAT

★ STAR LETTER

The comeback didn't go according to plan, but doesn't Schumi deserve a decent send-off?



Why knock F1's most successful driver?

A return to F1 was always going to give the media cause to speculate and take a negative stance regarding Michael Schumacher. But why, as the hero of all motorsport announces his retirement, do we again take solace in the downbeat attitude of the general media. Michael has arguably done more for this sport, both in and out of the car, than any other driver and he has a huge following. Would we even be discussing this if he were sitting in a more competitive car, let's say a Red Bull?

His passion, expertise and devotion to the sport are unquestionable, so it is upsetting to read countless articles stating that he should never have returned to driving. Yes, he's made a few errors, but that's what we love about this sport – when man takes the machine to its limits and on occasion beats the machine. This is what made Schumi great – his appetite to push himself and his car. Let's remember him as a seven-time world champion, an ambassador for F1 and probably the greatest driver we will ever know. Let us do it right and give him a hero's send-off.

Tony Osterberg

By email



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Supermarket sweep

Watching the Singapore GP on television reminds me of nothing more than the underground car park at my local shopping centre. Especially that bit from the Asda Curve to the B&Q chicane. The commentators tell us the cars are passing this and that, or going on and off Raffles Avenue or whatever, but can we see actually anything?

Not a chance: it is all grey Tarmac, concrete and fences – there's no light, no colour, no fans, no atmosphere. It is drab. Give me the green open spaces, sunshine, blue sky, colourful flags and, especially, the crowds of cheering fans, every time.

Singapore might make for a good race, but it's an awful place for televised racing.

Rob Hume

Hampshire, UK

F1's 201st greatest moment

Congratulations on your 200th issue. I've been an avid *F1 Racing* subscriber since 2003 and love getting stuck into it each month. Your '200 moments' feature was a particular highlight for me this month: it managed to keep me amused (but highly unproductive) at work for hours on end.

But I was rather disappointed to see you missed off one of the most comical brain-fades in F1 history. I am, of course, referring to Jenson Button at the 2011 Chinese Grand Prix, completely forgetting who he drove for – disregarding the colour of his overalls and those of everyone around him – and driving into the pit box of rivals Red Bull. The image of my father falling off his chair in utter disgust made this a definite highlight for me.

Joanne Burrows

By email

Now that was a car



No10: The Eagle Mk1

As F1 makes a return to the US, we present an all-American beauty

WORDS JONATHAN REYNOLDS

PICTURES TIM KENT

Blame downforce. Before designers discovered the untold benefits of harnessing the grip-giving force with wings and other aerodynamic appendages, F1 cars were sleek, uncluttered machines, and there was none more elegant than the Eagle Mk1. From its raptor-beaked nose and bullet-like chassis, through to the polished titanium exhaust pipes that cascaded artistically from its engine, the Eagle looked every inch an F1 winner and, in the summer of 1967, it became one.

The Eagle came about when Goodyear asked US racing icons Dan Gurney and Carroll Shelby to help them win the Indy 500. In exchange for building Indy cars, the tyre firm gave the pair the go-ahead to create an F1 car. But Gurney and Shelby didn't just want to make an F1 car. They wanted to make an *American* F1 car; designed and assembled at their All American Racers (AAR) HQ in Santa Ana.

Given that F1 racing at that time was dominated by the likes of Ferrari, Brabham and Lotus – and that no US car/driver combination had won a major European GP in over 45 years – to call the Eagle project 'ambitious' would be an understatement. "The difference between dreamer and genius, between lunatic and visionary is very thin," said Gurney, who would also race the car. "With our limited budget and our unlimited passion, we constantly walked a tightrope."

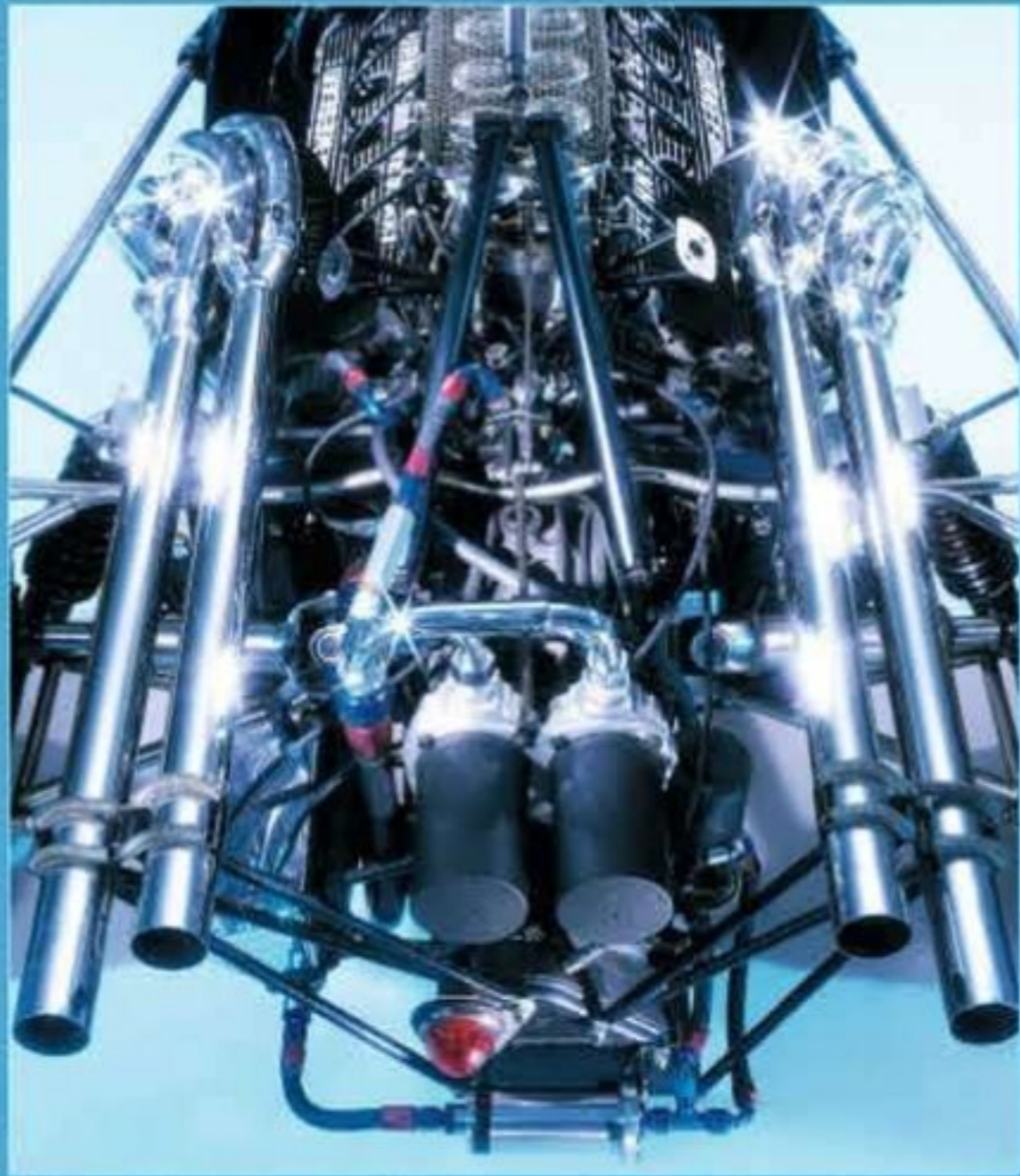
AAR hired designer Len Terry, who'd worked on the 1965 Indy-500-winning Lotus 38, and began working with British firm Weslake

on a bespoke V12 engine. Before it was ready, the car was fitted with a four-cylinder Coventry-Climax unit for 1966. Despite a lack of power, the car was quick and Gurney scored points in two of his eight races. In 1967, the team finally got their hands on their new Weslake engine and the Eagle really took off. Gurney qualified on the front row on four occasions and took two fastest laps in 11 races in 1967, but the car finished just twice. That it made it to a podium both times demonstrates the inherent speed of this fast but frail machine.

It's the 1967 Belgian GP for which the Eagle is best remembered. Using a chassis made from lightweight but flammable magnesium, Gurney set a lap record and an average-speed record on his way to the Eagle's only win. He became the second driver to win a GP in a car he built and it was the first – and, as yet, only – F1 world championship victory for a US-built car outside the Indy 500.

• Read Peter Windsor's interview with US F1 icon Dan Gurney on [page 100](#).





EAGLE MK1

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- Power** 400bhp (Gurney-Weslake)
- Transmission** 5-speed Hewland DG 300
- Clutch** AP
- Tyres** Goodyear
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Mark Webber

The sports-loving, straight-talking Red Bull racer clarifies that infamous 'number-two driver' issue and explains why he doesn't have Lance Armstrong on speed-dial. And yes, he has had a word with young Vettel about that finger...

WORDS JONATHAN REYNOLDS PORTRAITS LORENZO BELLANCA/LAT

"I've done a couple of these," says Mark Webber as he strolls across Red Bull's hospitality area and sits down ready for a thorough quizzing. We were inundated with three times as many questions as usual for the likeable Aussie, who is always a popular target. He's consistently forthright and honest with his answers and never shies away from a tricky topic. And, as a veteran of more than ten seasons of F1, he's no stranger to interrogation either. Next year, with Michael Schumacher heading off to enjoy his second retirement, 36-year-old Webber will be the second-oldest driver on the grid, behind only HRT's Pedro de la Rosa, who will be 41.

Yet despite being closer to the end of his career than the start, Webber attracted strong interest from Ferrari this summer before eventually signing up for a fifth successive year as Sebastian Vettel's team-mate at Red Bull. Recent history would suggest that there are few tougher jobs in F1 than taking on Red Bull's golden boy in his own team, but 'Aussie Grit' has never been one to back down from a challenge and he approaches this interview with similar gusto.

"You would've put the soft ones on top," he says, randomly grabbing a question card from the middle of the stack, "so I'll just go straight to the heavy-duty ones."

As he turns the card, he realises his hunch is right and winces at the subject: "Oh. We're going straight in." Yes Mark, we are...

Do you honestly feel you are treated as an equal at Red Bull and that you are not their number two driver?

Tim Anglin, USA

[Long pause] Yes I do. We've had an incredible run here as a team and success with both drivers, although obviously more for Sebastian with the two world titles. In 2010, it was very, very close between the two of us and it could have gone either way. But I feel that momentum is →



very important in any team and it's up to the driver to be performing well to have the team with them. Red Bull is a team I feel happy with. I'm not staying with the team next year feeling I don't get a fair crack. It's a very difficult question to answer fully, to give people the whole view of everything, but I'm happy here.

Would you stop racing in F1 if the sport introduces closed cockpits as a safety requirement?

Martyn Boshell, UK

I don't think it's going to happen while I'm racing in F1, so I don't need to worry about it. If they do close the cockpits, I think it will still be done in a good way. But if you want to race on the best tracks, with the best drivers, in the best cars, you have to sometimes hang around and race with certain things that you might not completely like. If it does happen while I'm still racing, then I'll keep on racing, but I don't think it'll happen in the next five minutes.

Mark, how hard was it to race at Fuji in 2007 with food poisoning? And how did you manage to still drive so well?

Michael Ward, UK

I was mainly pretty weak. The problem was that I woke up at 4.30am that morning and was very, very ill. I couldn't keep any food down. I was pretty confident I got most of my, shall we say, 'issues', up before the race started but the hardest thing in the grand prix was being sick while sitting virtually upright. Most of us have been sick and we all hunch forwards to do it – you never sit upright. That was the hardest part of it. I recommend next time you're sick to try to sit up and see how you go! Other than that, I just had to get on with the job.

Can you please tell Sebastian Vettel to stop giving us the finger?

O Nevell, UK

Yes, I have done already. But we've seen it a lot less this year. Let's see how many more times we see it.

Having been to the Isle of Man TT a few times, what do you really think of the races, the riders and their need for this unique challenge?

Robert Graham, UK

The TT is one of the most amazing motorsport events there is. To have them race on such a long course against the clock is incredible. It's so refreshing to see these events still happening, because there are so many events like this that don't happen any more. We're all still wired up the same as we were in the '50s and '60s; we just

Which grand prix win has been your best?

PD Hughes, UK

Umm... that's difficult [long pause]. Probably my first one at the Nürburgring in 2009 because it was a big moment to finish the job off, especially as I had a drive-through. I could have won by a big margin that day. I remember radioing the team to see if Sebastian was in traffic because I was maintaining the gap. They said: 'No,

he's in free air.' So that's how good it was feeling that day. You know it's going well when you've got the guy in second so under control. Monaco this year also stands out. We didn't have the strongest car, but I was very happy with my qualifying lap. It was a special win for me because we didn't have the car we'd had the previous two years.



It took seven years, four months and ten days to do it, but Webber's first win, in Germany 2009, is his best, with Monaco '12 the runner-up



have different technology and the organisers are less happy to take risks because of insurance issues. It's just so rewarding to see a race where the best road racers in the world can lay it on the line on the granddaddy of all tracks.

I'm very lucky to know some of the riders and to have had the chance to pick their brains and get a snapshot about how they go about it. I don't think they're crazy – you could say boxers or big wave surfers are crazy; some people say I'm crazy to do what I do – they're professionals and they know what they're doing.

Mark, I understand that you have your own pub? So which do you prefer, Aussie lager or British bitter?

Simon Cooke, UK

Well Ann [Webber's partner] has the pub so she's involved in it a lot more than me, but obviously I like to see it do well for her sake. It's been rewarding to see it go well and we do some great food up there. She's very proud of it. Lager or bitter? Lager.

On Twitter you often post photos of your pets. The donkey trimming the grass was lovely. How many and what assortment of animals do you have?

Karen Clements, UK

I don't often tweet photos of myself so the next things in the line of fire are the pets. We've got one donkey, some chooks, two dogs and some alpacas, too. The dogs are my main passion though: my Weimaraner and my Rhodesian ridgeback. It's nothing sensational – loads of people have got dogs and I love mine.

Would you like to comment on your good friend Lance Armstrong's lifetime ban from cycling?

Brad Purvis, USA

It's great they're trying to clean up cycling, but first of all let me clarify: I'm not a good friend of Lance Armstrong. Times always change and they have; I'm not a good friend of his. If they have to take the action they feel they need to take, then so be it. I had a small snapshot of spending some time with him and it was interesting.

You've taken this year's GP3 champion, Mitch Evans, under your wing. How did you first hear of him and do you think he can go all the way to F1?

Senga Wishart, UK

Someone introduced me to Mitch about three or four years ago. But also Mitch, to be fair, got himself into the Formula 1 paddock somehow. God knows how – knowing him, he probably jumped over the back fence. He was about 13



"In 2010 it was very close between the two of us and it could have gone either way. But it's up to the driver to perform well to have the team with them"



and looked really cool with his sunglasses on. He just wanted to say hello to me and since then we've stayed in touch and then I've helped him with his junior career.

Ann and I have absolutely loved it. It comes with its challenges and responsibilities but we wouldn't want it any other way. He's absolutely got what it takes to make it to F1. He's got some polishing to do because of his age and because some of the guys have got a bit more experience than him, but I believe he can go all the way – he has a great personality and a lot of tenacity.

I know you're an outdoor enthusiast and that mountain biking is a hobby of yours. What type of riding do you prefer? Technical single-track, relaxing open trails, or blistering downhill?

Dale Quinlan, USA

I do love my mountain bikes. I'm definitely not a downhill guy; I prefer technical single-track and a bit of open trails. So a mixture of everything, but it has to be cross-country for sure. Not too hideously technical in terms of rocks and tree roots, but I do like technical climbs.

What are your views on bringing turbo-charged engines back into Formula 1?


Joshua Lenton, UK

Turbos are always exciting because they generate a lot of power. But when you have the engine capacity we'll potentially have for 2014, coupled with KERS and all sorts of other stuff, I'm not sure how much power turbos are going to generate. Also, there's the noise of a turbo engine – acoustically they can be a bit flatter.

But I remember the turbo days from when I went to the Australian Grand Prix in Adelaide in the late 1980s with my dad. It was attractive back then because the cars were less drivable and the turbo was more aggressive. Now, because we have so many clever devices and software, it would be less dramatic, I think, to witness.

If you never become F1 world champion, how would you like to be remembered?

Ihan Ahmed, Bulgaria

As someone who raced hard and fair. Someone who was very consistent in terms of 'what you see is what you get'. And, if I never become champion, someone who gave it a pretty good shake to try to be one against some pretty good competition. I think the wins are what I'll be remembered for. There have been some special victories and they're very rewarding for me. 

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Hamilton to Mercedes is the mega-money move of the season, but while it promises to make Lewis a global superstar, the relationship could just as easily end in misery and recrimination.



Silver

Andrew Benson analyses the chances of success for this potentially volatile combo and asks whether Hamilton really *can* become underachieving Mercedes'



bullet

LEWIS HAMILTON IS A MERCURIAL CHARACTER.

It's what allows him to pull off some of his more outrageous feats out on the track, and it's what makes him arguably the most exciting racing driver in the world.

But it also means that outside the car he can, paradoxically, be both impulsive and indecisive. He can contradict himself within the space of a single answer in news conferences. He can post ill-advised tweets that get him into all sorts of trouble. And he can also give out conflicting messages when it comes to his career.

The story that he was on the verge of moving to Mercedes next year first broke on the Wednesday before the Italian Grand Prix. The following day Hamilton was present at the official FIA press conference, and he was inevitably asked about the story. Equally inevitably, he was unforthcoming. But he did come out with one telling remark. When asked what he wanted most in his career, he replied: "I want to win."

Three days later, Hamilton dominated the Italian Grand Prix from pole position. Two weeks after that, he was holding a comfortable lead in Singapore, also from pole, when his gearbox failed. Then, on the following Wednesday, he phoned McLaren team principal Martin Whitmarsh to tell him he had signed a three-year deal to drive for Mercedes, whose best results in Italy and Singapore were sixth and fifth.

Asked to explain his move, Hamilton said: "To stay and do the easier thing didn't really suit me. I wanted something different and the challenge of making a car that isn't competitive into a winner."

So what happened, and will Hamilton and Mercedes be a marriage made in heaven... or in hell?



An on-song Lewis Hamilton (pictured here at Suzuka) is a mighty force – and Mercedes know it. But will he be able to sing if he isn't winning?

THE MOVE

The first contact between Hamilton's management and Mercedes happened as long ago as the spring, but negotiations gathered pace during the summer break and, by early September, a tempting deal was on the table.

Both Whitmarsh and McLaren Group chairman Ron Dennis had made it clear over the summer that the global financial situation had changed things and that times were tight. What this amounted to behind closed doors was an initial offer significantly less than Hamilton's current salary. He is earning about £15million

this year, including bonuses. McLaren's initial offer for his new contract was £12.5million.

Hamilton and his management were not impressed. Top F1 drivers treat their salaries as a reflection of their worth – and what their team perceive their worth to be. So to be offered a pay cut did not go down well. Equally, McLaren's large sponsor portfolio has a double impact on a driver. Not only does it mean he must give over a lot of days to sponsorship commitments for the team, it also severely limits his ability to earn money from personal endorsements.

Meanwhile, Mercedes' initial offer was £17.5m, with the prospect of significantly fewer

promotional days and the chance to make more money out of personal endorsements. Hamilton will have done somewhere between 70 and 90 such days for McLaren by the end of this year; with Mercedes it is unlikely to be more than 25.

When it became clear to McLaren that they were facing serious opposition for Hamilton's services, they upped their offer to £13.7million. Mercedes responded by upping theirs to £19.4m.

Hamilton spent much of September weighing up the decision. He knew McLaren would likely have a more competitive car than Mercedes in 2013. He knew moving to Mercedes was a gamble and that he was staking a lot on team



principal Ross Brawn being able to turn the team into consistent winners, as he did when he was technical director at Ferrari.

But Lewis was also aware that despite McLaren's impressive record of victories over the past 30 years – they have won more GPs than anyone, including Ferrari – their record of titles, which is what really matters to Hamilton, is relatively poor. Since 1999, they have won only one drivers' title: Hamilton's in 2008. And in other 'Hamilton' years, when they probably should have won it – 2007 and 2012 – they haven't. In 2009 and 2011, meanwhile, the car simply wasn't good enough.

And there was another, vital, aspect to Hamilton's decision. The relationship between him and McLaren is a very paternal one, as befits that between a team and a driver who was first contracted to them aged 13. Dennis is a very controlling character – it has caused the two to seriously fall out – and Hamilton finds the atmosphere at McLaren quite suffocating.

But he is 28 next year, and while he sometimes behaves as if he's living out the adolescence of which he was deprived, he recognises it is time to grow up and make his own mark, independent of the people who helped him get to where he is. As Hamilton says himself: "I wanted to do

something different. I wanted a new challenge and have done for quite some time."

The scales had been tipping towards Mercedes for a while, but it seems Hamilton had not finally decided until after Singapore. He went away to a Thai island to give it some final thought. And then he called Whitmarsh to give him the news...

"There were a lot of assumptions from people," Hamilton says. "I think Martin assumed I would be staying, so when I made the call to him it was very tough and very emotional." He adds: "Emotions were here... the mind thinking there. The heart was fighting the mind but I was in a comfortable place and just said: 'Let's do it.'" →



From BAR to Mercedes

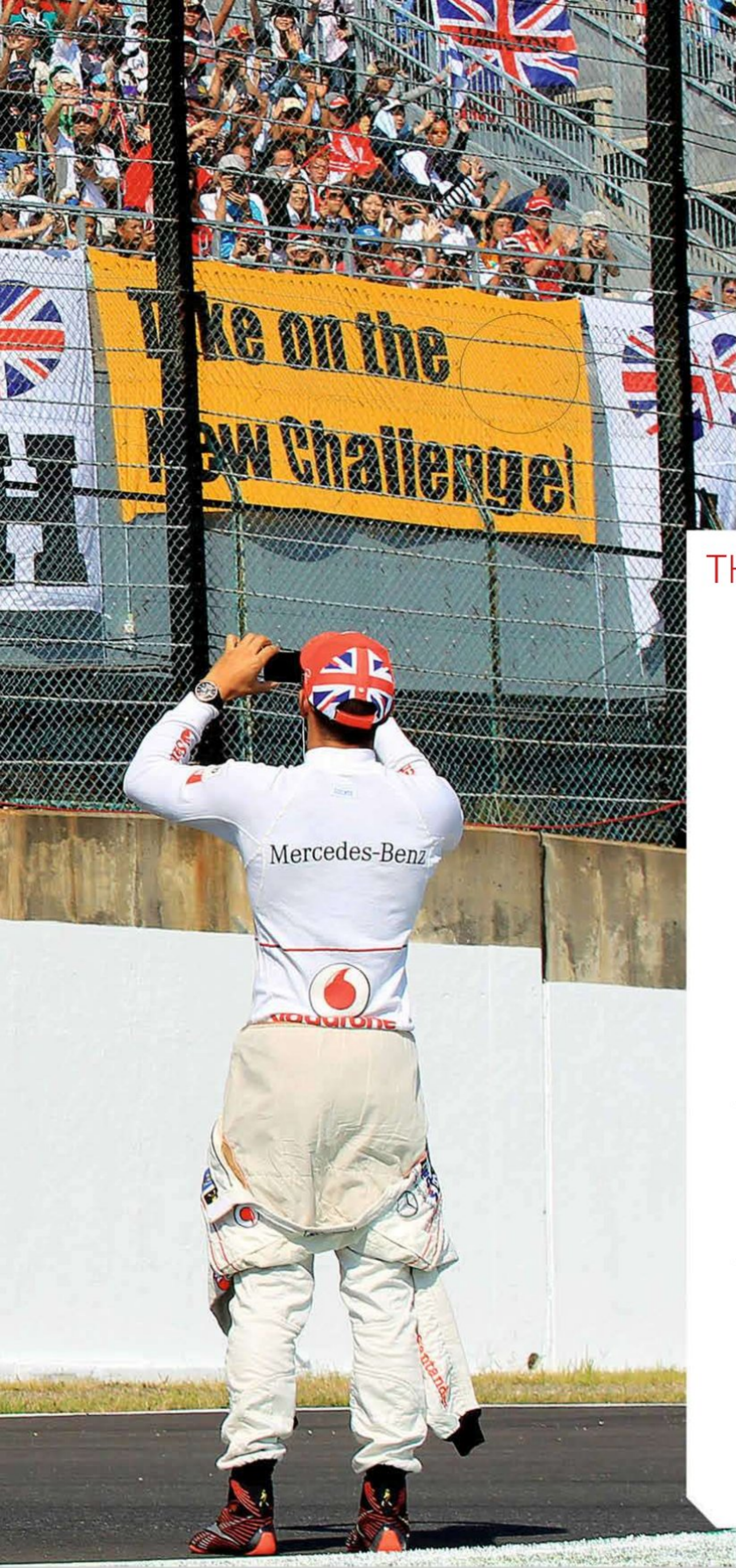
That 2009 championship aside, it hasn't been an easy 13 seasons for the team Lewis will join in 2013...

| Year | Name | Points | Podiums | Title position |
|-------------|-----------|--------|---------|----------------|
| 1999 | BAR | 0 | 0 | 11 |
| 2000 | BAR-Honda | 20 | 0 | 5 |
| 2001 | BAR-Honda | 17 | 2 | 6 |
| 2002 | BAR-Honda | 7 | 0 | 8 |
| 2003 | BAR-Honda | 26 | 0 | 5 |
| 2004 | BAR-Honda | 119 | 11 | 2 |
| 2005 | BAR-Honda | 38 | 2 | 6 |
| 2006 | Honda | 86 | 3 (1) | 4 |
| 2007 | Honda | 6 | 0 | 8 |
| 2008 | Honda | 14 | 1 | 9 |
| 2009 | Brawn | 172 | 15 (8) | 1 |
| 2010 | Mercedes | 214 | 3 | 4 |
| 2011 | Mercedes | 165 | 0 | 4 |
| 2012 | Mercedes | 136 | 3 (1) | 5* |

**Figures in brackets denotes number of wins

*Up to and including Korean GP





The move to Merc is a bold step for Lewis. But while eyebrows may have been raised in the paddock, his loyal fanbase have no doubts he can make it work

THE BIG SELL

Up and down the F1 paddock, there have been varying degrees of disbelief at Hamilton's decision to join a team who, apart from one arguably freak title victory in 2009, have never been true front-runners since they were founded as BAR in 1999.

In one conversation in Singapore, a well-respected F1 figure remarked: "He surely can't be daft enough to do it, can he?" When the switch was announced, he sent an email, saying: "So he was daft enough."

Hamilton, though, doesn't see it as daft. The extra money *was* an influencing factor in his decision but, for him, it wasn't so much the money itself as what it said about Mercedes' ambition. They must be serious about success, he thought, if: a) they're going after me in the first place; and b) they're offering £20million.

Clearly, though, he needed convincing that he wasn't throwing away the next three years of his career, and that task was shared between Ross Brawn and triple champion Niki Lauda, who has been taken on as the non-executive chairman of the Mercedes GP board. Lauda's appointment underlines the fact that Mercedes recognise they need to make changes. After roles as a consultant at Ferrari and team boss of Jaguar ended in failure, Lauda does not have the best of reputations as a senior manager of an F1 team. But he isn't being asked to run the team; he's being asked to give advice from a more detached position.

Lauda has never shied away from criticism of Hamilton in the past – he's a no-nonsense bloke. As Ross Brawn points out: "Niki always says what he thinks." And that reputation for brusque, no-compromise honesty will have impressed Hamilton as the Austrian sat telling him exactly why Mercedes were going to be a success.

There are, meanwhile, few more credible and convincing characters in F1 than Brawn. Hamilton has seen what he did at Ferrari, listened to his plans for Mercedes, and bought into Brawn's vision for the future. He believes Mercedes will get there; it's just a question, he believes, of how long it takes. →

WHAT ARE MERCEDES GETTING?

If it's not necessarily immediately obvious why Lewis Hamilton would want to go to Mercedes, it is at least relatively easy to understand why Mercedes want Lewis Hamilton.

As long as Nico Rosberg and Michael Schumacher were in Mercedes cars, there was always going to be a question mark over whether the team were seeing the true potential of their machinery. But Hamilton is one of F1's 'big three' – the man who, along with Fernando Alonso and Sebastian Vettel, has shown a consistently higher level of performance over the past four years than anyone else in the field.

Hamilton has not won that many more races compared to Jenson Button for McLaren in the past three years – nine compared to Button's seven – but he has trounced him in terms of outright qualifying pace – and one of those three years was Hamilton's *annus horribilis* in 2011.

The combination of a third consecutive car in which he was not able to compete for the title on equal terms, a split from girlfriend Nicole Scherzinger and problems with his father, derailed Lewis last year, but he's come back strongly this season and the gap between him and Button in terms of outright pace remains.

Hamilton has no doubts about his own ability. He regards himself as better than anyone in the field bar Alonso, with whom he believes he is on a par. So he will have looked at the current level of the Mercedes – good enough for a dominant win in China and pole position in Monaco – and thought that, with him in it, the car would be better still. Not good enough to win a championship, perhaps, but in a team that he believes is on an upward trend, run by a man in whom he has absolute faith, based on an enviable winning record, and funded by a company whose commitment he does not doubt, it doesn't feel like so much of a risk.

Initial reports that Hamilton had been offered number-one status at Mercedes were wrong, but what is not in doubt is that they will be looking to him as their lead driver. That doesn't just mean he'll be the man they expect to be fastest out on the track. It means his total commitment to them, and a maturity in helping lead and guide the team in technical decisions. Hamilton has the reputation of not being an especially technical driver but he is better than many give him credit for, even if his inspirational talent means he can drive around most problems.

It remains true, nevertheless, that McLaren have been very much the senior partner in the relationship between team and driver. Lewis's alliance with Mercedes will be starting on a very

This year, a more settled personal life has translated into Lewis's return to form out on track



MOSS ON MERC

Sir Stirling Moss is the only British driver to have raced a Mercedes in F1, although Richard Seaman did compete in races for the Silver Arrows from 1937 to 1939 – a pre-F1 era. As Lewis Hamilton prepares to drive for the three-pointed star, Sir Stirling tells Maurice Hamilton about what it was like to do the same thing almost 60 years ago...



"RACING FOR MERCEDES in 1955 was a totally different concept even then – never mind compared with today. You really were part of the factory. By that, I mean Mercedes-Benz as a road-car manufacturer as opposed to a small racing team. I was employed by Mercedes the company rather than the team. Now it feels that you have Mercedes in Germany and you've got Ross Brawn over here doing his bit. So, actually, there is no comparison whatsoever between the Mercedes I raced for and the team Lewis is joining in 2013.

Driving for Ferrari was – and is – fantastic. But in my day, Mercedes were the ones you wanted to be with. F1 was all about small teams, but the Mercedes racing department employed 56 people, which was huge back then. Reliability was exceptional. They had one mechanical failure and, apart from that, won every grand prix they started.

Going to Mercedes made sense for lots of reasons. Alfred Neubauer [team manager] was there. And so was Rudolf Uhlenhaut [chief engineer], both of whom were exceptional in their own right. And, of course, Fangio was at Mercedes. I was not told to follow him, but I was very happy to do that. He was the best driver in the world. I learned so much – as I knew I would. I was becoming established in grand prix racing and Mercedes was the perfect place to be."



PHOTOS: CHARLES COATES/LAT; LAT ARCHIVE

different footing. He will no longer be the child prodigy who has grown up with the team but who is still, in many ways, treated like a child. He is the superstar driver who has been recruited to lead their assault on a world championship and establish Mercedes as the dominant force in F1. The effects of that change of status on either driver or team, should not be underestimated.

Many in F1 doubt that Hamilton is capable of performing this leading role, in the way that Alonso, for example, does so capably at Ferrari.

But it will be fascinating to see him try – or to find out if he even realises that this is what is required of him, and watch how he responds.

What is not in question is Lewis's commitment. He is often portrayed by the media as a man obsessed with showbiz, who spends half his time jetting off to Los Angeles to spend time with Scherzinger, but this is a misinterpretation. It will surprise some people to learn that, at the time of writing, he had actually been to the States only twice this season. He doesn't make a big →



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deal about it, but all his other time between races has been spent either at the McLaren factory in the simulator, or in debriefs with his engineers, or at home in Monaco doing his training.

WILL IT WORK?

For all the debate about how Hamilton will fit in at Mercedes, and whether he will be able to perform the leadership role they would clearly like him to, the biggest question marks concerning the new deal do not surround their new driver. They surround the team.

In their previous guise as Brawn, they won the world title in 2009. But staff cuts forced by a lack of budget, and subsequent restructuring, have left them far from those heights for the past three years. At the beginning of 2012, there were signs of genuine progress. The car was

immediately competitive, in qualifying at least, then dominant in China. There have been some impressive moments since then – think Michael Schumacher's fastest qualifying lap in Monaco and Nico Rosberg's second place in the race – but, overall, they have gone backwards and they are ending the season nowhere near the pace.

It is unsurprising, then, that Lewis has been conspicuously playing down expectations for 2013. "I can't lie that not winning is frustrating whether you're in this team or another team," he says. "I've had lots of experience of not winning and I've learnt to deal with it in the past. I believe we can eventually get those wins, but it's more long term. In 2014, the rules change massively with the new V6 turbo engines and the cars; everything starts from scratch again.

"This [McLaren] car will roll into next year. It will look a little better, it will handle the same

but have a little more downforce, better braking stability and all these things we've been working on all year. But perhaps where Mercedes are, they might just build a completely new car, which is what we did this year."

As that quote suggests, Hamilton's low-key predictions for the team's performance in 2013 are not his true feelings – he is quietly optimistic, but he wants to keep expectations in check. It's a wise strategy. He has been convinced by the plans laid out to him by Brawn, and is confident that Mercedes will make a significant step forward next year and another in 2014, when the new turbocharged engine formula – in which the German giant has invested heavily – and accompanying chassis changes come into force.

But the fact he is hoping for at least some wins has its pitfalls, most obvious of which is that McLaren have always found that Hamilton does not respond well to not winning. He becomes monosyllabic, visibly down and difficult to be around. Not exactly the way to motivate the factory in the way that Alonso has at Ferrari over the past couple of years. Of course, the main motivation a driver provides for a team comes on the track, and you imagine that here Hamilton will provide an immediate step forward for Mercedes. In which assumption, of course, there lies an implicit criticism of Rosberg.

The German has denied it publicly, but he must know that Hamilton joining the team is a potentially career-defining move for him. Rosberg knows exactly how fast his new teammate is, and that he is in a battle for his F1 status. Rosberg is a highly intelligent, politically adept man, and you imagine he will be pulling all the strings he can to protect his position. Which is not exactly the recipe for a happy camp.

It could go either way. There are reasons to believe Mercedes will get it together and that Hamilton's arrival could lead to an era of success – the most gifted driver of his generation joining forces with the enviable resources of one of the world's great car companies and one of F1's leading managerial-technical brains.

But the opposite extreme is also possible: that of a man who wears his heart on his sleeve and is spectacularly poor at hiding emotions regretting joining a team who, with one exception in unique circumstances, have never convinced over the course of their 13-year history.

But even if it's the latter, for Hamilton it is hardly the end of the world. As he puts it himself: "I could take the easy route, stay at a great team with a great car making decent money. But I don't want to do that. I want to go and struggle and help a team that's struggling and help them frigging get to the top and start winning. That's going to be the most satisfying feeling if we do get there. And if we don't, I'll only be 31." **F1**

Andrew Benson is the BBC's chief Formula 1 correspondent



Mercedes first, McLaren second at Shanghai 2012. How long will it be before Lewis can pull off the next Silver Arrows victory?



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HOT STUFF!

A string of fine performances made him the hottest driver on the market this summer. But is **Sergio Pérez** the right man to step into Lewis Hamilton's shoes?

It's lap seven of the Japanese Grand Prix and Sergio Pérez throws his Sauber up the inside of Lewis Hamilton's McLaren at the hairpin, locking his inside front Pirelli but making the move stick. It's a brilliant, instinctive pass and one that catches Hamilton napping. Thirteen laps later though, after stopping for another set of tyres, he's back behind the McLaren and looking for another opening. Just as before, he closes up on the McLaren's gearbox as they approach the hairpin again, only this time, wise to a repeat, Hamilton positions his car slightly to the left. It's a tiny but crucial adjustment and Pérez is immediately undone, spinning the car to a halt in deep Japanese gravel.

WORDS
JONATHAN
REYNOLDS
PORTRAIT
LORENZO
BELLANCA/LAT

If ever there was a moment that encapsulated the difference in experience between Hamilton and his 2013 replacement, this was it. In fact, as race weekends go, Japan gave us a little of everything we've come to expect from 'Checo' to date: an underwhelming qualifying effort followed by brilliant race pace; fearlessness when battling higher-profile drivers, but a susceptibility to coming out on the losing end of such encounters (see also Pérez vs Alonso in Malaysia, aka 'the win that got away'). "My main target this season was to position myself in a top team for 2013," says Pérez. "Now I have a contract with the best team in F1." Yes, he's bagged Hamilton's seat; now for the hard part... →



PHOTOS: ANDREW FERRARO/LAT; STEVEN TEE/LAT; STEVE ETHERINGTON/LAT

Pérez's move to McLaren surprised everyone, and not just because of his Ferrari connections. Once Lewis Hamilton had nailed his colours to Mercedes' mast, there wasn't an obvious top-line driver for McLaren to bring in. Force India duo Paul Di Resta and Nico Hülkenberg seemed the most likely candidates, despite the fact that neither could match Pérez's podium record.

Pérez says he was in talks with the team "for a few months", but according to McLaren team principal Martin Whitmarsh, Guadalajara's finest had been on his radar for much longer, even before those trophy-bagging performances in Malaysia, Canada and Italy.

"If you look at Sergio's career, in his rookie season he had several incredible drives and this year he's had strong podium finishes in which he's proved he's not afraid of anyone on the racetrack. He's got a real talent and makes few mistakes. He makes some errors, but not many for someone so young," says Whitmarsh.

"You have to remember that Sergio is the same age now [22] as Lewis was when he started with us in F1. We worked very hard with Lewis over the winter of 2006-07. At the time, people were saying, 'How irresponsible, he's not ready and you're pitching him against Fernando Alonso.' But he turned up at the first race with a strong podium and then got another eight in a



Sergio's second at Monza followed up podiums in Sepang and Montréal. The result? A McLaren seat

row. Our job is to see if we can get Sergio to the first race capable of winning.

Whitmarsh continues: "One thing I said to him, and this is no disrespect to Sauber, was that for many teams, if you qualify on the fourth or

fifth row and maybe make the podium, that's a celebratory weekend. If you don't make the podium, there's no inquest. When you're a McLaren driver, if you're not on the first two rows there's one hell of an inquest. It's a different level of pressure and if you're competing for a podium or race win, again there's that level of scrutiny. He'll have to acquire the tools to be able to cope with that level of pressure."

Being ready to win from the word go may seem a big ask for someone who: (a) hasn't won a race at this level; (b) hasn't dealt with racing for a top team, and (c) hasn't had a world champion team-mate. But Pérez does not lack self-belief and is acutely aware of what McLaren want of him: "They expect me to be world champion," he says, matter-of-factly. "It's why they signed me. I've always had a lot of pressure, but I like it. I've always had big companies behind me – Carlos Slim for example. It's not been as easy for me as people might think."

Ah yes, Carlos Slim: world's richest man, boss of telecoms giant (and Sauber sponsor) Telmex, friend of Pérez and, for many, the real reason why the Mexican had the edge over his rivals for the seat. Having spent the past ten minutes eulogising about Pérez's potential, Whitmarsh takes the topic on board with a wry smile:

"I'll answer some of the silly things I've heard. First, we don't have a dealership in South America," he explains, refuting the theory that Pérez was signed to shift McLaren road cars on that continent. "We've been asked if we'll do one in Brazil but Mexico isn't on the list. Second, →

"Sergio will spend more time at Woking than he realises. We're going to work very hard with him" *Martin Whitmarsh*

Seconds Minutes Hours Days Weeks

"IN F1, EVERY DAY COUNTS. I DON'T SET DAILY TARGETS FOR MY TEAM, JUST ASK THEM TO WORK HARD AND BE CREATIVE"

If you stand still in Formula 1, you go backwards. That's why every day counts in the race to improve performance, explains Red Bull Racing's Chief Technical Officer **Adrian Newey**

Teams need to improve their cars' performance at every race, or risk slipping down the order. Adrian Newey leads Red Bull Racing's technical charge. He's the public face of a design group that works tirelessly to improve car performance, and they all share Casio's desire for innovation.

"You have to keep pushing in F1," says Newey. "Every day counts, but I don't set daily targets for my team; I ask everyone to work hard and be creative. That will get us where it gets us, and we have to hope that it's enough to remain competitive."

Before a car part even reaches the racetrack, Newey is confident of its impact on performance due to the simulation tools at his disposal. Every aspect of its performance can be analysed and tested in a virtual sense before it even gets near the car.

"It's extremely useful to have the reassurance

provided by the simulation tools," says Newey. "But it's created a lot more work for me because there is more data to look at. I have to balance the time spent sitting down being creative with trawling through lots of information."

Newey's day is also filled with overseeing three separate design programmes: for the current RB8, next year's car and the 2014 car.

"On any given day, there's a lot going on," he says. "One group is working on components for the next race, another group is working on the 2013 car and another one on the 2014 car, which will feature a major regulation change. We have to mix the present with the future, every single day."

There's no standing still at Red Bull Racing and no going backwards.



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The EQS-A500RD is a truly special watch, a celebration of Casio's partnership with Red Bull Racing. The watch boasts a youthful, unique design that is inspired by the speed and energy of the Red Bull Racing team.

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The solar-powered EQS-A500RD is equipped with Casio's Smart Access system for a balance of functionality and operability, making it easy to use features such as the stopwatch that can measure 10 lap times at an accuracy of 1/20th of a second, fastest lap time display and world time.

EDIFICE EQS-A500RD

This one-of-a-kind collector's item comes in a display box with photographs of Red Bull Racing's cars and drivers.



THE MEN McLAREN TURNED INTO WINNERS

Sergio Pérez isn't guaranteed success at McLaren, but these four drivers all dramatically improved their CVs following stints with the team in rocket-red

MIKA HÄKKINEN

| Pre-McLaren | With McLaren |
|-----------------|------------------|
| 0 world titles | 2 world titles |
| 0 wins | 20 wins |
| 0 other podiums | 31 other podiums |
| 0 poles | 26 poles |
| 0 fastest laps | 25 fastest laps |



Häkkinen opted to join McLaren as test driver in 1993 after two points-scoring seasons at Lotus. The gamble paid off when the hapless Michael Andretti returned to the States and Mika was given his seat – immediately outqualifying team-mate Ayrton Senna. It took him another four years to win his first race, but back-to-back titles followed in '98 and '99.

KIMI RÄIKKÖNEN

| Pre-McLaren | With McLaren |
|-----------------|------------------|
| 0 world titles | 0 world titles |
| 0 wins | 9 wins |
| 0 other podiums | 27 other podiums |
| 0 poles | 11 poles |
| 0 fastest laps | 19 fastest laps |



Ron Dennis snapped up Räikkönen for 2002 after Kimi's impressive Sauber debut. Räikkönen scored a podium on his McLaren debut (one of four in '02) then, one season on, won his first GP (Malaysia) and challenged for the title. Ferrari made him a champion in '07, but it was with McLaren that Kimi morphed from talented youth to undisputed star.

LEWIS HAMILTON

| Pre-McLaren | With McLaren |
|-----------------|------------------|
| 0 world titles | 1 world title |
| 0 wins | 20 wins |
| 0 other podiums | 28 other podiums |
| 0 poles | 24 poles |
| 0 fastest laps | 11 fastest laps |



No driver has ever owed so much to a team as Lewis Hamilton does to McLaren. Ron Dennis signed the Brit to a development deal in 1998 while he was still in karts, and the team nurtured him through the junior ranks before giving him a race seat in 2007. It's not been plain sailing, but McLaren helped Lewis achieve his ambition of winning the world title.

HEIKKI KOVALAINEN

| Pre-McLaren | With McLaren |
|----------------|-----------------|
| 0 world titles | 0 world titles |
| 0 wins | 1 win |
| 1 other podium | 2 other podiums |
| 0 poles | 1 pole |
| 0 fastest laps | 2 fastest laps |



Heikki joined McLaren from Renault after some quietly impressive drives in 2007, but was eclipsed by Hamilton over 2008-09. Despite this, he left the team with a race win – an indication of McLaren's consistently high performance level. The experience left him drained, but ask him now and he'll tell you he's a better driver for his McLaren years.

we have no deals with any Mexican company. We're paying Sergio a good salary – he's not paying us. We've chosen him because we think he's massively exciting and has the potential to be world champion."


Bullish though both parties are, it's hard to believe that McLaren won't be significantly weakened by Lewis's departure. While Pérez seems tailor-made for the current 'tyre saving' regulations, many question his ultimate pace – something that was never an issue with Hamilton. Is this the real reason Ferrari were willing to cut ties with him? Look at Pérez's head-to-head qualifying record against team-mate Kobayashi and it's surprisingly average for someone so highly rated (pre-India, Kobayashi led nine-seven). Sergio has an explanation.

"At the moment, qualifying probably is a weakness, but then I always aim to maximise the races. At Sauber, our approach is to maximise the weekend in terms of setup for the Sunday. At McLaren, I believe it's very different – the approach there is to go for pole and fight for the win at every grand prix."

"McLaren expect me to be world champion. It's why they signed me"

A man well-placed to judge Pérez is his current team owner, Peter Sauber, who lost the fledgling Kimi Räikkönen to McLaren in 2002: "I think Sergio has the skills," he says. "We were surprised he left us so early, but it is hard to say if it's too early or if it would have been better for him to stay another year – only the future will tell. Also, it's hard to say if someone is too young for such a step because I think back to Kimi. He had zero experience when he came to us and went to McLaren after he'd been with us for just one year. Every driver who is in F1 at Sergio's age learns quickly or they wouldn't have made it."

McLaren have yet to agree an official start date with Sauber for Pérez. But when he does become a McLaren man he's going to be busy. "He'll spend more time at Woking than he probably realises," says Whitmarsh. "We're going to work very hard with him to get him prepared. He'll need an understanding of our engineering and simulation programmes and he'll also spend a lot of time with the sports scientists, his engineers and the strategists. There'll be a very detailed programme over the winter to try to get him to where he might have got to on his own, but in double-quick time."

After Suzuka, Whitmarsh described Pérez as "a diamond that needs to be honed". There's a lot of polishing to do, but McLaren are convinced they've found another gem. 

INSETS: STEVE ETHERINGTON/LAT; CHARLES COATES/LAT; LORENZO BELLANCA/LAT; GLENN DUNBAR/LAT; STEVEN TEE/LAT; LAT ARCHIVE



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A close-up, black and white portrait of Sam Michael, looking slightly to the right. The image is the background for the entire page.

Factfile

Date of birth

**29 April
1971**

Birthplace

**Geraldton,
Australia**

Team

McLaren

Role

**Sporting
director**

**In
conversation
with**

**Sam
Michael**

From a fledgling Jordan to a Williams at an all-time low, Sam Michael has moved around the ranks of F1. Now as McLaren sporting director, he's back in the fast lane

INTERVIEW ANTHONY ROWLINSON PORTRAIT CHARLES COATES/LAT

You've been at McLaren just over a year. How's it going?

It's been really good. I thoroughly enjoy working for McLaren and it's fantastic working with Martin, Ron, Jonathan and all the engineers. There's strength in depth at the top: experienced top-quality decision-makers who can think across a spectrum of issues that they try to solve and improve.

That issue could be anything: sporting, technical, strategic. This is a complex business and to do it well, you need a lot of bandwidth. That's something McLaren have, and I've enjoyed becoming part of it – making a positive contribution and helping the team improve.

There's a great sense of humour here as well: from the outside I never thought McLaren would be like that. We sometimes come across as grey and corporate – although that's true in terms of seriousness and the sponsor portfolio we have. But we are human beings and we are quite capable of laughing at ourselves.

There are a lot of senior guys – so where do you fit in?

I'm responsible for racing and testing our cars whenever they operate. I'm also part of the senior technical management group, which means contributing where I can to everything inside McLaren. In a traditional sense, the main thing is ensuring we have the best race team in the pitlane. That's probably the main focus of my job.

You seem more chilled now...

I wouldn't necessarily say I'm chilled, but with the people I've got around me here I'm more on top of



things. It brings a better quality of life and gives me more time to reflect and make proper decisions, whether they are strategic ones or short-term decisions in the pitlane. I have a better capacity to operate and that's much more enjoyable.

We're still adjusting to seeing you in the McLaren uniform.

Did it take long for you to make the adjustment?

That lasts for a couple of races at the start of the year, but it disappears very quickly. It's probably more a case of other people looking at you.

What's it like to be back in a team with explicit title-winning expectations?

At McLaren it doesn't help to say "we must win races" – that achieves nothing. What matters are the people and technical processes you have in place – your operational structures, reliability and drivers. These things are what win you races and championships. Only once you have all that in place can you say: "We're going to win races."

We're not perfect at McLaren. We've been through bad periods this season. I know we're going through a good period now, but it's all about the ability to recover. Before I came here, I was really impressed two or three times over the past five years by their ability to recover. They'd make a mistake on the car and you could see the error.

With most teams that would wipe them out until the following season, but McLaren have this ability to recover. Now I work for them, I understand exactly how they do it. It's very simple – it's because of the structure, the people and the ability to prioritise understanding over everything else.

Are the peaks and troughs of this season solely down to the tyres, or do you think there are other factors at work?

There are a lot of factors at work. One of the main things is that the grid is so close. Qualifying times are intensely tight, so if you make a little mistake you pay heavily. The tyres have an influence but we're getting on top of the tyres now.

Are you still fully pushing development for this season?


Yes, because there are no big rule changes for 2013. It'll be a harder decision next year. For this season, developments can go onto next year's car and some developments we've had this year have come from next season's programme.

What do you enjoy about your job and what gives you a kick?

I enjoy being competitive and finding solid solutions to problems. Solving problems leads to competitiveness and that's what we're here for. I've been in motor racing my whole life and I love competition. Whether you're getting beaten or you're winning, you are always learning. I love the pressure: when there's so much at stake and you manage to pull it off, it's just fantastic.

On a different note, what's this about you owning a Mustang?

It's a red 1965 Ford Mustang Fastback GT with a four-speed manual gearbox. I bought it about three or four years ago, restored it, and re-did the suspension and engine in my spare time – which is something I have very little of. It's a classic American muscle car; noisy in a straight line but doesn't particularly want to go round corners because it's got a live rear axle and leaf springs.

The main reason I bought it was to teach my daughter Toni and son Jacques about engines – if you open a bonnet on a brand-new car, it's full of electronics. It sort of worked: my daughter was really proud when she told me what a carburettor is. 

SAM MICHAEL'S CAREER

1991 Attends first Formula 1 race, the Australian GP in Adelaide

1991-93 Works part-time at Formula Holden team owned by Gregg Siddle

1993 Graduates with a degree in

mechanical engineering from the University of New South Wales

1993 Joins Team Lotus, working on data and simulation

1994 Moves to Jordan, working on

data acquisition with the race team

1996 Establishes the R&D department at Jordan

1998 Race engineer to Ralf

Schumacher/Heinz-Harald Frentzen

2001 Joins Williams as chief operations engineer

2004 Williams technical director

2011 Joins McLaren

2012 McLaren sporting director



I have worked
with many greats,
including

Ayrton Senna and Fernando





Alonso. Michael remains

SPECIAL

Our columnist **Pat Symonds** helped guide Michael Schumacher to his first two world titles at Benetton. Now, as Schumi prepares to bow out of F1 for a second time, Symonds offers a personal tribute to a friend and driver he found inspirational



In his time with Benetton in the early 1990s, Michael (left and right with Symonds) worked to improve every aspect of the team



even though I'd been Ayrton Senna's race engineer, when he drove for Toleman in 1984.

Michael was different. He had the same raw natural talent as Ayrton, but whether he had more or less of it, it was impossible to tell and that's something that will be argued about for as long as people talk about motor racing. What was different was his total focus on every detail.

Ayrton, in his early days, believed that everything was down to his ability to drive a car and the ability of the team and suppliers to produce hardware that would perform. The subtleties of things like personal fitness were not on his radar at the time. Michael could not have been more different. True, he had a similar faith in his ability to drive and he also pushed the engineers to provide ever-better equipment, but Michael also understood that the whole could sometimes equal more than the sum of the parts. He understood the value of a team and realised that if every element of that team was pulling in the same direction – and had a modicum of ability – then they became formidable opponents.

The first part of Michael's career was like nothing we had seen before. Later, his total dominance in the early part of the new millennium almost killed the sport. Such was his supremacy that the result seemed inevitable and casual fans turned off their televisions in droves.

When he drove for Benetton during the early '90s, he worked with the team at Enstone to hone every part of the operation. We were a good team when he joined; we were a great team when he left. Every aspect of performance was inspected, analysed and improved. No longer was a simple lap time the be-all and end-all; it was merely part of the equation that summated to championship victories. Fitness, starts, pitstops, strategy: all were examined and worked on. When refuelling was re-introduced to Formula 1 in 1994 it could have been made for Michael and for Benetton. Here were a team at the top of their game and

ready to take on any challenge with an open mind and a determination to succeed.

While it was a team effort, Michael's part in making the team a cohesive entity cannot be underestimated. Not only was he the best driver I have ever worked with, he was probably the best man-manager I have encountered as well. Most drivers struggle to remember the names of all the members of the team. Michael knew them all and, what's more, he knew all about them. He knew about their families and he showed genuine interest. If there were social events happening he was always there. Nothing was too much trouble for him. I have many photographs of him relaxing in the kitchen of my house at some Benetton party or other.

His success was phenomenal. His titles in 1994 and 1995 were dominant. You might argue that he won by only a single point in 1994, but this ignores the huge obstacles put in his way during that season. The two-race ban handed to him as result of the Silverstone incident was an enormous penalty for a minor misdemeanour by a driver (albeit a major one from the team). The exclusion from the win at Spa for an overworn plank still rankles with me as an injustice. There was continual innuendo from the establishment and Machiavellian actions from many who should have known better. He rose above it all with the style of a true champion.

Also not to be forgotten are the near-misses that would have added to his already impressive tally of records. The 2006 championship would have been his, had it not been for the appalling luck he suffered at that year's final race in São Paulo. The Ferrari/Schumacher/Bridgestone combination was clearly superior to the Renault/Alonso/Michelin triumvirate on that day and yet Michael went in to retirement as runner-up.

That retirement was a surprise to those who knew him well, and there's no doubt there was an element of contrivance about it. In my

I asked Michael if he would finish his career at Ferrari. He said he still owed a debt of gratitude to Mercedes

The balance is nearly

there, just a little too much understeer at low speed, but what is really troubling me is the sudden oversteer in the higher speed corners." Michael Schumacher is giving me his views on the Benetton during our final pre-season test at Kyalami in 1992.

"I want a quick check of the recorded data, but I think we should stiffen the rear anti-roll bar," I reply. Michael disagrees. Classic pitlane vehicle dynamics say that stiffening the rear bar will increase oversteer. Checking the data confirms what I thought was happening and we do the next run with a stiffer rear bar. He is immediately quicker; the snap oversteer gone.

I explain how the oversteer is caused by the car bouncing into the bump rubbers at the rear and how the stiffer bar is holding the car off them, as well as helping his low-speed understeer. He looks impressed and I feel it's a seminal moment in initiating what will become a formidable partnership over the next five years. That bond of trust between driver and engineer had been made – we each know the other has the ability and will give all in the pursuit of success.

I thoroughly enjoyed working with Michael over the years. His attention to detail and his attitude were something I had never seen before,



Even at the age of 43, Michael's levels of fitness rival those of his younger competitors on the grid

opinion, given free rein over his future, it is not what Michael would have chosen and, therefore, in spite of the words of finality at the time, it was no great surprise to see him return in 2010. I, for one, was delighted and recalled a conversation we had when he left Benetton for Ferrari. I had asked him if he thought he would finish his career at Ferrari. He answered that he still owed a debt of gratitude to Mercedes for the support they gave him early in his career and hoped that one day he could repay that.

Of course Mercedes were not a complete F1 team in those days, merely an engine supplier, but when they announced their purchase of the Brawn team it was no surprise to see Michael return as their lead driver. Comebacks are often as futile as any attempt to relive the past but here, I felt, was a real chance for someone to show that age should not be a barrier to success.

Unfortunately, in spite of their wonderful achievements in 2009, there were signs of malaise in the team from Brackley. The huge injection of funds given by Honda had dwindled and the team had downsized. They may have won the championship in 2009, but they were definitely not the class of the field by the end of the year. Michael had a hill to climb.

With Nico Rosberg joining him at the 'dream team', it meant a completely new driver line-up for 2010, so another vital aspect had been lost – that of continuity. The funds were swelling the coffers again and recruitment proceeded in earnest, but there is inevitably a lag in these things. The much-vaunted Silver Arrows were a class act – but not *the* class act.

In my mind it mattered not. Michael had always been able to gather a team around him, but he had also been fortunate to work with some talented people – including Rory Byrne. Rory was the missing ingredient in the new recipe. Ross Brawn has always been a brilliant technical boss, but his skill lies in organising a team and giving them the arena in which to best nurture their talents. The natural talent was their own. As Brawn GP, the team achieved much in 2009 by using a large budget wisely and making full use of a 'write-off' season in 2008. There was no such luxury for the reincarnation of Mercedes. →



PHOTOS: STEVE ETHERINGTON/LAT, LAT ARCHIVE

But is it fair to lay all the blame on the team? A three-year hiatus from a sport as fast-moving as F1 is like a decade in any other job. Was the returning Michael the same one who had slunk away from the São Paulo paddock incensed that he was not retiring as champion? Indeed, had he won the title that day would he even be considering honouring that debt of so long ago?

His fitness was beyond doubt and, in my opinion, the returning 41-year-old was probably fitter than most of his considerably younger rivals. True, the rules had changed a lot but adaptability had always been one of his strongest points. I well remember in our days together how we would toil through Friday and Saturday to extract every last gram of performance from the car and then, on Sunday, how Michael would use the morning warm-up session to adapt his driving to the car I had given him. This was perfectly illustrated in 1994 when, with his car stuck in fifth gear, he was able to finish second

Pirelli tyres did nothing to favour him and the need to drive a race at a pace entirely dictated by the fact that the future performance of a tyre was dependant on the current performance being extracted, was anathema to him.

In the past, he had always proved himself as a great racer in all conditions, including long-distance sportscar racing – excelling when short sprints were required. Many could pull out a single golden lap for qualifying, but Michael was able to hold that pace for as many laps as were necessary to seal the outcome of a race.

But perhaps more worrying during Michael's second coming were his occasional lapses of judgment. Many would say that these were nothing new and might cite Adelaide '94, Jerez '97 or Monaco '06 as examples. These were different. Those earlier incidents had been, in my opinion, the result of Michael's innate competitive instinct overcoming his normal sense of fair play. What we have seen more

From Mercedes sportscars to title glory with Ferrari, back full circle to working with Brawn again at Mercedes GP, Michael has always excelled at uniting a close team around him

into an unremarkable run in seventh place until his retirement with fuel pressure problems. That weekend was almost a microcosm of the season – all that skill and potential wasted due to poor reliability and unnecessary incidents.

And so, on 4 October 2012, he announced his second retirement. But why? Judged by any standards other than his own, his comeback would be considered successful. Ninth in 2010, eighth in 2011 and, after the Korean GP, 14th in the standings may not sound stunning but in the context of his team-mate finishing seventh in the first two years, it is by no means dishonourable.

It seems Michael is enjoying his racing now, maybe more so than at various other periods in his career but ultimately, for one as fiercely competitive as him, the motivation to race for tenth place is simply no longer there. However, I do believe that, just as with his first retirement, Michael has had a situation partially forced upon him and been presented with a scenario that, in other circumstances, he may have handled completely differently.

While his loyalty to Mercedes is admirable, he has grown increasingly frustrated with the team. There is no doubt that the underlying competitiveness of the car is lacking. In a tough year in which the teams have had to learn a lot about thermal management of tyres, the Mercedes has been good when temperatures are low. But once it warms up, the car no longer uses its tyres optimally and neither is the car as aerodynamically efficient as may be expected.

Mercedes felt part of their problems lay with their 50 per cent scale windtunnel model. So they made the decision to develop their 2013 car at 60 per cent scale. Michael, I believe, wanted to see the initial results of this work before committing to another midfield year. Sure, Lewis was in the background sniffing around – but he would never leave McLaren, would he?

Well he did leave McLaren to join Mercedes, and, just as in 2006, Michael was left out in the cold. Remember that at Monza in 2006 it was Ferrari who announced Michael's retirement, not Michael himself. It appears now, as it did then, that others were determining the outcome of Michael's future.

A podium finish in Valencia was no mean feat for Michael at the age of 43, but it was by no means indicative of an overall return to form



at the Spanish Grand Prix. It was not just the finishing position that was impressive but the way he had taken a mere handful of laps to learn how best to drive his crippled car. Once he had figured it out, his lap times belied belief.

Surely, with these skills, the reintroduction of races without refuelling and the new tyre characteristics would present no problems to him? With the benefit of hindsight, I am not so sure. Michael had always been able to destroy his team-mates, but now the young Rosberg was capable of outqualifying and outracing him. The

recently, have been true errors. They have cost him dearly and none more so than in Monaco this year. In fact, that weekend summed up the story of his return in a nutshell. A brilliant pole position could so easily have led to a dominant win. Instead, having qualified fastest by a tenth he was required to start from fifth place as a penalty for a totally unnecessary accident that had occurred at the preceding race in Spain, where he had inexplicably cannoned into the rear of Bruno Senna's Williams. What could have been a highlight of his comeback instead turned




When presented with this *fait accompli* what could he do? There really was no point in moving sideways to another team that may or may not produce a competitive car, and certainly no other team would have either the historical or moral provenance of Ferrari or Mercedes. He had two options. Either retire or return to Ferrari.

A return to Ferrari may seem like wild speculation, but it would also have made sense. At the time, Massa was out of favour and Michael is still a hero of the *tifosi*. The thought of Schumacher vs Alonso, the 2006 rivals, in equal cars is one that many people would have cherished and Bernie Ecclestone would have

positively encouraged. There is no doubt in my mind that such an avenue *was* explored. Sadly it did not come to fruition, so now we really will see Schumacher start his last race in Brazil this year.

In judging Michael's return it is hard to argue that he accomplished all he set out to achieve. His career averages have dropped as a result of three years of mediocre results, but a podium finish in Valencia at the age of 43 is no mean feat. Equally, 2010 was his first season since his 1991 debut that did not result in a win, pole, podium or fastest lap. Yet it would be supercilious to suggest that his return did anything to take the sheen off his lifetime of achievements.

So was this comeback worthy of one of the greatest drivers of all time? I believe it was. The work ethic is still second to none, the desire and competitiveness are still there – but the judgment, perhaps born of frustration, is sometimes questionable. At times, his accidents have been those of a beginner and yet at others, like that pole performance at Monaco, the brilliance is overwhelmingly apparent.

I've worked with many greats, including Senna and Alonso. I believe Michael is special and I, along with thousands of fans, will miss the sparks of genius that have marked not just his time with Benetton and Ferrari, but his entire career. 



PHOTOS: GLENN DUNBAR/LAT; STEVEN TEE/LAT; STEVE ETHERINGTON/LAT; LAT ARCHIVE; PASCAL RONDEAU/GETTY IMAGES

SCHUMACHER: SAINT OR SINNER?

Love/loathe? Saint/sinner? Hero/zero? Few drivers have divided opinion to the extent that Michael Schumacher has. On the eve of his second retirement, we recall some of his most polarising moments...

WORDS JAMES ROBERTS PORTRAIT STEVE ETHERINGTON/LAT



A sensational 1991 debut...

Schumi qualifies the Jordan 191 seventh at Spa – four places higher than regular driver Andrea de Cesaris. F1 sits up and takes notice, but sadly his performance in the GP comes to naught when he retires on the opening lap with clutch failure.

...leads to immediate defection

Just two weeks after his F1 debut, Schumi appears at Monza, driving for Benetton. The contract with Jordan isn't worth the paper it's written on and with help from Flavio Briatore, the young hot-shoe says farewell to EJ and plots his route to the title.



He succeeds while stuck in fifth...

Five races into the 1994 season and gunning for his fifth win, Schumacher suddenly finds his Benetton is stuck in fifth gear. But by adapting his driving style – and helped by the flexible torque of his V8 Cosworth Zetec – he manages to bring the car home in second.



...then collides with Damon Hill to take the title

After ignoring a black flag at Silverstone and picking up a two-race ban, Schumi's '94 season ends controversially when he hits the wall at Adelaide, returns to the track and closes the door on Damon Hill's Williams. The result? Both cars are out, but Schumi is crowned champion.



He wins for Ferrari in a Spanish downpour...

Switching to the Scuderia doesn't guarantee success, but when the heavens open over Barcelona on 2 June 1996, the *regenmeister* delivers a supreme performance. His first win for Ferrari is a masterclass in wet-weather driving and Schumi laps the field up to third place.



...but is in trouble again at the '97 season finale

At the title showdown in Jerez, Schumi leads until Jacques Villeneuve attempts to pass on the 48th lap. Michael turns in on his rival, but JV survives the contact and wins the title. Michael recently admitted to *F1 Racing* that this moment of madness was the biggest regret of his career.





An overwhelmed Michael breaks down in tears...

After crossing the finish line to win the 2000 Italian GP, Michael talks to the media about his incredible feat of equalling Ayrton Senna's 41 GP wins and promptly breaks down in tears. The crowd hails a new hero after his magical victory over Mika Häkkinen's McLaren. It sets Schumi on course to give Ferrari their first drivers' championship in 21 years.



The Schumi steamroller seems unstoppable...

As the Ferrari dominance continues, the record books keep on being rewritten. The number of wins in a season, consecutive finishes, poles, fastest laps and podiums mean Michael keeps on crushing the opposition. But one of his greatest races is the 1998 Hungarian GP where he has to make up 25 seconds in 19 laps. And in 2004, he wins 12 of the first 13 races of the year.



He campaigns to promote driver safety...

During his Ferrari career, Schumacher becomes one of the world's highest-paid sportsmen, accruing millions of pounds in wages and sponsorship. In return, he donates generously to charity, particular in the wake of the 2004 Indian Ocean earthquake and tsunami disaster. He also becomes a UNESCO ambassador and helps promote driver safety for the FIA.

...but then team orders undo all the hard work

At the sixth round of the 2002 season, Rubens Barrichello's sterling efforts at the A1 Ring go unrewarded for the second time in two years as Jean Todt insists he let Schumacher through to take the victory. A clearly embarrassed Schumi listens to the German national anthem from the second step of the podium.



...but comes to a grinding halt at Monaco 2006

Fernando Alonso steps in to halt the Red Baron's title charges, which leads to another moment of madness. At Monaco 2006, Schumacher sets the fastest qualifying time, only to pretend to crash at the penultimate corner on the lap: Rascasse. Alonso, behind him on a quicker lap, has to slow and pole is Michael's... until he's penalised and sent to the back of the grid for his misdemeanour.



...then shoves Barrichello into the pitwall

Following a three-year break from racing, Schumacher returns to F1 with Mercedes in 2010 for another three years of F1. It's not a success as errors show in his driving. Then, when Rubens Barrichello attempts to pass him in Hungary, Schumi squeezes his former team-mate as close to the wall as possible. A leopard doesn't change its spots.



INSETS: CHARLES COATES/LAT; LAT ARCHIVE; GETTY IMAGES; XPB.CC

Journey
into
the
heart
of

Ferrari

No team can match the intense loyalty the Scuderia draws from its workforce. The only way to understand it is to become part of it. So *F1 Racing* did just that...

WORDS ANTHONY ROWLINSON **PHOTOS** LORENZO BELLANCA/LAT & ERCOLE COLOMBO





T

here is dirt, for once, under my fingernails at the end of a race weekend. Sweat stains on my team kit, grime on my shoes. And fatigue that's more physical than mental. The past few hours have been spent de-rigging the Ferrari garage in Singapore, in

temperatures of over 30°C and humidity thicker even than the diabolic espresso that fuels this fabled F1 team.

Then, suddenly, the world is inverted and a moment's reflection on the tiring toil of an F1 race crew is supplanted by a desperate internal questioning of why I'm now staring at the floor, feet and lower legs wiggling uselessly in the air. It turns out that Francesco Cigarini, Ferrari's self-appointed race-team joker has spotted my slacking and whisked me off my feet, with a combination of a rugby tackle and a fireman's lift, to transport me – like any other object in the vicinity that bears a Ferrari shield – towards a freight container.

Helpless – and helpless with laughter – I'm placed back on my feet and told to get back to work. Which I do. It's around midnight in Singapore and long after the fireworks and fury there are still five or more hours of grunt-work to be done: draining generator petrol into fuel cans; stripping the garage interior of temporary walls; disassembling the prat perch; decoupling air hoses; stacking foldaway chairs... the list of individual tasks to be worked through by a Formula 1 team departing for another destination is surely endless. It must certainly seem that way for the foot soldiers tasked with carrying out this blur of perpetual motion. Little wonder that race crews like to let off a little steam occasionally.

For a dreadful dilettante such as this visiting *F1 Racing* journalist, there is novelty and buzz to being embedded among the hardy souls who comprise Ferrari's grafters. But for those who do the real work, it would be understandable if any trace of F1 glamour had long been washed away with the brake dust and cleaning fluid, as *yet another* set of Pirelli-shod OZ wheels has to be carted around the back of the →







F1 Racing dons the red gear and gets stuck into all things Ferrari - from pitstop practice to PR



paddock to where the sun don't shine, to be hand-scrubbed back to spotlessness. This is no place for weak souls: too enthusiastic with the spray hose and you'll get a volley of 'friendly' abuse from rival teams' mechanics – "Careful lads, we've got a rookie in tonight." And the cleaning fluid used to lift carbon brake-dust from light-alloy rims is no less caustic: it strips the skin from your fingers – I've got the scabs to prove it. Not that any F1 toiler would ever mutter a grievance about sore hands – displays of weakness aren't welcome in such a competitive environment, where a 15-16 hour working day is common. In Singapore, for example, the 'Euro-time' race schedule means arriving in the paddock around 1-2pm and, on a non-curfew night like Friday, working through until 5.30am. That's a typical beat for race crews up and down the pitlane.

There is no place, however, for empty, posturing machismo at this team; there are no 'accidental' nudges of the shoulder into an unsuspecting hack trying to stay out of the way; no irritable sniping. Ferrari's heart is, in fact, a warm one: earn your place, go to work, respect the *scudetto* (the yellow-shield-and-black-prancing-horse emblem that's reserved solely for Ferrari racing activities) and a window will be opened on a world where family values run deep and loyalty is reciprocated.

Early on the Thursday of *F1 Racing's* Singapore weekend with the Scuderia, we're invited for a chat by race team chief mechanic Francesco Ugozzoni – 'Ugo' to one and all. His is a friendly, 50-year-old face, whose creases have been earned over these past 21 years with Ferrari. From 1991 he worked from the Maranello factory, then for four years on the road as a bodywork man during the Michael Schumacher years. Since 2006, he's been in his current role. Any thought of alternative employment is simply alien to him. With the deliberation that comes from speaking in a

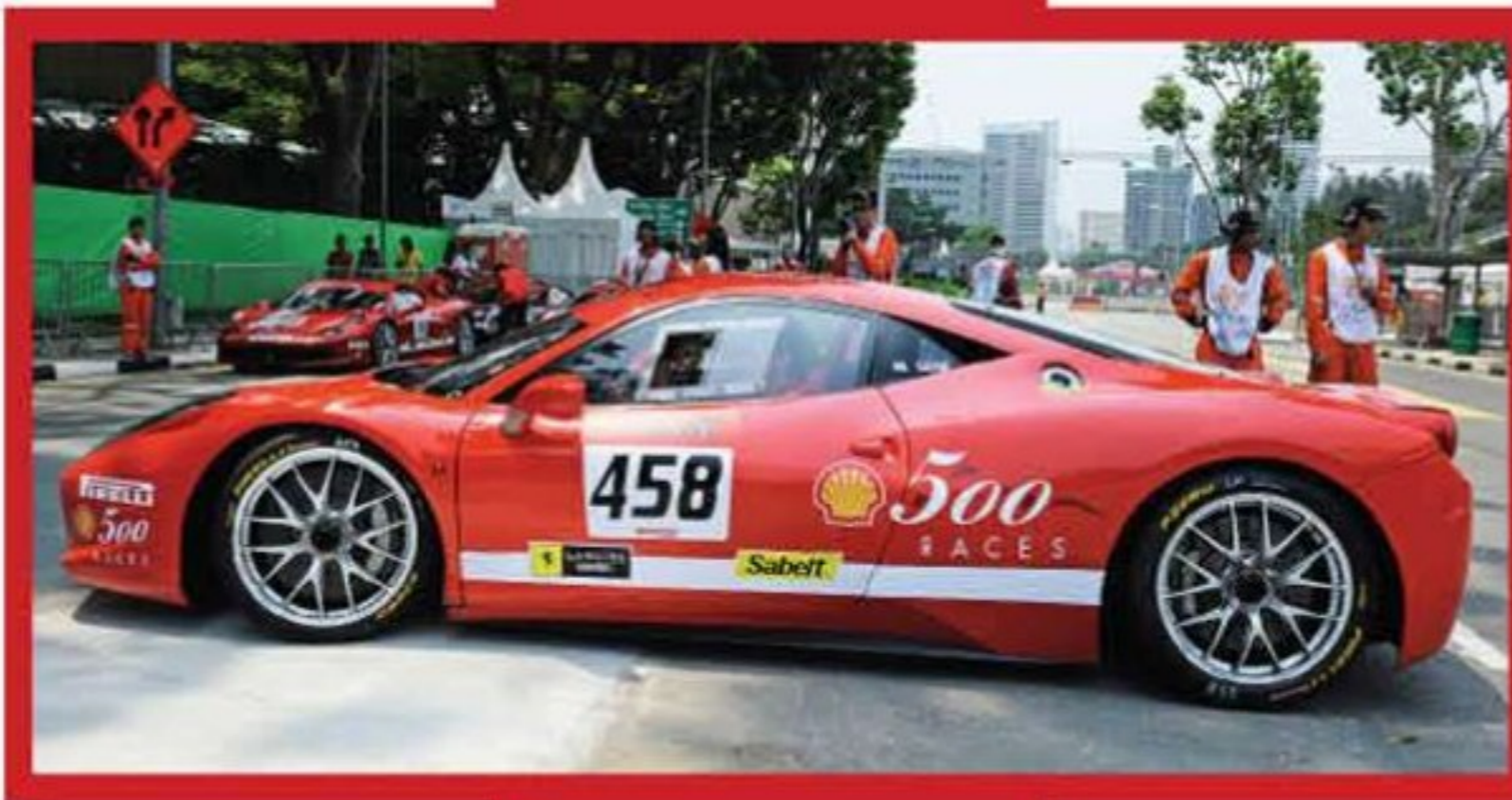
"In **Singapore**, the 'Euro-time' race schedule means arriving at the paddock around **1-2pm** and, on a non-curfew night, like **Friday**, working until **5.30am**."

foreign tongue, he explains: "It is special to work for Ferrari. No way do I change to another team. Most of the guys here feel the same way, too." For a man with a lot of responsibility, a man to whom failure or error can be traced, he's a remarkably relaxed individual. One of his key tasks these days, is controlling the stop/go light at pitstops – graduation from his time as the 'lollipop man'. Once, he concedes, the job made him tense. Not any more.

Deep-pocket rockets

There's another way to get up close to Ferrari at a GP weekend – but only if you've got the cash. The Ferrari Challenge is a one-make series in its 20th year, open to amateurs who this year race in track-spec 458 Italias.

At this year's Singapore GP, round five of Ferrari's Asia-Pacific Challenge shared the bill with F1 and was one of the main support series. Competing is simple: sign up, pay up and compete in an 'arrive and drive' race series at circuits in one of three regions: North America, Europe and Asia-Pacific.



The venues are top-class: the Asia-Pacific series takes in Suzuka, Shanghai, Singapore and Sepang.

The cars are pretty tasty, too: the standard 458 has a 4.5-litre V8 that pumps out 570bhp at 9,000rpm and the track version is equipped with a paddle-shift steering wheel and on-board air jacks for quicker wheel changes. Budget racing for weekend warriors it's not. But for those with deep enough pockets, it brings immense bragging rights: "Yes, I race for Ferrari".

That speaks of confidence in his own ability and in that of his red-uniformed allies who stand to his left and right.

It also speaks of a certain serenity exuded by the Ferrari F1 crew, born of working for a team that is rather more than a 'day job' employer. And if there's a single surprise about their race-weekend vibe, it is this: for all the history, myth and success conjured over more than six decades of Formula 1 (219 victories, 16 constructors' titles and counting), inside the red machine things are... pretty chilled. Everyone's efficient in all regards and imbued with a profound though unspoken pride. Nevertheless they're calm and – trite though it may seem – happy.

Later that day, away from the swelter of the team garage, I ask sporting director Massimo Rivola, ex-Minardi and Toro Rosso, what it means to work for Ferrari and his answer is both reflective and well-rehearsed, as if he has thought over this point privately many times: "It would be too easy to say this is the team I wanted to work for since I was young. But I worked for Minardi and Toro Rosso and then, finally... [he casts a glance around the team hut where we're speaking] ...to the top. Working for Ferrari means that you work for a unique company and you are not just working for an F1 company. This is the main difference compared to the other teams. It's not just because we build dreams: the connection between the F1 cars and the GT cars and the brand we are carrying. This is something that, if you do not experience the power of it, you do not understand."

Rivola gives an example of how Ferrari's 'power' can manifest itself, by expounding at some length as to how their voice is always among the most authoritative during any discussion over the rule book, or the sport's future direction. This topic has long been a subject of some sensitivity among other teams, many of whom have protested over the decades about Ferrari's undue influence over the sport and the preferential financial terms

conferred upon it by F1's commercial brokers.

He offers a further perspective: "If you take the subject of testing," he says, "you will see that we have spoken in favour of more. Then the other teams will protest because we have our own test track, Fiorano, which they say gives us an unfair advantage. But I could argue that this is part of Ferrari's heritage and that Fiorano was built to be part of how Ferrari goes racing, in the way that another team may have built an expensive windtunnel. So is it wrong for us to fight for regulations that play to our strengths?"

While this attitude is enough to make team principals from Woking to Brackley (via Enstone and Milton Keynes), choke on their Ready Brek, what wouldn't they give for a similarly strong hand? Or, for that matter, a similarly strong brand? "The relationship between Ferrari and their fans is unique," Rivola explains. "If you spend a lot of money to buy one of our cars you are a fan. But you are also a fan if you buy a cap and a flag. Wherever it is in →



“Only **first** is good enough. When we **win**, our fans and the Italian media are happy. But really, that’s the **minimum expectation**”

the world, a red sportscar on the road is a Ferrari. And if it’s not red then it must be a Ferrari painted a different colour. When Fernando won for us at Monza in 2010 he said that he wished every driver could have the chance to drive for Ferrari at Monza, because it’s the best experience you could ever have. And speaking from my own experience, I remember very clearly the first time I put on overalls for the team at Mugello in 2009, and thinking: ‘I am here, I did it. And now starts the real challenge.’”

At a rather less elevated level, I am about to experience something of what Rivola has just related, as I join the pit crew for Thursday pitstop practice. Having been passed a box of team kit the day before with a friendly/serious admonition to “just behave”, I’m now dressed in *rosso corsa* (and feeling more like a superfan than a team member, it must be said) holding the top aerofoil and right endplate of Felipe Massa’s F2012 as I prepare with two of the race crew to shove it (engine off) into its box. This is a basic task, right? Just push and let go. Simple enough, but it’s a sprint start and sudden stop 20 times almost without pause and *more than anything else in the world right now* I do not want to screw up. To my considerable relief, I don’t – well, not in any meaningful way, save spilling my sunglasses in an embarrassing spot-the-new-boy moment. Imagine, though, how this feels when you’re stood in full Nomex on your first race weekend proper, poised for the championship contender to come smoking into his pit, whereupon you must choreograph your movements precisely with 25 others to send the red racer back into battle within 2.5 seconds or less. Failure? Not an option.



This point is rammed home when, on Friday morning, I arrive an hour later than scheduled. My attempt to blame the delay on *F1 Racing’s* publisher for keeping me talking when I should have been walking, cuts zero ice with head of media Luca Colajanni: “We *work* here, Anthony. When you are with Ferrari you are no longer a journalist,” comes the admonition, with repeated taps of the watch to emphasise his point. It’s the same story when I arrive in the garage moments later, only to learn from Ugo that I have missed today’s first pitstop practice. There is more watch-tapping and a smile, but no member of this nor, indeed, of *any* F1 team, would *ever* want to put themselves in this position.

“What time do you call this then?” *F1 Racing* gets a ticking off from race team chief mechanic ‘Ugo’ – the Ferrari family do not tolerate lateness

One member of the marketing team later admits, in a private aside, that a unique challenge of working for Ferrari is that “only first is good enough. When we win, our fans and the Italian media are happy. But really, that’s the minimum expectation.” That expectation translates itself into a sense of elevated fraternity, where the experience of working for an institution that daily writes its own fable is tangible. Thus winning is the baseline. And this sentiment is etched into the daily grind here at Maranello, because the 2012 Ferrari F1 team are as much a hard-edged, competitive, title-chasing race unit as any of their upstart rivals. Spend time watching Alonso and it’s obvious this team feed on success as much as they cultivate it. Even a stroll to the Paddock Club alongside one of this season’s two main →





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title contenders, where he will sign autographs and entertain guests with a live Q&A, is enough to gain an insight into what he brings to this team and why their cultural heritage is programmed to respond to such a driven individual. The Alonso paddock-walk is a march, not a stroll, and stairs to the hospitality unit are taken two at a time. Felipe Massa, following behind, is in less of a hurry, but then he doesn't radiate such raging-bull electricity, such a fury to win. On stage, Alonso is confident and forceful and his regular MC tells how in the past, when Ferrari have struggled through an uncompetitive weekend, Alonso has taken it upon himself to bang the drum with rhetoric such as: "We are Ferrari. And we will fight!" Stirring stuff that would seem ridiculous from any other driver in any other team.

So what is it about Ferrari that lets it exert such influence on those who fall under its spell, whether as employees, fans, or mere buyers of product? Seeking enlightenment, I turn to Massa's race engineer Rob Smedley, a Brit abroad, who might be able to bring some impartiality to the experience of working for Enzo's race team. "When you look from the outside," he says, "it can seem almost mythical but, like any organisation, when you're on the inside, the day-to-day work is much more routine. Having said that, even after ten years there are still moments when you get a slap in the face and realise how important it is." He relates how, in his days as a Jordan engineer "nobody really cared whether you won or lost; it certainly didn't make the headlines.

"But in Italy," he continues, "you have dozens of newspaper articles dedicated to Ferrari and the Ferrari F1 team every day. So working here carries an amount of responsibility that the more visible public figures have to carry with them. Sometimes that's nice and sometimes it's not so nice, but it's part of the job." He reckons one of the more refreshing aspects of the Ferrari work/life

Ferrari's feeding frenzy: an army marches on its stomach



Above left: the march to the paddock club with a bullish Alonso. Above right: talking to Rob Smedley, Massa's engineer, about his friend's near-fatal crash

experience (and this from a man who moved his family from England to Italy and now speaks 'mechanic's Italian') is "the passion of the people and the lack of cynicism." He identifies these qualities as more than simple feel-good hokum: "There's a lot of positive energy here," he says, "and when you harness it and get all things going in the same direction, it can create a formidable force as we saw when Ferrari were absolutely dominant in the early '00s."

Strength, then, in good times, but also in bad – and never more so than when Massa narrowly escaped death in that shocking accident during qualifying for the 2009 Hungarian Grand Prix.

"I came bloody close to stopping after that," Smedley admits, "and it would be no different to any other line of work if you saw your mate almost being killed doing his job – and he was just a millimetre from being killed. But the family feel here made it easier to stay. Ferrari do understand it's not about being a robot and that there is a human element to it and that if people are happy and contented they will work much better. They understand that there can be off days and they'll help you with that." As he says this, Smedley is sitting alongside Massa, the pair of them enjoying dinner together as they have many times over their almost seven seasons together. And you wonder how many other teams would have stuck by their driver so strongly during a period of public recuperation. So

what are these ties that bind? Why do fans the world over identify with those red cars and the men who race them? Why, inside the team, is the expectation of success tied to fear of failure? And why, years after they have left, do retired champions still pop back for a plate of pasta and an espresso? Quite simply it's this: with Ferrari, it's family. 🏁



The troops tuck into traditional Modenese grub, courtesy of head chef Carmine Carbone

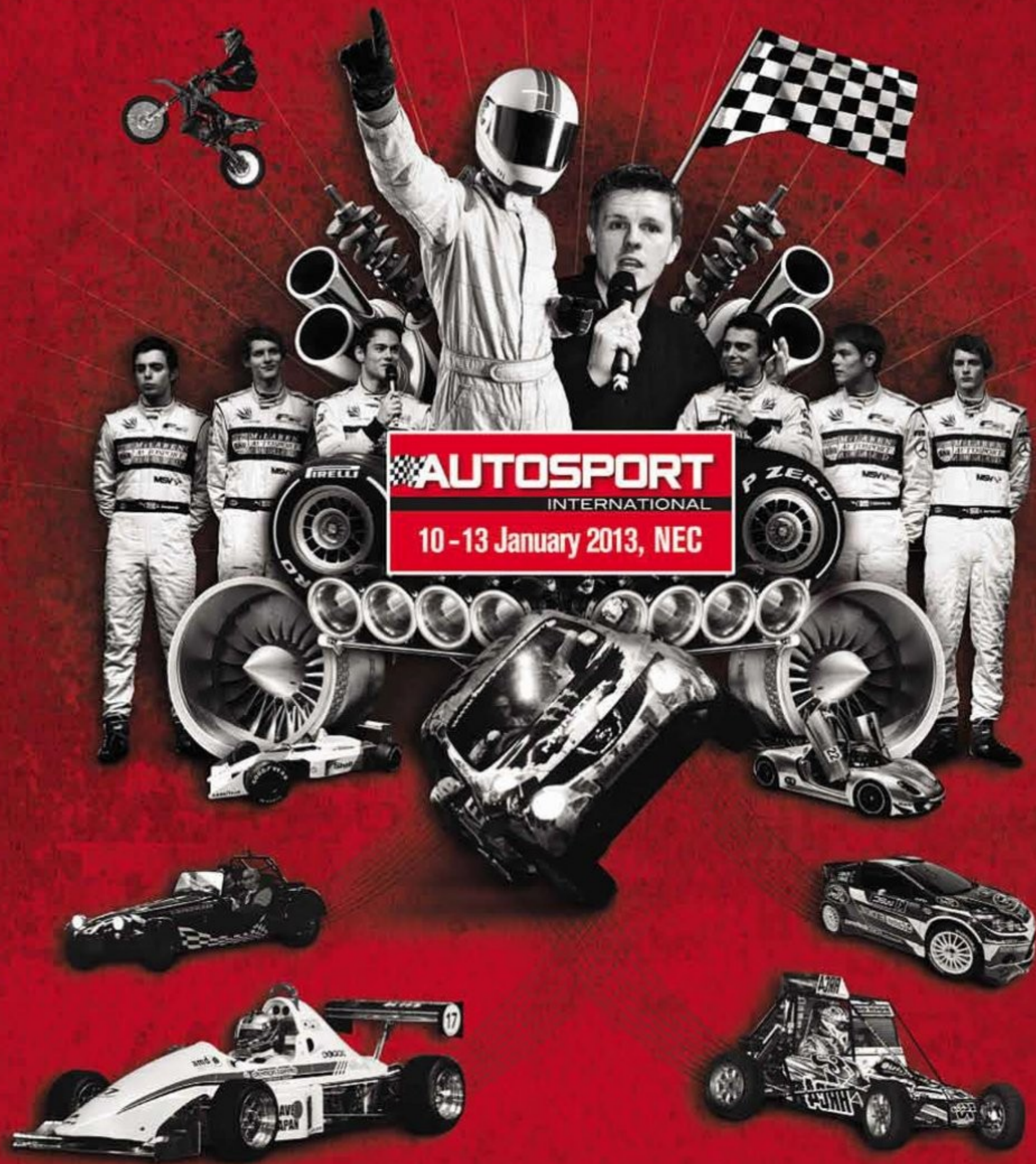
If it's true that an army marches on its stomach, race team head chef Carmine Carbone could be the Scuderia's most valuable employee. Why? Because whatever the country, whatever the time zone, he and his catering team ensure that plate after plate of pasta, gnocchi, salad, fish, meat and cheese is served up to the hungry Ferrari family (and media) to *guarantee* a taste of home.

Food is no small matter to an Italian: eating well is a birthright. And feeding Italians as Italians expect to be fed is therefore a matter of exceptional importance. Carbone, a native of Benevento, near Naples – a region with a rich seafood tradition – loves to cook fish and declares one of his most popular creations to be spaghetti with lobster, alongside his signature

dish: gnocchi with balsamic vinegar and Parmesan cheese. And he has learned in ten years with Ferrari, since staring out in Enzo's old 'local' – Il Cavallino in Maranello – that what his troops crave most when on the road are the simple, reassuring tastes of home.

"This team always wants to eat Italian," he says, "and because of our heritage, I tend to prepare Modenese dishes. It's simple food, but still with a rich variety and I know it is always enjoyed."

The demand for 'always Italian' can present challenges to a catering team trying to source quality produce in, say, Mokpo, Korea. But the lure of helping Italy's most illustrious racing team is normally enough for any regional importer of Italian food to ensure the team get what they need.



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Ride of the Valtteri

Flying Finn Valtteri Bottas takes us for an electrifying spin around Silverstone

"I need to turn off the traction control – I hate it!"

WORDS
JONATHAN REYNOLDS
PICTURES
MALCOLM GRIFFITHS/LAT

Suffice to say, these are not words that have ever rolled off the tongue of any of the previous occupants of *F1 Racing's* Renault Mégane RS long-termer. Then again, until now, it hasn't been used for anything more rigorous than the 700-mile round trip from magazine HQ in south-west London, to the Belgian GP. And while such jaunts are easy for a car so well-suited to track-day thrashing, they have revealed very little about its capabilities – other than to hint it is quick, grippy and capable of very fast lap times – in the right hands.

Truth be told, its limits are continents north of the skills possessed by any member of *F1R* staff. Hence our decision to hand it to a young hot-shoe who would have no qualms at hustling this 265bhp mega-hatch around Silverstone on a surface greasier than the bottom of a kebab tray. Yes, dear reader, we dropped an F1 pilot into the hot seat – one Valtteri Bottas, Williams test and reserve driver, hater of traction control and the fastest thing to come out of Finland since Kimi Räikkönen. →





f all the countries that have produced F1 drivers in the 62-year history of the world championship, Finland has maybe the most remarkable track record of the lot. Seven Finns have started a grand prix and all but one has scored at least one podium. Four have won races and three – Mika Häkkinen, Kimi Räikkönen and the chain-smoking, hard-charging Keke Rosberg – are world champs. And, as he barrels out of the pitlane and onto the soggy Silverstone track, with *F1 Racing* sitting excitedly in the passenger seat, 23-year old Valtteri Bottas is doing nothing to disprove the notion that he has the ability to follow in his illustrious countrymen's smokin' wheeltracks.

The Mégane, while spicy for a road car, isn't a true race machine, but in mere seconds Bottas has hustled it around Farm Curve and is heading for the tight right-hander at Village at high speed. We've been in the car for only 15 seconds or so, but Bottas is already providing a tantalising glimpse of what separates the world's best racers from mortals. He's never driven the car before and has had no time to familiarise himself with the track conditions, yet he's already braking harder and later than any ordinary person's brain would deem possible.

"I've been racing since I was six years old – once you get in a car, you don't need many corners until you feel what it's doing and how much grip you have," he explains back in the pits later. "It just comes from the back of your mind."

It took Valtteri a similarly short time to adjust to the rigours of F1. After he'd won the 2011 F1-supporting GP3 series, Williams decided to reward their reserve driver with a near-full season of Friday morning practice sessions in 2012. He got his first opportunity to drive the FW34 in anger at the Malaysian Grand Prix in March and seized it with vigour. Having taken Bruno Senna's seat for FP1, Bottas, a two-time winner of Formula 3's prestigious Masters race, set a lap time marginally faster than Pastor Maldonado's quickest. Despite having had significantly less seat time than the Venezuelan, he'd been faster in four other sessions up to the Indian GP, piling the pressure onto Senna.

There are a multitude of reasons why it's wrong to read too much into practice times but, at the same time, it's not right to assume Bottas has been on low-fuel glory runs all season.

"In the Friday sessions he gives us a direct comparison to Pastor," explains Tom McCullough, the man who engineers Bottas on Friday mornings and Senna for the rest of the →



"F1 is intense but you get used to it, so once you jump to a road car it's different. It feels like slow-motion"



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"I've been racing since I was six. You don't need many corners to feel what the car's doing. It comes from the back of your mind"



weekend. "Sometimes we're evaluating different things from a run programme point of view, but fundamentally, the cars have the same fuel loads and tyres. That enables us to see where Valtteri's strengths are as well as the areas he needs to work on. His focus this year is on those FP1 sessions so, in a way, it's refreshing to have someone who works so hard on a handful of laps at the start of the weekend. Obviously, as a racing driver, he wants to look fast – and puts focus on that – but we need to gather good data for the race weekend. For someone who always really wants to be fast, he always wants to give us the data we want as well. He's keen to please."

Back out on track, Bottas has no problem proving his speed, getting faster with every lap. Despite the damp, the speedometer indicates we're nudging 115mph at the tail end of the Hangar Straight before Stowe. "This is a great corner," announces Bottas as he dabs the brakes and drops down a couple of gears. As he flicks the car into the apex, the back end steps out suddenly. Quick as a flick knife, he adjusts his hands and brings the car back under control, subtly modulating the throttle as he eases the car out of the corner. Like many a Finn before him, Bottas is more than comfortable when the rear of the car steps out of line:

"If I had to choose between understeer and oversteer, I'd prefer a car with oversteer," he explains. "If you have understeer in the car, you really cannot control it completely. You only use two wheels because your front wheels are just sliding. Ideally you want a perfectly balanced neutral car so you have all four wheels sliding, but if I had to pick, I'd go for oversteer. You can then be in control. For that reason I much prefer rear-wheel-drive cars. It's unfortunate that this is front-wheel drive..."

As we return to the pits after our initial laps, the Williams man is unable to resist the urge to pull on the handbrake as we make our way hastily down the pit entry road and the rear of the car swings back and forth once more. "Do you want to go and check your underwear?" he asks F1 Racing, pulling off his helmet to reveal a big grin. We politely reject the suggestion... →



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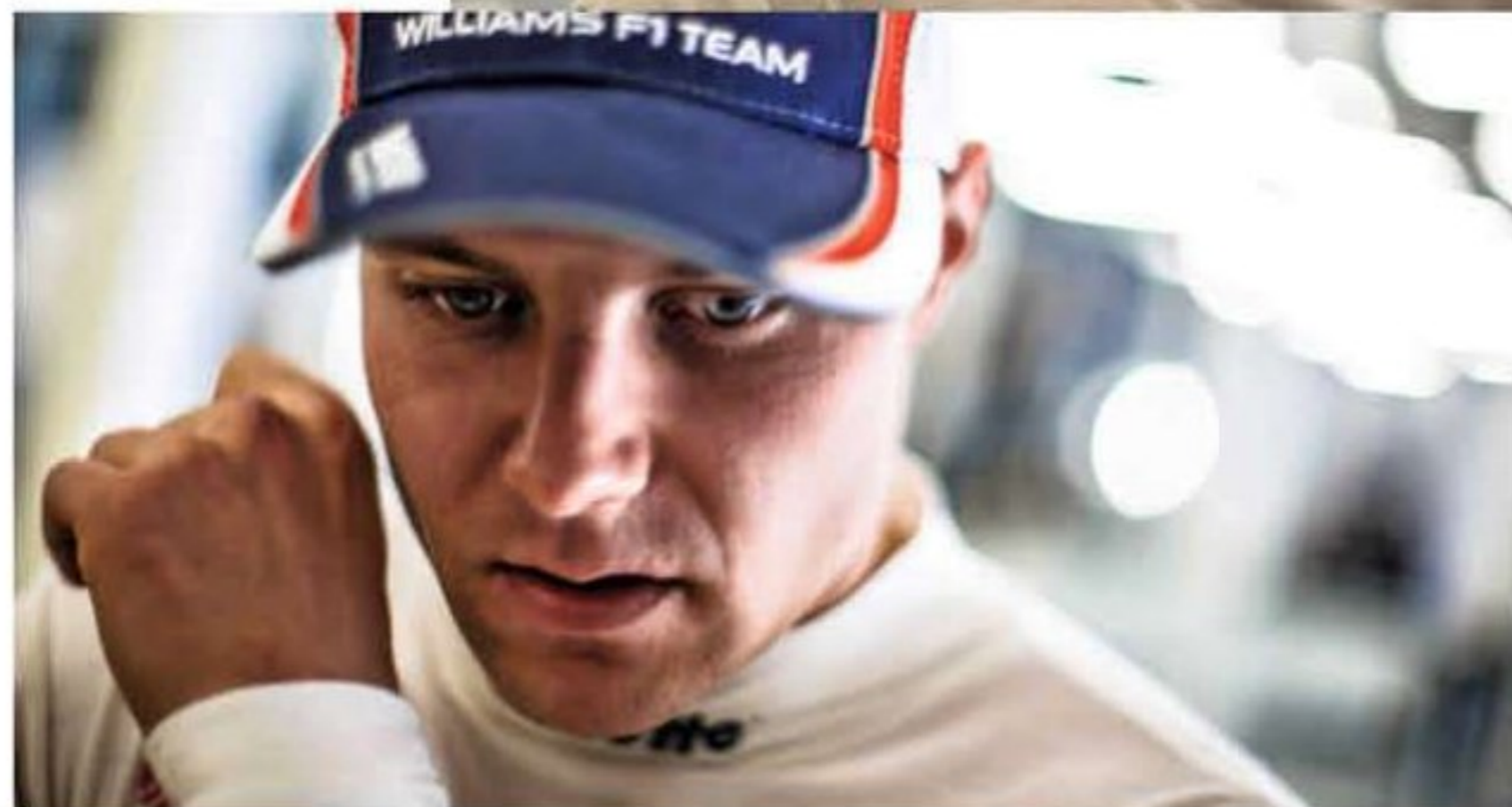
Within the team, Bottas is known for his wry, engaging sense of humour, but Toto Wolff, Williams' executive director and the man who has co-managed Bottas along with Mika Häkkinen and [Häkkinen's manager] Didier Coton since 2008, still remembers the 17-year-old boy who first came to him for advice:

"When I met Valtteri, he was a shy, introverted Finnish boy, but he wasn't afraid to make

"One more year without racing would be too much. I need to race next year"

contact. For him, it was always about learning, gathering information and then processing it to make the right decisions.

"Over the past year, when he has been doing the Friday running but hasn't been racing, it has made him more mature in a different way. He's started to engage with people more because he has free time at the weekends. Our sponsors love to have him around because he's sarcastic and has a great sense of humour. But he's focused, too – he's not one of those crazy Finns whose only goal is to race cars fast and have a nice life.



His goal is to be the best racing driver and if that means not drinking and living healthily, that is what he's convinced he must do."

Bottas now lives just a ten-minute drive from Williams' factory in Grove, Oxfordshire but, as a race-mad youngster growing up an hour away from Helsinki, he idolised the man who now co-manages him: "I'd already started karting when Mika won the world title, so he was my hero as a kid. It's strange now that he's involved in my management. You couldn't really ever imagine that would happen when you're a kid. You dream of things, but when they actually start to happen it's really cool. I speak with Mika every week – he's been a big help. He's really analytical. I think that's one of the reasons he was so successful in his career – he analysed all the details. Anything he says, I always listen carefully because he has so much experience and such a long F1 career."

F1 Racing holds on tight as Bottas puts in a timed lap, using the track's full width on entering and exiting the corners

We head back out on the track for another few hot laps. A morning of sunshine has dried the circuit slightly and, now familiar with the car, Bottas picks up the pace, dragging the Mégane effortlessly from kerb to kerb. The rev limiter 'change gear now!' noise continues to bleep in our ears as Bottas uses the full rev range before deftly changing up a gear. Coming down the Vale towards Club Corner, F1 Racing suggests trying a timed lap. "Okay," says our driver and the mood inside the car changes in an instant. The conversation stops and the intensity rises. Valtteri is on it. Not only does he use the kerbs, but he also now uses the full width of the track on the entry and exit of corners. It feels at once both smoother and faster.

"That last lap was definitely the best of the day," says Bottas afterwards. It certainly felt quick to us, but did it feel quick to him?

"After you've driven an F1 car, everything afterwards seems so much slower – you have more time to react to everything. F1 is intense but you get used to it, so once you jump to a road car it's so different. It feels like slow-motion. What we did today was easy: a walk in the park."


Today may have been fun, but Bottas's career is about to get serious. As F1 enters the final four

races of 2012, Williams are yet to confirm their 2013 driver line-up. There's paddock speculation that Bottas will replace Senna, although Wolff insists his compromised position means he won't be involved in that decision. But one man who will have a big input is Williams' chief operations engineer Mark Gillan.

"Valtteri's progress has been exceptional – he's been very impressive. We've pushed his development and spent a lot of time with him on the simulator and at the track. There's no doubt he's close to being ready to be racing. But what's best for him, we'll discuss behind closed doors."

As you'd expect from someone who has spent a season waiting in the wings, the man himself suggests only a spot on the 2013 grid will do.

"One more year without racing would be too much," reasons Bottas. "There hasn't been much driving for me this year, so it's not been easy to keep up with the rhythm. I need to race next year for sure. But I would really prefer to stay with Williams – I know the team very well and I really enjoy working here."

In 2005, Mika Häkkinen was considering an F1 comeback with Williams but, on that occasion, Sir Frank missed out. He has also occasionally expressed his regret that he never managed to get a Räikkönen signature on a Williams contract. But now though, 30 years after their first flying Finn, Keke Rosberg, became world champion, maybe Mika's protégé is next in line. 



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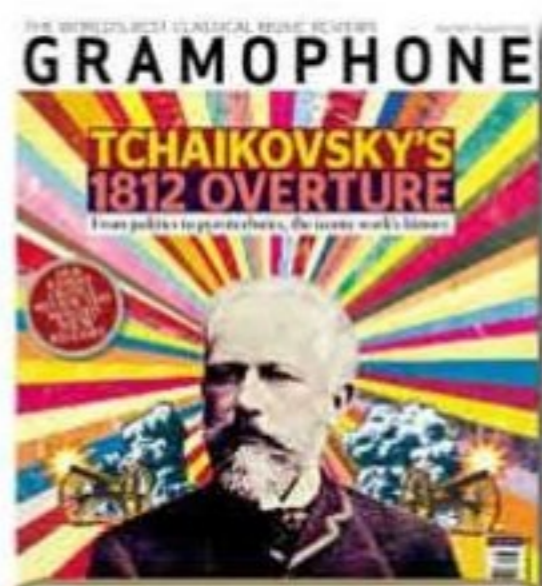
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THE MAURICE HAMILTON INTERVIEW

A lunch time chat with the legends of F1, every month

"I don't understand why I gave Kimi a three-day test. We had no money, yet I was told this guy was very, very special. But I thought he was so strange..."

In 2001, **Peter Sauber** gave a race seat to an unknown Finn with just 23 car races under his belt. That racer's instinct launched Kimi Räikkönen into F1. And it's just one of many extraordinary decisions that the Sauber team owner has made over four decades in motorsport

PORTRAITS LORENZO BELLANCA/LAT

Peter Sauber recently held a reunion to mark an anniversary of his team's success at Le Mans and in the world sportscar championship more than 20 years ago. Eighty-seven people were invited; just two couldn't make it: what a testimony to the popularity of a team owner who remains a gentleman through times both good and bad.

I wanted his reflections on a fascinating career that has embraced sportscar racing at its highest level and, after several tough periods, seems set to do the same in F1. Dinner in the Sauber hospitality centre was the perfect place for a relaxed chat with this self-effacing man, who has the respect of everyone in F1.

Maurice Hamilton: I think we have something in common in that, early on in our careers, we both sold cars to make a living.

Peter Sauber: Well yes, I did sell cars, but for me it was a necessity I didn't really like. I had no relationship or feeling for cars. I started my own business to build race cars, but it was impossible to survive financially. The mechanic working for me liked Alfa Romeos and, realising how little I seemed to know about the car business, he recommended Alfa Romeos to me as a car I could sell and make some money from.

MH: I sold VW Beetles, a car you know well...

PS: Very well. The first one I had was in maybe 1966. I didn't want to change it, but a friend

brought me to a Volkswagen tuner – and this guy was a good salesman. I changed to another Beetle which was a special one – maybe as much as five horsepower more. But I really liked the Beetle.

MH: Were you interested in motorsport as a boy?

PS: No. The guy who sold me this Beetle convinced me to become a member of a racing club in Switzerland. I started club racing even though it had never been my intention to do it. I drove in the Swiss championship and I had to race in the same class as sportscars. I raced at Monza in 1968. And also at Hockenheim.

MH: That must have been before chicanes were added to both circuits? →





THE MAURICE HAMILTON INTERVIEW

“Monisha knows the game. Or the game behind the game.”

PS: Yes. Flat-out all the way. But I had a better engine – 1.6 litres – by then. For the 1969 season I took away all of the bodywork, leaving the Beetle platform chassis. I made my own bodywork and it was like a slice of cheese.

MH: Like a wedge, you mean?

PS: Yes. A cheese wedge. And ‘Wedge’ became the nickname of this car. It was fast – but I still had to race against the sportscars, which was a joke. But it was a nice experience. I met some guys in the Swiss racing scene and I had this

crazy idea to build a sportscar because this piece of cheese was actually a two-seater race car. I had a brilliant idea. I bought two old Brabham Formula 3 cars. A BT17 or a BT18; good cars with a space-frame chassis. But, because I wanted a two-seater, I had to build my own tube-frame.

MH: I’m right in saying you were trained as an electrician? So you really had no knowledge of this sort of thing?

PS: None. But it wasn’t that difficult because, if you look at a crane on a construction site, you

get an idea of how to build a space-frame. I had to educate myself. I understood nothing about geometry, so I used the Brabham suspension and pick-up points and the same point for the steering rack. I won the sportscar championship in this first year, but it was not so difficult because the car was so fast.

I built two of these cars, the C1. The ‘C’ is from my wife Christiane. I thought that was a bit more romantic than to take the ‘P’ for Peter or the BT for Brabham and Tauranac. The C1 was built in the cellar of my parents’ house in Zurich. C2 and C3 were built in a small factory – on the same site where we are today in Hinwil. My father’s company had land in Hinwil. There was just me and a colleague. Believe me, the first ten years were a disaster. Financially, it was a nightmare. I stopped building cars after the C5 because I was running out of money.

MH: After your time with the BMW M1 Procar series and your title-winning tie-up with Mercedes at Le Mans and the world sportscar

Main: JJ Lehto takes the Sauber to fifth in South Africa '93 – their first F1 GP. Inset: early sportscar success with Schlesser (left) and Baldi (right) in 1990



championship, how did the discussions about Formula 1 start?

PS: I built the factory in 1992 in Hinwil and I was speaking with Jurgen Huppert and Werner Niefer at Mercedes about F1. It was an ongoing process because, officially, it was not possible for Mercedes to return. On the commercial side, they were having a difficult time. They had to lay off many people.

I had the budget from Mercedes between 1988 and 1992. It was a handshake each time. No contract. Mercedes were not sure in which direction to go. In 1992 we built a new sportscar, the C292. It was a beautiful car with a full carbon monocoque and integrated roof and it was absolutely on a Formula 1 level. It never raced. But we knew that to step from sportcars to F1 was not a problem.

MH: Speaking of which, Mercedes were talking about Formula 1 but then decided in November 1991 that they were not going to participate after all. By which time, you were some way down the

F1 road. That decision must have been vindicated when you finished fifth in the 1993 South African Grand Prix – your first race.

PS: The first race was fantastic. There was a long pitstop when we had to change a connection for the gearbox. We had a problem with shifting because everything was new and, without this long stop, we would have made it onto the podium, for sure.

The cars, if you remember, were black with 'Concept by Mercedes-Benz' written on them. Then Mercedes said: "Okay, we can speak about the engine costs but we have to find sponsors now." That was difficult because over the previous five years or so we had money from Mercedes and now we had to start from zero to find sponsors. It was very difficult.

MH: Added to which, you were very unfortunate with two of your sponsors...

PS: Yes, two bad experiences; the first was Lighthouse, the second was Broker. Both were a disaster, and without the help of Mercedes we

would have had to close the company. The end of 1994 was a critical time. Mercedes would provide the engine, but I would have to do the rest. It was impossible. I don't really want to say much more about what happened but, when Mercedes signed with McLaren for 1995, I was left with nothing; no engine, no sponsor.

MH: I wanted to ask you about Monaco 1994 and Karl Wendlinger's crash during practice. He was rushed unconscious to hospital. And this was just a couple of weeks after Senna's death at Imola. That can't have been easy for you.

PS: When you have no money and you're very tired from working very hard, every day, and something happens like that, you get to the point where you just want to give up. I have a good relationship with my drivers – but particularly with Wendlinger. Nice man; nice family.

MH: So, Mercedes leave, but things move on quite quickly because, by the start of 1995, you have the deal with Ford engines and sponsorship from Red Bull, followed by Petronas. →



PHOTOS: LAT ARCHIVE

**THE
MAURICE
HAMILTON
INTERVIEW**

PS: We got the sponsors, but it was six months too late. With hindsight, I believe that for Mercedes, it would have been the better solution to continue the cooperation with Sauber. I think they would have got better value.

MH: If you want to talk about value, then signing Kimi Räikkönen must have been one of the best moves you ever made. How on earth did you know about him? He'd only done about 23 races.

PS: It was in 2000. I'd never met David Robertson [Kimi's manager] before, but he came to see me and explained about his experience with Kimi. All the nice stories: Kimi's karting; how he was with slicks in wet conditions. David was... an excellent salesman. I really don't understand why I gave Kimi a car for three days. We had no money and, normally when you do a test for young drivers, you make it a three-day test with six drivers and make it pay. But Robertson told me: "This guy is very, *very* special and he needs a car for three days." And, of course, they paid nothing. I still don't understand why I made this decision.

We did the test at Mugello. It's not an easy track for young drivers. I was there only for the second day and that's when I met Kimi for the first time. He never spoke and it was not possible to speak English with him; maybe two or three words. No more. But one or two things were very, very special. His body language was so impassive and he gave the impression he was so totally focused that if he walked towards you, he could walk through you. That's only my personal feeling. I thought: "This guy is so strange."

The engineer told me that they did three, or maybe four timed laps and then he came back in. Then they told him to drive eight laps. After four laps, he was back in again. It was not possible for him to keep his head up. But he never spoke about it. Can you imagine? You get a test with a Formula 1 team and they tell you: 'Stay out for eight laps' – and you come back in after four!

The steering wheel did not have as many switches as we have now – but he managed okay. With the clutch on the steering wheel, he got out of the pit box okay; like normal. Later

in the day, he knew he was under scrutiny from me. We gave him a set of new tyres and reduced the fuel amount. It was clear that the new tyres were going to be worth one second and the fuel another second – but we didn't say anything. On the first lap, he was one second faster. On the second lap, he was another second faster. Very impressive. I flew home together with Willy [Rampf, Sauber's technical director], and we decided: 'Let's sign him.'

MH: And the rest is history. Fantastic. But there was a problem with Red Bull, wasn't there? They preferred Enrique Bernoldi?

PS: I had the first big clash with Red Bull because Dr Helmut Marko [Red Bull talent spotter] played a bad role. Bernoldi was our test driver and he was driving at the same time. He was not good enough. But Helmut Marko was so convinced about his own judgment and Dietrich Mateschitz believed everything Marko told him. Everything. So, we have the first disagreement with Dietrich Mateschitz. But I still have a very good relationship with him today.



Main: Kimi makes his F1 debut with Sauber in '01, having entered just 23 car races. Inset: With Monisha Kaltenborn, Sauber team principal as of the Korean GP



"Kimi is so focused you feel he could walk through you"

MH: But that wasn't the end of the story with Kimi, was it? People were against a driver with so little experience coming into F1. Particularly Max Mosley, who was then the head of the FIA.

PS: Mosley was against it, but he was fair. I understood what Max was saying because this was not the normal way. We had the F1 commission meeting in Monaco and I had to put my case. I had no experience and my English was not so good. I had the help of Bernie Ecclestone, Jean Todt, Ron Dennis, Frank Williams and I think, at the end, Eddie Jordan. Everybody helped me – I was surprised. Only one person was against it, and that was Flavio Briatore. He said we had Formula 3000 at this time and it made no sense to bring this guy directly into F1. Flavio was protecting his own business and, of course, he had two votes at the time: Minardi as well as his own team. Max didn't vote. He was fair; absolutely fair. For me, it was a miracle to get a superlicence for Kimi.

MH: You have a reputation for going against the grain. Kimi is a good example. And your business relationship with Monisha Kaltenborn is another. She is now [as of the Korean GP] your team principal. How did this come about?

PS: Around 1994-95, Fritz Kaiser was a partner and a shareholder in Sauber. Monisha studied in Vienna and London, and worked, I think, for two law firms. She worked for Fritz and one of her projects was taking care of business for Sauber. She made the contract, for example, with Pedro Diniz. She looked after sponsor contracts and the early stages of the engine deal with Ferrari. I bought back the shares from Fritz Kaiser and Monisha came to us in 2000 to play a vital role as we developed Sauber Petronas Engineering. In all this time, Monisha showed she had entrepreneurial talent and similar values to me.

When I sold the business to BMW, she managed the whole process; it was very complex. When you sell a company to a big manufacturer and all these legal guys are involved,

it's a nightmare. During the time with BMW, she also had an important role because they were developing the Concorde Agreement. As a representative of a car manufacturer, she had a lot more power than you would have as a private team. She learned a lot dealing with Bernie and the FIA. She knows the game now. Or, I should say, the game behind the game.

MH: How did you find that period when you were out of F1? Did you miss it? Did you relax? Did you think 'My time in F1 is over'?

PS: For me, the important point was to save the company. For a private team, it's still difficult to survive on the commercial side. I sold 80 per cent of the company to BMW at the end of 2005. It was a huge success because it guaranteed the future of the employees. That was much more important for me than losing my personal involvement with F1. I was 62. On the one hand, it was a little bit too early to retire. On the other, I would have more time to relax.

MH: And you knew your company would be okay. But you were still involved as a consultant. Did you find it difficult being there but not as fully involved as before?

PS: I had a contract with BMW as an advisor. I had to go to ten races and it was my intention to reduce that slowly because, to be honest, it was a bit boring. I had nothing to do. Mario Theissen [BMW Motorsport director] was not so keen on having me around. When you're not welcome, you don't want to be there.

MH: And now? Here you are, 69 in October, back in Formula 1 again.

PS: Finding the financial funding keeps me busy because it is a huge challenge in the current economic environment. But it is a fantastic sport. And this season is incredible. This is the first time we have a really, really good car. And we know why the car is good – because sometimes you don't know. The business is well organised by Monisha. I'm in Hinwil twice a week; no more.

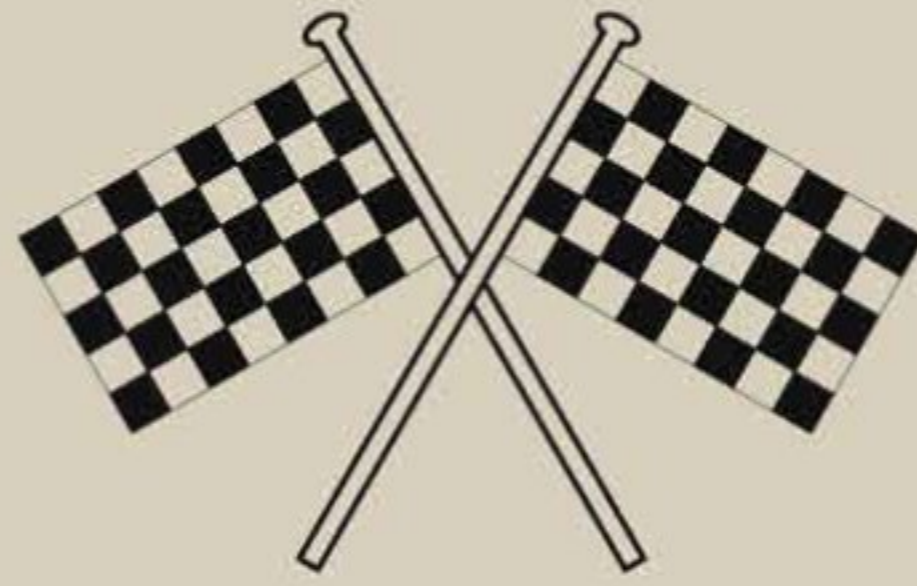
MH: That sounds perfect. Thank you very much for dinner and for your time.

PS: You're welcome. I made a lot of mistakes – but I would do the same again. 🍷



GO FIGURE

We celebrate F1's return to the United States this month following its five-year hiatus

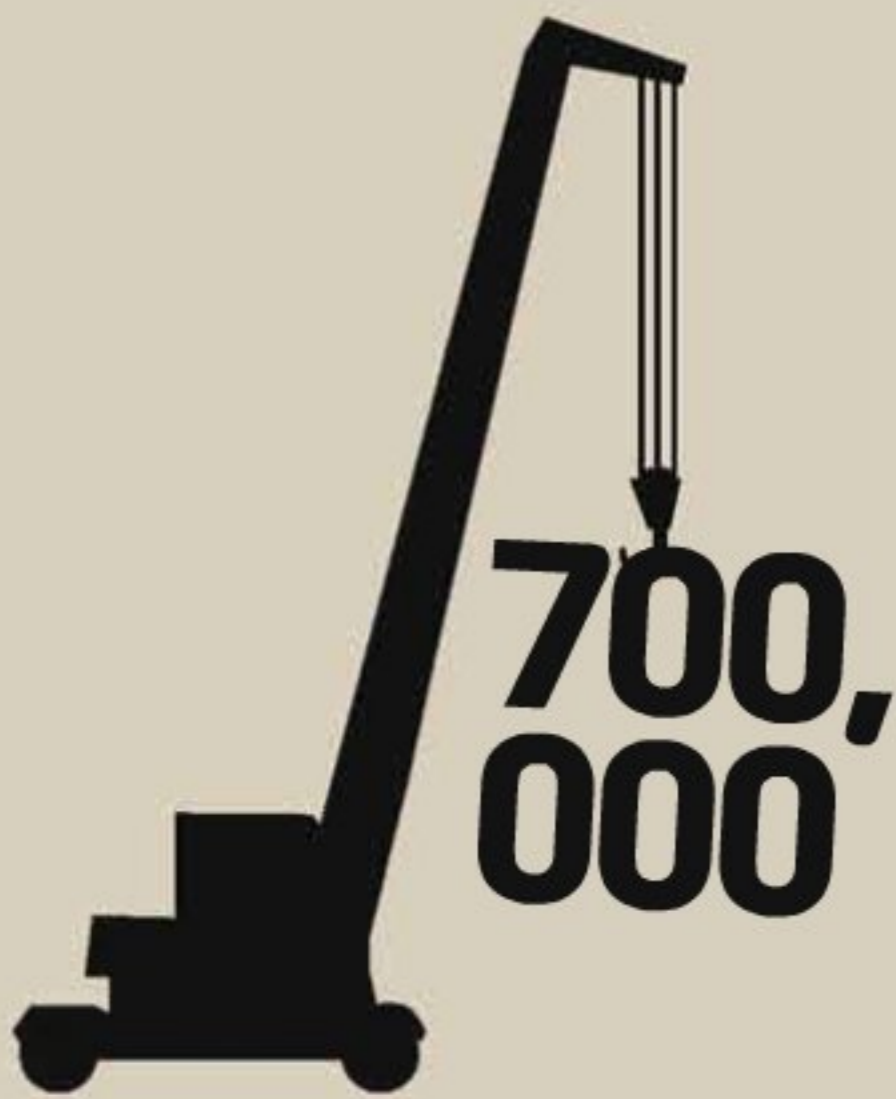


101

The number of GPs that will have taken place when the flag drops in Austin, since the last US GP at Indianapolis in 2007

2021

the current end date for the contract for the Circuit of The Americas to host the US GP



cubic yards of material were used to build the 3.4-mile Circuit of The Americas track

The number of **US GPs** that **Michael Schumacher** has **won**

5

– the same number as there are **American** world championship F1 **GP winners**

5,400

The size in square feet of the **medical building** at the Circuit of The Americas. A trauma-care centre during the GP, it is also a **year-round training facility**



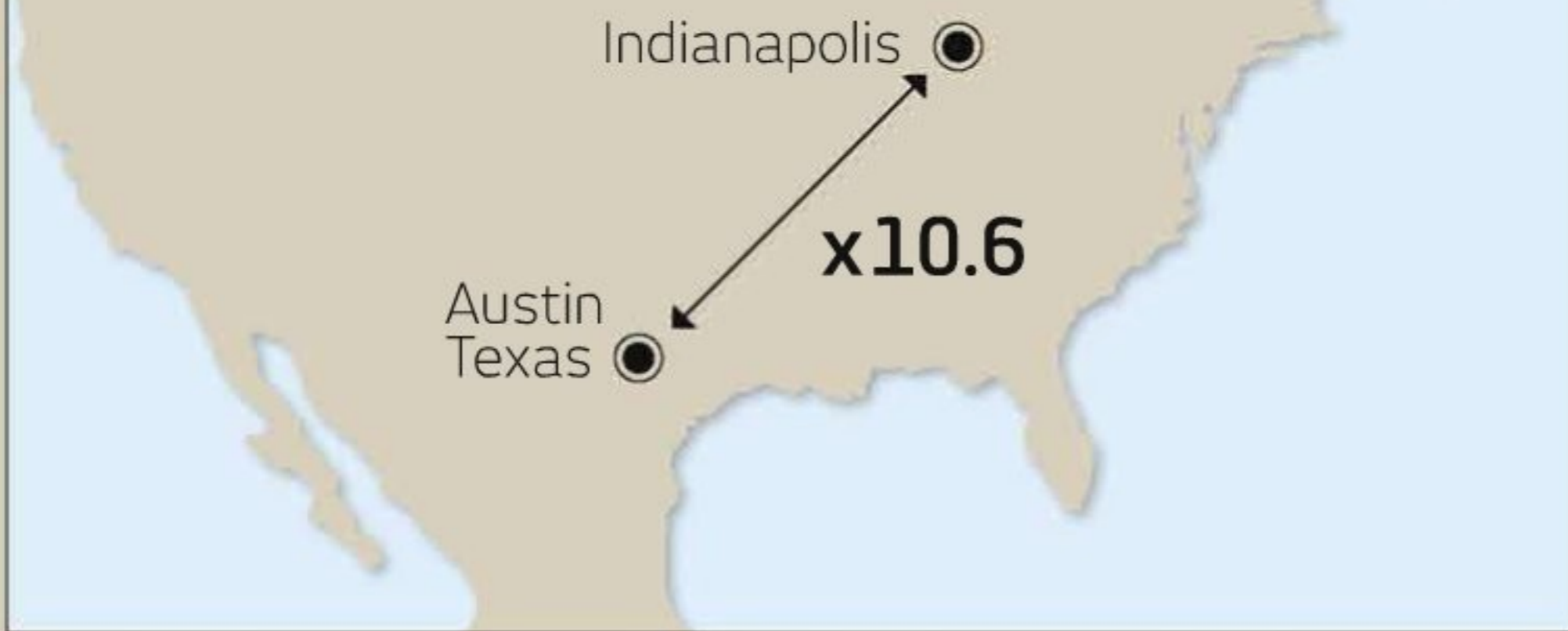
8

The number of **different winners** in the eight **US GP West** races that were held at **Long Beach**



9,854 miles

The distance over which F1 cars have raced in the **US – 10.6 times** the distance between **Austin**, site of the **2013 US GP** and **Indianapolis**, site of the **2007 US GP**



251ft Height of COTA observation tower

251

The **height in feet** of the **observation tower** at the new Circuit of The Americas venue

151ft 11in Height of Statue of Liberty (base to torch)

133

Elevation change in feet of the COTA track

laps led by Americans

three

on American soil*

*all by Mario Andretti

Number of years since an American was last on pole at a GP

30

Mario Andretti, Italy 1982

Average F1 driver height

5ft 9in



LEGEND

The very embodiment
of what it once meant to
be an American in Formula 1,

ICON

Dan Gurney remains a powerful emblem of an emotionally charged
era in grand prix motor racing.

ALL-AMERICAN RACER

Ahead of this year's US GP
(which makes a welcome
return to the F1 calendar
after a five-year absence)
his friend **Peter Windsor**
sits down to chew the fat
with one of the sport's
greatest natural talents
and brightest engineers

PICTURES LAT ARCHIVE



He was Jim Clark's friend.

And yet... You always feel, with Dan, that you never give him his due. You talk to him and you quickly appreciate that you are talking about everything that matters not only in our world but in the real one, too. Dan Gurney for President? It was always a David E Davis (*Car and Driver* magazine) joke; looking back, though, the country could have done much worse.

All we can do, then, is see Dan today – to watch him at work, to look into the eyes. The story thus related isn't complete, but we may gain some of the picture just as Sir Stirling today still gives us a good idea of what Moss the racing driver was like in the late 1950s: confident, agile as a leopard, quick-witted, always hungry.

Dan? Dan just goes to work every day. It's where the heart is. There, in the Santa Ana shop that produced all those Eagles. It is little changed. It is 1960s, single-floor California. Add a pink flamingo or two and you'd be looking at a Palm Springs poolside.

And the work is this: creating, thinking, tinkering. From the moment he retired, Dan has *loved* the idea of designing and building his own motorcycles. The Alligator, in all its still-evolving forms, was and is his baby. Low centre of gravity. Balance. Poise. It gets him up every morning and it draws him to his race shop, where Justin Gurney, Dan's eldest, runs the mainline AAR composite business. (Dan and Evi's other son, Alex, is a prodigiously talented and intelligent sports racing driver)

Dan will say 'hi' to the usual gang – to Kathy, to the boys – and he'll walk down the corridor to his office, glancing, perhaps, at one or two of the hundreds of photos that line the walls. "Here," he'll say, showing you a picture of an Unser at Pike's Peak. "What do you think of this?" Your jaw drops as you identify the outside rear about to slide into clear air beyond the cliff edge. The power still on; he is holding the front-engined beast in about 25° of opposite lock.

"Yes," says Dan, "but look at the dust trail. Look where he's coming from!" The plume of rubble sits on an arc – an arc that traces the edge

of the corner right out of the photograph. The guy has been 'sitting' on the edge of the road, canyon below him, for five full seconds or more...

Dan still smiles at the trick 'Piggy' Malone once played. An AAR boy from way back, Piggy dressed up a broom with a pair of cowboy boots and scrunched jeans. Just when it became time for Dan to take 'the comics' – *Autosport*, *Motoring News*, *Autoweek*, *Car and Driver*, *Road and Track* – to the bathroom, Piggy set up the boots behind the locked door (with its US-style gap to the floor).

"Somebody sure is taking their time," Dan would grumble as he flicked through the pages of the mags. Then he was out on the shop floor, demanding to know who was causing the hold-up. All faces deadpan. And so it went on.

A racer living the racer's life. Dan and Evi treasured the days when James Hunt drove the

W

hen I look back now at the days when friends like James Hunt and Vern Schuppan raced for Dan Gurney I kick myself hard.

Hard. Why did I not then

spend more time with Dan? Why didn't I spend a few more hours at the immortal All American Racers shop in Santa Ana? *Why?*

It is life. We are part of it but often we don't appreciate it for what it will be. And so it is with Dan. Make him as large as you like in F1 folklore. He is American racing, circa 1959-1980; he is the Gurney flap (although never allowed to patent it). He is Riverside. He is the Eagle. He is the 1967 Belgian GP. He is Le Mans with the delicious Ford Mk IV. He is Ford Galaxies, Lotus 19s, dark-blue McLarens, Trans-Am pony cars and the Indy 500. He is the Bell Star helmet. He is the green-and-gold Brabham. He is Smiling Dan, with the American crew-cut, light-blue Dunlop overalls and twenty-to-two driving position.

"Dan stands as the classiest of acts – as brilliant a natural talent as you'll find this side of Jim Clark or Ayrton Senna"



Above: Dan wins the 1967 Race of Champions.

The prize? A hundred bottles of champagne
Below and right: Brabham's first championship win, delivered by Gurney at the 1964 French GP



F5000 Eagle at Long Beach. "What a driver. What a man," says Dan today. "One of the funniest people I ever knew. We miss him a lot."

We go to dinner at nearby Newport Beach. Dan slides into his Jaguar saloon, seat back as far as it will go, arms almost-straight behind the wheel, at a quarter-to-two on this occasion. He guns the car hard – but, as I once noticed with Niki Lauda when I drove with him in South America, there is no real feeling of speed. Even in this soft, southern Californian mid-week dusk, amid the traffic, Dan's pedal and steering movements are velvety.

We walk into the restaurant lobby, where photos of John Wayne dominate the near-view. The crowd parts and the girls smile. Here is more True Grit...

Dan is polite, softly spoken and deadly accurate. His one-liners are as powerful as Mario

Andretti's. The difference is that Mario's free-flowing vernacular is Italian/East Coast; Dan's, despite his early years in New York and Long Island, is to my ear Catalina/Bobby Darin.

We order Sonoma white wine and local fish. We talk politics – Dan's Jag wears stickers for both George Bush *and* Mitt Romney – then we talk racing. I ask him about that driving position – that non-symmetrical location of the hands.

"I guess some of today's drivers, blessed as they are with power steering and so forth, would find it hard to understand. If you think back though, most of the cars I drove required a lot of strength and energy, particularly the front-engined ones. I figured very early on that I would have more control of the steering if I had at least one of my arms nearly straight. I made that the right arm, so I held the wheel with it at about two on the dial. The left then had to sit naturally in a

more bent position, so that was at about twenty-to. People ask how I could feel 'square', but actually it helped me. When my right arm was central, I knew exactly where I was with the steering lock – the same with the left hand."

Talk turned, as it often does with Dan, to that race at the Nürburgring in 1962. Dan had already won the French GP for Porsche (his first win; Porsche's only win) and, at the tortuous Nürburgring, he seemed set for a double. Graham Hill qualified second for BRM and Jim Clark third in the Lotus 25. Jim was out of contention early (after forgetting to switch on the fuel pump) so quickly the race developed into a wet-weather classic – Gurney vs Hill vs John Surtees (Lola). "The Porsche was handling beautifully," Dan recalls, "and I knew the circuit pretty well. Then the car began to misfire. It seemed to be electrical, so I groped around in →





the cockpit and discovered that the battery mounting had worked loose. I thought about this for a little bit, because of course the battery was sitting right next to the fuel tanks, which were right next to me, but then I realised that I could keep the battery stable if I wedged my leg up against it. I just had to pray that it wouldn't short-out because of course we were all concerned about fire back in those days. So that's how I drove most of the race at the Nürburgring, over the jumps and so forth. I finished third but I think we could have been better if I'd been able to use my legs with any sort of freedom..."

More wine is required. I ask about Spa 1964, when Dan ran out of fuel with one lap to go.

"The Brabham was perfect that day. I think that Jack was a bit bemused by our pace. We did a few things that gave us an edge, but of course the one problem you face when you're leading the race is the extra fuel consumption: you can't save fuel if you're not in someone else's

tow. The only consolation was that Jim also stopped at Stavelot. We were able to have a bit of a laugh when we heard on the PA that he'd won the race."

Was it true, I ask, that he used to whittle away at metering unit cams during his countless trans-Atlantic flights in 707s?

"I'm not sure I did too much of that on the actual flights but, yes, you'd always keep a cam or two in your baggage. Sometimes you'd have to get the profile *just* right." It was a more constructive use of time, you imagine, than gormlessly watching in-flight movies...

Dan won at Spa in 1967 with the Eagle, of course, thereby completing the trilogy: first win for Porsche, first for Brabham (Rouen, 1964) and first for Eagle. The week

Gurney at a Brabham seat-fitting in 1964. He scored two wins and ten podiums for the team

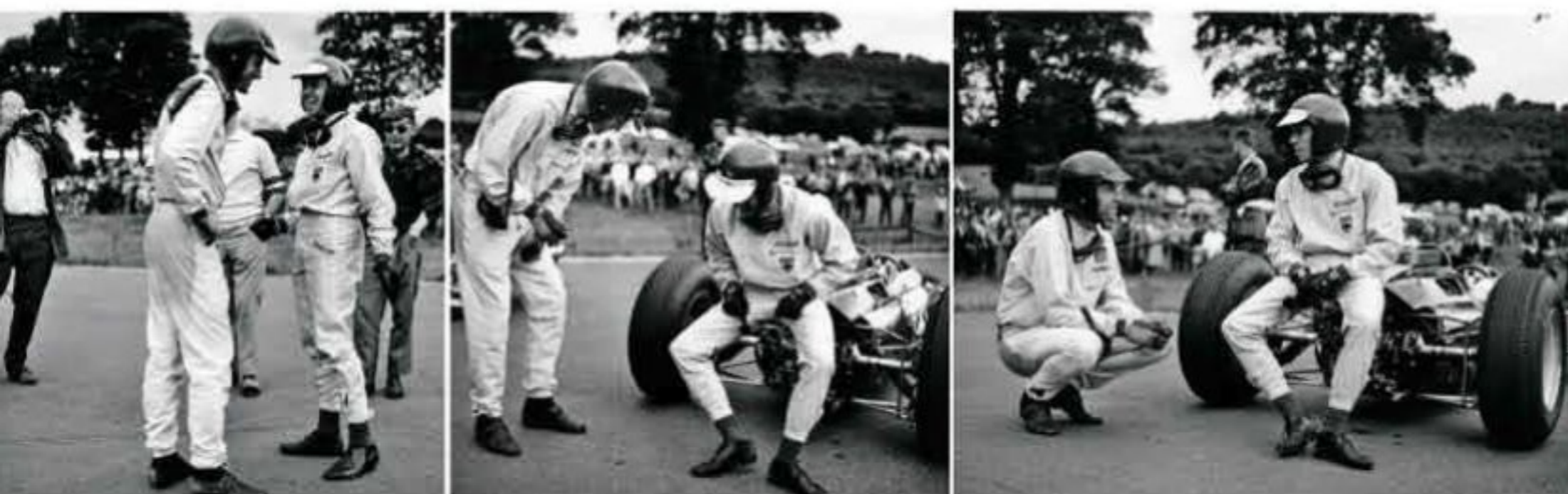
before, in that glorious spring/summer of '67 (*Georgy Girl*, and then *All You Need is Love*), Dan also won Le Mans in the Ford Mk IV, sharing with AJ Foyt. What was the *niciest* F1 car Dan ever drove? I'm thinking balance, predictability...

Dan pauses, then smiles. "I think it would have to be a cross between the Brabham and the Eagle. They were pretty nice cars. I tempt fate by asking him how he thinks he drove them: "We don't see *that* many pictures of you in big opposite slides, Rindt-style," I say nervously. "I guess that confirms your point..."

My comment is clearly an affront to Mr Car Control: "Well, I used to like to get the tail out as much as any man. I think there's a shot of me in the Eagle, going through the kink behind the pits at Zandvoort in which we've got a bit of a drift – and I used to throw the Brabham around quite a lot... I've got a picture of me in the Brabham at the 'Ring in '64, with my arms pretty much crossed..."

So much to talk about, too little time. But at Goodwood this year we sit down together again for a salad lunch. TV

"So who won?" Team-mates Dan Gurney and Jim Clark both ran out of fuel at Stavelot a lap apart at Spa in 1964. They had to wait to find out that Clark had just pipped Bruce McLaren to the victory



Has America got talent?

In the past 20 years, just two drivers from the US have competed in F1 races, and it's fair to say that neither Scott Speed (2006-2007) nor Michael Andretti (1993) particularly impressed. This lack of US F1 talent is largely down to the fact that young American drivers tend to shun the single-seater route in favour of the big bucks offered by the likes of NASCAR.

But two American drivers have been competing in Europe with aspirations to reach Formula 1 – and both have tested F1 machinery this season. Nevada's Alex Rossi, a two-time GP3 winner, ran in FP1 for Caterham at this year's Spanish GP. Meanwhile, Conor Daly, the son of former F1 racer Derek, has completed an aero straightline test for Force India. Neither has proved worthy of an F1 seat yet, but as the sport makes its return to the US, it's imperative it finds a decent American driver to build a fanbase stateside.

James Roberts

producers flutter around, trying to pin Dan down to interview times. He is compliant, helpful – but adds emphatically, as if it's a given: "I've just got to make sure I've still got enough time to see the aircraft out the back. I also want to have a good look at the motorcycles. They're the priority..."

Dan doesn't ride or drive so much these days. He had a bit of a tumble a few months ago on the Alligator. It was one of those early, crisp Sunday mornings you get up there in the hills. The lads gathered for coffee, all dressed in leathers – and then off they went on their bikes, up into the mountains, on near-empty roads. All the balance and touch of Dan Gurney were still there, still obvious after all these years. He was as happy as a Porsche racer at the old Nürburgring.

Then came the moment, then recuperation at home, locked in his 'den'.

It wasn't the worst place to be: exquisite art, courtesy of Ellen Posey, Sam's wife. Lots of photos. Lots of books. I mentioned to Dan that Mercedes' Bob Bell has just finished a book about North America's role in the Apollo programme. Within weeks, Dan has read the book, ordered copies for his friends and invited the author over for a chat.

Friends depart, leaving only memories. David E Davis. Carroll Shelby. Jerry Grant. Roy Salvadori. Russell Schleich, the airforce pilot →



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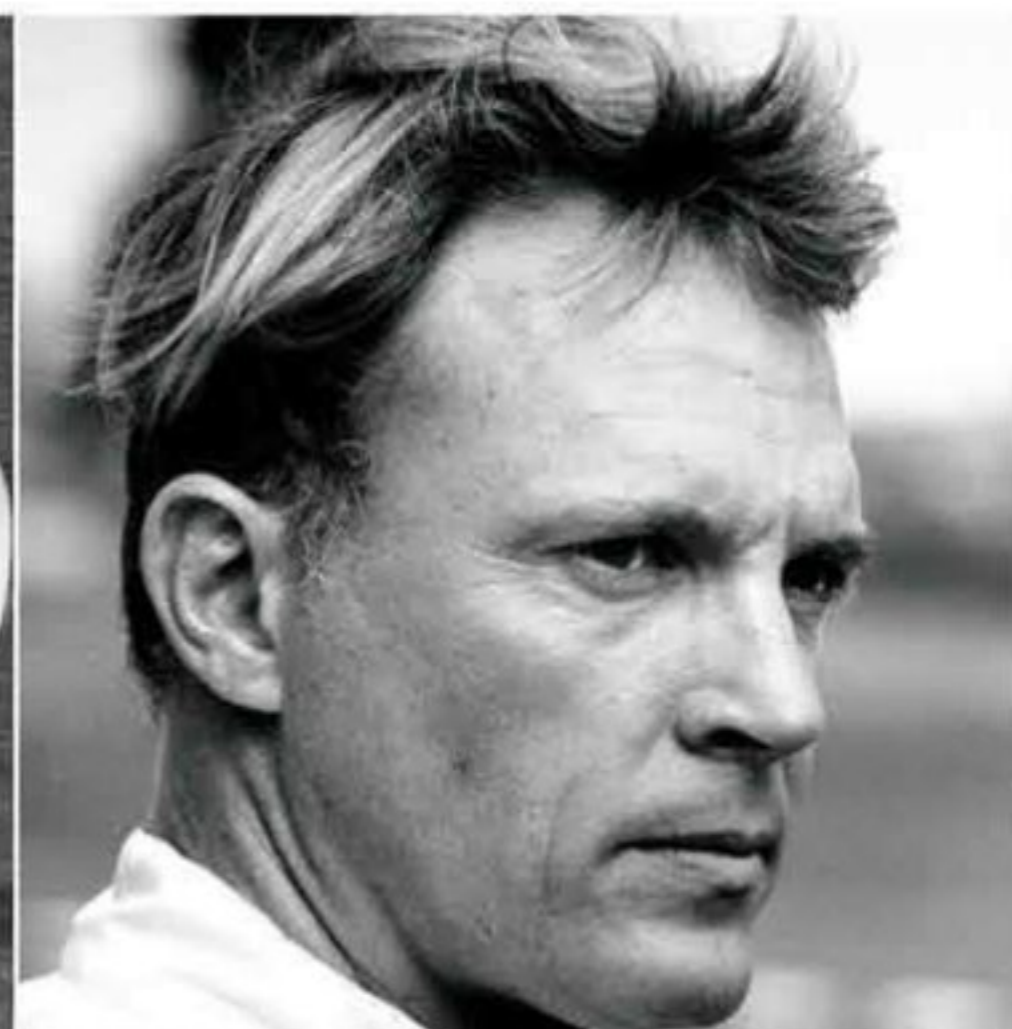
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| | |
|-----------------------------|-----|
| Pamplona: 40' | ✈ |
| Logroño: 25' | ✈ |
| Zaragoza: 1h 20' | ✈ |
| Biarritz and Bilbao: 1h 40' | ✈ 🚗 |



WHY DAN'S THE MAN Some amazing facts you quite possibly didn't know about Dan Gurney...

- After his Le Mans win alongside AJ Foyt at in 1967, Dan spontaneously sprayed the winner's champagne while on the podium. And so a tradition was born.
- The **Gurney flap**, used in F1 to this day, was developed by and named after Dan. Bolted onto a wing's trailing edge to increase downforce, Gurney developed it in 1971 in response to a problem when his AAR team were testing their new USAC Indycar at Phoenix.
- Gurney was enrolled in the **US Army** for two years, and

for most of that time he was overseas in the Korean war.

- At **Jim Clark's** funeral in 1968, Clark's father told Gurney that Dan was the only driver who Clark had ever feared out on track.
- Gurney made 312 motorsport starts, taking **51 wins**, 42 pole positions and 47 podiums across 20 countries with 51 different makes encompassing more than 100 different models. He was the first driver to win in all four major racing categories: F1, IndyCar, sportscars and NASCAR.
- Aside from his four world championship wins, Dan took **non-championship** F1 wins at Ballarat in 1960, Solitude in 1962 and the

Race of Champions at Brands Hatch in 1967.

- While racing in F1 he also raced sporadically in Indycars, competing in the Indy 500 from 1962-69, first in a Thompson, then in a Lotus and, in his last five attempts, an **Eagle**. He qualified on the front row twice, finishing second twice and third once.
- He won five **NASCAR** 500-mile races, four of which were at his favourite Riverside circuit. In 1980 he came out of retirement, ten years after his last race, to help the president of Riverside by taking part in a NASCAR race there. Ticket sales surged and Gurney, aged 49, was in third when the transmission let go.



INSET: JAMES MANN

and hero who started out as a gifted footballer. Russ and Dan were close. Dan, who saw action in the Korean War, loved to hear Russ's tales of B17s, Flying Wings and KC-10 tankers.

Dan, though, still makes the effort to fly over to Goodwood with Evi, still takes time to attend anniversaries and celebrations. And he loves them. They tug at the heartstrings – but he loves them. At Goodwood, as he listens to the eloquence of Lord March, and as they play *The Star-Spangled Banner*, his eyes glisten-up as he takes Evi's hand. They could almost be back at that bridge over the river in Germany all those years ago, listening to Caruso.

He loves, too, the trips home. Back to the den, to the view over towards the Pacific as the sun goes down, to the children and grandchildren

and all the latest news – and to the Santa Ana race shop, where there's always something to do, something to improve. He watches F1, and he knows a lot about it, but I think it saddens him that he has never been *formally* invited to attend races at his leisure. F1 isn't hot on its past heroes, more's the pity. For me, not inviting Dan to F1 races is a bit like the golfing world excluding Arnold Palmer or Jack Nicklaus from attending the US Open. That would be unthinkable – and yet F1 has relentlessly ignored Dan Gurney and icons like him... and continues so to do.

We're lucky, though, to have glimpses of him at Goodwood, or at Pebble Beach or other such events. In an F1 world full of money and ego and gossip and thoughts only of tomorrow, Dan Gurney stands out as the classiest of acts – as

brilliant a natural talent as you'll find this side of Jim Clark or Ayrton Senna and, as a driver/engineer, right up there with Jack Brabham and Bruce McLaren. He continues to combine creativity with charm, the truest of motor racing loves and plain good manners.

And with an appreciation for all things technically beautiful.

I asked him just a few years ago what he thought about the F1 Red Bull-Renault and all the aerodynamic nuances that came with it. "I would love to be a particle of air split by something designed by Adrian Newey," he said, eyes glinting...

• Find out what to expect when F1 takes to the brand-new Circuit of The Americas in Austin, Texas, with our race preview on [page 124](#)

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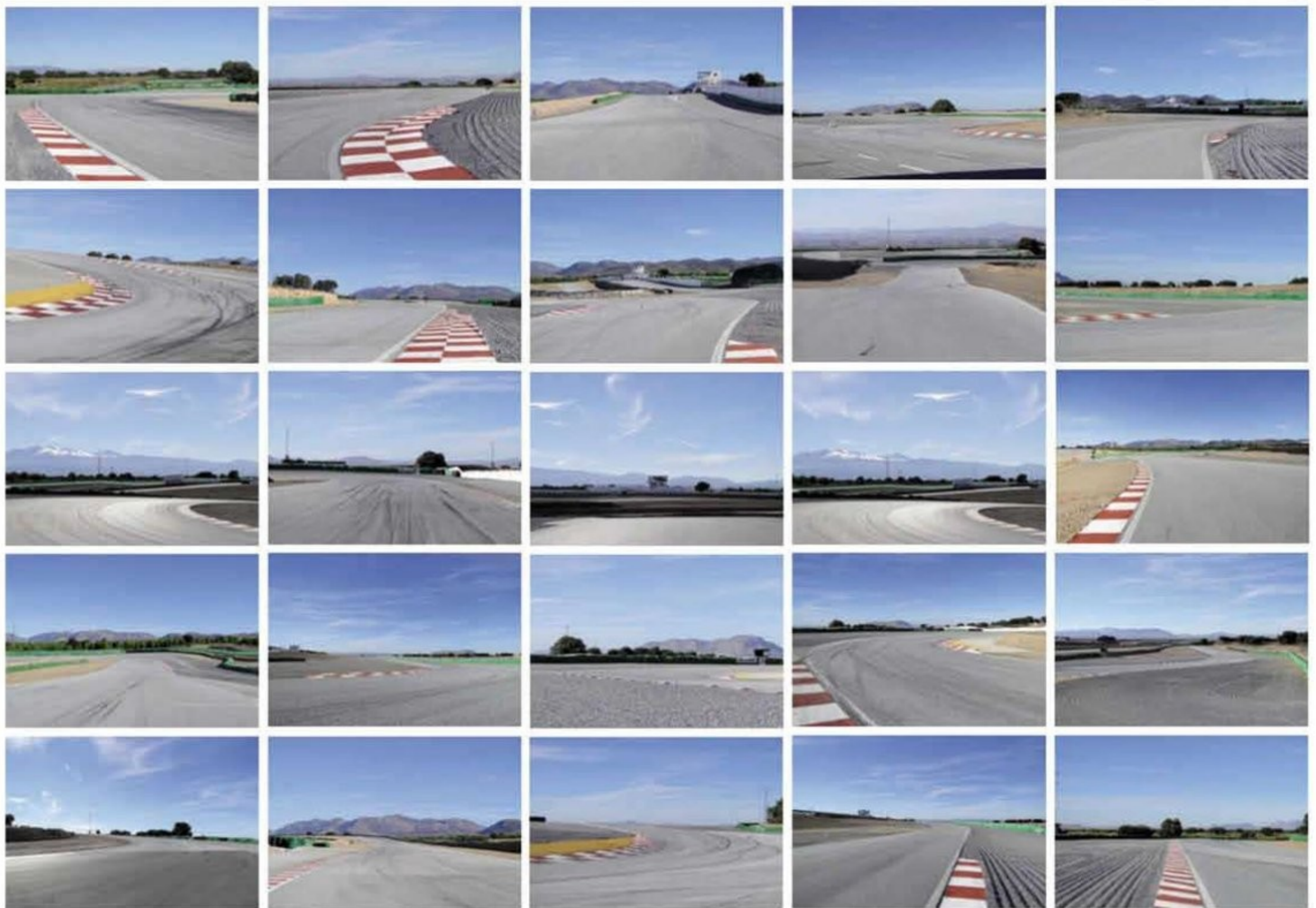
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All eyes are on a new leader...

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RACE DEBRIEF by Pat Symonds

Korean Grand Prix

14.10.2012 / Yeongam

Vettel leads the title hunt... Button out of the title hunt... Ferrari ahead of McLaren



It's all change at the top

Korean win puts Vettel ahead of second-placed Alonso in the title hunt, while Ferrari overtake McLaren in the constructors' standings

As the flag dropped in Suzuka, the celebrations, commiserations and analyses of each team had to be tempered with the need to pack 30-odd tons of air freight into boxes and stuff the sea freight into containers. Even when the next race is 600 miles away, the workload is the same as when the race is just one week later.

The circuit in Yeongam does not have the 50-year heritage of Suzuka and, due to poor weather conditions at various times over the past two seasons, the teams still had much to learn on their third visit to Korea. The track is quite enigmatic in that it has a relatively classic layout and yet, as it is built on 425 acres of reclaimed land, much of which is still

being developed, it suffers from a lot of dust accumulating on the surface. As this cleans off, the track evolution becomes more reminiscent of that of a street circuit.

The average corner speed is mid table of the tracks visited through the year and so you might expect that tyre requirements would be average as well, but, in fact, the tyres chosen by Pirelli were the soft and supersoft. The front right is quite heavily loaded, particularly through the high-speed Turns 8, 9 and 11, which leads to significant graining. The peak energy experienced by the tyre occurs at Turn 9, but in the 25 seconds it takes to get from Turn 8 to Turn 13, the front right tyre gets loaded for over 16 seconds – and that's what does the damage. This includes a continuous loading of 6.5secs through Turn 11. This 125mph corner is critical in managing graining and consequent wear of the tyre and, as we would see during the race, it was a crucial factor in achieving good race setup.

While the circuit seems fairly average in its characteristics, it is not an easy one to set up a car for. It always seems difficult to get a balance and even when you do, it is difficult to maintain the equilibrium with small changes to circuit temperature or the wind causing changes that will rob the driver of those vital tenths that make the difference between a successful qualifying lap and a frustrating afternoon.

The three sectors, as set by the FIA, are all quite different in Korea. The first sector contains nearly all the straights, with just two second-gear corners in it. The premium, therefore, is on engine power and low drag. The second sector stretches over 2,200 metres and is a succession of nine corners, one after the other, with the car never heading in a straight line. With an average speed of over 115mph and corner speeds ranging from just 45mph at Turn 4 to well over 170mph through the fast flicks of Turns 7 and 8, the car is fully stretched and consequently downforce and sheer grip produce the best times in this sector. The final sector is a bit of an amalgam of the previous parts and, although only around half the distance of the previous sectors, needs a little bit of everything from the car.

As usual, first practice showed little of the form to be expected. The normal experimental work was carried out by the teams, but the fastest laps set were as much a function of when they were set as they were a measure of the true competitiveness of the teams and drivers.

Second practice started to show more of the true form as the two Red Bulls stretched their legs.

On Saturday morning, after a tardy start as the top drivers waited for each other to clean the dust off the track, a relatively straightforward session followed, with only Mark Webber finding himself in difficulty. He managed only seven laps after problems programming his ECU kept him in the garage.

Even as qualifying began, the track was still very dusty off-line and this made it all the more difficult for the drivers to manage their tyre warm-up. Balancing the need to manage the tyres without getting in the way of others yet desperately not wanting to go off-line and pick up grip-sapping dust on the tyres was an almost impossible task. For the second week in a row, it was Senna who joined those who would proceed no further and this time without the excuse of traffic to spoil his lap. Even more remarkable was the fact that Alonso was among those who felt the need to use the supersoft tyre to ensure progression to the next stage.

Q2 saw, as usual, those who had used the supersoft tyre in Q1 run them for a second time, accepting the reduced performance that is inevitable in repeating their use. It says everything about Vettel's new-found confidence that, having run just one set of the harder tyres in Q1, he chose to do a single run on the softer ones in Q2. It was enough for him to emerge as the fastest and leave two sets left for the top-ten shoot-out. It is all too easy to forget that as →

The story of the race

V
Vettel edges past pole-sitting Webber at Turn 1. His team-mate tries but fails to regain position

YEONGAM



>
Kobayashi's at it again, hitting Button on the first lap, and then being forced to pit with a damaged front wing



<
As a result of that contact, Button retires with damaged suspension, and calls Kobayashi an 'idiot'

View from the paddock

A winning combination

Given how unpredictably this season began, Red Bull and Seb Vettel are now making this year's championship look very one-sided. Such has been Red Bull's superiority over the past three races that it seems the only thing that can stop Vettel from bagging a third successive title is very bad luck.

We can argue about whether it's their double DRS or some other upgrade that's brought their recent upswing in performance, but what's indisputable is that, love them or loathe them, Red Bull have developed a knack for getting that all important edge on the competition when it comes to the business end of the season.

Just as importantly, in Sebastian Vettel, they have a driver who – much like Michael Schumacher at his Ferrari peak – rarely fails to deliver when handed an advantage. As was the case in Korea, this can lead to dull races. But if you're Vettel, who cares?

Jonathan Reynolds

>
Kobayashi exits the pits after serving a drive-through penalty then retires on lap 16



>
Despite late concerns about his front-right tyre, Vettel wins by a comfortable 8.2-second margin...



>
...and celebrates by spraying a well-protected Adrian Newey with champagne



MAIN PHOTO: CLIVE MASON/GETTY IMAGES. ILLUSTRATION: ALAN ELDREDGE. INSETS: GLENN DUNBAR/LAT. ANDREW FERRARO/LAT. STEVE ETHERINGTON/LAT. MARK THOMPSON/GETTY IMAGES. CLIVE MASON/GETTY IMAGES

recently as the Belgian Grand Prix, Sebastian didn't even make it into the top ten.

Ultimately it made no difference as Vettel's second run in the third part of qualifying was not only slower than his first but, more importantly, it was slightly slower than his team-mate's and it was Webber who took pole to give Red Bull a front-row lock-out for the second time in two weeks. Hamilton took third to uphold McLaren honours with championship leader Alonso coming fourth.

Prior to the race, there was much talk of how tough a race it would be, since it seemed that no one had managed to find a truly good balance in qualifying. But with the wind having veered 90° the drivers knew it could all be different again. Vettel made a perfect start to come alongside his team-mate at Turn 1 and then edge away from him on the first straight. Behind them, there was a little argy-bargy at Turn 1, but the real fireworks were at Turn 3 when Kobayashi tried to fit his 1.8m-wide Sauber into a 1.5m gap. His antics caused the retirement of Button and Rosberg and he was lucky to get away with only a drive-through penalty for such a serious misjudgment.

Up front, Vettel pulled away from his team-mate, who was followed by Alonso and Hamilton

with Massa having yet another good weekend in fifth. From lap 14 everyone began to pit for the harder tyre. Shortly afterwards, Hamilton reported problems. His rear anti-roll bar had broken, which not only destroyed his balance but critically put additional load on the limiting front-right tyre. It was the start of a slide down the order for Lewis.

There was some close racing further down the field and the DRS zone, lengthened by 20m from last season, certainly helped the action. Unfortunately, up at the front there was little change and, Hamilton's problems aside, the top seven positions at the flag were the same as they had been on lap 1.

As a motor race it had not been spectacular, but it had certainly been significant. Vettel had now led the last 145 laps of grand prix racing – every lap in fact since Lewis retired in Singapore. In doing so, he has managed to wrest the championship lead from Fernando Alonso.

Ferrari must have mixed emotions as their retention of the title lead had been something of a surprise given their general lack of early

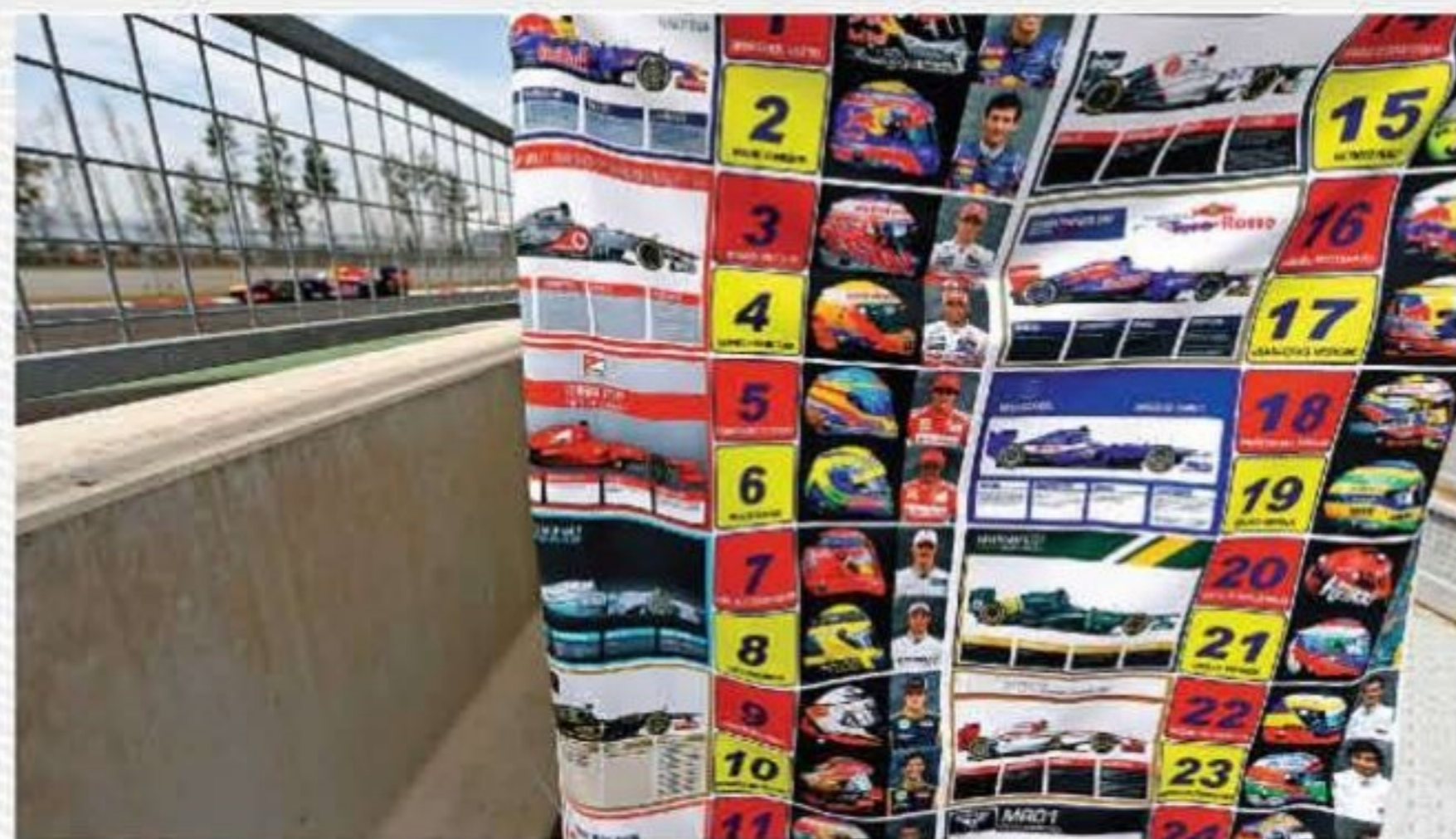


They've been mooted as future team-mates, but for now Vettel and Alonso are battling it out for Red Bull and Ferrari

season form and yet here they were with third and fourth places in Korea. This has allowed them to overtake McLaren in the constructors' championship. At the same time, just as Ferrari are possibly coming good, Red Bull are *definitely* doing so. The momentum is now firmly with the team from Milton Keynes and their ever more impressive young German champion and yet, in a season that has already undergone so many twists and turns, absolutely nothing can be taken for granted. **F1**

The GP you didn't see on TV

Taking you behind the scenes at Yeongam as the weekend unfolded



After just three home GPs, Korean marshals are still relative newcomers to this F1 lark, so all marshal posts come with this handy covering to help them see who's who at a glance



Kimi Räikkönen displays a fairly carefree attitude to clothing, in this fan-made banner



More DIY banners: Massa with dynamite and Rob Smedley clutching a er... carrot?



With the race taking place in the middle of nowhere, the last thing anyone wants is to be caught short without supplies

PHOTOS: LORENZO BELLANCA/LAT; MARK THOMPSON/GETTY IMAGES; CLIVE ROSE/GETTY IMAGES

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Korean Grand Prix stats

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

THE GRID

| | |
|---|---|
|  2. VETTEL RED BULL 1m37.316secs Q3 |  1. WEBBER RED BULL 1m37.242secs Q3 |
|  4. ALONSO FERRARI 1m37.534secs Q3 |  3. HAMILTON McLAREN 1m37.469secs Q3 |
|  6. MASSA FERRARI 1m37.884secs Q3 |  5. RÄIKKÖNEN LOTUS 1m37.625secs Q3 |
|  8. HÜLKENBERG FORCE INDIA 1m38.266secs Q3 |  7. GROSJEAN LOTUS 1m37.934secs Q3 |
|  10. SCHUMACHER MERCEDES 1m38.513secs Q3 |  9. ROSBERG MERCEDES 1m38.361secs Q3 |
|  12. PÉREZ SAUBER 1m38.462secs Q2 |  11. BUTTON McLAREN 1m38.441secs Q2 |
|  14. DI RESTA FORCE INDIA 1m38.643secs Q2 |  13. KOBAYASHI SAUBER 1m38.594secs Q2 |
|  16. VERGNE TORO ROSSO 1m39.340secs Q2 |  15. MALDONADO WILLIAMS 1m38.725secs Q2 |
|  18. PETROV CATERHAM 1m40.207secs Q1 |  17. SENNA WILLIAMS 1m39.443secs Q1 |
|  20. GLOCK MARUSSIA 1m41.371secs Q1 |  19. KOVALAINEN CATERHAM 1m40.333secs Q1 |
|  22. DE LA ROSA HRT 1m42.881secs Q1 |  21. RICCIARDO* TORO ROSSO 1m39.084secs Q2 |
|  24. PIC*** MARUSSIA 1m41.317secs Q1 |  23. KARTHIKEYAN** HRT NO TIME IN Q1 |

* Five-place grid penalty for replacement gearbox **Permitted to start by the stewards *** Ten-place grid penalty for additional engine

THE RACE



THE RESULTS (55 LAPS)

| | | | |
|------|--------------------|-------------|--------------|
| 1st | Sebastian Vettel | Red Bull | 1h36m28.651s |
| 2nd | Mark Webber | Red Bull | +8.231s |
| 3rd | Fernando Alonso | Ferrari | +13.944s |
| 4th | Felipe Massa | Ferrari | +20.168s |
| 5th | Kimi Räikkönen | Lotus | +36.739s |
| 6th | Nico Hülkenberg | Force India | +45.301s |
| 7th | Romain Grosjean | Lotus | +54.812s |
| 8th | Jean-Eric Vergne | Toro Rosso | +69.589s |
| 9th | Daniel Ricciardo | Toro Rosso | +71.787s |
| 10th | Lewis Hamilton | McLaren | +79.692s |
| 11th | Sergio Pérez | Sauber | +80.062s |
| 12th | Paul Di Resta | Force India | +84.448s |
| 13th | Michael Schumacher | Mercedes | +89.241s |
| 14th | Pastor Maldonado | Williams | +94.924s |
| 15th | Bruno Senna | Williams | +96.902s |
| 16th | Vitaly Petrov | Caterham | +1 lap |
| 17th | Heikki Kovalainen | Caterham | +1 lap |
| 18th | Timo Glock | Marussia | +1 lap |
| 19th | Charles Pic | Marussia | +2 laps |
| 20th | Narain Karthikeyan | HRT | +2 laps |

Retirements

| | | |
|------------------|----------|---------------------------|
| Pedro de la Rosa | HRT | 16 laps - throttle |
| Kamui Kobayashi | Sauber | 16 laps - accident damage |
| Nico Rosberg | Mercedes | 1 laps - accident |
| Jenson Button | McLaren | 0 laps - accident |

THROUGH SPEED TRAP



Fastest: Jean-Eric Vergne, 201.61mph

Slowest: Nico Rosberg, 181.54mph

TYRE COMPOUNDS USED



Supersoft Soft Intermediate Wet

CLIMATE

Overcast 21°C

TRACK TEMP

26°C



FASTEST LAP

Mark Webber, lap 54, 1min 42.037secs



FASTEST PITSTOP

Lewis Hamilton, 19.447secs (entry to exit)

DRIVERS' STANDINGS

| | | | |
|------|--------------------|-------------|--------|
| 1st | Sebastian Vettel | Red Bull | 215pts |
| 2nd | Fernando Alonso | Ferrari | 209pts |
| 3rd | Kimi Räikkönen | Lotus | 167pts |
| 4th | Lewis Hamilton | McLaren | 153pts |
| 5th | Mark Webber | Red Bull | 152pts |
| 6th | Jenson Button | McLaren | 131pts |
| 7th | Nico Rosberg | Mercedes | 93pts |
| 8th | Romain Grosjean | Lotus | 88pts |
| 9th | Felipe Massa | Ferrari | 81pts |
| 10th | Sergio Pérez | Sauber | 66pts |
| 11th | Kamui Kobayashi | Sauber | 50pts |
| 12th | Nico Hülkenberg | Force India | 45pts |
| 13th | Paul Di Resta | Force India | 44pts |
| 14th | Michael Schumacher | Mercedes | 43pts |
| 15th | Pastor Maldonado | Williams | 33pts |
| 16th | Bruno Senna | Williams | 25pts |
| 17th | Jean-Eric Vergne | Toro Rosso | 12pts |
| 18th | Daniel Ricciardo | Toro Rosso | 9pts |
| 19th | Timo Glock | Marussia | 0pts |
| 20th | Heikki Kovalainen | Caterham | 0pts |
| 21st | Vitaly Petrov | Caterham | 0pts |
| 22nd | Jérôme D'Ambrosio | Lotus | 0pts |
| 23rd | Charles Pic | Marussia | 0pts |
| 24th | Narain Karthikeyan | HRT | 0pts |
| 25th | Pedro de la Rosa | HRT | 0pts |

CONSTRUCTORS' STANDINGS

| | | | | | |
|---|-------------|--------|----|----------|------|
| 1 | Red Bull | 367pts | 10 | Marussia | 0pts |
| 2 | Ferrari | 290pts | 11 | Caterham | 0pts |
| 3 | McLaren | 284pts | 12 | HRT | 0pts |
| 4 | Lotus | 255pts | | | |
| 5 | Mercedes | 136pts | | | |
| 6 | Sauber | 116pts | | | |
| 7 | Force India | 89pts | | | |
| 8 | Williams | 58pts | | | |
| 9 | Toro Rosso | 21pts | | | |



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RACE DEBRIEF by Pat Symonds

Indian Grand Prix

28.10.2012 / New Delhi

Vettel wins again... Extends his championship lead... And equals Senna's record of consecutive laps led



Seb's fourth win in a row

Red Bull go from strength to strength as Vettel takes his fifth win of 2012, climbing 13 points clear of Alonso in the title hunt

The extended sequence of double-header flyaway races created something of an end-of-term feeling as the teams set off for India, although with 20 per cent of the season left to run, there was still a lot to play for.

With so much variation in the early results this year, few would have predicted that by this stage the championship would have become a two-horse race. In reality, while the numbers

point to an Alonso/Vettel showdown, the reality is that predicting future outcomes has more to do with current trends than historical data. Those trends clearly favour Red Bull over Ferrari and Vettel over Alonso. Indeed, the domination of Red Bull over the past few races is every bit as impressive now as it was at this stage last year.

Many teams start the season with the championship as their target but reality sets in during the summer, and the autumn races

are as much about consolidating positions and reputations further down the field as they are for those vying for victory. McLaren, for example, arguably had the best car at the start of the season and were possibly first to get on top of the tyre-management issues that have dominated 2012. Today they seem to have lost their sparkle and the battle now is to ensure that they finish ahead of Ferrari in the constructors' championship. Lotus are another team whose star has faded. Pace-setters in pre-season testing, their lateral thinking in employing Kimi Räikkönen pointed towards almost immediate victories. But as they arrived in New Delhi, fourth in the championship and with no fewer than nine podiums under their belt, that all-important first win was still eluding them.

The Buddh circuit, while having hosted only one previous GP, is universally admired by the drivers. It has the second-fastest average speed of all the circuits on this year's calendar and manages to combine the fast corners at which F1 cars are able to show their capabilities with state-of-the-art facilities.

The general grip of the circuit is quite low and last year it was extremely dusty off-line. The first sector is a mixture of traction and braking demands, coupled with a need for good top speed. The nature of the track changes as the cars enter the second sector. A sequence of medium-speed and fast corners leads into the long and challenging right-handers of Turns 10, 11 and 12. This combination is reminiscent of the much-loved Turn 8 at Istanbul Park, but hides a sting in its tail as it tightens before the exit. The banking of the corner helps, but the seven-second duration of high tyre stress takes its toll.

In spite of this, there is little real abrasion on the smooth surface and consequently tyre degradation is low. Before the race, most teams had already decided on a one-stop strategy.

Practice passed smoothly, although the dust clearance occurring in the first session made analysis difficult as lap times came down by as much as four seconds during a run. Friday afternoon began to show the expected form as Vettel and Webber set fastest laps that were within 0.1secs of each other and 0.5 of a second in front of Alonso who was third fastest. But most remarkable of all was the work done by Räikkönen and Grosjean, who completed runs of 23 laps and 21 laps respectively. These runs were very enlightening. Done on the soft tyre,

they showed that the degradation was actually negative – in other words, the performance gain resulting from the car becoming lighter as the fuel was burnt off was greater than the loss of performance arising from tyre wear. While on the face of it this pointed towards a one-stop race, the dilemma the teams had to consider was whether the numbers were skewed by track improvement that might not be present on Sunday. The other consideration was that the inside edge of the front tyres was wearing heavily as we have seen many times this year. This wear was occurring as the inside front wheel was dragged around Turns 10 and 11 and had the potential to expose the cords within 20 laps, which would make a one-stopper difficult.

Qualifying produced no surprises. Although the circuit was much cleaner than last year, grip was still evolving and several chose to leave their runs to the last minute to maximise this. The result was a very busy track in the final few minutes but, surprisingly, everyone found their gaps and apart from spins from Massa and Kovalainen, the session passed without incident.

One of the more interesting aspects of qualifying this year has been to see how people use their tyres. The fewer runs done and the fewer soft tyres used are clear indicators of confidence. It's a difficult game to play. Keeping two sets of fresh soft tyres for the final part of qualifying is highly desirable but the risk of doing so can have extreme consequences. Risk analysis is all about considering not just the →

View from the paddock

What next for Indian F1?

Despite grand prix tickets costing half of what they did at 2011's event, there was less buzz surrounding the Indian GP this year, compared to last year's inaugural event. And the crowd was notably smaller.

But speak to Vicky Chandhok, head of the Indian Motorsport Federation and he is optimistic. He'll tell you that the sport is still in its infancy in India, but that it will have begun to establish more of a foothold by the third and fourth years of the GP.

India's population is 1.1 billion, and if just a tiny percentage fall in love with F1, the potential for this race to thrive will be huge. We're not quite there yet. En route to the circuit, a taxi driver asked me: "Which automotive vehicle does Sebastian Vettel drive?" The answer is a drink he has never heard of and a road car he is never going to drive. So perhaps the biggest swing will be a successful Indian driver.

James Roberts

The story of the race

V Vettel's aggressive start cuts Webber off at the first corner and he's built a five-second gap by lap 20



BUDDH INTERNATIONAL



V Alonso, starting in fifth, follows Lewis and Jenson on the opening lap and surprises Hamilton with a pass, while the McLarens dispute Turn 4. Alonso goes on to pass Jenson for third place by lap 5



Alonso closes in on and passes a KERS-free Webber as the wounded Red Bull loses time behind the backmarkers. Vettel puts in a series of laps 0.7secs faster than Alonso can manage, to restrict his ambitions to second place



V Vettel takes the win and equals Senna's record of leading every lap for three consecutive races

MAIN PHOTO: STEVE ETHERINGTON/LAT; ILLUSTRATION: ALAN ELDRIDGE; INSETS: STEVE ETHERINGTON/LAT; CHARLES COATES/LAT; ANDREW FERRARO/LAT; ANDY HONE/LAT; LORENZO BELLANCA/LAT

severity of a particular outcome but also the probability of it occurring. The teams perform this type of analysis on a daily basis and so we saw the Red Bull and McLaren drivers use one set of softs in Q2, while Alonso, Massa and Räikkönen felt the need to use two to ensure progress to the final stage.

For Vettel, it was a good job he felt confident, since his first run was abandoned when he tried braking slightly too late into Turn 4. His second run was much cleaner as he grabbed pole from Webber to make it three consecutive Red Bull front-row lockouts. Although he had two sets, Button, like most others who weren't driving RB8s, was finding it hard to get the tyres working on the first lap and consequently did one longer run. His spare set of soft tyres would remain unused on Sunday night...

Vettel's block of Webber at the start was to be the only challenge the championship leader experienced on Sunday. Even without DRS, Alonso made the most of a huge slipstream from the two McLarens to dive past them into Turn 3. Unfortunately, he couldn't make it stick as the two silver cars came back at him from either side – Button got the advantage with Hamilton having to accept position behind Alonso. This early scrap was the sporting highlight of the GP.

Button, meanwhile, was unable to capitalise on his daring and fell prey first to Alonso and then his team-mate. His blistered left front tyre was giving him excessive understeer and by his pitstop on lap 25 he was nearly four seconds down on Lewis, who made an impressive stop on lap 32 to change a total of five wheels – the steering wheel included!

While there were some good but not spectacular battles further down the field, the most significant event was Webber losing his KERS on lap 45. Within three laps, Alonso had closed the small gap and sailed past into second place.

The increased pace from the rapidly rubbering-in track was causing some concern as fuel consumption increased with the quickening pace. A number of drivers had to go into fuel-conservation mode, which again took the sting out of some of the midfield battles.

Sunday's race, due to a lack of drama, was a stark reminder of what Pirelli have done for racing. A good start from pole, a few dominant laps to manage the DRS gap, a single stop for tyres and a comfortable victory are impressive



Vettel extends his championship lead over his nearest rival, Ferrari's Fernando Alonso, and Red Bull team-mate Webber

but not entertaining. Not that this detracts from Red Bull or Vettel. Both are doing what they are tasked to do and doing it to perfection. However, a tyre that is simple to manage and has only one determinate strategy does not provide the level of entertainment to which we're accustomed. Drivers may like the ability to push hard through the race without concerns over tyre durability but, for spectators, drama and uncertainty make good racing. That is not to say the season is all over. The pace of the McLarens on the hard tyre was good and the tables could yet turn albeit too late to decide the title. What we want though is good racing. Please Pirelli, take risks! 🏎️

The GP you didn't see on TV

Taking you behind the scenes at Buddh International as the weekend unfolded



What curfew? These weary Toro Rosso engineers take a well-earned breather



Vettel susses out the bits you shouldn't drive on, during his pre-race track walk



Merc's new non-executive chairman Niki Lauda tackles his first task: round one of Nico Rosberg's salary negotiations



"Got one of those already..." Finding the perfect birthday present for Bernie is no easy task



























Kimi Räikkönen has to stay sat on that chair until he promises to change those shorts

Indian Grand Prix stats

The lowdown on everything you need to know from the weekend at Buddh International...

THE GRID

| | |
|--|--|
|  1. VETTEL RED BULL 1m25.283secs Q3 |  2. WEBBER RED BULL 1m25.327secs Q3 |
|  3. HAMILTON McLAREN 1m25.544secs Q3 |  4. BUTTON McLAREN 1m25.659secs Q3 |
|  5. ALONSO FERRARI 1m25.773secs Q3 |  6. MASSA FERRARI 1m25.857secs Q3 |
|  7. RÄIKKÖNEN LOTUS 1m26.236secs Q3 |  8. PÉREZ SAUBER 1m26.360secs Q3 |
|  9. MALDONADO WILLIAMS 1m26.713secs Q3 |  10. ROSBERG MERCEDES NO TIME IN Q3 |
|  11. GROSJEAN LOTUS 1m26.136secs Q2 |  12. HÜLKENBERG FORCE INDIA 1m26.241secs Q2 |
|  13. SENNA WILLIAMS 1m26.331secs Q2 |  14. SCHUMACHER MERCEDES 1m26.574secs Q2 |
|  15. RICCIARDO TORO ROSSO 1m26.777secs Q2 |  16. DI RESTA FORCE INDIA 1m26.989secs Q2 |
|  17. KOBAYASHI SAUBER 1m27.219secs Q2 |  18. VERGNE TORO ROSSO 1m27.525secs Q1 |
|  19. PETROV CATERHAM 1m28.756secs Q1 |  20. KOVALAINEN CATERHAM 1m29.500secs Q1 |
|  21. GLOCK MARUSSIA 1m29.613secs Q1 |  22. DE LA ROSA HRT 1m30.592secs Q1 |
|  23. KARTHIKEYAN HRT 1m30.593secs Q1 |  24. PIC MARUSSIA 1m30.662secs Q1 |

THE RACE



THE RESULTS (60 LAPS)

| | | | |
|------|--------------------|-------------|-----------------|
| 1st | Sebastian Vettel | Red Bull | 1h31m10.744s |
| 2nd | Fernando Alonso | Ferrari | +9.437s |
| 3rd | Mark Webber | Red Bull | +13.217s |
| 4th | Lewis Hamilton | McLaren | +13.909s |
| 5th | Jenson Button | McLaren | +26.266s |
| 6th | Felipe Massa | Ferrari | +44.674s |
| 7th | Kimi Räikkönen | Lotus | +45.227s |
| 8th | Nico Hülkenberg | Force India | +54.998s |
| 9th | Romain Grosjean | Lotus | +56.103s |
| 10th | Bruno Senna | Williams | +74.975s |
| 11th | Nico Rosberg | Mercedes | +81.694s |
| 12th | Paul Di Resta | Force India | +82.815s |
| 13th | Daniel Ricciardo | Toro Rosso | +86.064s |
| 14th | Kamui Kobayashi | Sauber | +86.495s |
| 15th | Jean-Eric Vergne | Toro Rosso | +1 lap |
| 16th | Pastor Maldonado | Williams | +1 lap |
| 17th | Vitaly Petrov | Caterham | +1 lap |
| 18th | Heikki Kovalainen | Caterham | +1 lap |
| 19th | Charles Pic | Marussia | +1 lap |
| 20th | Timo Glock | Marussia | +2 laps |
| 21st | Narain Karthikeyan | HRT | +2 laps |
| 22nd | Michael Schumacher | Mercedes | 38 laps - g'box |

Retirements

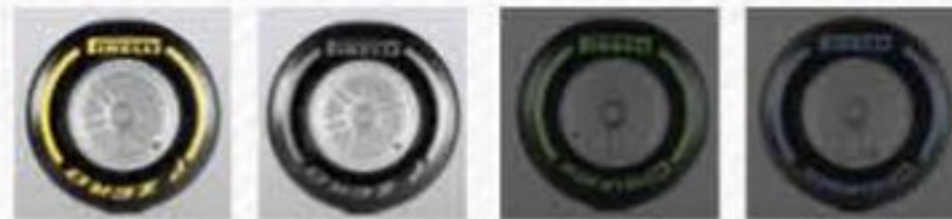
| | | |
|------------------|--------|------------------|
| Pedro de la Rosa | HRT | 42 laps - brakes |
| Sergio Pérez | Sauber | 20 laps - damage |

THROUGH SPEED TRAP



| | |
|--|--|
| Fastest Jean-Eric Vergne, 200.62mph | Slowest Kimi Räikkönen, 192.92mph |
|--|--|

TYRE COMPOUNDS USED



Soft Hard Intermediate Wet

CLIMATE

Sunny hazy 30°C

TRACK TEMP

35°C



FASTEST LAP

Jenson Button, lap 60, 1min 28.203secs



FASTEST PITSTOP

Sebastian Vettel, 20.707secs (entry to exit)

DRIVERS' STANDINGS

| | | | |
|------|--------------------|-------------|--------|
| 1st | Sebastian Vettel | Red Bull | 240pts |
| 2nd | Fernando Alonso | Ferrari | 227pts |
| 3rd | Kimi Räikkönen | Lotus | 173pts |
| 4th | Mark Webber | Red Bull | 167pts |
| 5th | Lewis Hamilton | McLaren | 165pts |
| 6th | Jenson Button | McLaren | 141pts |
| 7th | Nico Rosberg | Mercedes | 93pts |
| 8th | Romain Grosjean | Lotus | 90pts |
| 9th | Felipe Massa | Ferrari | 89pts |
| 10th | Sergio Pérez | Sauber | 66pts |
| 11th | Kamui Kobayashi | Sauber | 50pts |
| 12th | Nico Hülkenberg | Force India | 49pts |
| 13th | Paul Di Resta | Force India | 44pts |
| 14th | Michael Schumacher | Mercedes | 43pts |
| 15th | Pastor Maldonado | Williams | 33pts |
| 16th | Bruno Senna | Williams | 26pts |
| 17th | Jean-Eric Vergne | Toro Rosso | 12pts |
| 18th | Daniel Ricciardo | Toro Rosso | 9pts |
| 19th | Timo Glock | Marussia | 0pts |
| 20th | Heikki Kovalainen | Caterham | 0pts |
| 21st | Vitaly Petrov | Caterham | 0pts |
| 22nd | Jérôme D'Ambrosio | Lotus | 0pts |
| 23rd | Charles Pic | Marussia | 0pts |
| 24th | Narain Karthikeyan | HRT | 0pts |
| 25th | Pedro de la Rosa | HRT | 0pts |

CONSTRUCTORS' STANDINGS

| | | | | | |
|---|-------------|--------|----|----------|------|
| 1 | Red Bull | 407pts | 10 | Marussia | 0pts |
| 2 | Ferrari | 316pts | 11 | Caterham | 0pts |
| 3 | McLaren | 306pts | 12 | HRT | 0pts |
| 4 | Lotus | 263pts | | | |
| 5 | Mercedes | 136pts | | | |
| 6 | Sauber | 116pts | | | |
| 7 | Force India | 93pts | | | |
| 8 | Williams | 59pts | | | |
| 9 | Toro Rosso | 21pts | | | |



For comprehensive F1 statistics visit www.forix.com

RACE DEBRIEF by Pat Symonds

Abu Dhabi Grand Prix

04.11.2012 / Yas Marina

Kimi's first win since Spa '09... Vettel drives from 23rd to third... Fourth retirement of 2012 for Lewis



"I know what I'm doing"

Kimi makes his feelings known to his team over the radio. When he dishes up a victory like this, you have to admit that he's right

The contrasts experienced by the F1 circus are stark at the best of times, but this is never more apparent than at the sequence of races that starts in the far eastern side of the Northern Hemisphere and ends in the western side of the Southern Hemisphere. The disparities in climate and culture alone are possibly enough to justify the title of 'world championship'.

Abu Dhabi forms part of this microcosm and exerts its own influences over drivers, engineers and team bosses alike. Drivers may enjoy the opulence of the Yas Marina setting, but they do not have the same enthusiasm for the track.

Overtaking isn't easy here and Mark Webber has described the circuit as a 'car park', which, while it might be a slight exaggeration, does convey the general feeling in the graphic way for which Mark is renowned.

On paper, the circuit should not be the subject of such criticism. Sector 1 actually contains a couple of 170mph corners and the long straights followed by slow corners that make up sector 2 are characteristics that most believe promote overtaking. In spite of this, few will forget the dreadful pre-DRS race that was a major contributor to Alonso losing the world championship in 2010.

The irony of that 2010 race will not have been lost on Alonso. Arriving in Abu Dhabi that year, he was odds-on favourite for the title. An awful race which, despite criticism of the strategy employed was largely down to unfavourable circumstances, completely thwarted his championship chances. Vettel, who won on that occasion, went on to claim his first title. This year, the situation was reversed. Vettel had everything to lose and Alonso, who had been supremely confident over the past few weeks in spite of his car's performance deficit, was relishing the chase. At the time, neither driver was to know that the situation would take such an unexpected turn by Saturday evening.

With Abu Dhabi's track surface being similar to that in Melbourne and Shanghai, Pirelli chose to bring the same medium and soft compounds to the Middle East. These compounds had been difficult to manage at those two early races but such is the complexity of tyre science that the same concerns were not present in Abu Dhabi. True, the circuit layouts are different, with Abu Dhabi having a much higher longitudinal energy demand, but it is, without a doubt, a measure of how all the teams have improved their thermal management and general understanding of the tyres, that after Friday practice the talk in the paddock was of a one-stop race.

Those ever-more important Friday practice sessions were relatively straightforward. A number of teams were experimenting with ideas and data acquisition more with a view to their rapidly evolving 2013 cars than their current models. But a number of significant upgrades were also seen.

Ferrari followed up their new floor, first seen the previous weekend in India, with an all-new front-wing system featuring a new main plane, flap and endplates. It represented a significant upgrade effort, particularly as it was complemented by a revised rear wing and modified forward barge boards. It is a measure both of the massive resources that Ferrari have available and the enormous will that they have to fight this championship to the bitter end.

At the other end of the field, Caterham also had a revised car featuring modified exhausts and bodywork as well as new front brake ducts and revisions to the floor, diffuser and front wing. Their battle with Marussia may not attract as much attention as the one at the front of the grid but, to them, it is just as important.

The pace shown during the Friday sessions gave some indications of form, with both McLaren drivers at the front in first practice, while Vettel moved to the front in the afternoon. Of greater significance, as in India the week before, were long runs accomplished on the soft tyres. The degradation was either zero or negative, again pointing toward a one-stop race.

Saturday morning saw Hamilton stamping his authority once more by the considerable margin of 0.3secs from his team-mate. Sebastian, however, managed an impressive fourth place on the second of only three timed laps after sitting out most of the session with brake problems.

The first part of qualifying was much as expected but the second was surprising in that it ended the aspirations of both Sauber and Force India, each battling for the honour, and cash, of sixth place in the constructors' championship.

The pole shoot-out was never going anywhere but to Hamilton. He was supreme on every lap and didn't even need his final lap, peeling off back to the pits when he realised he was unchallenged. Webber pipped Vettel for second, while Maldonado was a surprising yet impressive fourth. The on-board camera on Alonso's Ferrari showed just how hard he had to work to achieve even a distant seventh-fastest.

The drama did not end at the flag, however, as Vettel stopped on his in-lap. He was low on fuel and the FIA were unable to extract the required amount from his car, which resulted in his demotion to the back of the grid. With →

View from the paddock

Ferrari's uphill struggle

As the season nears its conclusion, you can't fault Ferrari's work ethic as they try to keep the pressure on Red Bull. Twice over the Abu Dhabi weekend the Scuderia broke the FIA-imposed curfew brought in to ensure all-nighters are a thing of the past. Each team is allowed four 'jokers' in a season, but no team has used two in one weekend.

On the car, Alonso had a revised front wing, new turning vanes and a new rear wing. Maranello are pushing hard, perhaps mindful in Abu Dhabi of their loss here to Vettel of the 2010 world championship.

There have been furrowed brows in the Ferrari camp lately, so you can imagine their joy at document 41 of the Abu Dhabi GP from the FIA stewards to the Red Bull team manager, excluding Vettel from qualifying.

Frowns had returned by Sunday evening after Vettel's tremendous comeback drive. Winning titles against Red Bull isn't easy.

James Roberts

The story of the race

V
Vettel starts from the pitlane, while Hamilton leads from P1, with Kimi snatching P2 from Webber by Turn 1

YAS MARINA



V
The Safety Car comes out as Rosberg goes flying over Karthikeyan when the HRT driver comes off the power

>
Lap 20 sees race leader Lewis Hamilton retire from a dominant lead due to fuel-pressure problems



<
Kimi inherits the lead and Alonso passes Maldonado for second. By now, Vettel is 24 seconds behind in 15th

>
Having collided first with Senna then, while following the Safety Car, a DRS board, Vettel takes advantage of a second Safety Car to charge into fourth, using his fresher rubber to pass Button and claim an unlikely third place



<
Räikkönen stays ahead of Alonso to claim Lotus's first win in their new incarnation

MAIN PHOTO: LORENZO BELLANCA/LAT; ILLUSTRATION: ALAN ELDRIDGE; INSETS: STEVEN TEE/LAT; STEVE ETHERINGTON/LAT; ANDREW FERRARO/LAT; ANDY HONE/LAT

this penalty in place, Red Bull sensibly chose to mitigate the disadvantage by taking the car out of parc fermé to allow a change to a lower-drag aerodynamic setup with a change of gear ratios to suit. This meant a start from the pitlane, but gave Vettel a much better chance of making his way back up through the field.

As the lights went out, Webber hesitated and Hamilton led away from the fast-starting Räikkönen. Further back, the two Force India cars contrived to collide while Grosjean was involved in yet another first-lap incident as he touched Rosberg, sustaining a puncture in the process. Even Vettel was in the wars: contact with Senna damaged Vettel's front wing and punctured Senna's tyre.

As the race settled down, Hamilton began stamping his authority, pulling out a useful lead on Räikkönen. However, on lap 8, the race changed dramatically as Karthikeyan slowed with a hydraulic problem that caused Rosberg, recovering from his first-lap stop, to launch over the top of him and into the barrier. It brought out the Safety Car and Vettel, who had now made it back up to 13th, had the decision as to whether or not to change his nose made for him when he swerved to avoid Ricciardo. In so doing he hit a polystyrene sign, which finished off his

already-damaged front wing and forced a stop to fit the softer tyres, with which to start his climb again.

The face of the race changed again on lap 20 as Hamilton stopped by the side of the track with a fuel-pressure problem. Räikkönen swept into the lead from Maldonado and a close-following Alonso, who almost immediately grabbed second. Vettel by this time was already up to 12th.

Webber was next to challenge Maldonado but they chose to occupy the same part of the track, which sent the Australian spinning. Button fared better, taking third place on lap 24. Webber was in the wars again when he hit Massa, allowing Vettel to close within three seconds.

Alonso was the first of the top six to pit, emerging behind Vettel who, as the others pitted, was in second place. Button was on Alonso's tail and trying hard but fruitlessly to overtake. The main focus was on whether Sebastian could run to the end and that was answered when he stopped on lap 37 rather than risking a potential tyre problem late in the race. He emerged fourth but with a 14-second deficit to Button. It must have been Vettel's lucky day: another Safety Car



Lewis takes the time to console his team after his race weekend comes to an abrupt halt for the fourth time this year

caused by a multi-car accident that eliminated Webber allowed him to close the gap. This ultimately meant that Button was a sitting duck for Vettel's fresher tyres and he swept through to third three laps from the end.

Räikkönen's victory had been anticipated all year, but who would have believed on Sunday morning that he would be followed home by Alonso and Vettel? Ultimately, even a circuit that is open to criticism, and tyres that were too conservative, could not conspire to spoil an incredible race and keep this ever-changing championship relatively open as we head west for the final rounds. 🏁

The GP you didn't see on TV

Taking you behind the scenes at Yas Marina as the weekend unfolded



Olympic Heptathlon golden girl, Jessica Ennis, brings a little bit of luck to Jenson's MP4-27. It's a shame for Lewis she didn't have time to do the same to his car as well



An informal catch-up between team principals, as McLaren's Martin Whitmarsh stops by for a chinwag with Sir Frank



Prost explains the rules to Lauda: "In Top Trumps, my four titles would beat your three"



















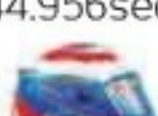


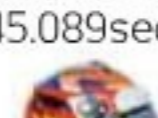




Ah, nothing says you support Vitaly Petrov more than a blue and white wig and an enormous inflatable hand...

Abu Dhabi Grand Prix stats

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

THE GRID

| | |
|--|---|
|  2. WEBBER RED BULL 1m40.978secs Q3 |  1. HAMILTON McLAREN 1m40.630secs Q3 |
|  4. RÄIKÖNEN LOTUS 1m41.260secs Q3 |  3. MALDONADO WILLIAMS 1m41.226secs Q3 |
|  6. ALONSO FERRARI 1m41.582secs Q3 |  5. BUTTON McLAREN 1m41.290secs Q3 |
|  8. MASSA FERRARI 1m41.723secs Q3 |  7. ROSBERG MERCEDES 1m41.603secs Q3 |
|  10. HÜLKENBERG FORCE INDIA 1m42.019secs Q2 |  9. GROSJEAN LOTUS 1m41.778secs Q3 |
|  12. DI RESTA FORCE INDIA 1m42.218secs Q2 |  11. PÉREZ SAUBER 1m42.084secs Q2 |
|  14. SENNA WILLIAMS 1m42.330secs Q2 |  13. SCHUMACHER MERCEDES 1m42.289secs Q2 |
|  16. RICCIARDO TORO ROSSO 1m42.765secs Q2 |  15. KOBAYASHI SAUBER 1m42.606secs Q2 |
|  18. KOVALAINEN CATERHAM 1m44.956secs Q1 |  17. VERGNE TORO ROSSO 1m44.058secs Q1 |
|  20. PETROV CATERHAM 1m45.151secs Q1 |  19. PIC MARUSSIA 1m45.089secs Q1 |
|  22. DE LA ROSA** HRT 1m45.766secs Q1 |  21. GLOCK MARUSSIA 1m45.426secs Q1 |
|  VETTEL* RED BULL NO TIME |  23. KARTHIKEYAN HRT 1m46.382secs Q1 |

*Excluded from qualifying. Permitted to start from the pitlane

**Started from pitlane.

THE RACE



THE RESULTS (55 LAPS)

| | | | |
|------|--------------------|-------------|--------------|
| 1st | Kimi Räikkönen | Lotus | 1h45m58.667s |
| 2nd | Fernando Alonso | Ferrari | +0.852s |
| 3rd | Sebastian Vettel | Red Bull | +4.163s |
| 4th | Jenson Button | McLaren | +7.787s |
| 5th | Pastor Maldonado | Williams | +13.007s |
| 6th | Kamui Kobayashi | Sauber | +20.076s |
| 7th | Felipe Massa | Ferrari | +22.896s |
| 8th | Bruno Senna | Williams | +23.542s |
| 9th | Paul Di Resta | Force India | +24.160s |
| 10th | Daniel Ricciardo | Toro Rosso | +27.463s |
| 11th | Michael Schumacher | Mercedes | +28.075s |
| 12th | Jean-Eric Vergne | Toro Rosso | +34.906s |
| 13th | Heikki Kovalainen | Caterham | +47.764s |
| 14th | Timo Glock | Marussia | +56.473s |
| 15th | Sergio Pérez | Sauber | +56.768s |
| 16th | Vitaly Petrov | Caterham | +64.595s |
| 17th | Pedro de la Rosa | HRT | +71.778s |

Retirements

| | | |
|--------------------|-------------|-------------------------|
| Charles Pic | Marussia | 41 laps - engine |
| Romain Grosjean | Lotus | 37 laps - accident |
| Mark Webber | Red Bull | 37 laps - accident |
| Lewis Hamilton | McLaren | 19 laps - fuel pressure |
| Narain Karthikeyan | HRT | 7 laps - accident |
| Nico Rosberg | Mercedes | 7 laps - accident |
| Nico Hülkenberg | Force India | 0 laps - accident |

THROUGH SPEED TRAP



Fastest Pastor Maldonado, 201.79mph
Slowest Lewis Hamilton, 185.45mph

TYRE COMPOUNDS USED



CLIMATE



TRACK TEMP



FASTEST LAP

Sebastian Vettel, lap 54, 1min 43.964secs



FASTEST PITSTOP

Mark Webber, 19.066secs (entry to exit)

DRIVERS' STANDINGS

| | | | |
|------|--------------------|-------------|--------|
| 1st | Sebastian Vettel | Red Bull | 255pts |
| 2nd | Fernando Alonso | Ferrari | 245pts |
| 3rd | Kimi Räikkönen | Lotus | 198pts |
| 4th | Mark Webber | Red Bull | 167pts |
| 5th | Lewis Hamilton | McLaren | 167pts |
| 6th | Jenson Button | McLaren | 153pts |
| 7th | Felipe Massa | Ferrari | 95pts |
| 8th | Nico Rosberg | Mercedes | 93pts |
| 9th | Romain Grosjean | Lotus | 90pts |
| 10th | Sergio Pérez | Sauber | 66pts |
| 11th | Kamui Kobayashi | Sauber | 58pts |
| 12th | Nico Hülkenberg | Force India | 49pts |
| 13th | Paul Di Resta | Force India | 46pts |
| 14th | Pastor Maldonado | Williams | 43pts |
| 15th | Michael Schumacher | Mercedes | 43pts |
| 16th | Bruno Senna | Williams | 30pts |
| 17th | Jean-Eric Vergne | Toro Rosso | 12pts |
| 18th | Daniel Ricciardo | Toro Rosso | 10pts |
| 19th | Timo Glock | Marussia | 0pts |
| 20th | Heikki Kovalainen | Caterham | 0pts |
| 21st | Vitaly Petrov | Caterham | 0pts |
| 22nd | Jérôme D'Ambrosio | Lotus | 0pts |
| 23rd | Charles Pic | Marussia | 0pts |
| 24th | Narain Karthikeyan | HRT | 0pts |
| 25th | Pedro de la Rosa | HRT | 0pts |

CONSTRUCTORS' STANDINGS

| | | | | | |
|---|-------------|--------|----|----------|------|
| 1 | Red Bull | 422pts | 10 | Marussia | 0pts |
| 2 | Ferrari | 340pts | 11 | Caterham | 0pts |
| 3 | McLaren | 318pts | 12 | HRT | 0pts |
| 4 | Lotus | 288pts | | | |
| 5 | Mercedes | 136pts | | | |
| 6 | Sauber | 124pts | | | |
| 7 | Force India | 95pts | | | |
| 8 | Williams | 73pts | | | |
| 9 | Toro Rosso | 22pts | | | |



For comprehensive F1 statistics visit www.forix.com

The US GP preview

18.11.2012 / Circuit of The Americas

Drivers will have spent time in simulators trying to establish a basic setup, but the fact remains that this is a brand-new track and therefore a step into the unknown...

The Circuit of The Americas (COTA) in Austin, Texas, is the sixth new track to appear on the F1 calendar in five years, so the teams and drivers are by now well-accustomed to adapting quickly to the challenge a new circuit presents.

As is the case with most of F1's newest tracks, Hermann Tilke is responsible for the design and build of this one, too, and it carries many of his trademarks. The Turn 12 hairpin at the end of

a long straight, for example, is something that Tilke has previously used in Malaysia, China, Korea and India to encourage overtaking.

None of the circuit's 3.42 miles will be much of a surprise to the drivers, who will have spent time driving it in their simulators to establish a baseline setup. What they will learn on the Friday and Saturday are the nuances of the track – things such as the height and location of kerbs.

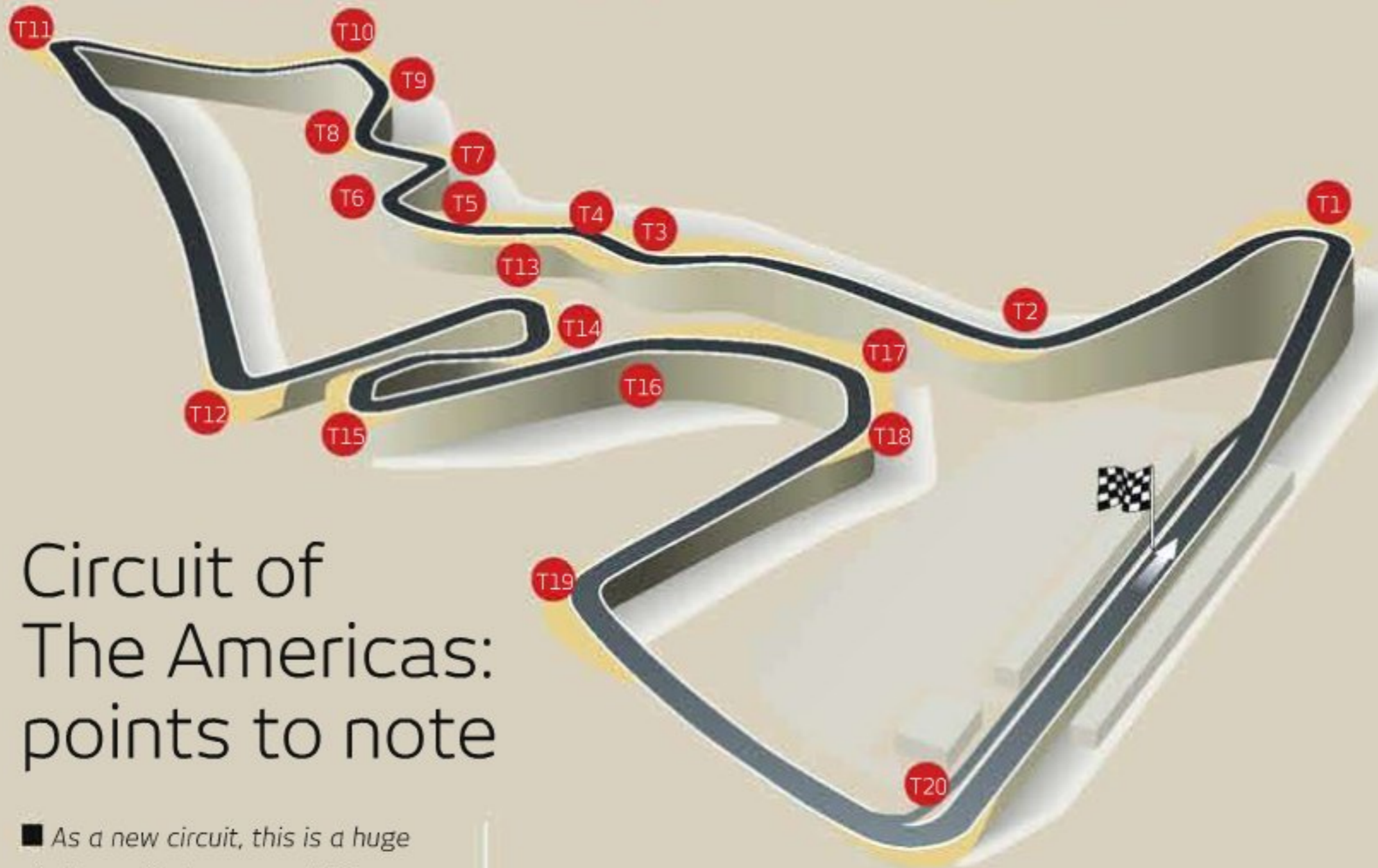
Something all the drivers will seek to avoid is an accident that will wipe out track time. As more rubber goes down, the track evolves and if a driver is forced to sit out a session, he'll struggle to find the correct setup for the conditions. In circumstances where the track changes so rapidly, experienced drivers will come to the fore due to their innate feel for how things change from one day to the next.

Mario Andretti was the first to give the new circuit a go, in a classic Lotus 79





All you need to know about the Circuit of The Americas



Circuit of The Americas: points to note

- As a new circuit, this is a huge challenge for teams and drivers
- All knowledge will be based primarily on simulation tools so it will be interesting to see which team starts FP1 closest to optimum
- Track evolution should be high as the grip level will change a lot between FP1 and the race itself

■ It's an interesting circuit layout. There's uphill braking into T1, a challenging sequence of decreasing-speed corners from T3-9 with a long straight and low-speed corners preceding and following, and then

a series of long-radius corners to finish the lap
 ■ T1 is tricky due to elevation change
 ■ T11 is important for speed down the straight and helping to create overtaking opportunities



Mark Gillan
Williams' chief operations engineer

CAR SETUP

"Before heading off to a new circuit, we need as much track-data information as possible to build up a detailed virtual model of the circuit. We have run various simulations on the new track to establish theoretical optimal baseline setups for both the mechanical and aerodynamic

aspects of the car. Normally our simulations are very accurate and the car tends to deviate little from the theoretical optimal car setup.

"As is the case for any new circuit we go to, it is important that we understand the track evolution and tyre performance for our race strategy, given that we have no historic database to call upon. The driver plays a big part in this and in directing setup. We have hundreds of sensors on the car but the driver is effectively your best-calibrated sensor of all. As such, their feedback is incredibly important."



Mark Barnett
Williams' strategy engineer

RACE STRATEGY

"One of the first things you do when you arrive at a new circuit is to practise your pit entry and exit. Nowadays the pit time is so crucial that you need the driver to get the best times he can.

"Another big consideration is the rubber. The surface of a new circuit changes so much between the Friday and the Sunday,

which is something that was evident in India last year. Normally we'd expect degradation levels of around a tenth of a second per lap, but on the Friday in India that was hidden because the track improved on every lap. You know the tyre is getting worse, but the track is getting better: separating the two can be difficult.

"There are other factors, too – how many cars have driven the track? Is there a lot of dust? Are there any support races over the weekend? It is hard to gauge how much the track will improve."

CIRCUIT STATS

- F1 debut** 2012
- Length** 3.427 miles
- Distance** 191.93
- Laps** 56
- Direction** Anticlockwise
- Lap record** N/A
- Full throttle** N/A
- Gear changes per lap** N/A
- Safety Car probability** N/A
- Winners from pole** N/A
- Tyre compounds**
Medium, hard

LAST YEAR

- Winner** N/A
- Runners-up** N/A
- Pole** N/A
- Fastest lap** N/A
- Retirements** N/A
- Pitstops** N/A
- Overtaking moves** N/A
- DRS overtakes** N/A
- Weather** Sunny, 26°C

PREVIOUS WINNERS

N/A

Timetable (UK time)

- Friday 16 November**
Practice 1 15:00 - 16:30
Practice 2 19:00 - 20:30

Saturday 17 November

- Practice 3 15:00 - 16:00
Qualifying 18:00

Sunday 18 November

- Race 19:00

The Brazilian GP preview



25.11.2012 / Interlagos

The season finale is an old classic, narrow and twisty with a high number of laps and high altitude to match

Interlagos first hosted the Brazilian GP in 1973 and, although the layout has changed and safety has been improved, it retains a classic feel thanks to the antiquated pit buildings and paddock. As is the case with many older tracks, Interlagos is narrow in places – particularly in the twisty infield section – and you often see drivers running off the track. The middle sector of the lap presents the best chance for the driver to make a difference to his lap time but with the kerbs changing from corner to corner it can take time to master and it's easy to overdo it.

Last year, the DRS zone was on the short straight between Turns 3 and 4 but the key overtaking spot is still Turn 1. An attempted pass usually starts with a good run out of Junção (Turn 12) up the hill and onto the pit straight. If a driver slipstreams his opponent, he should be able to have a go at outbraking the car in front into the bumpy, downhill T1. Because of the camber of the corner, drivers can easily lock a tyre on their way through here and this is part of the reason why this corner is one of F1's most spectacular passing spots.



Mark Barnett
Williams' strategy engineer

RACE STRATEGY

"This race is 71 laps long – that's a lot more laps than usual and, strangely, that does have an effect because you always think on a lap-by-lap basis. You do your degradation calculations based on how much there is per lap but all of a sudden you've got 71 laps instead of around 56.

"Another odd thing about Brazil is the small pit loss – it's a short pitlane and then you shortcut Turns 1 and 2 on the way out and blend in after Turn 3. Pit loss is less than 19 seconds, which helps if you're on multiple stops. Often it's only around five seconds difference between two strategies. If your pit loss is 19 seconds rather than 22, you've taken quite a chunk off to make an extra pitstop viable.

"Pirelli are running medium and hard tyres this year, which will open up longer stints and make rear tyre degradation more consistent. You'll still get rear degradation but it won't be as high as last year, the wear life will be better and the emphasis will shift towards making sure both compounds are in the right thermal window.

"Last year, the frontrunners tended to stop three times. A two-stopper was hard as the prime wasn't very quick. But with the slight improvements the teams have made, the preference will probably be a two-stop this year."



Mark Gillan
Williams' chief operations engineer

CAR SETUP

"In terms of car setup and running the car, Brazil is always a compromise between the high-downforce demands of the medium- to low-speed corners in sector 2 and the low-drag requirements of the long uphill sweeping turns from Turn 12 up to the start/finish straight.

We know that overtaking is possible in Brazil and we need to be careful to balance our setup direction with this in mind, while at the same time not compromising our ultimate pace.

Uniquely, Interlagos is situated over 800 metres above sea level and the atmospheric conditions at this altitude not only adversely affect the engine by reducing horsepower, but they also affect aerodynamic performance. As you'd expect, this effect is well correlated for in our simulations and preparation for the race.

The Brazilian Grand Prix represents the final race of a very long season. It's been pretty tough having three back-to-back flyaway races to end the year, but the whole crew have been working hard on their fitness levels, with input from Michael Johnson Performance, and I'm confident we won't be compromised.



Interlagos: points to note

- Data and TV analysis don't do the Interlagos circuit justice as they simply can't capture the elevation changes that make the circuit such a challenge
- This is an old-style circuit with different types of corner, apex and exit kerbs, and less asphalt run-off. Good driving is rewarded accordingly.
- The high altitude reduces engine power
- This is the final race of the season, which means there is a lot riding on both qualifying and the race itself
- Safety Cars and unpredictable weather make the outcome hard to predict
- The infield sequence needs high downforce, while T12-T1 need low drag
- T1 and T4 both offer good passing opportunities, with the long run from T12-T1 forcing an aero compromise
- High fuel is especially penalising through T4,6,7,8 and 11



All you need to know about Interlagos

CIRCUIT STATS
F1 debut 1973
Length 2.677 miles
Distance 190.067 miles
Laps 71
Direction Anticlockwise
Lap record 1min 11.473secs, J Montoya, 2004
Full throttle 74%
Gear changes per lap 40
Safety Car probability 70%
Winners from pole 10
Tyre compounds Medium, hard

LAST YEAR
Winner Mark Webber
Runners-up Sebastian Vettel, Jenson Button
Pole Sebastian Vettel, 1min 11.918secs
Fastest lap Mark Webber, 1min 15.324secs
Retirements 4
Pitstops 58
Overtaking moves 18
DRS overtakes 7
Weather Sunny, 25°C

PREVIOUS WINNERS
Michael Schumacher 4
Mark Webber 2
Felipe Massa 2
Sebastian Vettel 1
Kimi Räikkönen 1

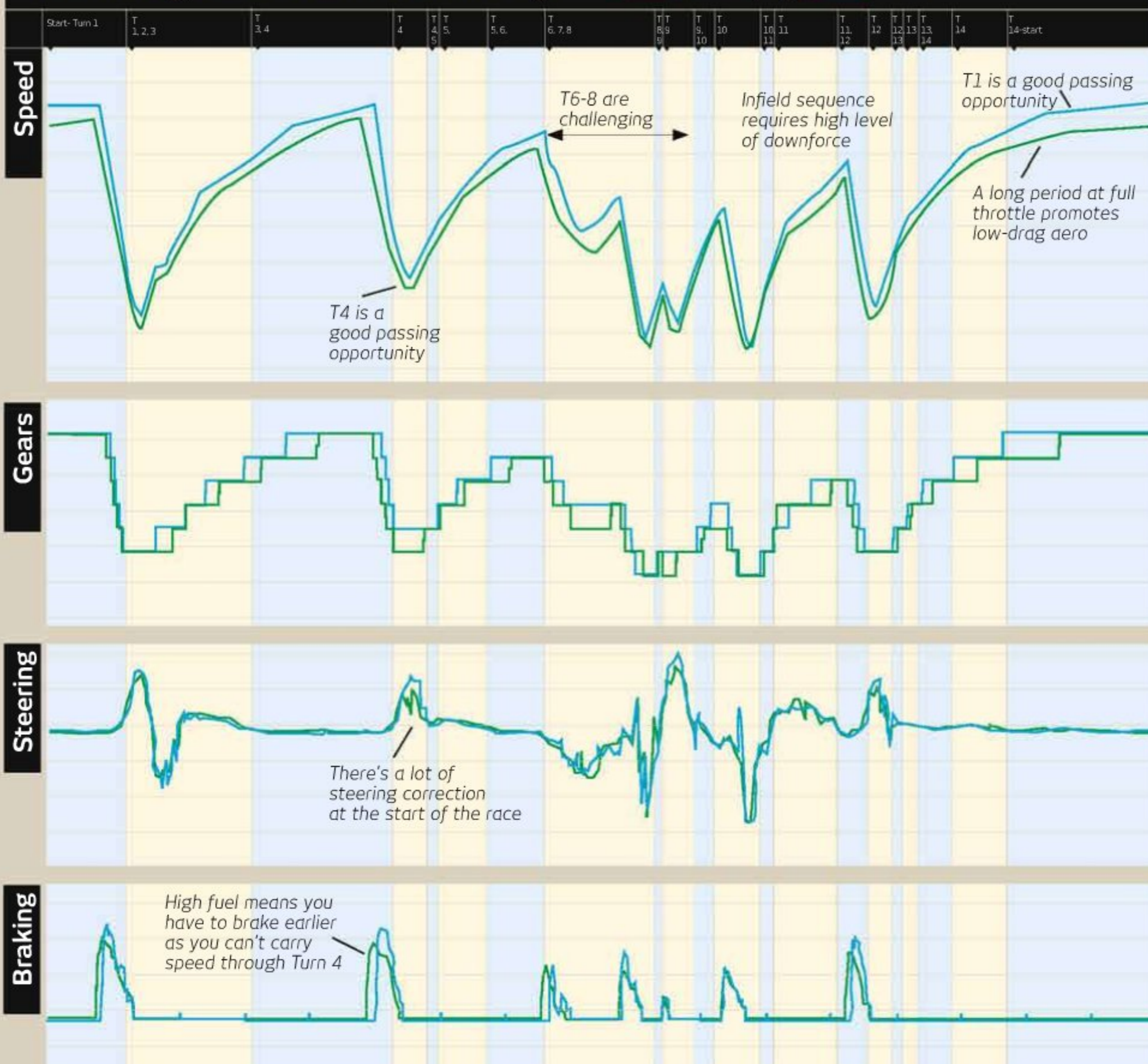
Timetable (UK time)
Friday 23 November
 Practice 1 12:00 - 13:30
 Practice 2 16:00 - 17:30

Saturday 24 November
 Practice 3 13:00 - 14:00
 Qualifying 16:00

Sunday 25 November
 Race 16:00

Interlagos track telemetry

Qualifying Race

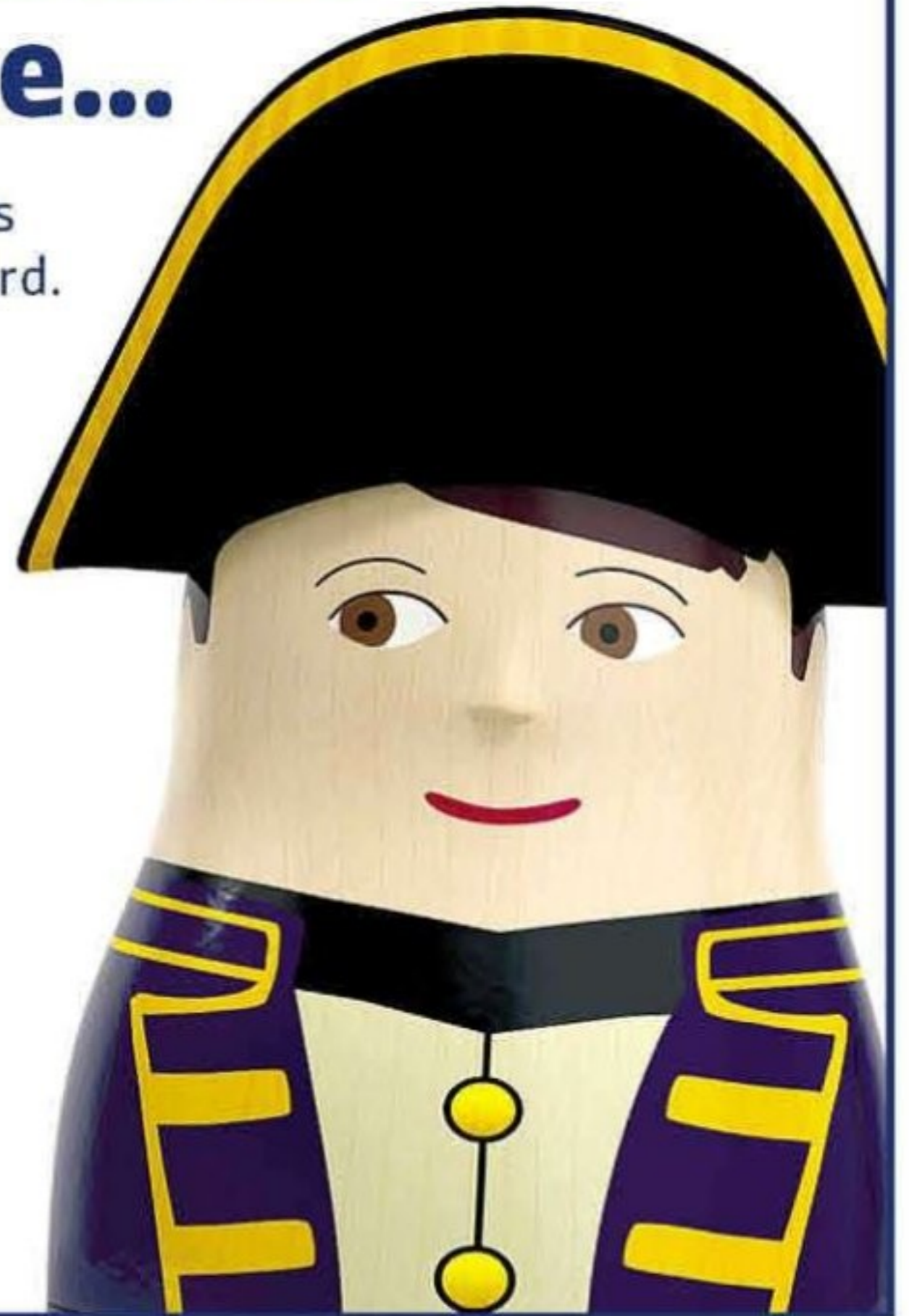


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TOM CLARKSON

Inside the paddock from our man on the road

Hülkenberg: Germany's next world champion

It's the Abu Dhabi GP 2010. Away from the mayhem of the Red Bull hospitality area, where Sebastian Vettel is celebrating his first world championship, another German driver is having a moment of quiet reflection. Nico Hülkenberg has just driven his last race for Williams and is curled up on a chair at the back of the pit garage.

Just two weeks previously, he started the Brazilian Grand Prix from pole, but it's had no effect on his chances of staying with the team. Nico has no sponsorship money and nothing lined up for 2011. He's unemployed. It's at moments like this that you get to see the real person. "You know what?" he says, "I don't blame Williams for dropping me. Keep me and let the company go under, or bring in PDVSA and save the business. It's not a difficult one, is it?" You'd forgive Nico a cross word in the direction of Adam Parr, the then chairman of Williams, but not a bad word leaves his lips. At just 23 years old, he is mature beyond his years and the ability to keep a cool head in moments of desperation such as this is what sets the real stars apart.

Fast forward to Abu Dhabi 2012. Nico is chilling at a table outside the Force India hospitality area. He's happy; a couple of hours ago he was confirmed at Sauber for 2013, and there could be strings attached. The rumour is that Ferrari have him on a bungee for 2014, just in case Felipe Massa has a mediocre season next year and Sebastian Vettel can't wriggle out of his Red Bull contract. Life is good.

"I'm excited about next season," he says. "This year's Sauber has been good and with the rules not really changing over the winter, I hope the team can maintain the momentum into 2013. But I need to thank everyone at Force India for giving me the

"Nico oozes star quality and is the most exciting young talent on the grid"

Hülkenberg has that rare mix of dogged determination and flamboyance that sets Alonso apart, and a similar temperament to Jenson Button: he doesn't get overly depressed when things aren't going well (Abu Dhabi 2010) and he doesn't get overly excited when things are good (Abu Dhabi 2012). He oozes star quality, which is why he's the most exciting young talent on the grid on a list that includes Sergio Pérez, Paul Di Resta and Romain Grosjean.

He is Germany's next world champion: remember where you read it first.



Sauber next season... Ferrari in 2014?

opportunity to get my career back on the road; it's been great." He judges the mood perfectly; he says the right thing at the right time. Such diplomacy will go down well in Switzerland.

All that remains is for Nico to get the job done in the car, and the omens are good. He's got the better of his Force India team-mate Paul Di Resta over 2012, and you'd back him against Kamui Kobayashi or Esteban Gutiérrez next year, depending on which one ends up as his team-mate. In fact, I believe he'd give Alonso something to think about too, were they to become Ferrari team-mates in 2014...

GIVE VIJAY A BREAK

People were knocking Vijay Mallya over the weekend of the Indian GP. Local hacks were keen to nail him for problems associated with his Kingfisher Airlines and segments of the F1 media centre joined in the mud-slinging. Vijay might not be everyone's cup of tea, but, as F1 journalists, let's keep it objective. Force India are a competitive upper-midfield team; their staff are getting paid and they do a good job. We should be praising Vijay for his commitment and loyalty to F1, not highlighting difficulties elsewhere in his business empire.



BACK-UP'S ON ITS WAY FOR BRAUN

During Ross Brawn's most successful Ferrari years, he had CEO Jean Todt to protect him from the politics of manufacturer-owned teams. At Mercedes, he hasn't had that buffer and success hasn't followed. The arrival of Niki Lauda as non-executive chairman is intended to help with this, thanks to his past senior F1 management roles at Ferrari and Jaguar. For Niki, this is surely a win-win situation: if Mercedes' fortunes pick up, he can share the plaudits. If they remain as they are, he is hardly to blame...



Ross Brawn has got Hamilton and Lauda on board for 2013

PHOTOS: CHARLES COATES/LAT; STEVEN TEE/LAT

MURRAY WALKER



UNLESS I'M VERY MUCH MISTAKEN...

"I do feel sorry for Michael. His enormously active racing life is about to fizzle out like a damp squib"

Strange though it may seem, I do feel sorry for Michael Schumacher. How is that, when he is one of the greatest racing drivers the world has seen – many would say *the* greatest – with an unrivalled seven world championships and 91 race wins to his credit? Why do I feel sorry for him when he has broken just about every record in the book, has more than enough money to last him for the rest of his life, the respect and adulation of millions of people all over the world and a happy family and a secure home life?

Well, it's because I think his enormously active racing life is everything to Michael and that, with just a handful of races to go, it is about to fizzle out like a damp squib rather than ending on a glorious high. It's also because I think he is

going to find it very difficult to replace the glow of achievement he gets from competing at the highest level, which is Formula 1.

The vast majority of his 43 years have been lived within the heady and addictive atmosphere of international stardom, wheel-to-wheel competition, non-stop worldwide travelling, and 100 per cent devotion to every aspect of his demanding craft as he motivates himself and those around him to do better.

Others in a similar position, such as Niki Lauda, Nigel Mansell, Damon Hill and David Coulthard, appear to have coped well with the transition, but I fear it will not be so easy for Michael. And life without racing is not going to be nearly as fulfilling.

He has been there before, of course, when he retired from his glory years with Ferrari, but he soon tired of a more ordinary life. Even when he had a go at the hazardous world of motorcycle racing, for which I admired him hugely, it wasn't enough and, in 2010, he was back to the life he loved with what seemed to be a dream ticket: Michael Schumacher, Ross Brawn and the might and racing experience of Mercedes-Benz. What a combination. But three years out was a long time.

There's little doubt that, good though he still is, Michael isn't the superlative driver he once was. The competition has been tougher, the tyres have been very different and there is no longer endless testing to help get things right. All that, coupled with his new team's inability, thus far, to produce a good enough car has resulted in a disappointing and demeaning second time round for him.

So was he right to come back? Well, why not? He very much wanted to return, he was perfect for Mercedes and, in his circumstances, I doubt anyone else available could have done any better. It will be more than interesting to see whether Lewis Hamilton can be the catalyst for Mercedes success. Unless he can inspire Ross Brawn's team better than Michael did, I doubt that he will – but naturally, I hope I am wrong.

I admire and like Schumacher immensely. Not just for his achievements but as a person. I first got to know him at Macau in 1990 when he won that epic Formula 3 battle against Mika Häkkinen and I was one of those in the Jordan garage at Spa in 1991, with their jaws hanging slack, when he made his sensational Formula 1 debut.

Throughout his subsequently brilliant career he always treated me with the greatest kindness and consideration. In his Ferrari years he had the added burden of carrying Italy around on his back and his natural dignity and intensity meant he was never exactly a barrel of laughs. But in his second coming with Mercedes he's been a changed man. No less of a workaholic but more friendly, relaxed and approachable.

Is he right now to retire again? I will watch him depart F1 with great regret and respect for all that he has done. Yet sadly, his reputation will always be tinged with the less admirable aspects of his career (including Adelaide '94, Jerez '97, Monaco 2006 and Hungary 2010). But for all that, he remains one of the all-time greats. 



"Good though he still is, Michael isn't the superlative driver he once was. It's been a demeaning second time round for him"





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