

F1 RACING

KUBICA
THE COMEBACK IS ON!
Secret F1 car test is
already planned



Plus

**TARGET:
RED BULL**

How McLaren & Ferrari closed in

**AN HOUR WITH
NIKI LAUDA**

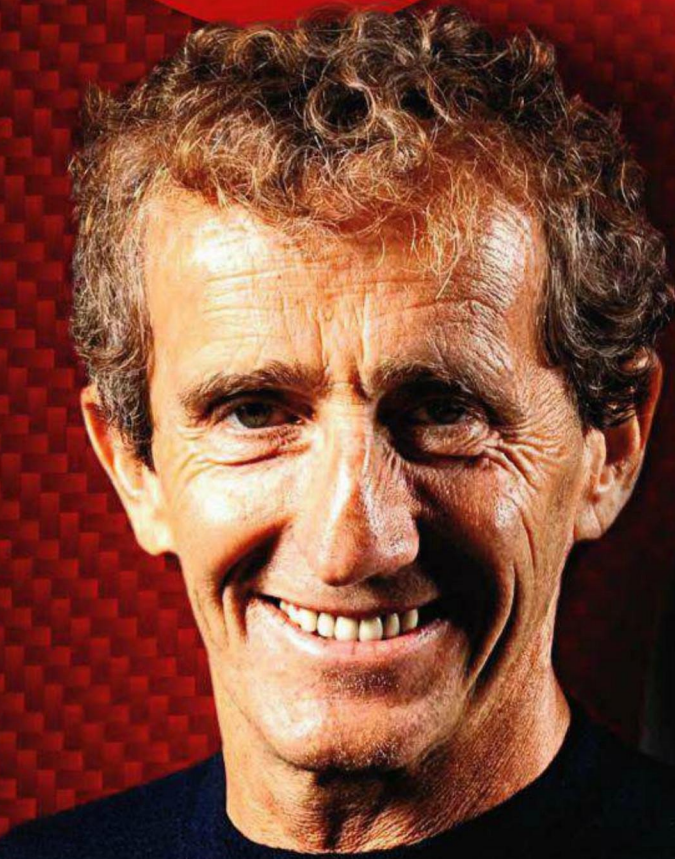
(Includes a highly amusing prank)

**'HOW I'LL MAKE
VIRGIN FASTER'**

Pat Symonds on his new challenge

**PINK AND BLUE
LIVERY? ER...**

F1's worst paint jobs



World exclusive

PROST v WEBBER

Two giants of F1 in the
strangest race of the year.

Here's what happened...

No 186 54.70 OCTOBER 2011



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COVER STORIES



44 **TARGET: RED BULL** The challenges ahead for McLaren and Ferrari



52 **PROST Vs WEBBER** They don't like to spend their holidays relaxing



70 **NIKI LAUDA** The triple world champ discusses one seriously colourful life



84 **THE PERFECT SETUP** What does it mean? And how do drivers obtain it?

FIRST SECTOR: THE REGULARS

- 6 **PARADES: THE BEST PHOTOS FROM SPA**
- 12 **FROM THE EDITOR: F1 DRIVERS AREN'T LIKE THE REST OF US**
- 15 **INBOX: YOUR MUSINGS AND RANTS**
- 16 **PITPASS: NEWS, OPINION AND ANALYSIS**
- 29 **PAT SYMONDS' TECH MASTERCLASS: ELECTRONICS**
- 31 **JACQUES VILLENEUVE: WHAT'S GOING ON WITH LEWIS?**
- 32 **MURRAY WALKER: THE 2012 DRIVER LINE-UP**
- 35 **WHATEVER HAPPENED TO... DEREK DALY (YOU WON'T GUESS)**
- 36 **THE BEST RACE I'VE BEEN TO: YOUR GRAND PRIX MEMORIES**
- 90 **WAY BACK WHEN: F1 AS IT WAS 27, 30 AND 37 YEARS AGO**
- 92 **SUBSCRIBE TO F1 RACING AND GET AN AUTOGLYM VALET KIT**
- 114 **INSIDE THE MIND OF ANTHONY DAVIDSON**

SECOND SECTOR: THE FEATURES

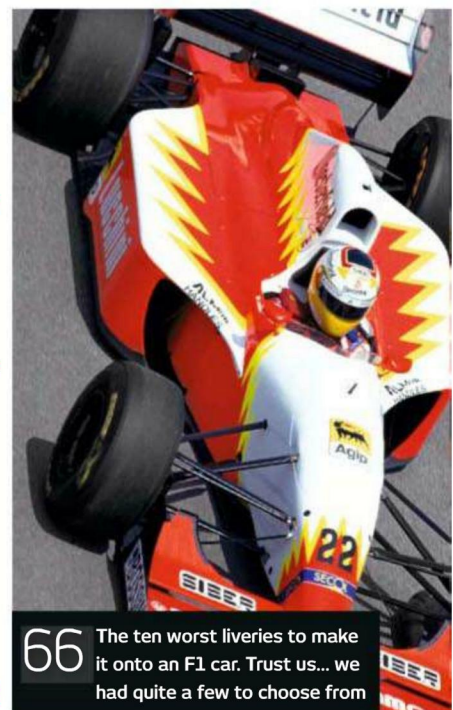
- 38 **"ROBERT STILL DREAMS ABOUT HIS QUALIFYING LAP AT SPA IN 2010"**
Renault boss Eric Boullier takes your Kubica-centric questions
- 44 **THE RACE TO CATCH RED BULL**
Tony Dodgins on how McLaren and Ferrari have closed the gap
- 50 **WALKING THE TRACK WITH DI RESTA**
F1 Racing joins the rather tall Scottish racer as he goes through his pre-race ritual – quite quickly, as it happens...
- 52 **ONE F1 LEGEND. ONE CURRENT RACER. AND ONE HUGE CHALLENGE...**
We know drivers are competitive. That must be why Alain Prost and Mark Webber decided to cycle up a very big mountain – for fun
- 62 **KERS: WAS IT REALLY WORTH IT?**
Huge amounts of money have been invested in a technology that's supposed to make F1 greener. Simon Arron investigates
- 66 **YOU'RE NOT GOING MOTOR RACING LOOKING LIKE THAT, ARE YOU?**
Sometimes people say 'it seemed a good idea at the time.' But these hideous F1 liveries were never a good idea. Ever.
- 70 **THE REMARKABLE LIFE OF NIKI LAUDA**
He chanced his way into F1, nearly died... but still won three world titles along the way. Maurice Hamilton chats to a living legend
- 78 **YOU REALLY HAVE TO VISIT THIS PLACE**
The unique charms of Ferrari's home town, Maranello
- 82 **THE £70,000 MOBILE LABORATORY FERRARI TAKE TO EVERY RACE**
How scientifically analysing fuel and oil helps performance
- 84 **HOW DO DRIVERS GO ABOUT GETTING THE RIGHT SETUP?**
It's a tricky business, so we get the lowdown from Mercedes' Nico Rosberg and chief race engineer Andrew Shovlin

THIRD SECTOR: FINISHING STRAIGHT

- 96 **BELGIAN DEBRIEF: VETTEL RETURNS TO WINNING WAYS**
- 100 **ITALIAN DEBRIEF: VETTEL KEEPS UP HIS WINNING WAYS**
- 105 **FRANK WILLIAMS: ON BERNIE, LEWIS AND PASTOR**
- 106 **ALAN HENRY THE BBC/SKY DEBATE RUMBLES ON**
- 108 **RACE PREVIEW: SINGAPORE GP**
- 110 **RACE PREVIEW: JAPAN GP**
- 112 **RACE PREVIEW: KOREA GP**



44 The relentless race to catch Red Bull: but is anyone going to be able to manage it?



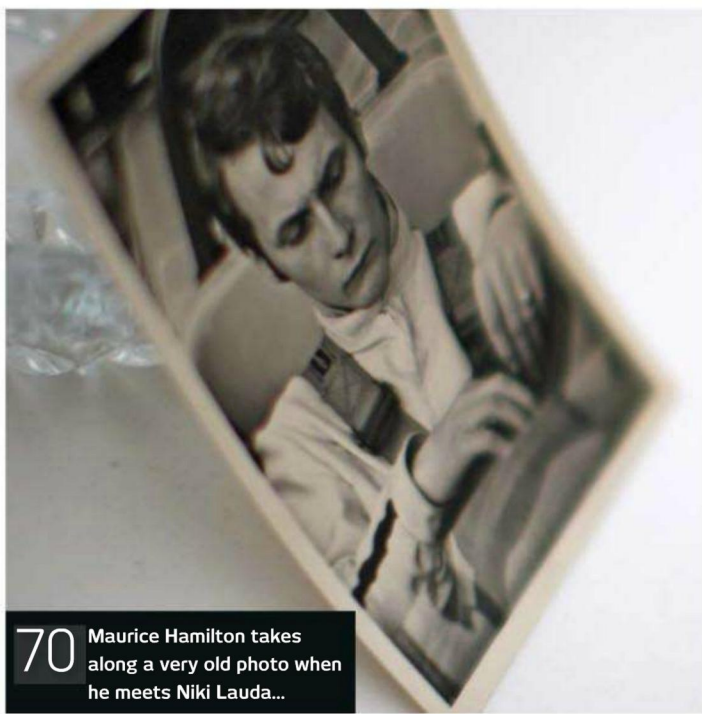
66 The ten worst liveries to make it onto an F1 car. Trust us... we had quite a few to choose from



38 Eric Boullier answers your questions – and fuels hopes for the return of Kubica

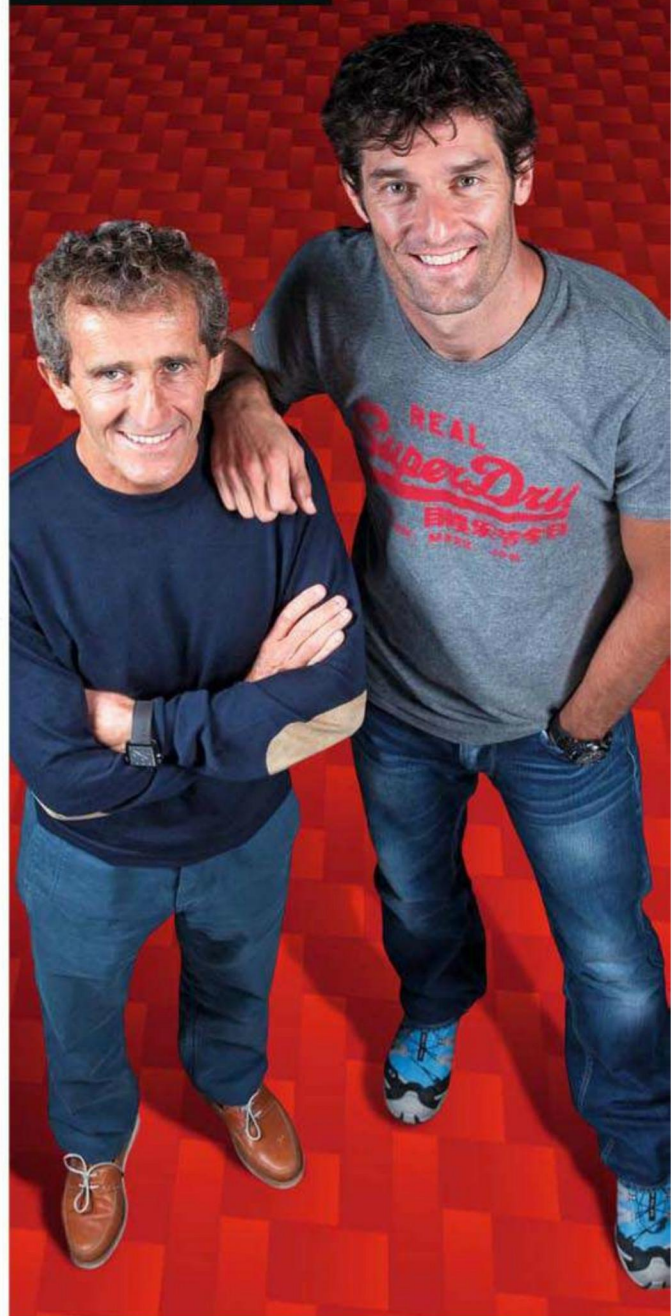


84 The ridiculously complex world of setup made simple, by Nico Rosberg



70 Maurice Hamilton takes along a very old photo when he meets Niki Lauda...

52 Prost and Webber: so who really is fastest? We reveal all...



"Last year's car is ready for Robert to test when he wants it. It's hard to give a date, but we're ready and waiting..."



Parade

Up and down Lewis Hamilton goes flat-out towards Raidillon, on his way to an impressive second in qualifying. But his race turned out to be less successful: an error passing Kamui Kobayashi on lap 13 saw the Brit crash out of the grand prix and drop down to fifth in the drivers' championship

Where Spa-Francorchamps, Belgium **When** 1.13pm, Saturday 27 August

Photographer Lorenzo Bellanca/LAT

Details Canon EOS-1D Mk IV, 600mm lens 1/500th at F5.6







Parade

The two sides of Ferrari It was a typically unpredictable weekend for the Ferrari of Fernando Alonso at Spa. Having been outqualified by both his own team-mate and Bruno Senna, Alonso steamed through from eighth to lead, but his car's difficulty on the harder tyre saw him forced to settle for fifth

Where Spa-Francorchamps, Belgium **When** 2.49pm, Sunday 28 August

Photographer Vladimir Rys/Bongarts/Getty Images

Details Canon EOS-1D Mk IV, 200mm lens 1/20th at F22



Parade

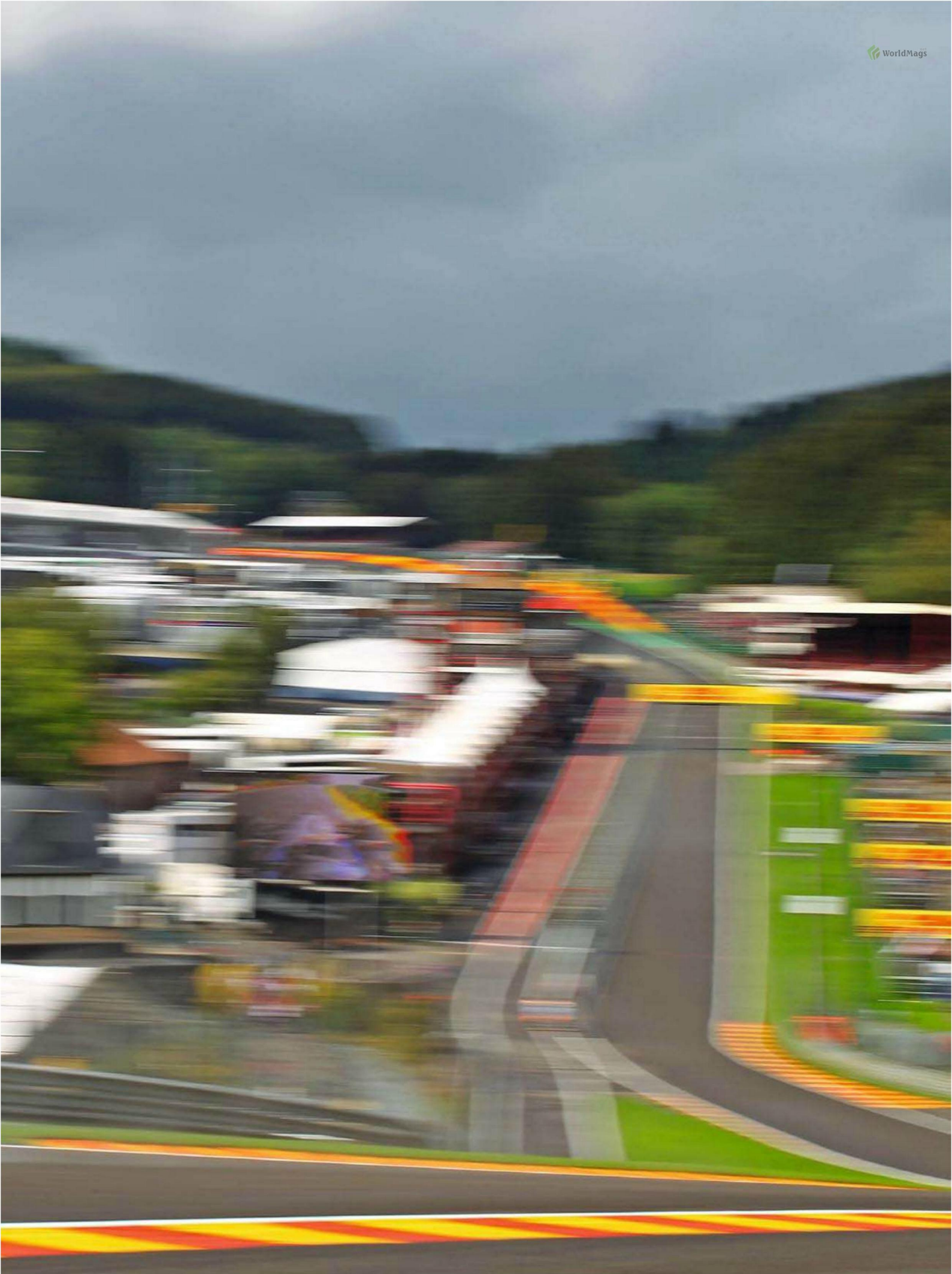
Up, up and away Sebastian Vettel entered qualifying in Belgium a man under pressure. Twenty-six hours later, he was starting the race from pole and – having not quite had things all his own way – recorded his first victory since Valencia at the end of June. Now that's how to answer your critics

Where Spa-Francorchamps, Belgium **When** 1.02pm, Saturday 27 August

Photographer Lorenzo Bellanca/LAT

Details Canon EOS-1D Mk IV, 50mm lens 1/100th at F16







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STOP AND GO / Hans Seeberg / 10.2011

F1 drivers: they're not like the rest of us mere mortals



Formula 1 drivers are a strange bunch, aren't they? They get three weeks off in August from the relentless grind of the sport's seemingly never-ending season, and what do some of them do?

Undertake unhinged physical challenges when they could be lying on a beach somewhere, that's what.

So it proved as Mark Webber rocked up in the Alps during F1's summer break to meet his hero Alain Prost and cycle up Alpe d'Huez, the most arduous climb of the Tour de France. It wasn't organised through Red Bull and there was no hidden PR agenda: Webber just wanted to do it. The exercise opened up a fascinating window into the psyche of F1 drivers past and present: their sheer resolve to push themselves further than most others; their unwavering appetite for competition; their unflinching determination to win. Alain Prost cycles 6,200 miles a year and weighs one kilo less than he did when he retired from F1 18 years ago. As Tom Clarkson points out in his cover story on page 52, this isn't the sort of bloke you'll find sitting at home on the sofa with a meat feast from Domino's.

The mental determination of the sport's very top drivers marks them out from us mere mortals, and it's the same with Robert Kubica. As driven as ever to return from his career-threatening rally accident, his sheer strength of will is discussed by Renault team boss Eric Boullier on page 38 as it's revealed that Robert could start his return in October. It would be fantastic to see him back.

Photographer Andy Tipping accosts Mark Webber and Alain Prost, before capturing their race in the Alps. See p52 for more...



Renault gov'nor Eric Boullier answers your questions on p38, such as "When's Kubica coming back?" and "Heidfeld: why?"



As unique and compelling a character as you'll find in F1, Niki Lauda discusses with Maurice Hamilton the highs and lows of his remarkable life on page 70. It's a fascinating story you have to read



Special thanks to Matteo Bonciani, Pasquale Lattunendu, Anthony Peacock, Alexandra Schieren, Matt Bishop, Steve Cooper, Silvia Hoffer Frangipane, Clare Robertson, Bradley Lord, Wolfgang Schattling, Nicola Armstrong, Sabine Kehm, Katie Tweedie, Britta Roeske, Luca Colajanni, Stefania Bocchi, Roberta Valerosi, Claire Williams, Sophie Eden, Ben Nichols, Will Hings, Eric Silberman, Fabiana Valenti, Tom Webb, Anna Goodrum, Hanspeter Brack, Heike Hientzsch, Annie Bradshaw, Tracy Novak, Andy Stobart, Maria Serrat, Aurelie Donzelot, Boardman Bikes for lending Tom Clarkson a trusty steed for Alpe d'Huez, quizzes about vegetables, storm troopers. No thanks at all to the continuing and demoralising mismanagement of Plymouth Argyle FC and rioting imbeciles who nick bags of Tesco Value basmati rice (because you'll get a fortune for that on eBay, won't you?)



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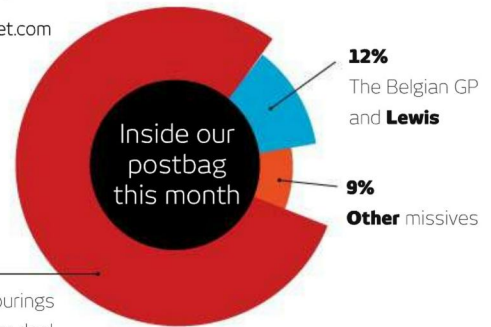
The official fuel consumption figures in mpg (l/100km) for the Mazda MX-5 range: Urban 25.4 (11.1) - 28.8 (9.8), Extra Urban 45.6 (6.2) - 50.4 (5.6), Combined 35.3 (8.0) - 39.8 (7.1). CO₂ emissions (g/km) 188 - 167

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STAR LETTER



Pérez's Monaco shunt is testament to F1's investment in safety.

Safety takes a back seat (in a good way)

Safety has always been a big factor in F1, if not *the* biggest. But with new technology such as the TecPro barriers you featured in your August issue, is it still at the front of fans' minds on race weekends? It certainly wasn't at the front of my mind when I saw Lewis Hamilton climbing out of his car unharmed, following his incident in Belgium.

After a decent start for Hamilton, for him to have a coming-together with Kamui Kobayashi and finish the race on lap 13, my initial feelings were of total disappointment, and frustration – they weren't about the safety of the driver, who was sat with the front of his car in the wall.

I saw Hamilton climbing out of his car and that's when I first thought about potential injuries. And this is my point: the modern safety barriers, improvements in the cockpit, headrests and other regulations have made this sport easier to enjoy without us having to sit watching the race in fear of what could happen in the event of something going wrong. The incident with Sergio Pérez in qualifying for the Monaco Grand Prix is testament to how much Formula 1 has developed its safety.

The incident with Hamilton also proved this to me, because I know now that safety in this sport has reached a standard where a driver can walk away from such incidents, which makes better viewing for all F1 fans. We must pay testament to the people who worked so hard to achieve this.

Lewis Jelley
via email



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Lewis Jelley wins a Super Choice Driving Voucher for Silverstone.

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Not quite the real thing

As good as Jenson Button's McLaren demo in Manchester looked, it was disappointing to see a three-year-old car being used. Teams should build an extra chassis specifically for show runs and especially at Goodwood Festival of Speed. It should be the same as the car they launch and teams wouldn't need to develop it. The fans would benefit as they could see the teams' current car up close rather than an older car with the latest livery.

George Davies
Via email

F1R: Unfortunately George, running a current car would contravene the current testing regulations...

F1 in the States? You got it...

I read with delight your account of Lewis Hamilton and Tony Stewart swapping cars at Watkins Glen (*F1 Racing*, August). Despite the gloomy weather, I was there – the sound of an F1 car going up the hill was reason enough to attend.

Thanks for your mention of the 'municipal library' filled with 'motor racing annuals and magazines'. I'm a governing council member at the International Motor Racing Research Center, and our mission is to be the world-class leader in the collection of materials representing the documentary heritage of amateur and professional motor racing. Check us out at www.racingarchives.org.

Laurence Kessler
New York, USA

PS – Thanks also for the mention of the Burger King. I own it!

You'll get used to it

F1 changes frequently and even over the past few years these changes have been huge. Everyone involved in F1 adapts and continues to do so. And, so will the fans.

Shifting part of the programming from BBC to Sky? Yes, it can be seen as a blow but when I worked Sundays years ago, I'd spend the day avoiding news of the results before watching the highlights later – it didn't kill me! And when I was watching the race on the highlights later... you know what? I was just as excited as if it was live.

I can't afford Sky but I'll adapt. Now there's a novel concept. Next year might just be a nice surprise

Andy Bottomley
Yorkshire, UK

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EXCLUSIVE

HOW I'LL HELP VIRGIN MOVE UP THE F1 GRID

It's been over a month since Virgin Racing announced they had exciting plans for their future. Now, for the first time, *F1 Racing's* technical expert **Pat Symonds** writes about his involvement with the ambitious project

"When successful Formula 3 team Manor Motorsport took the huge step of developing an F1 team, Manor GP, which was subsequently renamed Virgin Racing, they did so in the belief that F1 was set to become a cost-capped formula that would give certain performance advantages to those choosing to run under the £30million cost cap. It was not long, however, before any suggestion of performance advantages or indeed real cost-capping had disappeared, leaving the new team with a mountain to climb. In February this year, after the team had endured a tough debut season, I was approached by several of the team's investors to provide consultancy on how they could move forward. Here, for the first time, I reveal my recommendations.

My initial investigation of the situation revealed a state of affairs the like of which I had never before seen in a Formula 1 team. There was an extremely unhelpful geographical dislocation with the race team based near Sheffield, the design team in Banbury and the marketing team in central London. Nick Wirth, who was the owner of the primary design subcontractor, also sat on the board of Virgin Racing, the customer. This led to a divide that was compounded by the fact that there appeared to be no sharing of risk between the two entities. In the light of the lack of performance and the bad feeling that had grown between the groups in the first year of racing, I was faced with making some difficult recommendations.

The stakeholders in the team had a clear mission statement, but a general lack of experience was stopping them from achieving their objectives. My first recommendation was

that in order to succeed, the team needed to be in charge of their own destiny and that meant setting up a design and engineering group, owned and directed by Virgin Racing.

These days, even midfield teams have an engineering headcount that runs into the hundreds, and the top teams, even with self-imposed resource restrictions, still have staff levels of around 500. It is not the work of a moment to set up such an organisation and I developed a plan, the fruition of which was to put an engineering team in place so that Virgin Racing would design their own car for 2013. This meant that a transitional solution needed to be found to produce the 2012 car.

There were also a number of engineering procedures and philosophies that needed attention, the most well known of which was the decision to carry out all aerodynamic development in the virtual world of computational fluid dynamics (CFD). I'm not going to argue about

whether CFD or experimental testing in a windtunnel is better. They are both modelling techniques, one in the virtual domain and one in the physical. As such, they both have strengths and weaknesses and, with the current state of technology, they should complement each other to achieve success. The





18

KUBICA COULD BE SET FOR A COMEBACK

He's been out of action since his crash, but the Pole has now had all eight of his scheduled operations. We explain what the surgeons have fixed...



23

HERE'S ONE HE MADE EARLIER

What do you get if you give an F1-mad engineering student 600 hours and a big pile of cardboard? Answer: a detailed replica of the Red Bull RB7

PAT'S THREE RECOMMENDATIONS FOR SUCCESS

decision to develop the car using CFD alone was made on sound financial grounds and was essential in terms of remaining within the cost cap. But now that cap is no longer relevant, it is necessary to add an element of experimental aerodynamics to complement the CFD.

Over time, the plan developed. The hardest part was the move to autonomy. A number of options were evaluated, leading to an agreement that the team would take over the Formula 1 part of Nick Wirth's operation. So, on 4 July, Virgin moved into the former Wirth premises in Banbury, along with 62 former Wirth employees. Wirth's site will form their operational base for the next few years while a purpose built site is established.

Meanwhile, a five-year agreement has been signed with

McLaren Applied Technologies, whereby McLaren will assist the team in providing some of the background intellectual property that a startup company would normally build over a protracted period. This assistance ranges through the design and aerodynamic processes that lie within the bounds of the Concorde Agreement through some of the more unlikely areas such as procurement, human resource management and even staff fitness. In addition to this, the team will make use of the McLaren windtunnel and simulator in Woking on a regular basis from November onwards.

The design group, under the guidance of chief designer John McQuilliam and his deputy Rob Taylor, is being

1

Design Marketing Race team

GET ENTIRE OUTFIT UNDER ONE ROOF

2

DESIGN AND PRODUCE THE 2013 RACE CAR ENTIRELY IN-HOUSE

3

BOOST CFD WITH WINDTUNNEL RESEARCH

brought back up to strength while the aerodynamic group, which is headed up by Richard Taylor is being expanded and revamped to allow the experimental aerodynamic programme to complement the team's powerful CFD capabilities. A very big emphasis is being placed on the correlation between CFD, the windtunnel and full-size testing, with one aerodynamic team concentrating on this aspect alone using sophisticated flow-measurement and visualisation techniques.

The team are only too aware of the need for controlled growth and engineering integrity to achieve excellence. They have shown through their long-term plans a commitment to succeed, and I will continue to advise them while ensuring that they achieve success in the most cost-effective way possible.

The last team to make a similar jump to Formula 1 was Stewart Grand Prix. Formed in 1996, they changed first to Jaguar and then to Red Bull. Fourteen years later, the team that started out as Stewart GP became world champions. Success does not come overnight in F1, but where there is a will to succeed, sufficient finance and a healthy measure of pragmatism, there is every reason to believe that it will eventually come."

PHOTOS: GLENN DUNBAR/LAT; ANDREW FERRARO/LAT; PAUL BISCHOF

NEWS

Rebuilding Robert Kubica

The Pole has undergone eight operations since his horrific rallying crash. Here's what the surgeons have been working on



Head

You might think that an accident of this magnitude would put Kubica off racing, but the Polish star remains determined to return to a Formula 1 cockpit. On waking from his eighth and final operation, his first response was reportedly to ask for the results of the Belgian Grand Prix. He has also told Renault team principal Eric Boullier that he regularly dreams of driving an F1 car.

Right elbow & shoulder

Kubica's right elbow and shoulder were badly fractured in the crash and had to be operated on in the immediate aftermath. Later on, Kubica had reconstructive surgery on his elbow to try to recover some movement and his eighth and final operation – which was deemed a total success – aimed to restore full movement to the joint. Having full elbow movement will allow Kubica to work on a total recovery programme and gain better mobility in his wrist and hand.

Right wrist & forearm

This was the main concern in the immediate aftermath of the crash because Kubica's hand was partially severed. Firstly, to save his hand from amputation, surgeons had to ensure a good blood supply was restored. Then they had to repair the two main nerves in his wrist, which were lacerated. He is currently able to close some fingers on his hand and pick up bulky objects, leading doctors to believe his nerves are healing well.

Right leg & foot

Kubica's right leg was fractured and lacerated in several places. He was fitted with an external brace during his fourth operation to ensure the bones healed correctly. His right foot was also operated on because it too was severely fractured. He has since been able to walk, albeit initially only with a crutch.

STATS

Does Lewis get involved in too many race-ending incidents?

Over the last two seasons, only one driver has crashed into instant retirement more than the 2008 world champion

* Only includes drivers who have started at least 20 races over 2010/2011 seasons. Does not include accidents caused by mechanical failures or non-instant retirements from accident damage. Correct up to Belgian GP

The BBC/Sky debate rages on / A quick chat with Paul Di Resta



Confusion over BBC's 2012 F1 coverage

Will terrestrial television viewers get to watch full race re-runs or just the edited highlights?

Following the initial outcry about the BBC/Sky deal, details of how the BBC will show F1 next season remain sketchy. The terrestrial broadcaster will show ten races live in 2012 with the remaining ten races being shown later in the day, several hours after the chequered flag has dropped. But what is unclear is whether those races will be broadcast as full race re-runs, as edited highlights or whether both options will be available.

When the deal was announced McLaren's Martin Whitmarsh stated that F1 supremo Bernie Ecclestone had suggested that the non-live BBC rounds would be shown as full-length re-runs. But in a recent newspaper interview, Ecclestone suggested the BBC would be restricted to 75-minute highlight packages of non-live

MP Don Foster voiced concerns about the value of the BBC/Sky deal to fans



events. When contacted by *F1 Racing* the BBC would not be drawn on its plans for coverage, insisting they will be announced in due course. Quite when that will be is unclear, especially as we understand that the corporation is yet to finalise the details.

The subject of F1 coverage is set to be discussed at a forthcoming meeting of the Commons' Culture, Media and Sport select committee after Liberal Democrat MP Don Foster expressed concern about the value of the deal to fans, and asked why coverage won't remain totally free-to-air.

Meanwhile, Sky are stepping up their preparations for F1. Three representatives from the broadcaster attended the Belgian GP and the company have also appointed Martin Turner, formerly executive producer of rugby coverage on Sky Sports, as their new executive producer for F1.

FIVE MINUTES ON THE PHONE WITH...

PAUL DI RESTA

2011'S MOST IMPRESSIVE ROOKIE DRIVER



Paul, it's not long since the summer break. Did you enjoy your time off?

Yeah, I had a good break. I think it was an important time of the year to get it, given that this year is going to be so long and we're heading into a heavy spell of races now.

What did you do over the break?

I trained harder than I have done in my life, to try to build my fitness back up again because you can lose it over the year. It was also important for me to analyse the year so far and think about how I want the rest of the year to go.

Do you look back on the first half of the season in a positive light?

I've enjoyed it. It's been difficult in some ways but I'm just going to try to maintain a positive approach to the rest of the year.

Have you felt the support of British fans this year?

The support I've had, particularly in the UK, has been exceptional. It

was obviously my first British GP at Silverstone this year and the atmosphere was electric.

Qualifying sixth at Silverstone must be one of your highlights so far, surely?

That definitely was one of the highlights of the year, it's just a shame that on lap 24 it all fell apart quite quickly...

What are your objectives for the rest of the season?

Our objectives are clear - to come sixth in the constructors' championship. We're fighting Sauber at the moment; they had a strong start and now we're coming on strong. We hope we can carry that on.

Have you set yourself any personal targets for the last few races of the season?

Really my aim is just to carry on getting as many points finishes as possible. The big challenge for me will be going to tracks I've never raced on - that makes it a big learning game.

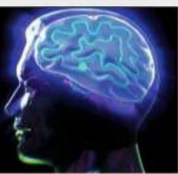


Paul Di Resta: quite keen on notching up a few more points finishes

PITPASS Test your knowledge / Rising stars / Your chance to meet Di Resta

F1 Mastermind

Your chosen specialised subject:
the world's greatest sport



- 1 Adrian Sutil made his debut at the 2007 Australian GP. But in what car/engine package?
- 2 Alongside Emerson Fittipaldi, which two other drivers raced for the JPS Lotus team in 1972?
- 3 Who led more laps in the 1956 F1 world championship – Juan Manuel Fangio or Stirling Moss?
- 4 Who took Elio de Angelis's seat at Brabham after the Italian's tragic death in 1986?
- 5 Which current Formula 1 driver raced for Alfa Romeo in the European Touring Car Championship in 2001?
- 6 Which Brit's best GP result was a fifth place at the 1986 Hungarian GP?
- 7 Which of these current drivers has not won the F1-supporting GP2 series: Nico Rosberg, Lewis Hamilton, Heikki Kovalainen, Timo Glock, Pastor Maldonado?
- 8 Lotus, Leyton House and Brabham all used engines by which manufacturer in 1989?
- 9 Nelson Piquet won his first race in 1980, but at which track, no longer used in F1, did he do it?
- 10 Monsanto Park was the site of which 1959 grand prix?



THIS BOY CAN DRIVE

Keeping an eye out for the Hamiltons of tomorrow



Robin Frijns

Who is he?

A 20-year-old Dutch racer who has been turning heads with some eye-catching performances in the ultra-competitive Formula Renault Eurocup.

How good is he?

He recent record is excellent. As well as taking four victories this year in Formula Renault, last season he won the Formula BMW Europe title, scoring six wins along the way.

Anything else we need to know about him?

Frijns was one of 12 drivers to be selected for the inaugural FIA Institute Young Driver Excellence Academy. As such, he's received coaching from experts such as Alex Wurz.

F1 chances

So far Frijns has impressed in lower-category machinery, but if he's to make it to F1 he needs to prove he can do the business in more powerful cars.

NEWS



Di Resta to star at Autosport International

Come and see Britain's newest F1 hero at the ultimate racing car show

Are you a big fan of Paul Di Resta? Well now you have the chance to meet him after the Force India driver confirmed his appearance at next year's Autosport International show.

The Brit will be on hand to meet fans, sign autographs and give live interviews at the event, on 14 and 15 January at Birmingham's NEC. He'll also take part in the show's Live Action Arena, which, as usual, features a host of very cool automotive stunts and demonstrations.

"Britain has the absolute best motorsport fans in the world, and I'm thrilled that I'll have the

opportunity to meet some of my supporters," said Di Resta. "I used to visit the show in my early career to see my heroes on the stage, so it's a real honour to be among those drivers now."

Star drivers will be interviewed next to the *F1 Racing Grid*, a stunning line-up of contemporary F1 machinery for fans to see up close.

Tickets for the event are available now. Adults pay £30 and children's tickets cost £19.50 (children under five years of age go free).

For more information call **0844 581 1420** or visit www.autosportinternational.com



The Live Action Arena, features a host of automotive stunts and demos

Answers: 1 Spyker-Ferrari 2 Dave Walker and Reine Wisell 3 Stirling Moss 4 Derek Warwick 5 Felipe Massa
6 Johnny Dumfries 7 Heikki Kovalainen 8 Judd 9 Long Beach 10 Portuguese Grand Prix

PHOTOS: ANDREW FERRARO/LAT; DREW GIBSON/LAT; CHARLES COATES/LAT; FREDERIC LE FLOCH/DPP/LAT; ARCHIVE



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ABU DHABI

11th & 13th November
Amber Lounge
Amber Lounge Dining

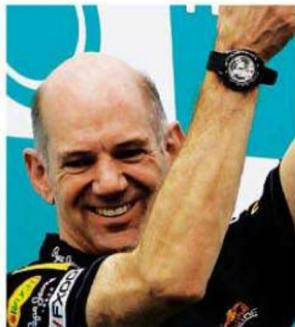
“THE SOLAR-POWERED AND RADIO-CONTROLLED CASIO EDIFICE EQW-A1000RB HAS BEEN DESIGNED IN PARTNERSHIP WITH RED BULL RACING. ITS SMART ACCESS SYSTEM IS INCREDIBLY QUICK AND EASY TO USE, ESPECIALLY WHEN YOU’RE WORKING AT HIGH SPEED”

THE SCIENCE BEHIND THE PERFORMANCE

Increased tyre degradation means it’s more important than ever to maximise performance, says Red Bull Racing’s Adrian Newey

The tyres are a car’s only contact patch with the ground. You can have the best aerodynamics in the world, or the best engine, or the best KERS system, but if you’re not getting the maximum from the tyre – or if you’re using it too much – your performance will be compromised.

The surface of the tyre provides grip, so you’re trying to maximise the contact patch – where the tyre surface meets the track. If you look at a car head-on, you’ll notice the front tyres are heavily cambered to ensure the maximum amount of rubber is in contact with the circuit when the car is loaded with lateral forces while cornering.

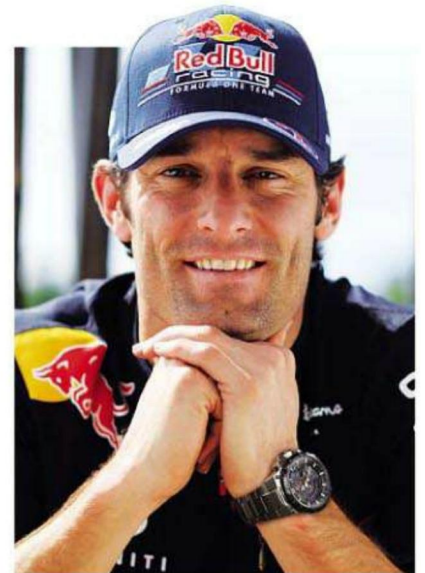


With the rear tyres, you’re more concerned with wheelspin. You need enough slip to maintain the optimum temperature and maximise the performance of the tyres, but not too much, otherwise they will wear out and your driver will complain about oversteer within a few laps.

The deep sidewall on an F1 tyre acts as a form of suspension. Tyre pressures make a big difference: remove air and the tyre will ‘give’ more over kerbs, but it will also roll more through corners. It’s a delicate balancing act.

Tyre wear and degradation have both increased this year, following the arrival of Pirelli as F1’s sole tyre supplier. Their intention was to increase the number of pitstops in races and they’ve achieved their goal because we’ve had a minimum of two stops from the bulk of the field at each race. That’s created a strategic element to pitstops that wasn’t there last year.

Pirelli have a pool of four compounds, from which they bring two different types of rubber to each race. We spend the practice sessions working out how long each compound is going to last in the race because once they’re outside their operating window, the performance falls away quite rapidly. You’ve got to time your pitstop to perfection.



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The solar-powered and radio-controlled limited edition EQW-A1000RB is equipped with an electronic crown switch and Casio’s unique Smart Access system to speed up the operation of multiple functions.



www.casioracing.co.uk



PITPASS / Move over carbon fibre: cardboard has arrived



ENGINEERING

Once complete, this RB7 will have taken student Paul Bischof 600 hours to make. Your grades will suffer, young man...

The amazing cardboard F1 car

Got some old cornflake packets and 600 hours to spare? Then why not build yourself an RB7?

Take a close look at the picture above. It might look like a Red Bull RB7 sitting in its garage, but it's actually a model made almost entirely from paper and old cereal boxes. It's one of several amazingly detailed 1:10 scale F1 cars created by 21-year-old Paul Bischof, a mechanical engineering student at Graz University of Technology in Austria.



Paul burns the midnight oil in his bedroom...

Amazingly, none of the cars he builds are made from kits or with machine-made parts. Instead, Bischof draws, cuts out and assembles each one from scratch using photos and any other reference material he can gather to get the correct dimensions. In total, each car is made up of around 5,000 individual parts.

"I chose to build the RB7 as it's beautiful," explained Bischof. "I always build the monocoque first. I use five or six layers of cardboard for strength. Then I cover it with the right colour card before fitting the engine and gearbox. Then I add the floor, suspension and other bodywork."

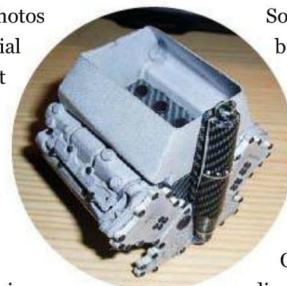
Although largely made from cardboard, Bischof doesn't restrict himself with materials

– the windscreen is made from plastic, the heat shield from aluminium foil and the suspension with reinforced steel wire.

So far, the Austrian student has built over 35 cars. "The Red Bull will take around 600 hours to complete over about eight months," he said. "The engine cover alone will probably take a month to build because the shape is very complex."

Once finished, the car can be disassembled to reveal the detailing of the engine, gearbox and even the pedals.

With his huge passion for F1 cars, could we see Bischof working within the sport in the future? "That would be great," he laughed. "Who knows, maybe Adrian Newey will see this and offer me a job at Red Bull..."



NEWS

Two seconds for a tyre change? It's possible...

Teams have cracked the three-second barrier for pitstops: now Red Bull are pushing to go even faster

Red Bull Racing's team manager

Jonathan Wheatley has told *F1 Racing* that his pitcrew are capable of changing all four tyres in less than two seconds. But while the well-drilled team have the potential to do it, Wheatley isn't expecting it to become a regular occurrence.

"If you add together the best times that the guys on each individual corner of the car have done throughout the season, then it is possible to change the tyres in under two seconds and to have the car stationary for only two and a half seconds. But that involves a lot of people having a very, very good day at exactly the same time."

Red Bull might not be the first team to crack the two-second pitstop according

to Wheatley: "I think Mercedes are doing the fastest pitstops at the moment. I wouldn't put it down to any one aspect but I think their retained wheel-nut system [where the nut is pre-attached to the wheel rim] offers an awful lot of advantages in terms of pitstop performance – it's something we're very interested in having a look at."

They may not be the quickest but Red Bull's pitcrew have certainly been both consistent and reliable throughout the season, with regular sub-three-second pitstops. It's something Wheatley attributes to a lot of practice and also the innovations that have been recommended by the team's pitstop working group.



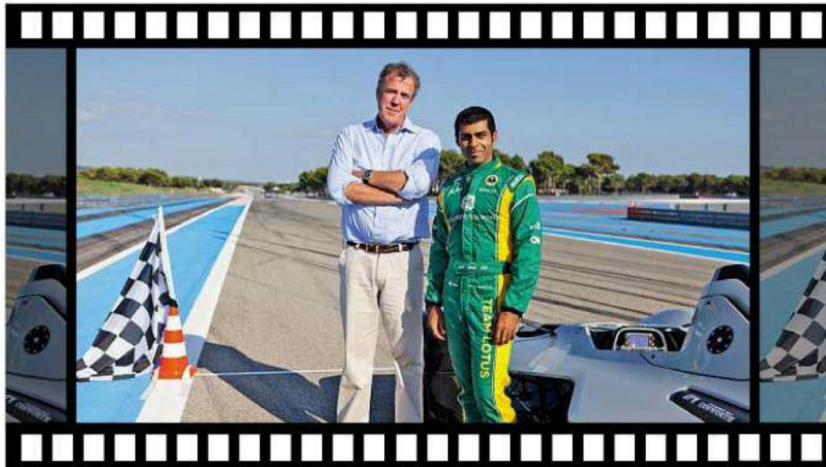
"We do a lot of training and practice for all sorts of situations. But we're also in the hunt for the world championship and that shouldn't be disregarded because it brings out the competitor in everyone and, as a result, we've got a very motivated pitcrew who strive to be the best in the world."

Mercedes watch out – the battle of the pitstops isn't over yet.

ENTERTAINMENT

Chandhok to star in latest Clarkson DVD

The Lotus racer has hooked up with the *Top Gear* presenter to test the best road cars in the world



With Christmas drawing ever closer it's no surprise to see *Top Gear* motor-mouth Jeremy Clarkson releasing yet another DVD of sideways driving action. But this year, the popular stocking-filler comes with added F1 goodness courtesy of Lotus test and reserve driver Karun Chandhok.

The Indian driver was recruited by Clarkson to co-star in *Clarkson: Powered Up*, a mission to find the most exciting car of the year. They headed to the Paul Ricard circuit in France and set about thrashing everything from a Ferrari 458 and a McLaren MP4-12C, to the latest gizmo-laden Nissan GT-R, the car that was Chandhok's favourite. "I thought it was great," he told *F1 Racing*. "You couldn't spin it even if you wanted to. The whole trip was a really good laugh. Jeremy in real life is an extension of his TV persona."

Is this the start of a new double-act? "He's told me he wants to do more together in the future," confirmed Chandhok.

• *Clarkson: Powered Up* is released on 7 November on DVD and Blu-Ray.

F1 does its bit for the environment / Positions gained and lost in 2011

NEWS

F1 technology to slash airport emissions

Thanks to McLaren's pitstop software, your future plane journeys could be quicker *and* greener

Technology that co-ordinates pitstops could cut aircraft pollution thanks to a tie-up between McLaren and National Air Traffic Services (NATS). Every day, hundreds of tons of carbon dioxide are produced by queuing planes at airports. It's a big problem, but

one that Peter Tomlinson, head of aviation data solutions at NATS, thought McLaren could help solve when he saw the team's race simulation software at an innovation forum. The software takes data about the on track position of cars and uses it to anticipate the

future. It presents this data to race strategists, who use it to plan when to pit.

"An aeroplane landing, arriving at a gate, unloading, refuelling, taking on new passengers then departing again is similar to a pitstop," Tomlinson told *F1 Racing*. As such, McLaren have adapted the software to anticipate the position of planes at an airport. This lets controllers spot when a queue might form and divert planes accordingly.

"Large airports – such as Heathrow or New York – move around 1,400 flights a day," said Tomlinson. "If you can save one minute of taxi time per flight, that's the equivalent saving of having one plane taxiing all day."

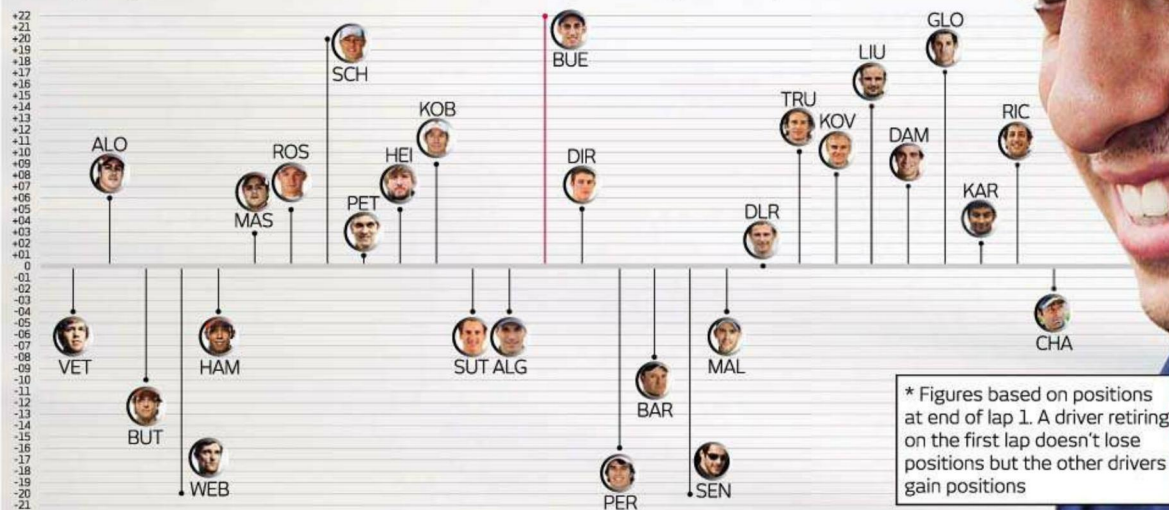
The technology may be rolled out very soon. "Any network with vehicles could be improved by it," said Geoff McGrath, managing director of McLaren Applied Technologies. "Why stop at air transport, why not rail and road? The technology is there." For most commuters, it can't happen soon enough.



STATS

Buemi: king of the first lap

Add up all the positions gained and lost on the first lap of each GP this year, and the Toro Rosso driver has made up most places



* Figures based on positions at end of lap 1. A driver retiring on the first lap doesn't lose positions but the other drivers gain positions

PHOTOS: CHARLES COATES/LAT; STEVEN TEE/LAT; LORENZO BELLANCA/LAT; REX FEATURES; ZENTRAIN

NEWS

Sebastian Vettel's 180mph road car

The Red Bull driver turns car designer and comes up with this rather nippy little number...

It looks more like the sort of car you'd expect to see a premiership footballer driving, but this is, in fact, the new Sebastian Vettel-spec Infiniti FX50. Infiniti say it is built to fulfil the reigning world champion's

desire to have a crossover car capable of topping 180mph on Germany's unrestricted *autobahns*, and the FX Sebastian Vettel Version was unveiled by the Red Bull driver at the prestigious Frankfurt Motor Show.

Based on the V8 FX50, it features tweaks to the engine, suspension and,

most notably, the body, which now sports F1-inspired carbon-fibre front and rear wings. Thanks to ECU adjustments, it has 423bhp and can travel from 0-62mph in 5.5 seconds – impressive for a car of this size. There's even a central rear brake light reminiscent of an F1 car's rain light.

Infiniti's chief of design Shiro Nakamura was sent a Red Bull Racing show car to help him with the design process, but he insists that Vettel himself provided most of the inspiration. "He has seen about three versions of the car and has had input into its development at every stage," he confirmed. "Sebastian has a real eye for detail."

The car will be produced in limited numbers when it goes on sale next year. The price tag has yet to be revealed, but you can expect it to be somewhere in the 'if you have to ask how much it is, you probably can't afford it' category...



The FX50: a bit flash for popping down the shops – try it flat-out on an *autobahn* instead

PARAPHERNALIA

Travel in retro-style

Stirling Moss-inspired luggage range launched

Sir Stirling Moss epitomised the glamour of F1 in the 1950s, and now you can grab a slice of that style yourself. The 16-time GP winner has put his name to a line of retro-look, racing-themed items from luxury leather company Caracalla-Bath. The range has been created in the exact shade of dark blue worn by Moss when he

raced for Rob Walker, and each item carried a '7' – Moss's preferred racing number. The holdall is embossed with his signature and, rather handily, will hold an open-faced helmet, goggles and driving gloves if that's what you'll be using it for...

• For more details of the commemorative range, visit www.cbfil.co.uk



One's a car, one's a travel range – but they're otherwise quite similar...



YOU'VE EITHER GOT IT OR YOU HAVEN'T



SIZE SHAPE SPEED AND SPIRIT

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ACCELERATION 0 - 62 MPH 7.9 SEC
TOP SPEED 127MPH

FUEL CONS MPG (L/100KM): URBAN 33.2 (8.5) /
EXTRA-URBAN 52.3 (5.4) / COMBINED 43.5 (6.5),
CO₂ EMISSIONS: 155G/KM.

ABARTH PUNTO EVO

1.4 TURBO MULTIAIR
POWER OUTPUT 165BHP (121KW) AT 5,500RPM
PEAK TORQUE 250NM AT 2,250RPM
ACCELERATION 0 - 62 MPH 7.9 SEC
TOP SPEED 133MPH

FUEL CONS MPG (L/100KM): URBAN 35.3 (8.0) /
EXTRA-URBAN 56.5 (5.0) / COMBINED 46.3 (6.1),
CO₂ EMISSIONS: 142G/KM.

ABARTH 500C

1.4 16V TURBO T - JET
POWER OUTPUT 140HP (103KW) AT 5,000 RPM
PEAK TORQUE 206NM AT 2,000RPM
ACCELERATION 0 - 62 MPH 8.1 SEC
TOP SPEED 127MPH

FUEL CONS MPG (L/100KM): URBAN 33.6 (8.4) /
EXTRA-URBAN 52.3 (5.4) / COMBINED 43.5 (6.5),
CO₂ EMISSIONS: 151G/KM.



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Pat Symonds' TECHNOLOGY MASTERCLASS

Lifting the cloak of secrecy on F1's complicated parts

THIS MONTH: F1 ELECTRONICS



THE THEORY EXPLAINED

The standard electronic control unit (ECU) that all teams must use is manufactured by McLaren Electronic Systems and controls engine and chassis functions, including the gearbox. It can process 955million instructions every second

How much does an F1 car rely on electronics to work?

A Formula 1 car is totally reliant on electronics, but uses systems that are somewhat different to those on a road car. Production vehicles make use of sophisticated electronics to make driving the car easier, more comfortable and, above all, safer. F1 cars are not allowed to use electronics to aid the driver's ability but the systems are nevertheless designed to extract maximum performance from the package.

What type of electronics are there on an F1 car?

There are two categories of electronics on a Formula 1 car. The first consists of those that monitor and the second consists of those that control. In some cases the systems may do both; for example, an accelerometer is used for measuring the cornering ability of the car but can also be used as a control input for the differential. The system that monitors performance can store a gigabyte of data as well as transmitting some of that data back to the pits in real time using telemetry. This data is carefully analysed to determine the health of the car and to find additional performance.

What does the Electronic Control Unit (ECU) actually control?

All Formula 1 cars use a standard ECU that controls both the engine and the chassis. On the engine, as well as the ignition and fuel-injection systems, the throttles are also electronically managed. There are many additional ECU engine controls including the system that transfers the engine oil from an auxiliary tank to the main tank as required.

On the car's chassis, the primary system that is controlled by the ECU is the gearbox. A Formula 1 gearbox needs to be able to change gear without any loss of transmitted power. To do this requires extremely precise measurement and control as well as very high-performance electronics. The current ECU is able to process some 955million instructions per second (MIPS) but the one being introduced for 2013 increases this to 4,000 MIPS.

What else is controlled by the electronics?

As well as the various sensors, nearly all of the electrical systems on the car run through the ECU. Even the rear light and the driver drink pump are controlled electronically.

How many sensors are there on the car and what do they do?

There are over 100 sensors on the chassis and engine, measuring acceleration, pressure, force, temperature, position and speed. They're connected to the ECU through a network to save on wiring but, even so, there are around 1.2 miles of wire on an F1 car. A set of sensors will cost £75,000 and a set of wiring looms is £20,000.

What happens if there is an electronic fault on an F1 car?

The electronics are very reliable, but failures do occur. The systems are clever enough that they can recognise the failure and, without the driver realising it, substitute a backup signal to keep the systems functional. The engineers are also alerted of failures by telemetry. They can then tell the driver how to recover from a problem.

How does KERS fit into the electronic systems?

KERS is a high-voltage, high-power device, but the system is controlled electronically. A separate ECU does the calculations but connects with the main ECU and power electronics to maintain legality, efficiency and safety.

Turn to pages 96 and 100 for Pat's analysis of the Belgian and Italian Grands Prix >

PREDICTOR HAS A WEEKEND TO FORGET AT MONZA

Computer programme records second-lowest total ever



The Castrol EDGE Grand Prix Predictor had a weekend to forget at Monza, failing to score points for seven of its ten predictions and totalling just 17 points, two off its lowest ever mark.

The Predictor scored maximum points for selecting Sebastian Vettel for the win, a further five points for guessing third-placed Fernando Alonso in second and two points for tipping sixth-placed Felipe Massa to finish fourth. But with no further points, that was as good as it got.

IMPRESSIVE TOTAL

There was more to shout about for the Experts though, as three-time Grand Prix winner Johnny Herbert scored an impressive total of 39 points, with perfect predictions for Vettel, Alonso and Massa – while Lewis Hamilton, Jenson Button and

Paul di Resta also earned him points.

However, Herbert's tally was outdone by three-time WTCC champion Andy Priaulx who failed to score on just three of his selections and returned a score of 46 after maximum hauls for Vettel, Button, Hamilton and Bruno Senna.

Sportscar ace Darren Turner was wrong on only two occasions, but unluckily failed to take a maximum haul and ended with 34 points, leaving him 13 clear of Herbert in the experts' mini-league.

DIFFICULT WEEKEND

On what proved to be a difficult weekend at Monza, no-one returned a triple figure score. 'Lexloo' came closest with 97 points, while a 90-point haul for 'FireHawk' was more than enough to claim the overall lead, 27 points ahead of 'Holistic Racing'.

To see the full leaderboard and to get a rundown on the Predictor's picks, visit:

<http://predictor.castroledgerankings.com>

“THE PREDICTOR FAILED TO SCORE WITH SEVEN OF ITS TEN PREDICTIONS, RETURNING ITS SECOND-LOWEST TOTAL EVER”




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RAW NEUVE

Jacques Villeneuve: older, wiser... but no less opinionated



What has happened to Lewis?

Lewis seems to be making more mistakes these days, and the question is, why? I just don't think he cares what people think about him any more. The impression you get of him is that he's a bit aloof and superior, and does his own thing. When that happens you don't learn any more: you just make the same errors over and over.

Winning a championship can have different effects on different drivers. Sometimes it can calm you down; other times it can go to your head and give you a bit of a superiority complex. I don't know Lewis so I can't say what effect his title had on him, but you can't deny that he's making more mistakes than he used to.

The thing I love about him, though, is that he's great to watch. He makes the races interesting. Maybe he's not serving himself in the best way at the moment, but it's great for



"If you remove Lewis's aggression, he'll be a slower driver"

the spectacle of F1 and it would be good if there were more drivers like him on the grid who took risks. I don't think he's necessarily overdriving; he just doesn't seem to be as aware of his own surroundings – it's as if he's in his own little world. And you can't be a championship contender when you drive like that.

It's hard to say where he'll go from here. Now I'm not in any way comparing these two drivers, but take Takuma Sato. People said, "The day he learns to stop crashing, he'll be amazing." I

always thought, "No, the day he learns that he'll actually be driving slower." You can't take one trait out of a driver and keep the rest. If you remove Lewis's aggression, he'll be a slower driver. Is that what he or McLaren want? I don't think so.

People look to a driver's lifestyle when things don't go to plan. All I can say is that what you do out of the car affects performance in it. You'll get stressed, tired or whatever – and it all comes out when you're racing.



Alonso: one of F1's real leaders



Stefano Domenicali recently said Michael Schumacher and Fernando Alonso are the only drivers capable of leading a team. For you to lead, a team must first of all let you do it.

When they do, you must grasp the chance. Both these guys did.

It's not something you can do on your own – circumstances must be right. Look at what

happened with Alonso at McLaren. But see how he rallies the troops now at Ferrari.

To be a team leader you need to trust the people you work with. If the mechanics see how focused you are, they think you're one of them and let you lead them. That's what Alonso's done. Everyone at Ferrari works that bit harder for him.



Bruno's finally got his big chance

I see Nick Heidfeld has been ditched by Renault. He didn't set the world on fire, but his problem is that he has no image, so they've put Bruno Senna in – someone who has a lot of image.

Now is the time to judge Senna: he must prove himself. But it's great to have that famous name back on the grid – it was the same with Damon and me as well. F1 needs stuff like that.



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

THE JV KEY



Silly shunt



Driver error



Controversy



What a car



Fantastic drive



Good call



Bad call

MURRAY WALKER



“It might be premature, but I’ve been thinking about the 2012 driver line-ups...”

There was a time when I used to write *Murray Walker’s Grand Prix Year* every season, and when I started to prepare it I was often fascinated by the number of changes for the upcoming year. In 1992 for instance when, as now, there was an economic downturn, only two of the 16 teams (Yes, 16. Those were the days!), Williams and McLaren, had the same drivers and engines as they did for the previous season.

At present it seems that things are going to be pretty stable for 2012 with no less than seven of the 12 teams retaining their current drivers. Vettel and Webber are confirmed at Red Bull, as are Alonso and Massa at Ferrari, Schumacher and Rosberg at Mercedes and Kobayashi and Pérez at Sauber. Plus no changes have been

forecast at McLaren (Hamilton and Button), Williams (Barrichello and Maldonado) or Lotus (Trulli and Kovalainen). Yes, there have been all sorts of rumours – Hamilton to go to Red Bull, Massa to be dropped in favour of Rosberg or Webber and Di Resta to replace Schumacher at Mercedes, but rumours are rumours and are often unfounded so don’t hold your breath in the expectation that something sensational is going to happen. Which isn’t to say that it won’t...

I well remember the buzz in Hungary 1987 when it was announced that the world champion Nelson Piquet would be leaving Williams for Lotus – and also when Nigel Mansell held his dramatic press conference at Monza 1992 to tell us that he was leaving Williams for Indycar. F1

contracts are so often just not worth the paper that they are written on, because if a driver really wants to leave a team there’s not much point in trying to stop him – although this can be a very expensive thing to do. Ask Jean Alesi, who famously signed for both Williams and Ferrari in 1990 and suffered for it, and Jenson Button who got into an embarrassing situation involving Williams and BAR.

But if things are to be ‘as you were’ among the majority of the teams next year, what about the others? Well the elephant in the room, if you’ll forgive the expression, is Robert Kubica. Robert was generally felt to be the equal of anyone at the end of 2010 and was expected to be doing great things for Renault this season, but then came his devastating rally accident in February at the *Ronde di Andora*, which left him with appalling injuries. To say that Robert is gritty and determined, and that if anyone can recover from a seemingly career-ending disaster he can, would be a masterpiece of understatement. But the truth is that, at present, no one can say for sure that he is going to come back. Given a fair wind he should be able to get the feel of things in the Renault simulator at the end of the season and there’s no doubt that, mentally, he’ll be more than capable of making a comeback. But will he be able to deliver physically? It is bound to take time for him to get back into shape after such a long time away in such arduous circumstances. Team principal Eric Boullier can only wait and hope for the best.

Boullier acted quickly and sensibly after Kubica’s accident by slotting Quick Nick Heidfeld into the injured Pole’s seat, but now it has been confirmed that Heidfeld will be out for the rest of the season. Nick was seen as a rising star when he won the Formula 3000 championship in 1999 but, sadly, he hasn’t made it. His Formula 1 debut was with the doomed Prost team in 2000 and since then he has competed for Sauber, Jordan, Williams, BMW and for Mercedes as a test driver before joining Renault this year. While he has never won a grand prix he’s come close over the years with 13 podiums to his credit – so he’s certainly no slouch – but although he was ahead of his team-mate Vitaly Petrov in this year’s championship up until the Belgian Grand Prix, he has disappointed and paid the price. A bitter pill for Nick, but Renault team-mate



“There have been rumours – Hamilton to Red Bull, Massa to be dropped in favour of Rosberg – but don’t hold your breath”



Forthright chatter from the legend of F1

"Boullier acted sensibly after Kubica's accident by slotting Nick Heidfeld into the injured Pole's seat. But now Heidfeld is out for the rest of the season"



Vitaly Petrov, backed by shedloads of Russian roubles, has improved enormously this year – and coming from a country where Formula 1 has a more than promising future, he was unlikely to lose his place in the team.

But now, itching to emulate his legendary Uncle Ayrton, enters Renault's test driver Bruno Senna. Bruno has substantial financial backing and, as a Brazilian, has a homeland with a great F1 history and a massive market for road cars. Bruno's got to prove himself and he certainly impressed in Belgium – his first F1 race in a

top-five-teams car. So if Kubica is able to return in 2012, Eric Boullier is going to have a problem. Senna out – or Petrov? Or will Boullier's fellow Frenchman, 2011 GP2 champion Romain Grosjean, make a return to Renault after his inconclusive seven-races in 2009? It's going to be quite a tough call for Boullier.

Formula 1 seldom looks back, with the result that drivers who have performed well in the past, but are not currently competing, often get overlooked when there are promotion opportunities. I've always thought, for instance,

that Anthony Davidson was really hard done by not to have got a seat with one of the better teams. He's competing superbly for Peugeot in sportscars, but I'm sure he'd rather be in F1 as a driver instead of an excellent commentator. And what about the 'forgotten' Nico Hülkenberg, currently reserve driver for Force India after an impressive debut season with Williams, which included a pole position – a brilliant achievement for a rookie driver?

Then there's Toro Rosso. It is very clear that Red Bull's power-behind-the-throne, Helmut Marko, has a high regard for Australia's Daniel Ricciardo: he wouldn't be paying good money for Daniel to get race experience with HRT if that were not the case. So both Sébastien Buemi and Jaime Alguersuari may have cause for concern if Ricciardo compares well with his experienced team-mate Tonio Liuzzi.

But maybe I'm being premature in even thinking about 2012 so early on. Robert Kubica's terrible accident, which has thrown so many things up in the air, was a terrible quirk of fate and much could still happen to upset the apple cart. For instance, who could have predicted that Michael Schumacher was going to break his leg at Silverstone in 1999 – or that world champions James Hunt and Niki Lauda would abandon F1, mid-season, as they did? Whatever the case, I earnestly hope that superstar Robert Kubica is back with us next year. **F1**



"If Kubica is able to return in 2012, Eric Boullier is going to have a problem. Senna out – or Petrov? It's going to be a tough call"



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WHATEVER HAPPENED TO...

DEREK DALY

Uses his passion for motor racing to help motivate others



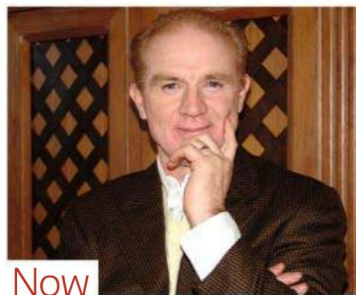
Then

Driving the Williams FW08 in 1982 at the Monaco Grand Prix – he finished sixth

One thing you could never accuse Dublin-born racer Derek Daly of is lacking passion for motorsport. In his formative years he took a job as a labourer in an Australian iron ore mine to fund his racing career.

Daly's ascent to F1 was swift – he moved from Formula Ford to F1 with Hesketh in just 13 months. After failing to qualify for any world championship races with the team, he moved to Ensign where he showed considerable promise. This brought him to the attention of Tyrrell for whom he recorded two fourth places in 1980. A move to March in 1981 brought him little success, so the next season he joined Theodore. He raced for them in three GPs before he was offered a seat at Williams, replacing Carlos Reutemann. Daly scored three fifth-place finishes but lost his seat at the end of the year.

“At the end of 1982 I knew I wanted to do something different,” he told *F1 Racing*. “F1 didn't feel right and I was looking for a change. I got a chance in Indycar and that opened up a new world. I went to Indianapolis and I've lived there ever since.



Now

Motivates, mentors and manages. He's a very busy chap these days, is Mr Daly

“Unfortunately, at the end of 1984 I had a huge crash and suffered significant injuries. That changed the direction of my life – within six months I had fallen into TV broadcasting. I worked for ten years with ESPN covering F1 and Indycar before working for Speed TV. I still did a few Indycar races and later raced successfully in sportscars before retiring from racing in 1992, aged 39.

“Since then, I've written a book and I also run a racing academy. But my main work these days is as a motivational speaker. Again, this is something I happened to fall into:

I gave a speech about my life and it went well. Then a speaking bureau asked if they could represent me and I'm now on the books of 16 different bureaus around the country. Companies will say, ‘We're looking for a speaker to talk about innovation.’ Motorsport thrives on innovation, so you can engage a company on that platform and explain to them that innovation is something they can use to become better and more efficient.

“I recently presented a leadership seminar to senior R&D staff at PepsiCo – they wanted to understand what separated the great motorsport teams from the rest. Motor racing, unlike any other sport I know, has a model that corporate America can look to and learn from. One of the devices I use is the SAFE model – Speed, Agility and Flawless Execution – that's the model of motor racing at the highest level.

“It's a thrill for me to use a sport that I'm so passionate about to affect the thinking of major corporations, and I still follow F1 passionately today. I go to most races because my son Conor races in GP3 and I've become his mentor, manager and coach.”



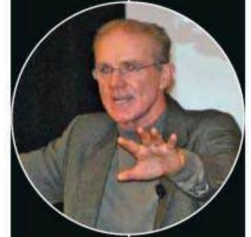
1978: makes his F1 debut

Qualifies 15th and climbs up to eighth at Brands Hatch before retiring due to a problem with a wheel



1980: F1 career high

Comes from 22nd on the grid to finish fourth in the Argentine GP, driving the Tyrrell 009



Now...

Among other ventures, the 58-year-old works with big companies as a motivational speaker

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VALENCIA 2011 / David Urlanga Salas / 28 / SPAIN

"We smiled as the V8s roared – we couldn't stop grinning all weekend"



"I've been reading *F1 Racing* avidly since March 2000 and during all these years I've been dreaming of going to a grand prix. Finally, this year the opportunity arose.

I packed my McLaren cap – and my Renault and Ferrari T-shirts – and headed to Valencia with a friend for the European GP. As Alonso fans, we weren't expecting him to win, as Vettel seems unstoppable this year, but we at least hoped to see him on the podium.

"We arrived in Valencia a bit pushed for time on the Friday, and as we walked along the streets to get to the racetrack we heard the V8s roar for the first time. My friend and I looked at each other and smiled – we wouldn't be able to stop grinning for the rest of the weekend. Our seats were in the grandstand located on the approach to Turn 17,



but on the Saturday I went to a nearby bridge and took this picture of Lewis Hamilton entering Turn 19.

"The weather was incredibly hot all weekend, but every time a car went out on track we forgot about the scorching heat. The atmosphere was amazing and Alonso's second place satisfied us both. Tired but happy, we left the track hoping to be able to see another GP soon."

2011 EUROPEAN GP:

- Vettel scored his sixth win of the year
- Alonso pipped Webber to second place
- Home driver Alguersuari started 18th; finished 8th

HUNGARORING 2010 / Ross Jones / 29 / UK

"We had a great view of Schuey's move on Rubens"

"I attended my first GP at the Hungaroring in 2010 and it was amazing. But what made it even better was finding out that I was sharing my hotel with a number of F1 teams and personalities. On the first evening, my fiancée and I bumped into Eddie Jordan in the lift. I also met Jarno Trulli and Ross Brawn,



and I ended up eating my dinner two tables down from Heikki Kovalainen.

"The race didn't disappoint and we had a

great view of Schumacher's controversial move on Barrichello. Our first F1 trip was topped off when we bumped into Jenson Button's father John, on the Monday, wandering around Budapest – a true gent! I can't wait for my next grand prix trip."



"I shared my hotel with a number of F1 teams and met Jarno Trulli"

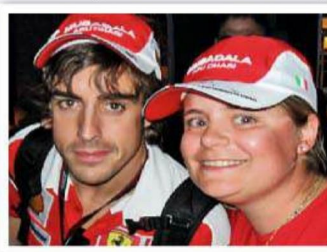
SILVERSTONE 2010 / Stacie Summerfield / UK

"Being a Fernando Alonso fan in England can be quite hard!"



"I go to Silverstone every year to support my favourite driver, Fernando Alonso, and last year I was lucky enough to meet Fernando himself. I saw him as he was on

the way to the track and I waved my Spanish flag at him. He stopped his car, beckoned me over and signed both my flag and my Ferrari cap. I couldn't believe it. Later that day I ended up meeting him again and this time I had my photo taken with him. Being a Fernando Alonso fan in England can sometimes be quite hard as the



McLaren fans don't understand anyone who is supporting a non-Brit. But for me, it was an experience I will never forget."

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YOU ASK THE QUESTIONS

Eric Boullier

When is Robert Kubica really coming back? Why have his team gone backwards? And why did he hire Nick Heidfeld? Renault's young French boss is subjected to a grilling as *F1 Racing's* readers demand answers...

WORDS JAMES ROBERTS PORTRAITS ANDREW FERRARO/LAT

It's been a turbulent few years for the F1 team based in Enstone. They might call themselves Lotus Renault GP, yet the chassis is a Renault R31 and the 2.4-litre V8 in the back of the car is also supplied by the French manufacturer. Let's be honest: we all know them as Renault. Yet despite legal wranglings over the naming rights, the gold-and-black-liveried car came out of winter testing on a high note. Technical director James Allison believed he'd found an edge with his innovative forward-facing exhausts and Robert Kubica topped the timesheets at the pre-season Valencia test. Then, disaster struck: Kubica suffered his horrific rallying accident and the team were plunged into turmoil.

So after the quest to find a replacement driver, queries over the team's backers and the loss of a couple of members of senior staff, we thought it

was time team principal Eric Boullier answered a few questions. The 37-year-old Frenchman arrived on the F1 scene last year, having spent a number of years prior to that engineering drivers at DAMS before eventually running the team that took the A1GP title for France. Now, midway through his second season in F1, Boullier has established himself in the sport. He's the youngest team principal (eclipsing Christian Horner by just seven days), he's the vice president of the Formula 1 Teams' Association and he's responsible for 500 staff at Enstone.

Boullier examines the stack of questions on the table in front of him. "I heard about this game," he smiles. "Do I need to answer all of these? I might need coffee." A cup duly arrives and Boullier turns over the first card. This one is about the much-missed Kubica...

Is it true that Robert Kubica could return for a test session at the end of the season?

Darren Potter, UK

Yes, but it would not be an official test during a race weekend. We have prepared our 2009 car – which the regulations allow us to do – and Robert could test somewhere with that car. It's ready and waiting for him so when he's ready and willing, he's welcome. I don't think it will be before November this year. It's difficult to give a date, because it's up to him, his recovery and his rehabilitation – but we are ready and waiting.

What's the worst part of a team principal's job?

Sophie Tolley, UK

Politics. One of my hardest jobs is to protect the team and filter out the politics for them. I want →





people to be fully committed without the need to get involved with politics themselves. Actually, I'm wrong – it's not so much politics that I have to deal with, rather it's egos. Dealing with egos is worse than politics.

What's your relationship like with Gerard Lopez? And where on earth is Genii Capital's money coming from?

Kamil Golab, Poland

My relationship with Gerard Lopez is very good, I speak to him every other day. We are a good match because he loves motor racing and he's very passionate about cars. He understands it, but he has no time to run the team as he's very involved in all of his businesses. But if we can give each other a hand we do – and we keep in close contact.

Genii Capital is a private equity fund that is owned by Eric Lux and Gerard Lopez and they both run different businesses based on real estate. They have a huge development company with a lot of work based in Luxembourg. They also have a lot of investment in new technologies through Mangrove Capital Partners, which was one of the first investors in Skype, and their portfolio today includes hundreds of companies – they are a very big company. Mangrove are one of the top five firms working with new technologies in the world today. I can rely on them and they can easily cover anything I need; this is why the team today are doing well in terms of investment. And even if there have been a lot of rumours... we know where they are coming from. We've recently invested a lot into our 60 per cent state-of-the-art windtunnel. Genii are financially very strong: obviously before Formula 1 they were not known to the public and this is why people are questioning them now. But definitely they are very big.

How is Robert Kubica improving? Will he be driving for Lotus Renault GP next year? Please be honest.

Seth Williams, USA

The first thing that you have to know is that I am always honest. Robert is improving as fast as you would expect him to. He is having to go through a full rehabilitation programme and, up until now, the most important part has been to improve the nerves and to keep things up on the fitness side. He's doing well though, and we'll know more in the next few weeks. He can move his fingers, he has some strength and he can push with his hand.

And there is one thing that I was amazed by – and obviously it's something that I love to hear from him. The last time I visited him he said to me that he still dreams about his qualifying lap from Spa last year, where he was on the front row of the grid. By using the F-duct for 70 per cent of the lap, he proved he could drive the car

flat-out by steering with just one hand. So he uses this memory, he uses it to motivate himself to come back.

Honestly it is up to Robert if he is willing to come back. I know I trust him: if he is back in Formula 1 it's because he can fight for wins because he's only motivated by competition. If he's ready to race he knows we are waiting for him so there is no reason why he wouldn't be driving for us. He's in close contact with everyone in this paddock and I think he knows more about what's going on than I do.

Why do you think so many good people have left Renault?

Martin Wellbelove, UK

I didn't know that 'so many good people' had left Renault recently. There are not so many people who have left – there have been a couple. We completely changed the management of the company, we changed a lot of the responsibilities and we reorganised and restructured the team. I think less than five people have left from a team of 500 people. I don't think that's 'so many'.

Did Flavio Briatore leave anything behind in his desk drawers?

Paul Andrews, UK

Yes, although I had to reorganise his office as it was too big for me. I downsized to make more space for my PA and to create a board meeting room. But I still have some of his old furniture and a couple of advertising books and a racing helmet that he left behind.

My questions never seem to make it into the magazine, so here goes nothing: do you find that Renault's reputation was a little tarnished by 'Crashgate' or did that mainly hurt Briatore's reputation?

François Viau, Canada

I don't believe Renault's reputation was better after this story because the association with 'Crashgate' or with any scandal is never good. I think both reputations have been more than a little tarnished.

I understand that Vitaly Petrov has been helped by a bit of driver psychology training this year?

Peter Giles, USA

It's very important because every day you and I need our self-confidence to be better. These drivers need to have it at a very high level if they are to perform very fast. It's something we've put in place this year with Vitaly. It's about small things like taking breakfast or getting stuck in a traffic jam on the way to the track. You can get addicted to habits and these things can disturb your pattern and confidence. So we now have in place a system around him where we can ease his life by making him understand routine.



"The association with '**Crashgate**' or with any scandal is never good. I think our reputation has been more than a little tarnished."



PHOTOS: LORENZO BELLANCA/LAT; GREGORY LENORMAND/DPPI/LAT

As an example, we would have an engineering meeting every morning and he would pop up to the motorhome ten minutes beforehand, take his breakfast very quickly, go to the meeting and then lie down for 25 minutes doing nothing. So we told him to come earlier and take his breakfast slower, which is better for the body and digestion, or just come to the meeting and take his breakfast afterwards. It's a small but simple thing that has been very effective.

Why do you have so many test drivers?

Jorge Henley, UK

The idea of running a young driver programme at Lotus Renault GP was to develop some commercial opportunities and to educate some →

YOU ASK THE QUESTIONS

Boullier with Lopez (right) and Lux



"The team are doing well in terms of **investment** and we've invested a lot into our 60 per cent state-of-the-art windtunnel. **Genii** are financially very strong"

drivers. I remember a young driver test in Jerez in 2009 and you see these young kids who have been working for ten years to achieve their dream and they finally do it. They have one day to test, but they are not prepared for it at all. They don't realise how complex it is to talk to all the various engineers and to understand what all the buttons on the steering wheel do and yet they have just one day in which to perform. Most of them don't achieve their full potential and

After Robert Kubica's devastating rally crash, Boullier took on Nick Heidfeld as the Pole's replacement: "We really needed someone with experience"

ruin their chance of becoming a Formula 1 driver because they are not ready.

By running our programme we give them access to F1; they spend a lot of time with the engineers and they have the headsets so they can listen to the driver give feedback to his engineer – plus they spend time on the simulator in the factory, learning what function each button on the steering wheel does, and we can use them for promotional purposes for the team. When the race drivers are busy, we can send them on demonstration runs – it keeps them busy and gives them F1 experience.

Do you agree that Renault adopting the Lotus name was a massive mistake? The general public still regards Team Lotus as Lotus and Renault as Renault.

Gergrand van der Vooren, Holland

I don't believe it's a massive mistake – it's the result of having legal action that has not been clearly sorted out. But mixing two Lotus names and two Renault names is confusing. It's complex but the legal action is still continuing.

Is it true that you called Fernando 'unconsecrated' after all he did for the team? It's a bit disloyal, isn't it?

Meltem Eroglu, Turkey

I don't remember saying that – I'm not even sure what it means – but once I was asked about the last year that Fernando was racing here. The car was not good, he was leaving for another team and his motivation was maybe not at its highest. But for me he is still the best driver on the grid and I have a lot of respect for him.

Why did you initially choose Nick Heidfeld as Robert Kubica's replacement?

Steve Bather, UK

It was mainly down to the fact that he had more racing experience than a lot of the other drivers who were available. We had conversations with

Nico Hülkenberg and also with Vitantonio Liuzzi – we considered many drivers. But the main issue was that when we were replacing our lead driver at the beginning of the development of the car, at the time of a new concept, we really needed someone with experience.

I also have responsibility for the 500 people who work for us in Enstone and when you build confidence into the team and then there is this cruel accident, everyone is a bit shocked for a while and you want to bring back the motivation and reassure the people working for you. Nick, with all his experience, was the obvious choice for this. But his performance has been a bit up and down, he's been unlucky with reliability issues and I don't think he was expecting Vitaly to push him so hard.

Eric, what do you think about Kimi Räikkönen as a driver and a person?

Mihajlo Zahorodni, Bosnia and Herzegovina

Oh my god, I promised myself that I would never speak again about Kimi! Because that was such a mess last year when I didn't do anything, so I really want to avoid it now. I cannot judge Kimi as a person because I do not know him. But as a driver he was a champion in Formula 1, a great racer and now he is enjoying himself in rallying. End of story.

Do you have the funding in place to race next year? And will you be renamed Lotus for 2012?

Martin Townsend, UK

Yes to the first question and for the second one, hmm... er, we don't know yet. And I can't really say anything about it yet because of the legal issues with the other team who are involved. Most likely we will still be called Renault, primarily because changing the chassis name has major consequences when it comes to the commercial rights deal and the Concorde Agreement. In 2013 it will be different.



Your team started 2011 with two consecutive podiums then faded away – and now Sauber are faster. Why is this? And what are you doing to do to correct it?

Akram Castillo, Mexico

Sauber are not faster than us. We had two consecutive podiums because compared with the rest of the field we had a very good car at the start of the season. We had some complex issues with the development of the car and the concept of the forward exhaust was not

easy for many reasons. This is why our development rate has perhaps been slower than that of other teams. At Silverstone, the changes to the rules regarding blown-exhausts affected us a lot and that's maybe why some people were faster than us.



After consecutive podiums in the first two races, Renault's form dipped, with Petrov and Heideld finishing 12th and eighth at Silverstone (above)



If Robert Kubica ever comes back, will you let him rally again?

Tobiasz Luczak, Ireland

Good question. People must understand that when Robert was at his previous team... well, Robert exploded last year as a driver mainly because his life was better and he felt much better. Because we let him rally, he could enjoy his life and develop much more as a driver. We supported him and built a team around him and he was getting better and stronger because he was allowed to do what he wanted. He loves rallying and when he was not allowed to do it, he got frustrated. But to answer the question, I'm not sure I will allow him to do this again, to be honest, but it's a discussion I will have with him. Definitely I will not let him do a small, single-stage club rally again. But it's up to him – he knows what he has lost. If rallying is part of his revival to be fast again, then I might leave it up to him to do it. It's a complex issue.

Will you keep your drivers under contract in 2012 or will Romain Grosjean step in to replace one of them?

Charles Whittom, Canada

It's one scenario. But there are many others...

Would you ever put one of your drivers in a difficult position using team orders, like Red Bull did at Silverstone?

Abi Pearson, UK

It's complicated. I understand the frustrations of fans who support a driver over a team, but from a team point of view, you want both cars to finish and you ideally want a one-two. You don't want both cars crashing one lap before the end – this is not good for the sponsors or the people who work tirelessly to get the cars onto the grid. From the fans' point of view it's understandable, but from my view, as well as that of the shareholders and sponsors, I'd be pissed off as we'd lose points and they would all say, "Why did you let them do this when we could have won?" So who's right and who's wrong? **F1**

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The race to catch **Red Bull**

For the first few races of 2011 it seemed as if Vettel & co would have both titles sewn up by August, but now McLaren and Ferrari have closed the gap... haven't they? **Tony Dodgins** investigates

When F1 headed off on its summer break, the perception was that McLaren and Ferrari had closed the gap on championship leaders Red Bull. "Could be a tough second half of the year for Red Bull," opined observers. Ferrari and McLaren have undoubtedly made significant inroads, but these need to be put into perspective.

"If that's a form blip, it's the type you'd like to have..." said a McLaren man of Red Bull after Jenson Button had just won McLaren their second successive race in Hungary, ahead of Sebastian Vettel. If there was a perception that the championship leaders have gone off the boil, that was put to bed after their return to form in Spa and, more significantly, it's been largely down to their astounding start.

Let's look at the facts: Sebastian Vettel won in Australia, Malaysia, Turkey, Spain and Monaco and was a close second to Hamilton in China: that's five of the first six. But before Monza, he'd won two of the last six – Valencia and Spa – and taken second places at Montreal, Silverstone and the Hungaroring and a fourth at the Nürburgring. It's hardly a crisis. Look at the numbers and they tell you that in the six races pre-Monza, Red Bull scored 204 constructors' championship points to Ferrari's 138 and

McLaren's 134. In the drivers' championship, Vettel had claimed 116 points to Alonso and Webber's 88, Button's 73 and Hamilton's 61.

"It's tight between the three teams at the moment," Red Bull team principal Christian Horner conceded, post-Hungary, "but for Sebastian to go into the summer break having won six races and scored four seconds and a fourth is fantastic. There's a long way to go, but we've qualified on pole at every race this year and we're determined we'll come out of the blocks quickly after the break," he added. "Our focus is still to turn up and try to win every race. At different stages in Hungary, McLaren were quick and we were quick. We're in the heart of the development push."

You hear what he says, but when you look at the stats Red Bull's consistency is astounding. Neither Vettel nor Webber came away from a single pre-summer break race with less than ten points. There have been no mistakes of consequence and not a single DNF. The opposition, meanwhile, have all had hiccups – race-ending shunts for Hamilton and Alonso in Canada and costly back-to-back DNFs for Button at Silverstone and the Nürburgring. As well as Vettel's early-season brilliance, when he got a handle on the new Pirellis quicker than anyone else, facilitated, it has to be said, by a superior car as well as his own application, that →



In Australia, Vettel was 0.78secs quicker than the fastest non-Red Bull. In China, the margin had reduced to 0.72secs, although Lewis managed to beat him in the race with tyre strategy



consistency has been a significant factor in the 85-point lead he held after Hungary.

The law of averages suggests that you can't expect it to continue indefinitely, and a couple of DNFs under the current scoring system could change the picture quickly. Horner, though, says there's no need to mind-manage the world champion. "You could see what a mature drive Hungary was," he pointed out. "Sebastian wants to win, he's focused on winning and he'll continue to push – but he knows that on days when he can't win, finishing second is no disaster."

Vettel's stunning finish to 2010 may well fly in the face of straw-clutchers who suggest he's vulnerable to pressure, but after his early reliability woes and then the errors in Turkey and Spa, he was the chaser with no option but to go for it. The second half of this year will be different in that he's the prey – albeit prey with more than a three-win margin. Jenson Button will tell you how difficult that can be.

Nevertheless, there has been a shift in form. Early in the season, Red Bull had a mind-boggling qualifying advantage: in Australia, Vettel was 0.78secs quicker than the fastest non-Red Bull. In China, the margin was 0.72secs, although Hamilton managed to beat him in the race as tyre strategy became the dominant issue.

In Barcelona qualifying Mark Webber was a thumping 0.98secs clear of everyone bar

"McLaren have made a few poor calls this season, but talk of a 'crisis' has been media invention"



Alonso led after a stunning Q3 in Barcelona. But tyre trouble meant he was lapped by race end

his team-mate. Averaged out over the first seven races of the season, Red Bull's margin of qualifying superiority was 0.53secs.

That margin wasn't there in the race to anything like the same extent but still manifested itself in more subtle ways. It meant that, starting from the front, Vettel could control the races. He was able to drive unimpeded opening laps that put him clear of the DRS zone by lap 3.

He was able to up the pace around pitstop time to ensure that he was not vulnerable to the significant opposition trying to undercut him. Or, if they tried, it had to be early and optimistic, with every chance that it would hurt them later on. It also allowed him to run more wing, helping him to look after the Pirellis in the race.

Then came the FIA's decision to force teams to use the same engine maps for both qualifying and the race, starting in Valencia, and the ban on exhaust-blown diffusers at Silverstone. However, the latter decision was later reversed as the sport appeared set to tie itself in a knot amid a maelstrom of technical complications that rendered the opening day at Silverstone farcical.

Some suspected that Red Bull and Renault had a much more aggressive engine map in qualifying. Or else, as one Ferrari man suggested, they needed to run extra fuel in the race if they wanted to use those maps at key strategic stages, which obviously hurt them over the duration. →

How Vettel has led this season's race-by-race points tally

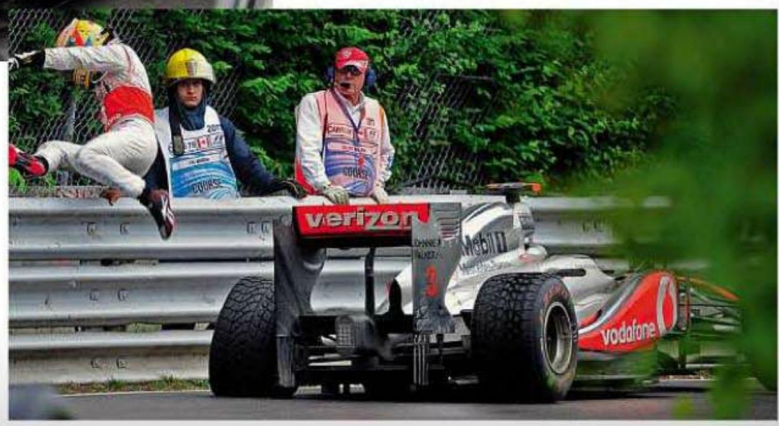
	AUS	MAL	CHN	TUR	SPA	MON	CDN	EUR	GBR	GER	HUN	BEL
• Vettel	25	50	68	93	118	143	161	186	204	216	234	259
• Webber	10	22	37	55	67	79	94	109	124	139	149	167
• Hamilton	18	22	47	59	77	85	85	97	109	134	146	146
• Alonso	12	20	26	41	51	69	69	87	112	130	145	157
• Button	8	26	38	46	61	76	101	109	109	109	134	149



	AUS	MAL	CHN	TUR	SPA	MON	CDN	EUR	GBR	GER	HUN	BEL	PTS
Red Bull	35	37	33	43	37	37	33	40	33	27	28	43	426
McLaren	26	22	37	20	33	23	25	20	12	25	37	15	295
Ferrari	18	18	14	15	10	18	8	28	35	28	23	16	231

Since Canada, Vettel has won two races, taken second places at Montreal, Silverstone, and the Hungaroring and a fourth at Nürburgring. It's a dip in performance, but his stats are still strong.

Horner: "Sebastian wants to win, he's **focused** on winning races and he'll continue to **push**, but he knows that on days he can't win, to finish second is **not a disaster**"



Red Bull's consistency is astounding. Prior to Monza, they've made no major mistakes nor had a single DNF. Meanwhile Hamilton and Alonso suffered race-ending shunts in Canada and Button had back-to-back DNFs at Silverstone and the Nürburgring.

PHOTOS: GLENN DUNBAR/LAT; ANDY HONE/LAT; ANDREW FERRARO/LAT; STEVE ETHERINGTON/LAT

Whatever the truth of all that, amid the paddock paranoia concerning the real agenda behind the mid-season map and diffuser changes, one man who appeared unexpectedly optimistic, outwardly at least, was Adrian Newey. "What it basically meant was that we could not run a different map in qualifying, but we didn't think that would penalise us because it was the same for everyone," he said. "There were certain things we were doing with the map to improve performance that you couldn't do in the race. That might be for fuel-consumption or reliability reasons. But if anyone was expecting that it was the reason for our qualifying performances, I think they were misguided."

In Valencia, the first time identical maps had to be used for both qualifying and the race, Vettel still took pole by 0.41secs, although it was reckoned to be a truly outstanding Q3 lap, so feasibly perhaps 0.2secs of that was driver, rather than car. Sebastian's one-lap pace is something he deserves more credit for. Since then, across the Silverstone, Nürburgring and Hungary weekends, Red Bull's margin of qualifying superiority had dropped to an average of just 0.11secs, even if the team had managed to maintain their hugely impressive clean sweep of 2011 pole positions.

Rule changes

The FIA banned hot and cold off-throttle diffusers at Silverstone and forced teams to use the same engine maps for qualifying and race, as of Valencia. Some suspected that Red Bull and Renault were running a much more aggressive engine map in qualifying.



Newey: "If anyone thought fuel mapping was the reason for our qualifying performances, I think they were misguided"



"After Barcelona, Ferrari could only reiterate that the **priority** was to give Alonso a car in which to maximise his **talent**"

You have to conclude, therefore, that even if the rule changes have handicapped Red Bull more than the opposition, Vettel and co have made significant progress elsewhere.

One of the most significant pointers was Ferrari's Silverstone performance, which was particularly relative to the team's display at Barcelona. From the start of the year, the team had suspected that the car was deficient in the aero department and Barcelona confirmed it.

The one anomaly was Alonso's personal performance. Barcelona is not a track where the driver is considered to be able to make a truly significant contribution because it's so much about aero. Throughout practice, and as far as Q2, Ferrari were third-best, behind Red Bull and McLaren. Then suddenly, in Q3, Alonso found

around 0.8secs and split the McLarens with a lap that was almost a full second quicker than that of Felipe Massa in the second Ferrari.

Later that day, Ivan Capelli was talking to Ferrari's then technical director, Aldo Costa, about the greats he had seen, for a piece on Italian TV. Amid the talk about the likes of Senna, Costa admitted that he was totally stunned by the lap Alonso had done that very afternoon. "Something amazing," he called it.

Fernando was on similar form in the race, scything through to lead into the first corner and for the opening two stints on the softer Pirelli option tyre. As soon as he put on the primes, however, the Ferrari was a different animal. From there, he lost an average of almost three seconds a lap to the main opposition. The Ferrari simply did not have sufficient downforce to heat up Pirelli's hard compound. The fact that Alonso had been lapped by the end of the race illustrated the problem to an embarrassing degree.

Post-race, all Stefano Domenicali could do was reiterate what a superb driver the team had and how the priority was to give Alonso a car with which he could maximise his talent. The tough decision was taken to relieve Costa of his duties.

Internally, the feeling was that perhaps they needed to be quicker at reacting and better at



After Alonso's improved performance at Silverstone it was suspected that the mid-season rule changes had played into Ferrari's hands. In fact, the car had a major upgrade



risk-taking, with Pat Fry promoted to head up the chassis side. The fact was, significant aero updates were already in the pipeline but they were too late for the unfortunate Costa. He had admitted as early as Malaysia that it was still the area where he suspected Red Bull were deriving much of their speed advantage.

The new Red Bulls have always run more rake than the opposition, with the aero efficiency of the chassis down to the effectiveness of the front wing, albeit maximised by the exhaust-blown diffuser treatment and the execution of the rest of the car. There was debate over their supposed flexi front wing in 2010, an area Costa (and he was not alone) suspected would be closed off by changes to the front wing and T-tray flexi test regulations introduced by the FIA last year.

It has been suggested that Red Bull achieve their efficiency via highly complex carbon lay-up techniques that allow them to pass the FIA tests, which is all they have to do to satisfy the letter of the law. You can bet that Ferrari and McLaren have been investigating similar methodology and have only recently started running their chassis with more rake as well – a route that requires significant conceptual changes.

After Ferrari's Barcelona shocker, Monaco, Canada and Valencia were all individual tracks to a greater or lesser extent, and ones where Pirelli's hard-compound tyre was not used.

Ferrari have struggled to get sufficient heat into the harder compound tyre. As a result, their technical department has been reshuffled



Silverstone was therefore the concrete test of Ferrari's progress, albeit with the picture muddied by the engine map/diffuser changes.


When Alonso qualified just a tenth shy of Mark Webber's pole at a circuit that is pure Red Bull territory and then won by 16 seconds, it was easy to suspect that the rule changes had played into Ferrari's hands. But that was a false picture. The car had a major upgrade package, completed since the team identified calibration issues with its windtunnel that Alonso estimated had set them back two or three months. As well as a revised diffuser and rear bodywork, with a wing designed to boost the effectiveness of the DRS, there was also a revised suspension.

As a package it was highly effective. The only niggle was that the hard-compound Pirelli prime, the car's Achilles heel in Spain, had been rendered superfluous by everyone starting on intermediates in damp conditions. Even so, Alonso was convinced by Friday running in cold conditions that the problem had been ironed out, a view backed by Massa, who has more trouble generating tyre temperature than his team-mate.

McLaren were addressing the opposite problem: they generate strong tyre temperature and so qualifying is no problem. But in hotter races or at tracks where degradation is high, they struggle to look after the rubber.

In Hungary, technical director Paddy Lowe said he believed the team to be on top of that. Budapest, normally, would have demonstrated this but, in keeping with so many of this season's races, race-day conditions were untypical.

The team made poor calls with Hamilton's qualifying strategy in Monaco and with the rear-wing spec in Canada, but talk of a 'crisis' was media invention. Button and Hamilton produced inspirational wins in Montreal and at the Nürburgring particularly, but could not have done so without a fundamentally decent car.

However you look at it, the latter part of 2011 is going to be fascinating. But can you really give Sebastian Vettel an Adrian Newey chassis and a 92-point head start and still expect to catch him? 

WALK

THE LINE

F1 Racing joins **Paul Di Resta** and his team for their pre-race ritual: walking the track. Very quickly, as it turns out...

WORDS HANS SEEBERG PICTURES GLENN DUNBAR/LAT



Good grief, Paul Di Resta

Gwalks fast. I'm striding down to the first corner at the Hungaroring with him and his Force India team as they begin something they do at every race: a Thursday lap of the track on foot. I thought it would be more of a gentle amble, maybe stopping to look at some kerbs and chat about the bumps here and there. Nope. Paul's legs look like they account for about two thirds of his height and he seems to be covering two metres per stride. You know when someone walks so fast you have to do one of those half-walk, half-jog type of things to keep up? That's what I'm doing. Consequently, Di Resta is eyeing me with equal portions of embarrassment and pity.

Most drivers do a track walk in some form or other, whether it's striding round with their engineer or riding it alone on a scooter. At Force India, each driver goes out with their team of six or seven engineers and, as a result, it looks

like some sort of motorsport-themed remake of *Reservoir Dogs* with white, orange and green clothing replacing the black suits and sunglasses. It's soon apparent that most things you might think were necessary discussion points on a track walk, such as bumps and how to take corners, don't feature massively on the agenda. This is part-revision and part-ritual; a handy way to jog the memory about the circuit while escaping the unrelenting demands of the paddock for a bit.

"It's true that it's a good chance to get the driver away from the media spotlight for an hour," says Di Resta's race engineer, Gianpiero Lambiase, known as GP. "But typically on a track walk we'll talk about the last race, anything that's going to be important setup-wise for the weekend... it's not just an opportunity to talk about the circuit because, essentially, it's just long straights in between corners. Besides, drivers spend so long on simulators these days, they know the circuits inside out anyway."



Each driver sets out with their team of six or seven engineers...



They're all on the lookout for anything that's changed on the track since last year...



...but it also means a bit of a break from the media frenzy back in the paddock




In truth, it seems like the revision aspect of the track walk helps the engineers more than the driver; these are the people in F1 who do not spend hours on simulators and this is their one and only chance to perform a more forensic examination of the circuit. "One of the things that we'll be looking out for is anything that's changed from the previous year," says Igor Real, Di Resta's systems engineer, scribbling notes on a printed-out track map as he goes as if he's on some sort of orienteering exercise. "We're here to look at the tiny details, remind ourselves of the

"The main thing we discuss is **setup**. If you haven't got that right, it doesn't matter what **line** you take, quite frankly"

cambers... it all helps to refresh the mind for the challenge ahead."

We all know that details are what count in a sport like Formula 1 and as we approach the chicane, GP points towards the kerb and suggests to Paul that he "might want to shave a few millimetres off the kerb here." Really? Just a few millimetres? "It might sound stupid but it all contributes to making the perfect lap," he smiles. "To be honest though, the main thing that we discuss here is the setup. If you haven't got that right, it doesn't matter what line you take, quite frankly."

As they charge around the track, more notes are feverishly scribbled down by engineers as Di Resta voices occasional concerns about the circuit ("Look at all that water on the kerbs – they've got to do something about that") and the track surface at the final corner. And then, barely 45 minutes after they've started, they round the final corner and stride down the pitlane, back to their reams of data, meetings and media commitments.

How much of a deeper understanding of the track have they garnered from this little jaunt? In reality, there probably wasn't much they didn't already know. Still, it's heartening to know that even in the era of supercomputers, CFD and the most sophisticated technology in sport, there's no substitute for walking round a piece of Tarmac on foot. Albeit very quickly. 



Concerns such as water on the kerbs are noted as the track walk continues



Di Resta's race engineer, Gianpiero Lambiase, advises Paul as they go around the circuit



Barely 45 minutes after they've started, the team are finished and it's time to head back to base

Competitive? Us?

F1 Racing were the only media in the world invited when **Alain Prost** and **Mark Webber** decided they wanted to cycle up Alpe d'Huez, the most gruelling climb of the Tour de France. You may not be entirely surprised to learn that they both wanted to win...

WORDS TOM CLARKSON
PICTURES ANDY TIPPING





Q1

The night before

“Dad and I drove for 14 hours to come and watch you at Adelaide back in 1991 – and you didn’t turn up! Why was that?”

As soon as Mark Webber sits down at the table at a restaurant tucked away deep in the French Alps, he immediately wants answers from the man sitting opposite him. That man might happen to be his hero, Alain Prost, but it hasn’t stopped Webber giving the quadruple world champion the Aussie Inquisition before the menus have even been handed out.

Prost smiles and tells an enlightening story about the tangled world of Ferrari politics in the aftermath of Enzo Ferrari’s death. Maranello seemed to be in a right old mess back then, but the details of Prost’s sacking are forced to remain tantalisingly off-the-record.

Webber listens intently, clearly loving the flow of anecdotes from a living legend. He’s met Prost before, but they’ve never spoken at length, and this conversation is free-flowing and respectful.

“Alain’s one of my heroes,” says Webber. “More than anything, it’s to do with the way he went about the job. Such economy of effort and such efficiency – yet still bloody successful.”

Prost throws questions back in Webber’s direction, too. He wants to know all about this year’s Pirelli tyres and what it’s like to use the DRS and KERS; he asks about Sebastian Vettel and Adrian Newey – with whom they’ve both worked – and they discuss the relative merits of Ayrton Senna and Michael Schumacher. “Mark’s someone I admire,” says Prost. “I like his attitude; I like the way he goes about the business and I think he’s doing a great job. He’s like Jenson Button in many ways.”

In between topics they knock back big bowls of pasta because they’re here in Alpe d’Huez to ride one of the most demanding climbs in the Tour de France. Both men are passionate cyclists, but only Prost has cycled this particular climb before. For Webber, it’s a step into the unknown. “This is the most nervous I’ve felt all year,” he says – with good reason when you look at the route we’re set to take. The interminable climb up to the resort amounts to 8.5 miles of breathtaking and breathless switchbacks, with an average incline of 7.9 per cent. The vertical ascent is 0.68 miles and the highest point is 1,850 metres.

News of Webber pitting himself against the gradient of Alpe d’Huez has turned out to be big news Down Under, because it was here that his compatriot, Cadel Evans, ripped holes in his rivals en route to victory in this year’s Tour

de France. And for all the camaraderie between Webber and Prost over this evening’s meal, tomorrow’s jolly is sure to develop something of a competitive edge as they approach the summit. One’s a four-time F1 world champion, the other is a top driver in one of the toughest eras that Formula 1 has ever witnessed. How could it not be competitive?

At the end of the meal, when – rather surprisingly – everyone’s enjoying a shot of grappa, Prost asks about the programme for the following day. He suggests that we all stick together for the duration of the ride, but Webber’s having none of it.

“Before we get to the climb, let’s stick together,” he offers matter-of-factly. “But on the climb itself, I want to push myself. I want to see how fast I can do it and how I stack up against the professionals.”

Prost smiles and bites a fingernail, clearly relishing the spirit of competition that’s developing.

“If you want,” he says quietly. “This could be fun.”

Q2

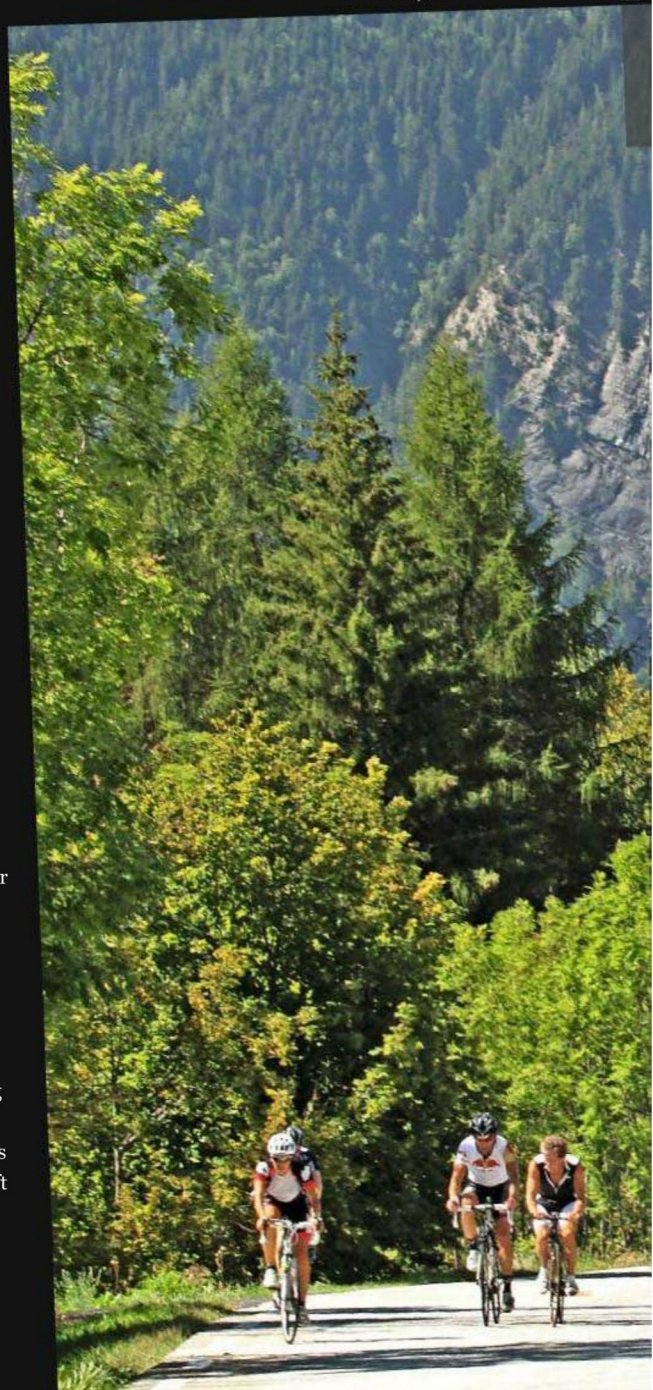
The build-up to the climb

The handicapper at Epsom couldn’t have made this a more even challenge. Being 21 years younger than Prost, Webber has youth on his side. But Prost is 18kg lighter than the Red Bull star and that is sure to have an effect towards the top of the hill.

Webber is widely acknowledged as one of the fittest drivers in F1. Brilliant on a bike, fishlike in a pool and physically strong, he had the makings of a world-class triathlete until he broke his right leg in a cycling accident two years ago. The tibia still has a titanium rod inside and, as a result, it’s now a tad shorter than his left leg, which hinders his running.

Prost’s fitness is impressive, too. His body fat is just 7.5 per cent and, at 58kg,

he weighs one kilo less than he did when his F1 career came to an end 18 years ago. Tomorrow’s ride will contribute a mere 8.5 miles towards the 6,200 miles he racks up every year on his bike – although that’s not to say that this exercise is going to a stroll in the park. Prost loves being in the mountains; three days ago he cycled up another famous Tour climb, Mont Ventoux, and in another three days’ time, he’s taking part in a 470-mile race from Geneva to Nice. All in all, he’s not a chap you’ll find slobbering on the sofa with a meat feast from Domino’s. →





Tom Clarkson
F1 Racing's finest

Under no illusions about the competition he's up against



Alain Prost
'The Professor'

Predictably methodical in his preparations for the 13.8-mile ascent



Mark Webber
Red Bull Racing driver

The unrelenting Aussie is not prepared to be the number-two cyclist



'The Wall'
Adversary number one

Some 1.4 miles of 11 per cent gradient. It's not for the faint-hearted...







“I started cycling during my sabbatical back in 1992,” explains Prost. “I was having some problems with my knee at the time and my trainer, Pierre Baleyrier, who had won the Paris-Brest-Paris cycle race twice, suggested that I should try cycling. We went into a shop to buy a mountain bike and I ended up coming out with a road bike because I loved the road bike as soon as I saw it. I just love the technology. In fact, bikes have become a real problem for me because I can’t stop collecting them...”

Prost even created his own bike label in the mid-1990s, called Profica. He worked as his company’s own test rider and spent many hours comparing the relative merits of carbon, steel, titanium and aluminium. His bikes received critical acclaim until he sold the company to concentrate his efforts on Prost Grand Prix in 1997. He now owns ten bikes and rides four to five times every week. Today he’s riding his Specialized S-Works, which he prepares meticulously in the car park of our hotel.

“Driving in F1 and riding a bike are a good marriage,” he says, while removing the carbon wheels from their travel bags. “I did a lot of riding during my final Formula 1 season in 1993 and I felt really good in the car because the demands on the heart are very similar in the car and on the bike.”

Webber doesn’t have the time to complete as high a yearly mileage as Prost, but cycling is a big part of his life. He rides a Trek and has stuck one of his mate Valentino Rossi’s ‘doctor’ stickers on top of the A-frame. He agrees with Prost on the merits of bike riding. “I’ve cycled throughout my F1 career,” he ponders, “and it’s a brilliant way to keep yourself in shape. It really helps you inside the car because there’s adrenaline involved, there’s physical exertion – there are a lot of similarities between the two.”

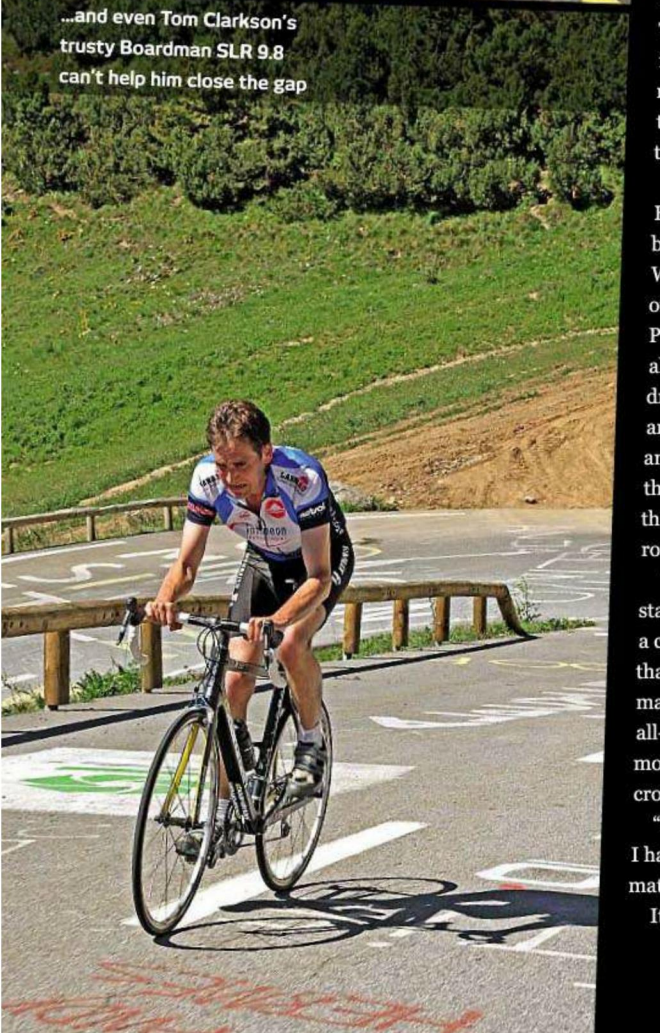
Cycling is also dangerous. One man was killed last year while descending from Alpe d’Huez, falling hundreds of feet after he failed to make it around one of the hairpins. Thoughts of Webber’s leg-breaking shunt in 2008 pass unmentioned – and that’s not to mention the shoulder injury he incurred last October in a mountain-bike accident. What on earth would we tell Christian Horner if something similar were to happen today?

We start the ride by descending the route that we’re eventually going to climb. There are 21 hairpins and no need to spin the pedals once. Webber and Prost ride sensibly. They’re quick and beautifully smooth, clipping their apexes, and there are no crazy overtakes. Several nutters pass cars →

Despite the climb's average gradient of 7.9 per cent, Prost and Webber are quick off the mark...



...and even Tom Clarkson's trusty Boardman SLR 9.8 can't help him close the gap



around blind corners. "They've obviously never been hit by a car," deadpans Webber ruefully.

Over breakfast, Prost had suggested attempting 75 miles of the Tour de France route, but this plan has now been binned in favour of what he calls "a short warm-up" before the final climb. When we arrive in Bourg-d'Oisans, which sits in a valley half a mile below Alpe d'Huez, we head towards Grenoble, before forking left towards the Col d'Ornon, which, at 1,370m, is only around 500m short of Alpe d'Huez.

None of us has ever ridden to the summit of Ornon, and Prost wants to see what it's like. As an impartial observer, could this possibly be part of the world champion's plan to take the edge off Webber's performance? It's 32°C and none of us needs to climb 750m as a warm-up. You won't be surprised to hear that Prost is best prepared for long distances – he regularly completes rides in excess of 100 miles with his son Nicolas.

But there's no doubting that the Col d'Ornon is beautiful and Webber seems happy to roll with the plan. The spirit of the ride is chatty and informal, with Webber and Prost riding alongside each other and me tucking into their slipstream on my trusty Boardman SLR 9.8.

By the time we return to Bourg-d'Oisans, we're one water bottle down and sweating heavily. We take a short pitstop at the foot of the mountain, during which both Prost and Webber rid themselves of all unnecessary weight. Their second drink bottles are removed as well, as are any unwanted pieces of clothing and, in Prost's case, his helmet. They then set about predicting their times for the arduous 8.5-mile climb back up the route to the resort.

"I'd like to do it in under an hour," states Prost, who's done exactly that on a couple of previous occasions. Given that professionals like Evans only usually manage to complete it in 45 minutes (the all-time record is 37mins 35 secs), that's more than respectable and it places the cross hairs on Prost's back.

"If Alain's going under the hour, then I have to do that as well," says Webber matter-of-factly.

It's big talk. The stage is set.

Q3

The main event

The first section is hardest. The route passes from the flats of the river Romanche to "The Wall" – a two-kilometre stretch of unrelenting 11 per cent gradient. "Do not get into the red on 'The Wall'," says Prost, "because you will never get back into the black for the rest of the climb."

When a man known as "The Professor" offers you advice, you listen. So, in the interests of longevity, I leave him and Webber to slug it out. Prost is immediately out of the saddle and pushing hard. Within four hairpins they're out of sight and my race report is reliant on witnesses and the protagonists from hereon in.

"We didn't talk much during the early stages," says Webber later. "We made the odd comment about people we were overtaking, or the mad mix of painted letters on the road, but we were working pretty hard from the outset."

The final 1.5 miles are where it gets really interesting. We now cross over to *F1 Racing* photographer Andy Tipping, who recorded Prost and Webber while hanging out of the boot of a hire car, witnessing their ultra-competitiveness kick in as the end drew near – as we predicted...

"They were neck-and-neck and keeping a very similar pace – until three hairpins from the end. From there, Prost just seemed to kick and Webber maintained a similar pace. I reckon Prost opened up a gap of about 30 seconds and that's how it remained until he slowed down at the end and they crossed the line together. There were hundreds of cyclists going up that hill and these two were the fastest by far. They weren't overtaken and you could see they were giving it everything. I was definitely better off in the car."

At the finish, Prost gives his interpretation of the final miles. "Initially, I didn't know that Mark was no longer with me," he says. "It was only when I looked back at one of the hairpins that I saw he was a bit behind. We were together for most of the climb and I wanted us to finish together, so I slowed as we approached the line."

Webber is magnanimous in defeat. "When Alain got a little gap, what was I going to do? The kettle was already boiling!" For the record, they didn't break the hour; they came home in 61mins 55secs – 15 minutes slower than the professionals. Still, they beat me by 11 minutes.

The debrief lasts 30 minutes, and there's a lot of chat about why they didn't break the hour. "There was a headwind today," says Prost, with typical attention to detail. "That will have cost us, →

How steep?

At 1,850 metres high, it's a bit like climbing the Eiffel Tower six times. Only harder...



21 hairpins to the summit anyone?

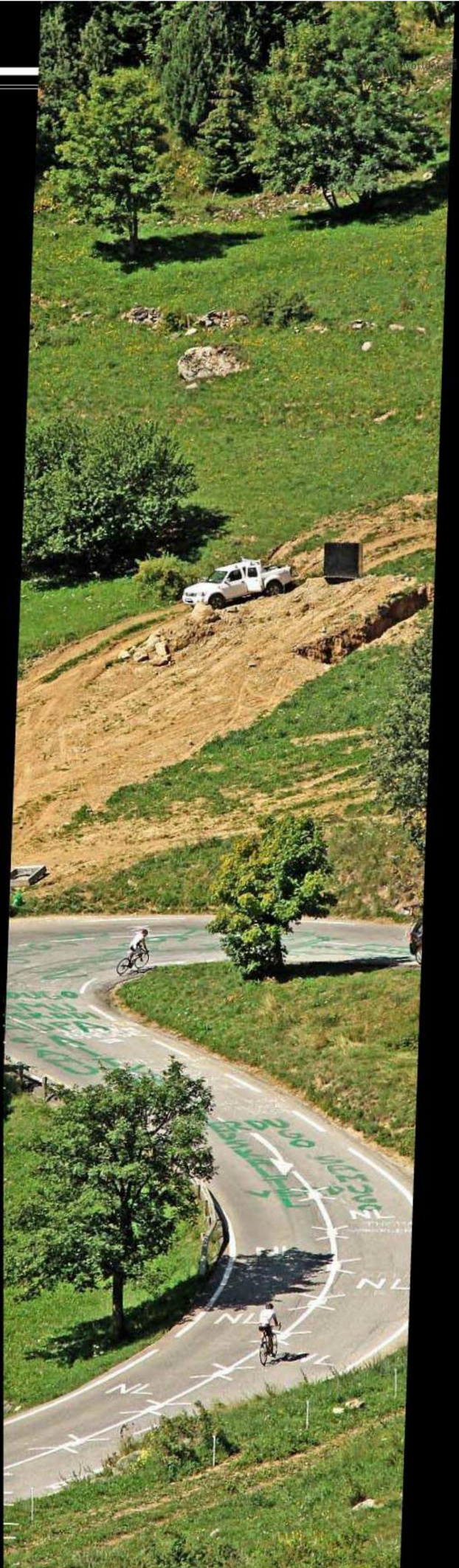
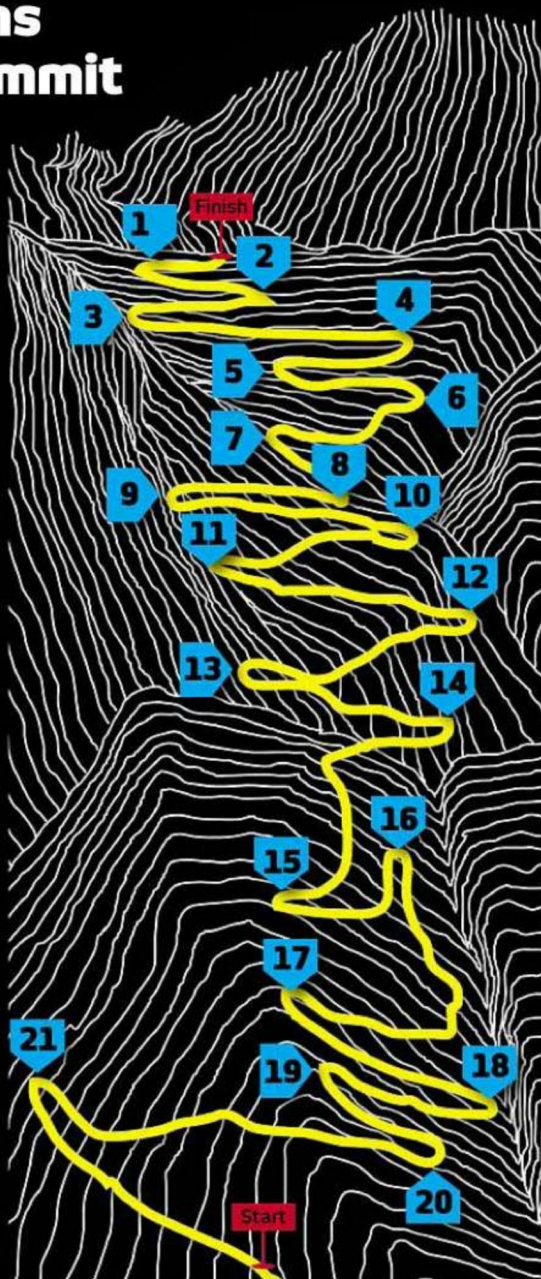
Cyclists count down the switchbacks on the exhausting slog up to the top...

THE CHALLENGE

Length of climb 8.5 miles
Average gradient 7.9%
Maximum gradient 14%
Start altitude 717m
Altitude at top of climb 1,850m

FASTEST TIMES UP

Marco Pantani
1997, 37mins 35secs
Lance Armstrong
2004, 37mins 36secs



and you never know with the body. Why do you perform better on one day than another?"

No one has a heart monitor, but their average heart rates are thought to be in the mid-150s for Prost and mid-160s for Webber and they both display impressive physiological knowledge when discussing how the heart slows with age. Then they shower before parting ways. Prost jumps into his Porsche Panamera to head off to Geneva for a meeting, while Webber is carrying on to the south of France for a holiday.

It's been a hugely enjoyable 24 hours. To observe two drivers from different generations competing has been oddly reassuring. F1 may have changed a lot in the past 20 years, but the drivers' competitive spirit is unchanged: it's as ferocious now as it ever was, and continues to be several tiers above that of mere mortals.

Webber isn't happy about being slower than Prost and wants another crack at it later in the year. "I've got to get inside the hour," he says.

Alain Prost
61mins 55secs

"I'm sure I was a better driver than I am a cyclist"

Mark Webber
61mins 55secs (although Prost did wait for him...)


"Next time, I've got to get inside the hour"

Tom Clarkson
72mins 55secs

...still too busy catching his breath to pass comment



Prost, meanwhile, cannot hide his satisfaction at being first home. When I joke he's done well to keep the younger generation at bay, he puts a hand on my shoulder and gives a knowing wink. He's closer to 60 than 50, but he's a phenomenal athlete. "I'm sure I was a better driver than I am a cyclist," he laughs as he pulls out of the car park.

And Webber thinks he's got problems with Sebastian Vettel. Can you imagine what it must have been like to be Prost's team-mate? 



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DANGER
HIGH VOLTAGE

KERS

Is it really worth it?

Huge amounts of money have been spent in Formula 1 over the past few years on a new technology that's had its share of image problems. So is KERS the right technology for the sport to embrace, or just a costly way of making F1 look green?

WORDS SIMON
ARRON

E

lectronic acronyms are such a part of the automotive lexicon these days that their presence is scarcely noticed. Motorists speak glibly about EBD, DSG, GPS or ASC+T without pausing to ponder their meanings. Such terminology is simply a fact of life. It wasn't the same 20 years ago, when driver aids first began to make a gentle impression on the mass market. Back then, Japanese manufacturers were so keen to advertise their sophistication that they sometimes struggled to fit a car's name within the width of its own bootlid: anyone for a Mitsubishi Galant GTI 16V 4WD/4WS ABS?

In a changing world, where performance is measured in grams per kilometre as well as miles per hour, cutting-edge technology tends to be taken for granted and many everyday hatchbacks feature safety systems – anti-lock brakes and traction control, for instance – that are outlawed in grand prix racing because their presence would be detrimental to the drivers' art.

Formula 1 has many other complexities, of course, yet it retains something of a reputation as a technological pariah – a self-serving industry that's happy to invest millions fine-tuning front-wing endplates or crafting gear ratios from solid unobtainium. Such practice has long been part of an endless quest to find fractional performance gains, but there have been relatively few real-world benefits. Where other championships have dabbled with bioethanol and liquefied petroleum gas, and endurance racing promoter the Automobile Club de l'Ouest has pledged to make the Le Mans 24 Hours a showcase for alternative technologies, F1 has been relatively slow to adapt. When the Kinetic Energy Recovery System (KERS) was introduced in 2009, to capture waste braking energy and recycle it via a

driver-activated cockpit button, only a handful of teams embraced the technology, even though it was worth up to 80bhp for 6.67 seconds per lap. By way of a gentlemen's agreement, the system was quietly dropped at the season's end.

F1 is not wholly without a social conscience, however, and in the longer term has pledged to develop environmentally friendly technologies with genuine road relevance – hence the reappearance of KERS this season. All but the sport's newest three teams now use it.

"We embraced the concept fully and thought it was a good idea to reintroduce it,"

says Williams' departing technical director Sam Michael. In 2009 the team developed a mechanical, flywheel-based KERS, but never got round to racing it (although Porsche have adopted the system for use in endurance events, with its 911 GT3 R Hybrid). This time, Williams plumped for an electrical, battery-based system. "The main reason for the change was packaging," says Michael.

The battery pack is housed in the sidepod near the gearbox in Red Bull's case

The KERS unit controls the power exchange between the motor generator and the battery



Rubber gloves insulate the pit crew from the chassis if it goes live due to a KERS malfunction. Drivers are also drilled on how to exit the car safely

"We couldn't accommodate a flywheel in the back of our chassis, given the current weight limits. With the technology as it was, we decided to go for a battery.

"Incorporating KERS isn't too much of a problem – it only affects chassis length, really. We didn't want to put the system beneath

the radiator duct, as some teams have done in the past, because that restricts the amount of undercut you can have on the sidepod and we didn't want to compromise. The whole system is incorporated within the chassis, beneath the fuel tank, but it's integrated very well. Ours is still at a young stage of development, which is why we had a few reliability problems initially, but we support the initiative. It will be good for F1."

KERS triggered all kinds of scare stories first time around – not least because an electric shock knocked a BMW Sauber technician to the ground when he touched a 'live' chassis during a test session at Jerez.

"There are certain procedures to follow," says Nick Heidfeld. "If there is any trouble with KERS, you have to avoid touching parts of the car that are too far apart when you step out – and if possible you should jump from the cockpit, but that's only if there's a problem."

Williams isolated a KERS battery during one of the pre-season Barcelona tests, placing it in a container behind the garage. "We had a problem with an inverter board," Michael says.





“You’ll need your gloves, chaps...” Sébastien Buemi points out to track marshals that his KERS might still be active

“There was some smoke underneath the car and we doused the battery – there wasn’t actually anything wrong with it, but we placed it outside as a precaution.

“We have a lot of related safety procedures. There is an isolated KERS area at the track and only certain people are allowed inside. When we work on the car in the garage, Tensabarriers go up and we have a light system on board so mechanics can see whether or not it’s live. Only two specialist guys work on the high-voltage batteries and we have lots of systems to tell the drivers whether or not the car is safe – something we can also see from the telemetry.”

While teams might be comfortable handling KERS, the airline industry takes a more cautious approach: there are freight regulations to respect and KERS components have to be sent to races by certified air freight. “We use powerful lithium-ion batteries,” says Michael, “and a short circuit could cause a fire, so you can’t just walk onto a commercial flight with this stuff. It’s the same technology you find in mobile phone or laptop batteries, but ours harness a lot more energy. If you tried to board a flight with 300 mobiles stuffed in your briefcase, I guess they might try to stop you.”

Not everyone embraces KERS with the same enthusiasm – and Virgin team principal John Booth was vociferously opposed to the system’s return. “It’s a timing issue as much as anything,” he says. “In 2014 we’re due to have a new, efficient powertrain with a recoverable energy system. It seems a bit pointless investing massively in KERS for a year or two – and in any case, a team like ours can’t afford it. The first

time I attended a meeting at which KERS was discussed, people were talking about spending five million euros to develop a system and then another million to run it... and those initial figures have since risen significantly.

“Whatever people are spending, KERS is worth about five or six tenths of a second – and in our situation we need more like five or six seconds. We think we could spend KERS-type money in a more efficient way, but I accept that other teams might not share my perspective.” Whatever Booth thinks, KERS will be an integral part of every team’s 2014 powertrain.

Michael believes that the lessons learned this year will have a significant role to play as the teams prepare for the next major regulatory shift, when regenerative, turbocharged, 1.6-litre V6 engines are adopted in 2014. “Things we’re doing at the moment are very important,” he says. “Two years from now the components we use will be completely different, but the operational lessons we’ll learn in terms of cooling and so on will apply.”

Booth, however, thinks that a patient approach would have been wiser. “We should have waited until 2014 and used the next big change to highlight the sport’s environmental message,” he says. “People keep saying KERS is green technology, but I haven’t seen any stats to support that. I don’t believe it stands up in its current form, in terms of fuel consumption, battery disposal and so on.”

Virgin also has their separate concerns. “In Australia there was a chance that we might not make the 107 per cent qualifying cut-off as a result of the fastest teams using KERS,” Booth

says. “We were a bit squeaky about that and it’s not a place we want to be. It’s conceivable that we might not qualify for a race at some stage and that has obvious commercial implications. That’s one reason why we shouldn’t have gone down the KERS route.”


Its re-introduction has added extra thought processes to the drivers’ repertoire, too, with today’s steering wheels prompting Heidfeld to say that “it can feel more like using a PlayStation than driving.” But whether you consider KERS to be a boon or an abomination, it is symbolic of the technology to which motor racing must acclimatise. But can Formula 1 ever be regarded as truly green?

“All you can do is promote things in steps,” Booth says. “People won’t ever think speed is green. It’s like air travel – it’s cleaner than it used to be, but people don’t see it that way. We need to improve the sport’s green credentials, but let’s make sure the stats stack up first.”

Heidfeld is equal parts traditionalist and pragmatist. “I like the idea of F1 moving with the times,” he says, “but I also appreciate its scents and sounds. It would be strange if they went away, but it’s probably a direction the sport needs to take. It won’t ever be perceived as green, though. Greener than it is now? Perhaps – but not green.”

With the addition of new rules in 2014 that intend to have cars powered only by KERS when they are in the pitlane, it’s a future that promises much, according to Michael.

“If we can channel development into things such as KERS – rather than windtunnels, which don’t help at all in the real world – it can

be beneficial. F1 can assist with all sorts of things, such as seamless transmissions or brake-disc technology, which is more in line with what the car industry is doing.” 

“People keep saying KERS is green technology, but I

haven’t seen any stats to support that” *John Booth, Virgin Racing*

NO

YOU CAN'T
GO RACING
LOOKING
LIKE THAT...



From Benetton's childlike brushstrokes to the garish pink of the '92 Brabham, F1 has seen some shocking liveries over the years. Here are the ten worst offenders

WORDS JAMES ROBERTS
PICTURES LAT ARCHIVE



◀ The mane offender

Dutch racer Jan Lammers acquired backing from his homeland to enter a third Shadow for the 1979 season. Samson rolling tobacco featured a lion on its packet, so guess what happened? That's right: it was 'beautifully' recreated on the chassis of the DN9. Particularly clever was the 17 coming out of its tongue and the paws on the front wing. Very psychedelic. Very 1979.

▼ Not pretty in pink. At all

Damon Hill and Belgian backmarker Eric van de Poele fought hard to get the Brabham BT60B on the grid in 1992, but only managed three starts between them. Perhaps they were hindered by the part-mauve monocoque. Well, that and the rubbish handling.



▼ Was there a colour they didn't use?

With the addition of energy drink Hype as a major sponsor, so came the arrival of the lurid pink lettering of Hype on the rear wing of the 1995 Footwork. Along with all the other sponsors and colours, the resultant *mélange* on the car's surface resembled the unpleasant reality if you drank too much of said drink. →



▲ What on earth was this?

It was a bold statement that was intended to fly in the face of the conventional F1 sponsorship model, that's what. Dreamed up from the brains of XIX Entertainment, it was aimed at highlighting the problems of global warming. However the paint job couldn't extend over the engine cover, as the hot temperatures melted it. After two years, the project was binned at the end of '08. Just as well, really.

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> Livery like a 99p firework, anyone?

In 1993 the BMS Scuderia Italia outfit ran Italian journeyman Luca Badoer and former Ferrari racer Michele Alboreto. Adorning the Lola T93/30 was a fiery livery that was somehow meant to represent Chesterfield cigarettes' sponsorship. Thankfully, the red and yellow flashes vanished with the team at the end of the year.



▲ She looks comfortable, doesn't she?

Lord Hesketh brought a unique flavour to F1 with his eponymous outfit in the mid-'70s and the sight of a French maid holding a packet of cigarette papers on Guy Edwards' 308D was just as much of a pop at the sport's establishment as it was a prerequisite of the other sponsor, *Penthouse*.



▲ A packet of cigarettes on wheels

For the final two races of 1993 Martin Brundle drove his Ligier in a special Gitanes livery, featuring the iconic Spanish gypsy woman from the packets, wreathed in clouds of white smoke. Nice, eh?



< Incredibly, adults did this

Give a three-year-old child a few pots of paint and a large brush and – *voilà!* – you have the artwork for the 1986 Benetton. Even the sidewalls of the Pirellis were daubed in a bilious hue of green, yellow and blue – the one upside being that they were more identifiable than the tyre markings used today.

> A red Williams: wrong on every level

Some colour schemes are synonymous with their teams and Williams have always traditionally featured a fair bit of blue on them somewhere. But when Winfield cigarettes became title sponsor in 1998-99, the blue was retained ahead of the rear wheels... in amongst an awful lot of red, yellow and white. Oh dear.



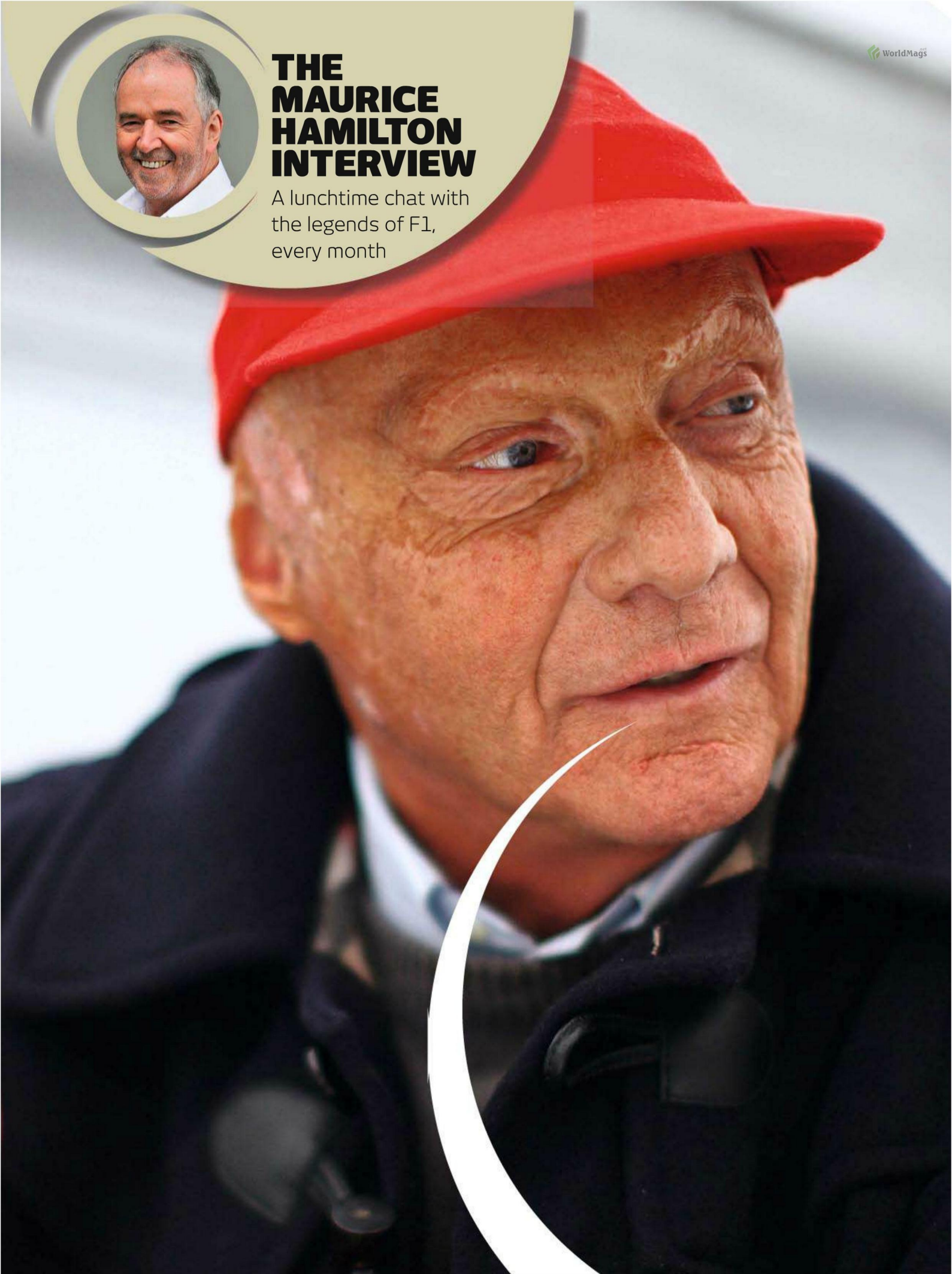
< 50% blue. 50% white. 100% rubbish

At BAR's first car launch in 1999, the team proudly unveiled two models bedecked with the products of parent company British American Tobacco: 555 World Racing and Lucky Strike. They were soon informed that they were not allowed to run two different schemes in the same team, so their compromise was a horrible mix of both... 🤦



THE MAURICE HAMILTON INTERVIEW

A lunchtime chat with the legends of F1, every month



"I was at the scene of my crash two years ago with a friend. People were asking what we were doing there and he said: 'We're looking for Mr Lauda's ear...'"

He fibbed about having sponsors just to get into F1 and ended up with three world titles. Along the way there was laughter, farce and tragedy – all on more than one occasion. Maurice Hamilton speaks to the remarkable **Niki Lauda**

PORTTRAITS LORENZO BELLANCA/LAT

Typical Niki Lauda. He says he'll talk, but he hasn't got time for lunch or any of that social nonsense. And no, I don't need to go to Vienna. He'll see me here at the Nürburgring, in Bernie Ecclestone's personal hospitality area run by Lauda's old friend and fellow Austrian, Karl-Heinz Zimmermann. It's cold and damp and not long after qualifying has finished, Lauda walks briskly up to the table, sits down and barks: "Okay. Start!" He eventually undoes the toggles of his typically unpretentious duffle coat and leans forward: a major concession; we're getting somewhere. To begin with I was concerned that this might not work, but I should have known better. Ask the right questions and Andreas Nikolaus Lauda never sells you short.

Maurice Hamilton: I want to show you this photograph...

Niki Lauda: I'm like a little boy – where is this?

MH: Mallory Park, March 1971. Is this your first F2 race?

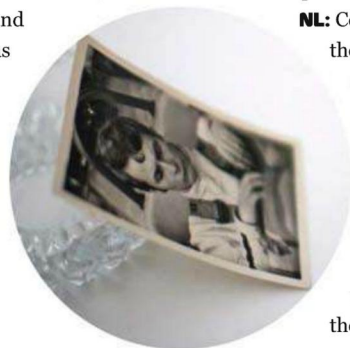
NL: Could've been... don't remember. How did you get it?

MH: I took it. I was just a fan at the time and in those days it was easy to get into the paddock. I don't know why I took a photo of you; you were a nobody at the time!

NL: Correct. The thing that interests me is the ring I'm wearing. This was my family's signet ring; look, there's a family crest on it. I don't know how to say in English, but it was handed down from my grandfather and my father...

MH: We would call it an heirloom.

NL: Okay. It was given to me and, at this time, I was still thick enough to use it. My family were a kind of, what's the word – aristocrats? Funny people; in →





THE MAURICE HAMILTON INTERVIEW

England there are a lot of them... In Austria, less. Anyway, I was very young and I thought wearing the ring was the right thing to do.

MH: But it's on your left hand, which suggests you were married?

NL: I wasn't married; nothing like that. I didn't even know how wear it properly – it just shows how stupid I was. I remember soon after this I threw away the ring and left behind the images of my family's upbringing and good manners and all that and decided to try to be a proper racing driver. So, this is a very interesting picture because I had completely forgotten I actually had this ring on when I started racing. Thank you for showing me this.

MH: This was such a fascinating period because you were in F2, which was a really important series with all the top drivers doing it as well as F1, and here you were, aged 22, in a works-supported March. I know you paid for this by the extraordinary business of borrowing money from a bank against an insurance policy on your life, but what a way to start your top-line career. You had Ronnie Peterson as your F2 team-mate – how good was that?

NL: Ronnie was my master at the time. I stayed in the apartment above him in a house near

Heathrow. It was a big place and I shared a flat with Mike Hailwood; he let me live there.

MH: Ah, was this the famous flat at Heston?

NL: Yes correct, it was Heston. Ronnie and his wife Barbro lived below me and he was the master because we were together at March. He had this big Mercedes – a V8 or something – and I remember very well driving to the March factory in Bicester, and he was always braking with his left foot. I said: "Why are you doing that?" and he said: "Because this is training." I was thinking, 'What's he training for?' In those days, you had a clutch and changed gear with the left foot: the right was for the brake and throttle. But he was so flexible that he could brake with either foot, without even showing that he was braking. That really impressed me at the time.

So when I was racing against him, I knew what he was doing because he was the fastest man. I only managed to beat him once in an F2 car. That was at Rouen and it was only because I was using a different rear wing. Mine was better for the very fast bends on that track, but

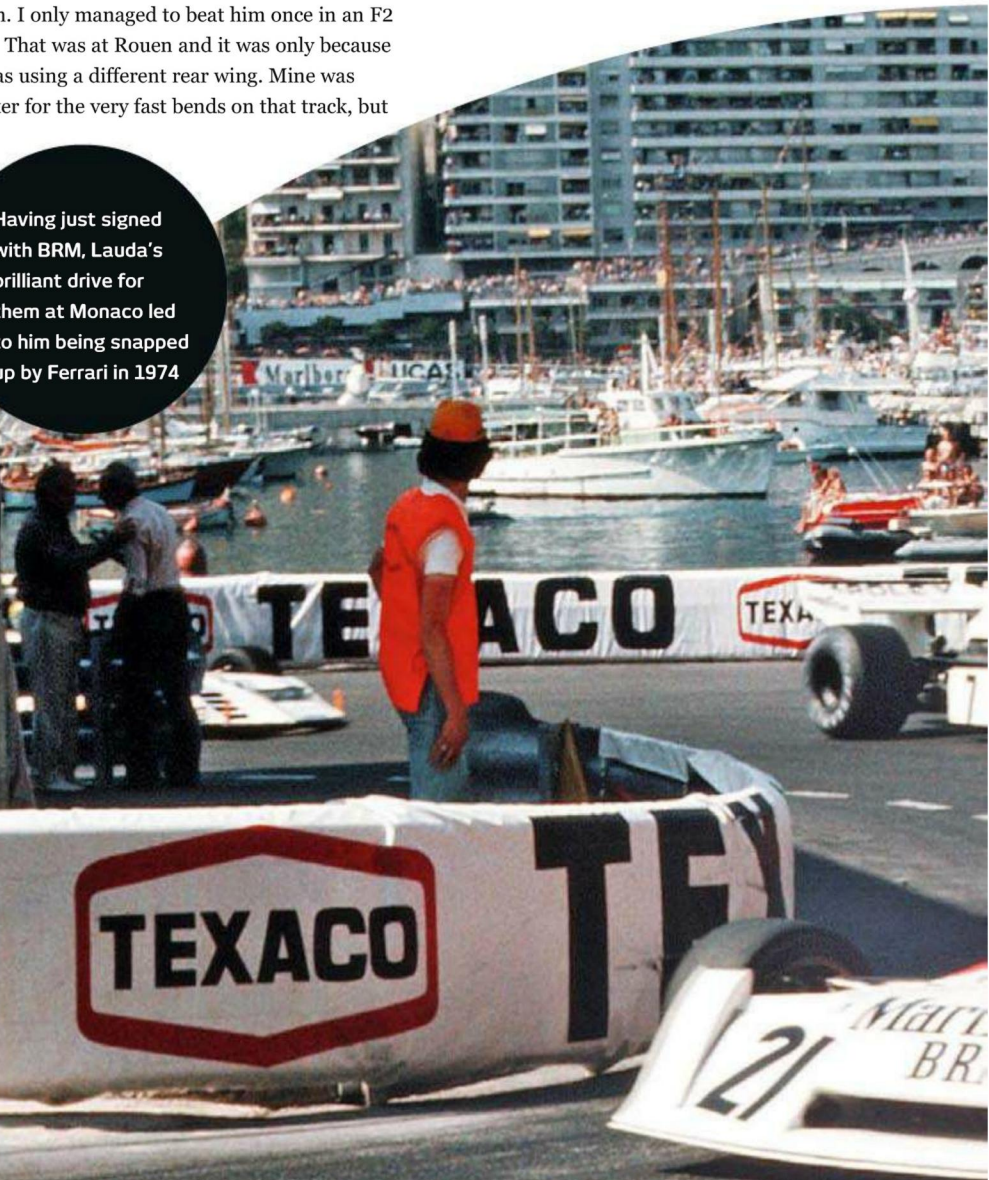
otherwise it was really hard to beat him because Ronnie was just so bloody quick.

MH: Another downside to having Ronnie as a team-mate must have been the way he would think a bad car was okay because he could drive around any problems. I'm thinking specifically here of one car: the March 721X... the one with the transverse gearbox. This was your first F1 car – and it almost wrecked your career in 1972.

NL: Correct. I remember Ronnie was testing this thing with the sideways gearbox for the first time. He was the number-one driver – I was the schoolboy – and he ran and ran and said the car was good. Then I got in. I did two laps and said: "This is the worst car I've ever driven." Robin Herd was impressed by my words; he was not happy but he was impressed. Ronnie didn't understand what I was talking about because he

Having just signed with BRM, Lauda's brilliant drive for them at Monaco led to him being snapped up by Ferrari in 1974

PHOTOS: LAT ARCHIVE



was balls-out and couldn't even tell how good or how bad a car was. As it turned out, the car really was a piece of shit. A total disaster.

MH: You had to race that car: I remember a picture of you spinning it in the wet at Monaco.

NL: It was completely unpredictable; impossible to drive. It would oversteer, then understeer – it had no downforce and was slow in a straight line. It did nothing right. But the worst thing for

me was at the end of the year when Max Mosley told me I couldn't drive for March any more because they had no more money. So, I'd paid for this drive in F1 and I was left sitting there with a load of money owing to the bank and no drive after a disastrous year with this 721X.

MH: And yet you managed to convince BRM to give you a drive in 1973. You wouldn't have got that for nothing. How did you manage to

persuade Big Lou [Louis Stanley; boss of the BRM team] if you had no money?

NL: I told him I had a sponsor – which I didn't. I convinced him to run a fourth car [alongside Jean-Pierre Beltoise, Clay Regazzoni and Vern Schuppan]. Stanley was negotiating with me in Vienna airport with a bank manager I'd brought along. I had borrowed money to convince Stanley the bank could be my new sponsor. The bank manager didn't speak English very well and I was translating – to suit me, you might say. I made a deal that I had to pay the first amount of sponsorship to BRM in May.

So, we got to May and, in Monte Carlo, I was lying third in the BRM for a while and the Ferraris were behind me. Stanley called me for dinner afterwards and he said: "Where is the money?" Of course, I didn't have it. I thought that was the end. Then he said: "I know that you have difficulties, but you impressed me so much with your drive here that I'm going to give you the drive until the end of the year without sponsorship." I signed the contract that evening.

MH: I didn't realise you actually signed a contract.

NL: I did, and that caused a problem I didn't expect. I had my cousin's secretary working for me in a little office. We had this joke running for about a year; every time I'd leave the office, I'd say: "Whenever Ferrari call, tell me!" On the Monday when I got back from Monte Carlo, she said: "Ferrari called." I said something not very nice. She said: "I tell you,

Ferrari called! Look! Here is the number. Here is the name: Mr Montezemolo." I thought: "Shit! She's not joking."

Next day I was down in Italy and Mr Ferrari said he wanted to sign me up.

I said I had →

"I told BRM I had a sponsor... he didn't speak English very well and I was translating – to suit me, you might say"

Lauda pictured sharing a joke with his fellow racers Emerson Fittipaldi and Carlos Pace, back in 1973





THE MAURICE HAMILTON INTERVIEW

made a deal with Mr Stanley and Mr Ferrari said he would take care of that. I signed with Ferrari on the Tuesday.

MH: That started okay because the 1974 Ferrari was a good one. But I remember being here at the Nürburgring in 1974; you were leading the championship, and...

NL: Crash! And I didn't win the championship.

MH: Yes, on the first lap, you collided with Jody Scheckter's Tyrrell, just over there, at the Nordkurve. You won the championship the next year but if you're going to talk about crashes then obviously I have to mention your big one here in 1976...

NL: Like Sebastian Vettel today, I was leading the championship that year by some distance. And then, as you say, the big crash happened, the big mess. I got the last rites and all this which you know; I don't want to repeat all that again. But I was still leading the championship before the last race in Japan and lost it by one point to James Hunt. I didn't lose the championship because I didn't drive in the rain in Fuji [Lauda stopped after two laps]: I lost the championship because I missed three races.

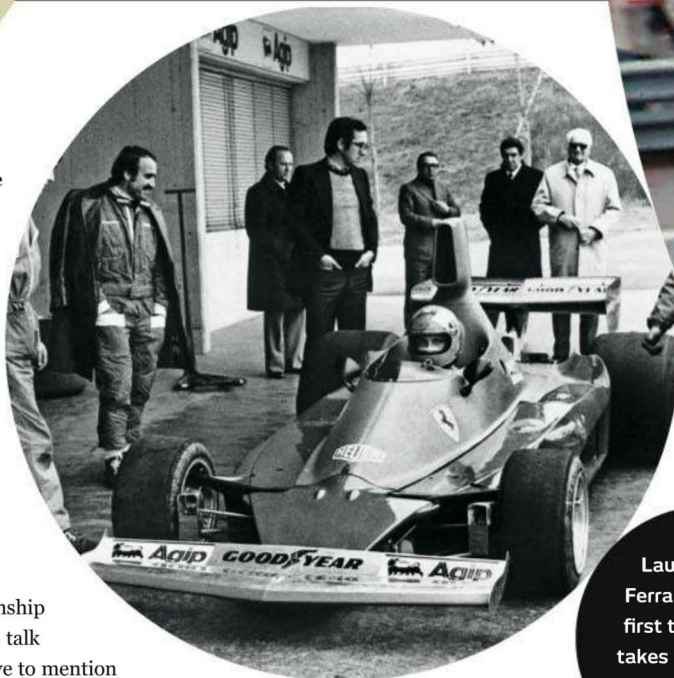
MH: Germany, Austria and Holland. And James won two of them and scored points in the third. Despite all the stories – certainly in the British press – about you, the nasty Austrian in a Ferrari against the dashing British blond hero, you had a really good relationship with James, didn't you? Why was that?

NL: Of all the drivers, James was the one I was best able to communicate with because I knew him from when we raced against each other in F3 – before F1. So, I had a good relationship with him. I liked the way he lived his life.

MH: He was like you; a bit of a rebel. Is it true that, when you were fighting for the title at Watkins Glen, you actually had hotel rooms that happened to have an adjoining door and on race morning you marched in, fully kitted out in overalls and helmet, into his room, gave a salute and said: "Today I vill vin ze championship!" and then marched back out?

NL: [Laughing] I cannot remember that exactly but it's possible because we were always doing things like that and making jokes about each other and him being bloody British.

MH: I think that story was in James's book. I also recall seeing a photo of James sitting in the cockpit of your Ferrari in the pitlane somewhere. Can you imagine that happening today?



Lauda tests the Ferrari 312T for the first time (left) then takes his first win for the team at the 1974 Spanish GP (right)

NL: No way. It's so sterile today.

MH: For me, one of the greatest stories of 1976 was your comeback at Monza, six weeks after the crash. This really was a big deal, not just for you but also for the media. Take a look at these cuttings. This one is a piece by Ian Wooldridge, sadly no longer with us but one of the finest sports writers of his generation. Very British; very old school. Wooldridge rarely covered F1, but your comeback story was so big that he was sent to Monza. You probably guessed this sort of thing would happen and you were hidden away in some remote hotel.

NL: That's right. I can't remember where, but it was away from everyone else.

MH: Wooldridge, the crafty old fox, used his contacts in Milan to track you down. He claimed that he was the only journalist to do so. He was waiting for you – and you weren't pleased.

NL: I don't remember him – but that would certainly have been the case.

MH: Here's the story across two pages – the only quote from you is this single paragraph, stuck in the middle – that's all he got. He apparently said, in his very British way: "Mr Lauda, I have been sent from London to speak to you," and you replied: "You haff two minutes!"

NL: [Laughing] Probably! He was lucky to get that much. There was a lot of pressure because they did this medical check for me, which I didn't expect. Ferrari were trying to stop me racing there. Mr Ferrari told me at the test at Fiorano: "Don't go to Monza because if you lose the championship, it's better like this." I said: "Commendatore, if I'm ready to race, I race." Then, on Thursday, they gave me this medical check, which I hated and which felt unnecessary. They really drove me crazy, the Italians, with all their organisation.



On the Friday, I could not drive. I got out of the car because I was frightened. I went to the hotel, thought about it, took it easy on Saturday and then finally got going again. But there was a huge pressure and mess – so therefore your poor journalist guy had no chance of getting anything.

MH: What was the medical about? They didn't do those as a matter of course back then, did they?

NL: Correct. They said it was to improve my racing. On the Thursday the organisers came to me and said I had to go to the hospital. But, as you say, in those days there was no law requiring this. They checked me and I said: "What the hell are you doing? I'm fit. It's my decision."

But the worst thing was at the start on Sunday. Nobody told me that they had changed the start system to lights. I came to the grid and looked for the fucking man with the flag. I'm out of gear – and the light comes on. I didn't know and therefore I was 13th on the first lap. Ferrari forgot to tell me that the system had changed while I was in hospital. So I was way back. I was frightened in traffic again. I hated it.



MH: And the whole thing must have been made even more difficult because you were making this comeback at Monza of all places.

NL: It was a crazy place. I remember that as I was walking out of the paddock, there was a woman at the fence with a little baby. I had the police all around me to protect me and she was holding the baby towards me and I'm thinking: "What's going on here?" It was like she was treating me as if I was God. I'll never forget this sight... it was crazy.

MH: So here we are, back at the Nürburgring, 35 years on from the accident. Do people still tend to ask you about it?

NL: All the time. But that's okay. I was doing something just now for TV with RTL and they

showed the accident again. I said: "Why the hell are you showing this again? Do I have to cry or what?" They thought I was serious!

MH: You've been out to Bergwerk [scene of the crash] a couple of times, haven't you?

NL: Yes, I went out with Karl-Heinz and Bernie a few years ago to do something for TV. Six Germans cycled by and saw me: "Oh, Mr Lauda – what are you doing here?" Karl-Heinz came up and said: "We're looking for Mr Lauda's ear..." These people, they were so upset they nearly hit him: "You cannot do this to Mr Lauda!" But just before they came, Karl-Heinz had thrown a pig's ear into the grass. He produced the ear and they suddenly understood it was a joke.

MH: A few years ago, I had to write a story for a monthly sports magazine. They had a regular feature known as 'Triumph and Despair' in which a sportsperson would discuss the highest and the lowest points of their career. I did one with you and you said that there were two high points: winning your third drivers' championship by half a point from Alain Prost in 1984 and winning the 1977 South African Grand Prix – your first victory since the Nürburgring accident. I expected you to say that crash was the moment of despair, but you said it was the terrible tragedy when one of your Lauda Air aircraft crashed in Thailand in 1991.

NL: That's correct. I was operating Boeing 767s – brand new aeroplanes – and one crashed →

PHOTOS: LAT ARCHIVE

"At my comeback in Monza, they changed the start system to lights. No one told me"

coming out of Bangkok, killing everyone: 223 people. When I was in motor racing, I had taken the decision to risk my life. But when you run an airline and more than 200 people want to go from A to B and they don't arrive... that's a different sort of responsibility.

The first decision I took was to go straight to the scene of the crash. It was in a remote forest. I've never in my life seen a disaster like this. I'd never seen dead people without heads, without arms, with the local people stealing rings and watches from their remains. It was the worst experience you can possibly imagine.

I was flying these planes myself as a pilot and I had to find out why this aeroplane had come down. The problem was that the flight data recorder had been destroyed and the voice recorder, which was still there, showed that the flight was normal. Then, suddenly, there was a huge noise in the cockpit. The pilots only spoke to themselves, not with each other.

I knew something must have happened so fast that these two guys didn't even have time to communicate with each other. This was my first reaction to the matter, but because the flight data recorder was not there, nobody knew exactly what had happened. So, for eight months, it was my fault and Lauda Air's fault that these people got killed. This was the worst thing for me. I had to give a press conference to explain what I knew and I said that if it was my fault, I'd stop Lauda Air and I'd stop running an airline because it would mean I wasn't capable of doing it.

It was a tough statement at the time but it let me concentrate on finding the cause. It took a long time to get all the computers from the engines and everything worked out. There was a failure on the design of the thrust-reverse system. An O-ring in a direction-control valve had failed, causing the thrust reverse to be deployed.

MH: On just one engine?

NL: Just on the left engine. So the left wing stalled at 28,000 feet and the aeroplane turned over. The aeroplane crashed because of a fault on the thrust-reversal system. I was pushing and pushing to get the truth. It was annoying because all our planes were flying worldwide. What happens if the next one crashes? So I was fighting to get this thing resolved quickly because my only interest was to find the cause and fix the planes, so travel would be safe. It was a huge mess.

MH: I remember you saying that the moment your patience ran out came at a mass burial for the last unidentified passengers.

NL: Correct. It was in Bangkok. I went there to pay my respects. There were 23 unidentified bodies. All their friends and loved ones were there and no one could tell them why this had happened. This was a very difficult time for me. I decided to fly straight to Seattle and have this dealt with properly.

Everyone thought that an aeroplane could continue to fly even if reverse thrust had been deployed, but it had become clear to me that it couldn't. I flew via Hong Kong and there was a Boeing pilot coming in from the opposite direction. I met him at the airport and he said I should try to get in the Boeing simulator because they had tried to save the plane [with reverse thrust deployed] and no one could handle it.

So when I got to Seattle, I decided that I wanted to fly the simulator. I said: "Listen, this was my fucking aeroplane, my name, my damage... so let me do it." Boeing eventually agreed. I tried several times to recover the aircraft, but it was impossible. It was absolutely clear why the plane had crashed.

As soon as the thrust reverse comes on, the aeroplane turns over. You can do whatever you want, but you cannot control it.

I asked Boeing to issue a statement. They said it had to be checked by their lawyers first and that it could take a while. I said: "Okay, tomorrow I will hold a press conference here and say we are going to take a 767, load it up with my two pilots, deploy the reverse thrust in the air and everything will be okay. I'll be on board and you can show me that it works. Simple. I will ask you to do that for the sake of all the passengers." I went back to my hotel – and they were waiting for me when I got there. They issued the statement.

Finally it was all over. This was the first time in eight months that it was made clear that the fault was with the reverse thrust – not with the operator of the aeroplane. What I did not understand was why it took so long, because this was a safety issue. My company had the plane crash and I felt responsible, but out of it came the discovery of the fault and the knowledge that such a problem will never happen again.

MH: On a lighter note, tell me the story about how people – I believe you suspected a rival airline – tried to scupper your inaugural flight from Vienna to Sydney...

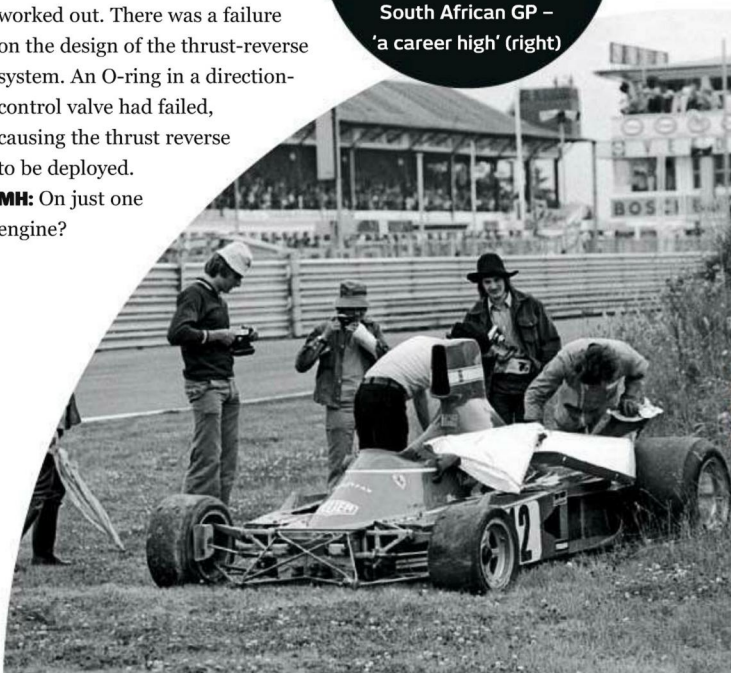
NL: On the day before the flight, I had a phone call from an official in Canberra saying my aeroplane books had not turned up in time. They were technical books for the 767, so they said they couldn't give us permission to fly over Australian airspace. I said: "What do you want me to do? I have 223 people, all ready to go." He said: "I don't care." So I said: "Neither do I. I'm coming, so if you want to stop the flight you'll have to shoot me down!"

MH: [Laughing] Did you actually say that?

NL: I did. So I flew the plane to Bangkok and got startup clearance from there because, thank God, they didn't know about what had happened with the Australians. I flew down to Australia and there was the mayor of Sydney,

Lauda was unhurt in his 1974 crash at the Nürburgring (below); his first win after the 1976 crash was the 1977 South African GP – 'a career high' (right)

PHOTOS: LAT ARCHIVE, SUTTON IMAGES



the music band and everyone else to inaugurate the new flight. I told them that it was easier to win three Formula 1 world championships than it was to fly to bloody Australia. We had given the passengers a voucher because it could not be a commercial flight. It was the best PR I ever had because, on television I said: "Whoever wants to go back to Bangkok free of charge, then come to the airport." Suddenly, lots of people turned up – and we finally got our permission.

MH: What happened to Lauda Air in the end?

NL: Very simple. Lufthansa was the first part-owner of Lauda Air. Then Lufthansa asked me if Austrian Airlines could be my partner. I agreed to it because, on the economy side, this was

"I didn't lose the championship in 1976 because I didn't drive in the rain in Fuji... I lost because I missed three races"

the most sensible thing to do. But my biggest mistake was that I was trying to make two different cultures work together; you had the state culture of Austrian Airlines trying to work with the private culture of Lauda Air. It didn't work. In the end they had an option to buy my shares, so I sold them and left.

After that, I was blocked from being in the airline business for three years, but then I started up a new airline. This one is called 'Niki', because I can't use the name 'Lauda' any more. We've been going for seven years and, again, we're making a profit.

MH: But you're not doing long-haul, are you?

NL: No – only Europe. It's like an easyJet concept, but better. Low cost with quality. We're working together with Air Berlin because I need the critical mass. We have 138 planes altogether. I've got 21 in Vienna; Airbus and Embraer. I still fly myself, two or three times a week, but only the Airbuses.

MH: And your television work with RTL means you can still come to the races.

NL: I like it, it keeps me involved. Obviously,

I still do my work with the airline, but I enjoy this as well.

MH: Knowing how pragmatic you can be, I presume you accept that change in F1 is something that happens. No point in being misty-eyed about the past?

NL: Correct. It is a normal development; you have to live with it but I think the paddock is a little sterile today. I'll tell you a funny thing, Ron Howard – the guy who directed *Apollo 13* – and Peter Morgan were at Silverstone. They are doing this movie about the 1976 Formula 1 season. I invited them along and Bernie was kind enough to give them passes.

They both said: "What's wrong here? Because you come in and you've got these huge motorhomes, but there's no life, there's no atmosphere, there's no emotion. Has it always been like this?" I said: "No, look at my time. This is why you're going to do this movie. It has not always been like this, but unfortunately it's the way F1 developed." It was interesting to see the reaction of these two guys. They were

In torrential rain and after just two laps, Lauda pulled out of the 1976 Japanese GP, announcing: "My life is worth more than a title." James Hunt was the eventual champion that year


not speaking in a negative way. They liked being there but they felt there could be so much more. They were just asking if this was normal. You know what I'm saying?

MH: Yes, I do. And it was doubly unfortunate because the new paddock at Silverstone is completely soulless. Will you tell Bernie?

NL: No, I won't, I don't want to get involved. I've told Bernie a hundred times: "Let the people in. Get the whole thing alive."

MH: Sums you up, really. After your experience here in 1976 and Thailand in 1991, do you tend to see life a bit differently to the rest of us?

NL: Correct. Okay, I gotta go to a stupid meeting somewhere. I've enjoyed this.

MH: Me too. Thank you. 





THE TOWN THEY PAINTED RED

In northern Italy, a tiny place with a population under 20,000 is home to Ferrari, F1's oldest team. And there's nowhere else in the world quite like it

WORDS JAMES ROBERTS PICTURES LORENZO BELLANCA/LAT



There is anxiety in the restaurant: today Luca di Montezemolo is in town, so the tortellini has to be faultless. *Il Cavallino* is directly opposite the gates to the Ferrari factory, but the president will not be strolling across the road to dine at the restaurant for lunch. Oh no. As befits his status, *Il presidente* has the chef drive his pasta over the road to him – the van’s side adorned, naturally, with the Prancing Horse logo. There can be no imperfection in the texture or flavour

of the dish. Just like the internals of a V8 Ferrari, it must be impeccable.

As the van enters the president’s lair, workers filter out in the opposite direction, resplendent in their smart red overalls and dispersing like ants through the streets in search of food themselves. This is a muggy, sultry afternoon and the air is rich with the scent of exotic exhaust fumes as yet another Ferrari 599 burbles along the road.

There is absolutely nowhere in the world quite like Maranello... →





From the shop fronts to the street corners, there's no escaping the fact that Maranello is the hometown of a legend



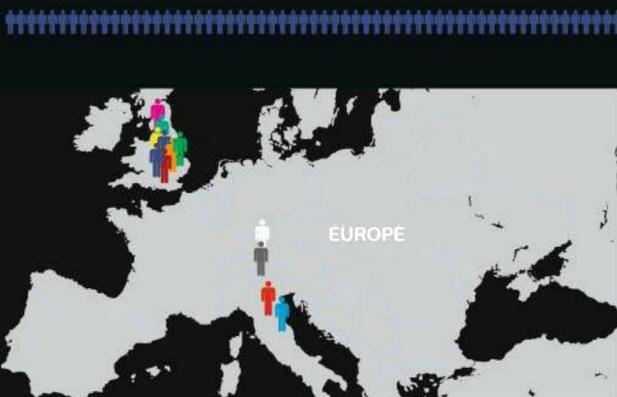
The restaurant *Il Cavallino* pays an amazing homage to Ferrari. The pasta's not bad either...

Turn right off the *autostrada*, past the Modena golf club and when you hit *via Nuvolari*, you know you're somewhere special. This small, old town is the epicentre of a major global industry and it's where, incidentally, two famous F1 cars happen to be cobbled together in a couple of workshops. Think Brackley, but with soul. The feel of Ferrari has, through time, wrapped its magical tentacles around every corner of this town like an exotic weed, springing up in the shop windows of the local deli, in the hotel lobbies and throughout the restaurants. Even the ashtrays have racing car stickers on them. No matter where you turn, you cannot escape the fact that this is the spiritual home of a legend. Forget the gimmickry of Ferrari World in Abu Dhabi: this is the real deal.

It's the town where the likes of Lorenzo Bandini, Giancarlo Baghetti and Mario Andretti have clinked glasses of Lambrusco with The Old Man. And of course, in the restaurant that continues in his memory, there's a huge portrait of Gilles Villeneuve, brooding above the pots of Parmigiano-Reggiano. It's a constant reminder of the motor-racing greats who have sat, chatted and lived out their lives in this part of the world.

You have to make the pilgrimage to Maranello at least once to be able to understand the faith and passion that the racing *tifosi* have for the Scuderia. You won't have to wait long before yet another 458, 360 or 550 passes by and sitting outside at the café tables, the old boys, with their roll-ups dangling from their mouths, still look like they feel a stirring inside when an FXX or 250 GTO shimmers past.

Walk through the main piazza and opposite the Auditorium Enzo Ferrari is yet another monument to the eponymous owner, with his trademark dark glasses accurately carved into



The alternative constructors' championship

How the table would look if it was based on whose home towns had the biggest populations...



Ferrari workers head out for lunch, while Luca di Montezemolo's pasta is delivered in. Domino's it isn't...

the mould. By the side of the roundabout is another piece of themed municipal art: the bonnet of a Ferrari 360.

The tricolour of the Italian flag flutters proudly alongside the scarlet of the Scuderia; every single corner of this small town celebrates the passion invoked by those blood-red cars. It's hardly a surprise that such a relatively new nation would unite behind the industrial engineering prowess – and beauty – of the motor car (indeed this year's Ferrari 150° Italia celebrates the fairly recent unification of the country in 1861). And Maranello is the perfect cooking pot where modernity meets tradition and family and religion sit alongside commercialism and technology.

At Maranello's heart sits one of its oldest buildings: the church. And it's from the bell tower that you will hear the celebratory chimes ring out on a Sunday afternoon whenever one of the famous red cars, driven by Fernando Alonso

The feel of Ferrari has wrapped its magical tentacles around every corner of this town

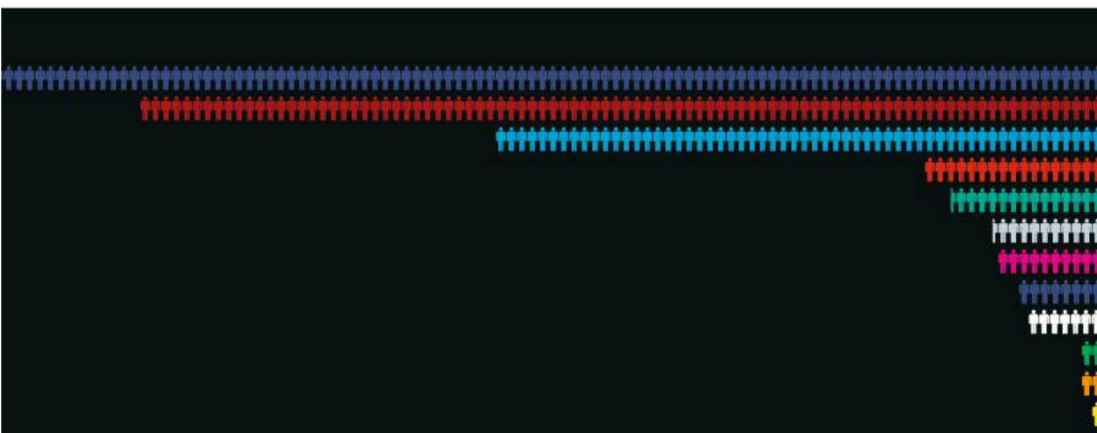
or Felipe Massa, crosses the line in first place, wherever in the world they might be racing on any given weekend.

The museum you must visit is the *Galleria Ferrari*, which displays the first car from 1947, through a range of road cars, sportscars and F1 cars – notably Gilles' 126C2 and Prost's F1-90 and the past decade of sporting machinery. There are legendary trophies, too. Beyond that, past *via Alberto Ascari* and down *viale Alfredo Dino Ferrari* is the circuit, in the middle of town, which is devoted to testing cars: Fiorano. This is the sort of place you might have designed

on your bedroom floor in the days before you were brave enough to talk to girls. A site for old cars and a circuit on which to thrash new ones.

You don't get this in Woking, Milton Keynes or Grove. The United Kingdom might be the hotbed of talent – those blasted *garagistes* as Enzo himself described teams such as Lotus and Cooper – but there is a functionality to engineering in England. There's a desire to solve problems, an obsession with minutiae. In Italy, it's a grander, more romantic gesture, with an emphasis on style, beauty and faith.

More than most sports, grand prix racing is acutely defined by its history and, often, old disused circuits appear just as high on F1 fans' must-visit-before-I-die lists as current ones. Well, you really have to add Maranello to that list. Make the pilgrimage and visit a town that lives and breathes Formula 1, both past and present. Just be sure to tell the chef you're a close friend of the president. 🏁



THE RESULTS

1	Red Bull	Milton Keynes: 248,000
2	McLaren	Woking: 92,000
3	Toro Rosso	Faenza: 58,000
4	Ferrari	Maranello: 17,000
5	Mercedes	Brackley: 14,500
6	Sauber	Hinwil: 10,500
7	Virgin	Dinnington: 10,000
8	Williams	Grove: 8,000
9	HRT	Grading: 7,000
=10	Lotus	Hingham: 2,000
=10	Force India	Silverstone: 2,000
11	Renault	Enstone: 1,000

Ferrari's £70,000 fuel lab

It goes to every race and can make the difference between winning and losing. Meet the machine that can spot crucial mistakes that mechanics with fancy laptops can miss...

WORDS JAMES ROBERTS PICTURES LORENZO BELLANCA/LAT

Tucked away in one of the many Ferrari trucks parked behind the pits at every grand prix is a state-of-the-art fuel laboratory. Entering it feels like you've boarded a futuristic spacecraft. On opposite sides of the

trackside lab sit two machines, one to analyse fuel, the other oil, and they cost in the region of £70,000. Their function, although small, is crucial to Ferrari's results at every grand prix. The fuel test is to ensure legality, while the oil analysis is often the first indicator that all is not well with the Ferrari 056 2.4-litre V8.

Before the start of the season, Shell will send a five-litre sample of fuel to the FIA that will be given the green light for legality. All fuel used by Ferrari throughout the rest of the season will be tested to check that it matches the original sample. Over the course of the season, Shell will ship over 38,000 litres of fuel (in 50-litre drums) but before the petrol goes anywhere near the car, it will head straight to the trackside laboratory to ensure that it tallies with the sample they gave to the FIA pre-season. They will also test the fuel 30 times over a race weekend by placing it into a gas chromatograph (GC). Over half an hour later, this £20,000 machine will break down a few millilitres of Shell's finest blend into over 100 different components.

"What we're looking for is any slight change in composition or deviation from the approved sample," says Gareth Lowe, Shell's trackside analyst. "We're not talking about someone putting something in maliciously, but if one of the mechanics has been changing the engine and there is some grease on the components, then that would be enough to make the fuel illegal."

● This tiny oil sample could make the difference between winning a grand prix – and not even being able to finish it

Lab notes

Oil test

Fuel test



Shell send a five-litre sample of fuel to the FIA. This will then be given the green light for legality



Shell test the fuel 30 times over a race weekend, to check that it matches the original 'legal' sample



This £20,000 machine breaks down new samples into over 100 components for analysis



F1 Racing October 2011 83

INSET: LAT ARCHIVE



Shell's boffins run oil samples through a rotating disc electrode (RDE), exciting the molecules contained within and making them emit different wavelengths of light. The machine's optics pick up on these to detect the make-up of the chemical elements present. Rogue elements affect engine performance, which, in turn, can affect the engine's longevity.



Or if the cars were coming back from a race and there was leftover fuel in the system, because that fuel would not have been kept in optimal conditions in transit, its composition might have changed and it could be considered illegal."

While the fuel analysis concerns legality, the analysis of the oil is critical in terms of reliability, particularly since each driver must use only eight engines per season.

A similar process takes place: a sample comes out of the back of the car and is taken to the on-site laboratory. This sample is run through a rotating disc electrode (RDE), which excites the molecules in the oil, causing them to emit different wavelengths of light. From this, the

Eddie Irvine won the 1999 Australian Grand Prix thanks to a timely spot of oil analysis...



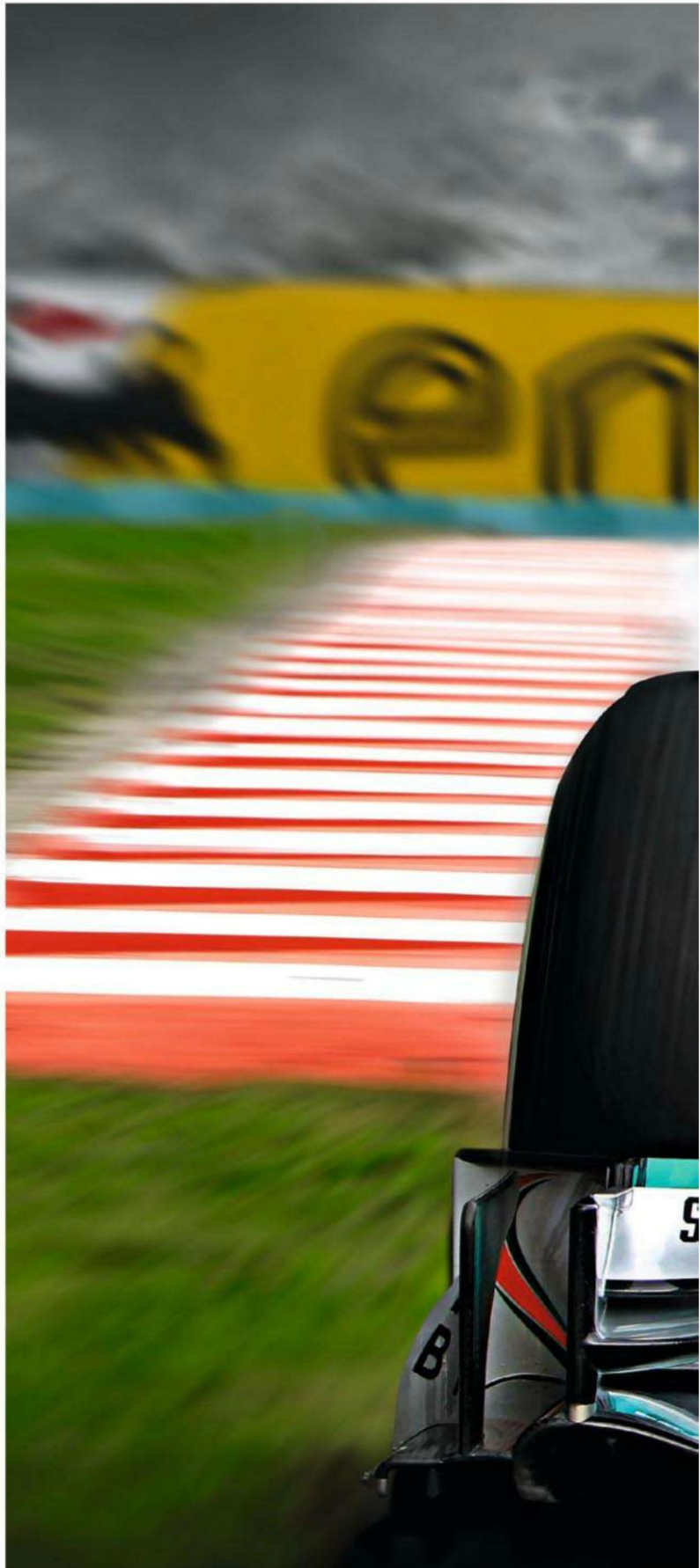
"If a mechanic gets **grease** on an engine component, that's enough to make the fuel **illegal**"

optics in the equipment can detect the make-up of chemical elements in the sample. The process also makes it clear if there is too much of a particular element, for example titanium, it could be the first indication that all is not well with the engine's internal components.

"Back at the 1999 Australian Grand Prix in the days of Sunday morning warm-up, we tested the oil after that session and saw something abnormal on the trace," recalls Ian Albiston, Shell's trackside project manager. "Nine times out of ten, the Ferrari engineers would have known there was an issue with the engine by looking at their own telemetry, but on this occasion they hadn't seen anything. Because of the abnormal results on this oil sample, they decided to change the engine on the Sunday morning as a precaution, just hours before the start of the race. It was a huge decision, but Eddie Irvine actually went on to win the grand prix. Afterwards, they sent that engine back to Italy, stripped it down and discovered that it would have failed during the race. Our oil analysis is very quick – it takes about 30 seconds – it's an important check to ensure everything is okay."

As Shell proved in 1999, it can cost Ferrari the difference between victory and failure. **F**

Looking for the perfect setup



INSET: STEVE ETHERINGTON/LAT

From tweaking the ride height to adjusting the differential, the art of setting up an F1 car to achieve perfection isn't easy, as Mercedes racer **Nico Rosberg** explains

WORDS
JONATHAN REYNOLDS
PICTURES
GLENN DUNBAR/LAT

Setup. It's a word drivers and engineers use more than any other. Get it right and the driver has the best chance to show his talent. Get it wrong and he'll struggle – even if his surname's Vettel. But what does setting up a modern F1 car entail? Gone are the days of arriving at a circuit and making a few tweaks to the suspension stiffness and gearing; today's cars are subject to an array of mechanical and electronic adjustments. In all, the initial setup will take into account 50 or more parameters, including the front- and rear-wing →



settings, the ride height and the stiffness of the suspension. To find out just what is possible, *F1 Racing* sat down with the man who engineered Jenson Button to the world title in 2009, Mercedes GP's chief race engineer Andrew Shovlin, and Nico Rosberg – one of the most technically minded drivers in F1 today – to discuss the art of tailoring a car to a specific circuit.

FRONT AND REAR WINGS

When a team arrive at a circuit, they already know how much downforce they're going to run. "We use the simulator to start determining wing levels and selecting our gear ratios," says Shovlin. "Then by the time we get to the track, we're just trying to fine-tune the setup." Unfortunately, when a car develops a handling problem there is no set procedure for curing it. "It's always different from one track to another and you need to consider a lot of different things," says Rosberg. "Is it the aero or is it mechanical? Sometimes it's difficult to know. It could be any number of things causing a problem and if you change one thing, you might find that the car feels better but is much slower. If you add on front wing, for example, you'll get a better front end in certain corners – but then the rear end will be unsettled in others."

In these situations, drivers and engineers have to rely on their experience: "If you have a car that has certain characteristics, you'll be aware to a certain extent of the problems you might face and you'll have thought of some setups that might solve the problems," says Shovlin. "Fortunately, Nico is very clever – he understands how the car works and the different things you can do to tune the balance."

TYRES

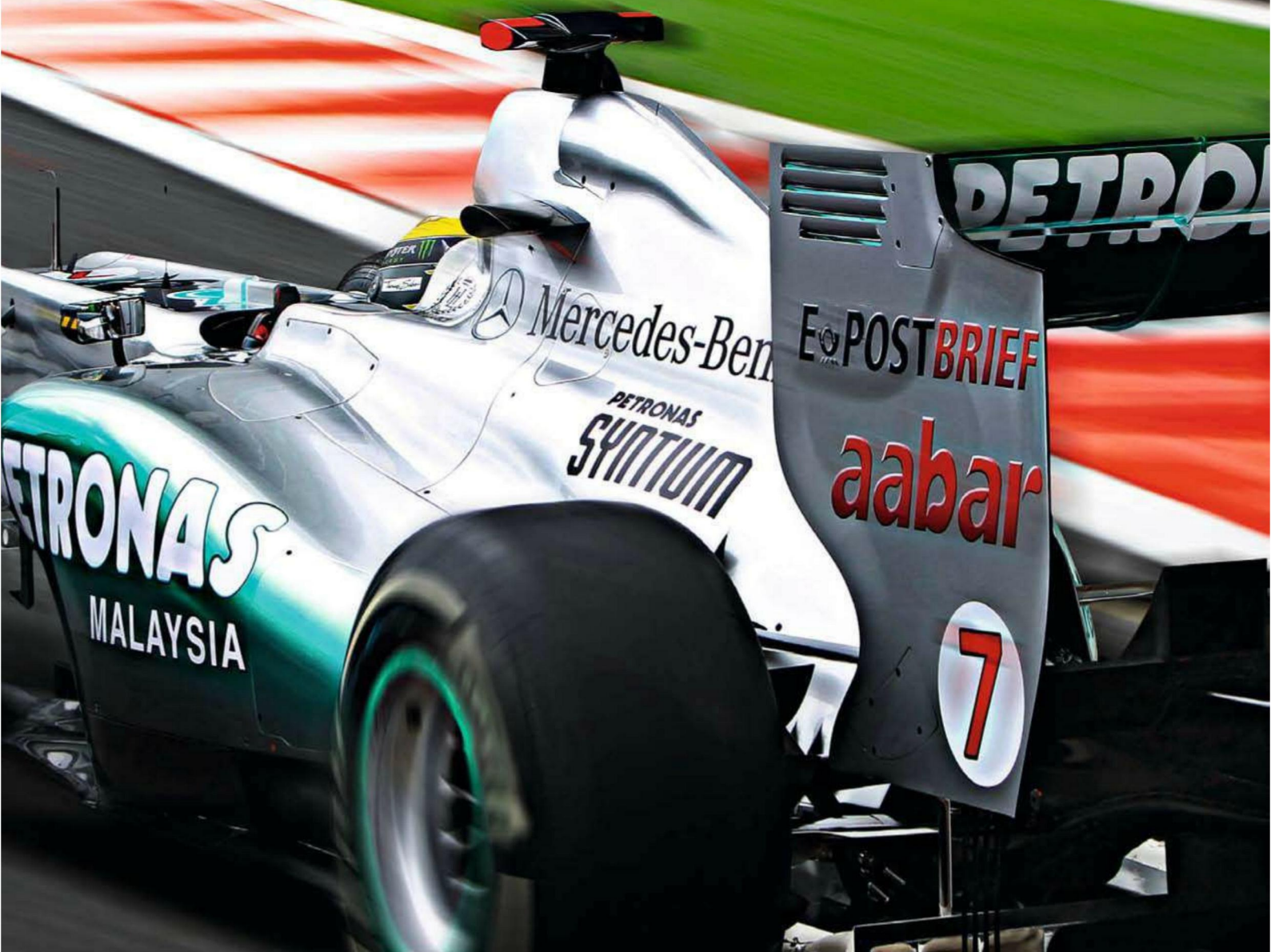
The P Zero Pirellis are the crucial points of contact with the racing surface and are therefore very important to performance. Teams can adjust the camber or lean angle of the tyres to increase the size of the contact patch and therefore increase grip, but go too aggressive and you run the risk of excessive tyre wear and blistering. Setting the right tyre pressures is also vital. "If the pressure is too high, what happens is that the tyre bulges a little and you lose some of the contact patch," says Rosberg. "Then you can get some sliding." Tyre compounds also affect setup. "If the compounds are 1.5 seconds apart, you'll spend 75 per cent of your race, and the important part of qualifying, on the option tyre – so you'd set the car up to work with the option," explains Shovlin. "Then in the race, when you go to the prime tyre, you might make a wing adjustment at a pitstop or change some of the electronic settings to balance that out."

WEIGHT DISTRIBUTION

To coincide with the introduction of Pirelli tyres, the FIA imposed a mandatory weight distribution range for 2011 to ensure no team could luck in to a big advantage. There is, however, a limited scope for change that can affect the handling of the car. "The FIA set a window and you decide where you want to be in that window," explains Shovlin. "If you push it forward, you help the rear tyres because they'll be doing less work. If you move it back, you'll get more front grip. We decide where we want to be and then set the ballast accordingly. The only reason we would move ballast for setup is to change where we want to be within that window." →



"The problem is that no circuit is all fast corners or all slow corners. It's always a compromise"



KERS

The kinetic energy recovery system gives the drivers 6.67 seconds of extra power every lap, but also has a huge effect on handling and must therefore be carefully honed, as Shovlin explains: "When you deploy KERS, the battery power goes into the motor and drives the car forwards. But when you're braking, the motor turns and works like a dynamo to charge the battery. What you can do is shape the torque you get from the motor so that you affect the amount of braking the KERS puts onto the rear wheels. So instead of it being an inconvenience, like someone yanking the handbrake, you spend time trying to shape the profile so that as the driver slows the car down and downshifts, it doesn't lock the rear wheels. It's a big thing because as the driver comes off the brakes, more and more of it is being done by the engine braking and the KERS motor at the rear, so that gives you more front grip because the front wheels only work to turn the car and the back wheels work to slow the car down."

DIFFERENTIAL

Like KERS, the differential is a powerful, electronically controlled handling tool that can be tuned from the cockpit. "The way it works is that it locks the two rear wheels together," explains Shovlin. "In the extreme you can have it locked solid – so both wheels can only turn the same amount as each other – or you can have it free so that when you go into a corner the inside one wants to go slower than the

"If you change one thing you might find that the car feels better but is much slower"

outside one. Now what you find is that when you lock up the differential, it gives you stability because it stops the car from wanting to turn. But if you go to a free diff, the rear end can be quite lively. At different stages of a corner, the drivers can change the balance so when they're hard on the brakes they want the diff to be locked and then as they turn the wheel they want it to open up. Then when you get on the power you need to start locking it otherwise one wheel will spin. So you need some locking in the diff to accelerate out of corners."

PEDAL MAP

Fly-by-wire throttle lets teams electronically shape the pedal map to change the rate of torque delivery as the driver applies the throttle. "If the driver is struggling to control wheelspin you could smooth out the shape and, in other areas, you could make it more aggressive," Shovlin reveals. "You don't change how long the throttle pedal is, you just change the shape of how the power is delivered. It's down to driver feel – two drivers in the same car could both want different things. Since we lost traction control, it's an area where you have to give the drivers as much feeling as possible because the pedal stroke is

short – maybe 60-70mm. Mechanically, Nico and Michael's cars are similar, but electronically they run different setups. You go through it with the driver before you get to the track, then when you get there you try to find the best compromise."

GEAR RATIOS

The FIA limits F1 teams to 30 gear ratios, from which they choose seven. "From simulation you come up with a set you think will give you the best acceleration and lap time," says Shovlin. "When the drivers run the cars in practice, they might find a gear is too long for a certain corner – they rely on engine braking and getting a certain throttle response. If the gear is too long, it's hard to slow the car down." The teams don't have long to decide: by 5.30pm on Friday they must declare their ratios to the FIA. As the aerodynamics and gear ratios work hand in hand, this means a final decision on wing levels. "This year you've got the consideration of using the DRS throughout qualifying but using it only for overtaking in the race," explains Shovlin. "It's a balance; if you go for a short top gear it pulls well when the DRS isn't activated, which is good if you're defending. But to overtake, the gear shouldn't be too short or you'll run into the rev limiter."


SUSPENSION

The stiffness of the suspension affects the aerodynamics significantly, so it's crucial that the team get them right, as Shovlin explains: "The car has to support a huge aerodynamic

load, so you make the suspension stiffer than you'd like. The stiffness of the corner springs affect the 'mechanical balance'. By making the front stiffer or the rear softer, you can change this mechanical balance and shift grip from the front to the rear. So you can try to make the front tyres more effective or the rear tyres more effective." Corners and kerbing at each track determine what kind of stiffness is needed – at faster circuits, where grip is mainly aerodynamic, suspension can be stiffer, while at low-speed circuits with a lot of camber, teams run softer suspension to generate more mechanical grip.

"The problem is that no circuit is all fast corners or all slow corners," says Shovlin. "It's always a compromise."

MAKING CHANGES FROM THE COCKPIT

With more rubber going down as a race progresses, fuel load reducing and tyre compounds changing, it's no surprise that the ideal setup constantly changes. So what tweaks can Rosberg make from the cockpit? "I can change the KERS harvesting and braking, the differential, the pedal map, and brake bias. You can make those changes sometimes corner by corner. It's amazing what you can do while you're driving." 



Way back when

Famous Formula 1 occurrences from the month of October, many moons ago...



THIS
MONTH
30
YEARS
AGO

A car park? In the desert?

It is probably the strangest venue that F1 has ever visited, yet on 17 October 1981, the car park of the Caesars Palace hotel and casino, in the desert surroundings of Las Vegas, replaced Watkins Glen as the second US GP of 1981. No one liked it, and the layout was better suited to Disneyland, but it was a championship decider with Nelson Piquet (pictured, right), Carlos Reutemann and long-shot Jacques Laffite all in with a chance of the title. The win went to Alan Jones and with Williams team-mate Reutemann out of the points, fifth was enough to bring Piquet the first of his three championships.



THIS
MONTH
37
YEARS
AGO

How does it feel, champ?

Emerson Fittipaldi's second world championship was confirmed with fourth place in the US GP at Watkins Glen on 6 October 1974 and, as the Brazilian accepts the plaudits his prime questioner is none other than the outgoing champ Jackie Stewart. Stewart had retired at the same track the previous year, following the death of team-mate François Cevert, and had already been a regular on television by the time he picked up a mike for US network ABC at Watkins Glen.



THIS
MONTH
27
YEARS
AGO

The Nordschleife it isn't...

Eight years after the last race on the famous Nordschleife, when Niki Lauda had his near-fatal accident at the Bergwerk corner, Formula 1 returned to the Nürburgring for the European GP on 7 October 1984. The 'return' divided opinion. For the purists, the new Nürburgring, constructed from scratch, was always destined to be in the shadow of the classic 13-mile loop which, it was widely agreed, was impossible to make safe for F1. However, the purpose-built track was rather bland and failed to challenge the drivers. Alain Prost won the inaugural race comfortably in a McLaren.



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Imagine if he'd won...

The *tifosi* cheer Fernando Alonso's third place at Monza, but victory goes to a familiar name





BELGIAN GP

- 96** SYMONDS' BELGIAN DEBRIEF
Red Bull weren't supposed to be very good here. Then they got a one-two
- 98** THE GP YOU DIDN'T SEE ON TV
Schuey marks his 20th anniversary in F1... by pulling everyone a pint
- 99** BELGIAN GP STATISTICS
Mark Webber robs that pesky Vettel of the grand prix's fastest lap



ITALIAN GP

- 100** SYMONDS' ITALIAN DEBRIEF
Sebastian Vettel all but wraps up his second F1 world championship
- 102** THE GP YOU DIDN'T SEE ON TV
Why's Mark Webber putting his own car together? Where's everyone else?
- 103** ITALIAN GP STATISTICS
The fastest pitstop went to the man who won the race. Wonder who that was



OPINION

- 105** THE FRANK WILLIAMS COLUMN
On Lewis dropping in to Williams for a 'friendly chat' with Pastor Maldonado
- 106** ALAN HENRY COLUMN
Is the BBC/Sky deal good for the sport? Alan isn't so sure...



PREVIEWS

- 108** KOVALAINEN'S SINGAPORE PREVIEW
Hot, humid and ridiculously bumpy, but Heikki actually quite enjoys it
- 110** KOVALAINEN'S JAPAN PREVIEW
They seem to love Finnish drivers here for some reason, says Hekki
- 112** KOVALAINEN'S KOREA PREVIEW
He's hoping they'll finish the podium ceremony before it goes dark this year



RACE DEBRIEF by Pat Symonds

The Belgian Grand Prix

28.08.2011 / Spa-Francorchamps

The 20th anniversary of Schuey in F1... Lewis crashes out... Vettel wins again



You've missed this sight, haven't you?

Having failed to win since Valencia, Sebastian Vettel returns from the summer break to strengthen his grip on the championship

On the face of it, normal service was resumed in the championship at Spa, with Sebastian Vettel claiming pole position and victory.

But behind the obvious there were plenty of suggestions that this will not necessarily herald another round of domination for Red Bull.

Spa this year was notable for some historic events, with the Senna name back on a black and gold 'Lotus' and Michael Schumacher celebrating 20 years in F1. It was also notable for an expected event here – the rain that dominated Friday and Saturday, which would cause concern for the duration of the race.

Friday practice was a near washout with only Mercedes using slicks in the morning, and even in the afternoon session, when skies were generally clearer, running on the dry tyres was limited. Vettel managed to complete just four laps on the harder tyre, while Webber, doing a short comparison between the hard and soft tyres, found a two-second advantage on the stickier compound. This result was confirmed by a similar run from Fernando Alonso.

On Friday evening Pirelli alerted the teams to some blistering having occurred on the inner front shoulders of the softer tyre, but the more durable medium compound seemed okay. With

the longest run on the softs being made by Nico Rosberg, it's likely this is where the problem was identified. But as his run amounted to only eight timed laps, it did not bode well for the race.

Saturday morning did nothing to dispel concerns, with heavy rain falling for the first half of practice, meaning nothing useful could be learnt about the tyres. With the track still wet as the first part of qualifying began, all cars left the pits on intermediate tyres. Unfortunately, the competitive part of Michael Schumacher's 20th anniversary race did not start well as a rear wheel parted company with the car early in the lap, pitching it into the gravel and consigning Michael to start at the back of the grid. His grid position was actually the lowest of his career.

Listening to the teams' radio transmissions indicated that the Spa weather was as unpredictable as ever, with some engineers urging drivers to push before the rain came and others recommending caution as they expected the track to dry. In fact a dry line was just visible by the end of the first qualifying segment, but by then the intermediate tyres were past their best as the bulk temperature of the rubber rose above 70°C, the point at which grip starts to be lost on the wet compound.

With further light rain falling before the start of the second part of qualifying it was sure to be a session that favoured the brave. Initial lap times were over five seconds down on those set in the first part of qualifying and it wasn't long before the infamous Eau Rouge corner claimed its first victim in the tricky conditions as Adrian Sutil took just a little too much kerb and went into the barriers. The resultant debris on the racing line brought out a red flag.

The session resumed and nerves of steel were required as light rain started falling with just four minutes to go. In spite of this, the track was getting faster by the minute and timing and track position were of the essence. As the flag dropped, Button was in third place behind the two Red Bulls but the reality was

“Nerves of steel were required as rain fell with four minutes to go”

that the next two minutes would decide who got through. Button, having lifted to allow Hamilton a clear lap, found himself in 13th position as all the cars completed their laps. Lewis, meanwhile, made the most of his lap to take second but not without having to strong-arm his way past Pastor Maldonado at the last corner. While Hamilton's action may have been robust, Maldonado's reaction – to turn in on Hamilton on the run to Eau Rouge – was totally unacceptable. He was extremely lucky to get away with just a five-place grid penalty for what was a deliberate and dangerous manoeuvre.

For the top-ten shoot-out there was, at last, a discernible dry line and all the protagonists opted for a single run on slicks. Vettel held it together in the tricky conditions to take pole position. A measure of how the drivers' feel and judgment come into play in these changeable conditions can be seen in the fact that his pole time was over 15 seconds quicker than the time he set in the second session just minutes earlier.

Notable among the top-ten qualifiers was Bruno Senna, who qualified seventh – three places in front of his team-mate – having performed well throughout the practice sessions. Also impressive once again was Jaime Alguersuari, who qualified sixth – two places ahead of a disappointed Fernando Alonso.

Overnight, the reality of the tyre situation became apparent as the front tyres of the Red Bulls sustained considerable damage to their inner shoulders due to blistering. This is a

The story of the race

V Rosberg makes a great start and, to everyone's surprise, overtakes Vettel at the top of the hill

SPA



> Alonso and Webber battle for position. Alonso will eventually fall victim to both Webber and Button



< Michael Schumacher climbs from 24th to fifth, while Pastor Maldonado scores his first ever points



< Having stopped to change his car's damaged nose, Jenson Button charges to an unlikely podium finish

V As has so often been the case this year, a great race ends with yet another Vettel victory



View from the paddock

Twenty not out

It was twenty years ago that Michael Schumacher arrived for Friday practice at Spa fresh from a night in the local youth hostel. His arrival in the paddock this year was somewhat different, trailed as he was by a gaggle of photographers and film crews. The smile across his face indicated that while two decades have passed, he's as enthusiastic about F1 as he was in 1991.

As it went, his 2011 race weekend was a complete contrast to his first one 20 years earlier. Back then, he qualified his Jordan seventh, while this year he crashed out of qualifying early on when his Mercedes shed a wheel. But while his first race ended almost as soon as it had begun following a clutch failure – prompting Eddie Jordan to present Michael with a new one at the German's anniversary party on Saturday night – this year he made up 19 places to finish fifth. His glory days may be behind him, but there's life in the old dog yet.

Jonathan Reynolds

phenomenon that occurs when the compound overheats below the surface, causing the rubber to burst through the surface and remove chunks of the tyre. It naturally leaves the structural part of the tyre exposed to damage, although normally this is not a big concern.

Structural damage to a tyre is more a function of high speeds and forces setting up unacceptable fatigue loads. The extreme case of this was seen at Indianapolis in 2005 when a standing wave vibration in the rear tyres led to instant destructive failure. Low-inflation pressures and high-camber settings exacerbate

this type of fatigue failure, while high camber also heats the inside shoulder. For this reason, Pirelli issue a document to the teams before every race indicating what the maximum camber can be at the end of the straight (when the suspension geometry will give the highest camber) as well as the recommended minimum inflation pressure. It was suggested that these limits may have been ignored but, irrespective of this, the rules clearly state that tyres can only be replaced if accidentally damaged, and any change of suspension settings will be judged a violation of parc fermé rules, resulting in a start

from the pitlane. Red Bull found no allies in the other teams when pleading for an exception and therefore entered the race with trepidation.

The race start saw chaos at the first corner as Senna revealed his inexperience and Glock his ambition: several people had their races compromised at this point. Alguersuari must have been bitterly disappointed, having been eliminated with broken suspension. The fast-starting Rosberg slotted into second and, to everyone's surprise, took the lead from Vettel at the top of the hill. Also benefitting was Schumacher, who finished the first lap ten places higher than his grid position. Webber again started poorly to drop to eighth.

On lap 3, with DRS enabled, Vettel retook the lead while Webber stopped to change his blistered tyres for the more durable compound and Button to change the nose that had been damaged on lap 1. Having started on the harder tyre, Button was now also able to race to the end on the softer compound. On lap 6 Vettel pitted for new soft tyres, balancing the risk of further blistering against the loss of performance from fitting the harder tyre. It soon became apparent that Red Bull would not be alone in suffering blistering as it also became visible on Hamilton's car on lap 7, while Alonso pitted from the lead



Lewis Hamilton's race ended after a misjudgment saw him collide with Kamui Kobayashi on lap 13

on lap 9 for fresh tyres. As he exited the pits, the Spaniard was a car's length ahead of Webber, who held his nerve and his throttle wide open to take him through Eau Rouge in what has been the most audacious pass of 2011 so far.

Hamilton pitted on lap 12, coming out behind Kobayashi. On the next lap he went to pass him into Turn 5, but then moved across and the two cars collided. It was a simple misjudgment from both drivers but led to a high-speed impact for Hamilton and the deployment of the Safety Car. Those who hadn't stopped now did so and even Vettel took on another set. Alonso chose to stay out and while he inherited the lead, he was now on tyres five laps older than those of his rivals.

Button was on a charge now, and by the time he next stopped on lap 32 he was in contention

for a podium position. Alonso was struggling with the harder tyre after his last stop and fell victim to both Webber and Button, who followed Vettel home to make up the top three. Further down the field, mention should be made of Schumacher who, aided slightly by changing from hard tyres after only four laps and with some assistance from the Safety Car, made up 19 places to finish fifth – ahead of his team-mate.

It was a convincing one-two for Red Bull on a circuit where their perceived power deficit is significant (10bhp is worth around 0.25 seconds at Spa). Their competitors, however, are much closer than earlier in the season and while the championship gets closer to being sewn up for Vettel and Red Bull, the hunger of those rivals to restore honour becomes ever stronger. **F1**

The GP you didn't see on TV

Taking you behind the scenes at Spa-Francorchamps



"Right, I've done 20 years of this – now who wants a pint?" Schuey turns barman to celebrate his two decades in Formula 1



Yes tickets are a bit pricey... but wouldn't it be easier just to watch it on TV?



This Sauber chap drew the short straw, ending up on laundry duty



F1 technology filters down – and eventually it reaches even hardened beer drinkers like this

Belgian Grand Prix stats

The lowdown on everything you need to know from the weekend at Spa-Francorchamps...

THE GRID

 2. HAMILTON McLAREN 1m48.730secs Q3	 1. VETTEL RED BULL 1m48.298secs Q3
 4. MASSA FERRARI 1m50.256secs Q3	 3. WEBBER RED BULL 1m49.376secs Q3
 6. ALGUERSUARI TORO ROSSO 1m50.773secs Q3	 5. ROSBERG MERCEDES 1m50.552secs Q3
 7. SENNA RENAULT 1m51.121secs Q3	 9. PÉREZ SAUBER 1m51.374secs Q3
 8. ALONSO FERRARI 1m51.251secs Q3	 11. BUEMI TORO ROSSO 2m04.692secs Q2
 10. PETROV RENAULT 1m52.303secs Q3	 13. BUTTON McLAREN 2m05.150secs Q2
 12. KOBAYASHI SAUBER 2m04.757secs Q2	 15. SUTIL FORCE INDIA 2m07.777secs Q2
 14. BARRICHELLO WILLIAMS 2m07.349secs Q2	 17. DI RESTA FORCE INDIA 2m07.758secs Q1
 16. KOVALAINEN LOTUS 2m08.354secs Q2	 19. GLOCK VIRGIN 2m09.566secs Q1
 18. TRULLI LOTUS 2m08.773secs Q1	 21. MALDONADO* WILLIAMS 2m08.106secs Q2
 20. D'AMBROSIO** VIRGIN 2m11.601secs Q1	 22. LIUZZI** HRT 2m11.616secs Q1
 24. SCHUMACHER** MERCEDES NO TIME	 23. RICCIARDO** HISPANIA 2m13.077secs Q1

* Five-place grid penalty for causing a collision in qualifying
** Allowed to start race by stewards

THE RACE



THE RESULTS (44 LAPS)

1st	Sebastian Vettel	Red Bull	1h26m44.893s
2nd	Mark Webber	Red Bull	+3.741s
3rd	Jenson Button	McLaren	+9.669s
4th	Fernando Alonso	Ferrari	+13.022s
5th	Michael Schumacher	Mercedes	+47.464s
6th	Nico Rosberg	Mercedes	+48.674s
7th	Adrian Sutil	Force India	+59.713s
8th	Felipe Massa	Ferrari	+66.076s
9th	Vitaly Petrov	Renault	+71.917s
10th	Pastor Maldonado	Williams	+77.615s
11th	Paul Di Resta	Force India	+83.994s
12th	Kamui Kobayashi	Sauber	+91.976s
13th	Bruno Senna	Renault	+92.985s
14th	Jarno Trulli	Lotus	+1 lap
15th	Heikki Kovalainen	Lotus	+1 lap
16th	Rubens Barrichello	Williams	+1 lap
17th	Jérôme D'Ambrosio	Virgin	+1 lap
18th	Timo Glock	Virgin	+1 lap
19th	Vitantonio Liuzzi	Hispania	+1 lap

Retirements

Sergio Pérez	Sauber	27 laps - damage
Daniel Ricciardo	Hispania	13 laps - rear end
Lewis Hamilton	McLaren	12 laps - accident
Sébastien Buemi	Toro Rosso	6 laps - rear wing
Jaime Alguersuari	Toro Rosso	0 laps - damage

THROUGH SPEED TRAP



Fastest: Mark Webber, 191.55mph
Slowest: Daniel Ricciardo, 174.15mph

TYRE COMPOUNDS USED



Soft **Medium** **Intermediate** **Wet**

CLIMATE

Overcast 17°C

TRACK TEMP

23°C



FASTEST LAP

Mark Webber, lap 33, 1min 49.883secs



FASTEST PITSTOP

Michael Schumacher, 20.153secs (entry to exit)

DRIVERS' STANDINGS

1st	Sebastian Vettel	Red Bull	259pts
2nd	Mark Webber	Red Bull	167pts
3rd	Fernando Alonso	Ferrari	157pts
4th	Jenson Button	McLaren	149pts
5th	Lewis Hamilton	McLaren	146pts
6th	Felipe Massa	Ferrari	74pts
7th	Nico Rosberg	Mercedes	56pts
8th	Michael Schumacher	Mercedes	42pts
9th	Vitaly Petrov	Renault	34pts
10th	Nick Heidfeld	Renault	34pts
11th	Kamui Kobayashi	Sauber	27pts
12th	Adrian Sutil	Force India	24pts
13th	Sébastien Buemi	Toro Rosso	12pts
14th	Jaime Alguersuari	Toro Rosso	10pts
15th	Sergio Pérez	Sauber	8pts
16th	Paul Di Resta	Force India	8pts
17th	Rubens Barrichello	Williams	4pts
18th	Pastor Maldonado	Williams	1pts
19th	Pedro de la Rosa	Sauber	0pts
20th	Jarno Trulli	Lotus	0pts
21st	Vitantonio Liuzzi	Hispania	0pts
22nd	Bruno Senna	Renault	0pts
23rd	Jérôme D'Ambrosio	Virgin	0pts
24th	Heikki Kovalainen	Lotus	0pts
25th	Timo Glock	Virgin	0pts
26th	Narain Karthikeyan	Hispania	0pts
27th	Daniel Ricciardo	Hispania	0pts
28th	Karun Chandhok	Lotus	0pts

CONSTRUCTORS' STANDINGS

1	Red Bull	426pts	10	Lotus	0pts
2	McLaren	295pts	11	Hispania	0pts
3	Ferrari	231pts	12	Virgin	0pts
4	Mercedes	98pts			
5	Renault	68pts			
6	Sauber	35pts			
7	Force India	32pts			
8	Toro Rosso	22pts			
9	Williams	5pts			



For comprehensive F1 statistics visit www.forix.com

RACE DEBRIEF by Pat Symonds

The Italian Grand Prix

11.09.2011 / Monza

A flash of the old Schuey... Red Bull's first DNF of 2011... Win number eight for Vettel



There's more where this came from...

Vettel grabs victory at Monza – aided by an audacious move on Alonso – to move within touching distance of retaining his title

Watching qualifying, I found it ironic that the two Ferraris were following each other, seeking to use the slipstream to find vital tenths. Ironic, because in 2006 I'd sat in front of the stewards at Monza with the same two drivers after Massa claimed having Alonso 90m in front of him had hindered his lap.

Irrespective of the rights or wrongs of that incident, Ferrari's actions in qualifying emphasised a factor that makes Monza a circuit like no other. Straightline speed is at a premium at any track but nowhere is it quite as important as it is at Monza. Monza is an enigmatic circuit,

steeped in history, but it appeals to romantics more than it does the teams. Special low-drag aerodynamic packages are produced for this one race at huge expense, yet the very uniqueness of the circuit adds something to a calendar that features more bland races year by year.

After the tribulations of Pirelli and Red Bull at Spa, the focus was on tyre durability and 'camber' was the word of the weekend. Pirelli recommended a limit of 3.25° and, for the first time, the FIA informed the teams this had to be adhered to, since if it were exceeded the regulator would deem the car to be 'of unsafe construction' and therefore ineligible to race.

Practice saw warm conditions, but with the new limitations, tyre problems were soon forgotten and attention switched to making best use of the DRS, a feature not seen before on such a high-speed circuit. Interestingly, most teams chose to use the drag reduction to match the top speeds of the previous year, a fraction shy of 220mph. This meant that with the DRS system disengaged, they were enjoying additional downforce through the corners. This, in turn, meant they were looking after the tyres and during the long high fuel runs in second practice even the softer tyre was showing very low degradation. In general, lap times were not matching 2010 values and, indeed, the pole time ended up being three tenths shy of the previous pole in spite of the higher downforce – an indication that the Pirellis were perhaps somewhat harder than the 2010 Bridgestones.

Qualifying sprung few surprises as Alguersuari joined those knocked out in the first session. The Virgin drivers enjoyed a late aerodynamic upgrade that moved them closer to Lotus and, had Glock's DRS not failed, may even have let him split the Norfolk team. Q2 saw both Force Indias, Williams and Saubers and the remaining Toro Rosso demoted, leaving five teams with both cars into the top ten – an indication of the relative worth of the car at this circuit.

In the race for pole, Alonso again used the slipstream to set the early pace, but was soon eclipsed by Vettel in a mighty effort that saw the current champion off the track at the second Lesmo and holding a huge 125mph power slide at the Ascari chicane. He managed a second run with 15 seconds to spare, further eclipsing his time to take pole by nearly half a second. Interestingly, he was slowest through the speed trap at just 204mph having chosen a short top-gear ratio to suit the times when DRS was not in use. To be safe, he needed a lead of two seconds by the time DRS was enabled at the end of lap 2.

It is worth explaining how the teams choose ratios with the DRS. A race engine needs to rev as high as possible to give performance. Top gear

“Schuey pushed etiquette to the limit, defending against Lewis”

is chosen so that at maximum car speed, the engine is also at maximum speed. The problem arises because the top speed is not constant. With the DRS in use, the car may be 10mph faster and, if top gear is chosen to cope with this, then when the system is not in use the engine will be nearly 1000rpm shy of optimum. As seventh gear is longer (higher ratio), so too sixth will need to be longer and hence acceleration is lost. The compromise usually chosen is to select a top-gear ratio that is shorter (lower ratio) than is needed for maximum, DRS-enabled, end-of-straight speed, so accepting that the car will be speed limited for some distance when DRS is activated. Vettel and Schumacher went one step further, choosing top gear to be optimum for a speed just above their maximum without DRS, thereby getting best performance when DRS was not in use. This limited their ability to use DRS for overtaking. It did, however, give them the best acceleration off the line at the start and out of the corners, particularly with a high fuel load.

The start saw an amazing launch from Alonso, with Vettel suffering just a bit too much wheelspin. These two were joined by Hamilton as they approached the first corner three abreast at 140mph. Alonso even put two wheels on the grass at 170mph to find room. By doing so, he cleared the other two to lead out of the first chicane. Behind, all hell broke loose as Liuzzi arrived across the grass at high speed to cannon into the mid pack, eliminating Petrov and Rosberg on the spot and delaying many others. →

The story of the race

▼ On the blast down to the first corner, Alonso sends the tifosi wild with this move into the lead



► Chaos ensues when Liuzzi loses control of his HRT and T-bones the pack as they enter the first turn



◀ Alonso's charge at the head of the field proves short-lived as Vettel muscles his way past



◀ Mark Webber ends Red Bull's 100 per cent finishing record this season when he clashes with Massa

View from the paddock

Goodbye to all that

The final European race of the summer is traditionally a time to bid farewell to a number of familiar faces in the F1 paddock. The teams are about to start the final leg of the season, heading out on their six-race, long-haul trek. And the convoy of trucks and giant paddock motorhomes with their armies of catering staff and chefs won't be seen again until Barcelona next May.

There was a fond farewell to FOTA's secretary general, Simone Perillo, but at the same time we welcomed his replacement, Oliver Weingarten, who was previously a lawyer for the English Premier League. Then there were the people queuing up to introduce themselves to Martin Turner, the executive producer for Sky Sports who was spotted deep in conversation with Martin Brundle over the weekend. So as one era comes to an end for many, the opportunities for a new one open up.

James Roberts

► The best action in the race comes as Schuey fights hard to keep Hamilton behind him for lap after lap



▼ There's just no stopping Vettel, who has a comfortable race en route to his eighth win of 2011



MAIN PHOTO: MARK THOMPSON/GETTY IMAGES; ILLUSTRATION: ALAN ELDRIDGE; INSETS: CHARLES COATES/LAT; ANDREW FERRARO/LAT; LORENZO BELLANCA/LAT; STEVE ETHERINGTON/LAT; SUITTON IMAGES

The Safety Car was deployed and, at the restart, Hamilton, in third, was concentrating so hard on Schumacher in his mirrors that he missed Alonso and Vettel bolting in front. To add insult to injury, Schumacher took him into the first corner. Try as he might, Lewis could not regain position as Schumacher, also with shorter ratios and full use of KERS, held him back.

Further forward, Vettel took Alonso in a daring move around the outside of the Curva Grande and into the second chicane. In this one move, he dispelled the myth perpetuated by some that he can't race wheel-to-wheel. His team-mate was faring less well as a collision with Massa damaged his front wing, eventually pitching him into the barrier as he tried to make it back to the pits. Schumacher, meanwhile, was pushing driving etiquette to the limit – but not beyond – in his defence against Lewis. As their struggle grew ever more fraught, Schumacher pushed Hamilton onto the grass at Curva Grande. Button seized the moment and passed his team-mate, passing Schumacher into the Ascari chicane on the same lap.

Schumacher was first to stop, his rear tyres having suffered from the relentless pressure. Hamilton stopped two laps later, rejoining behind Schumacher once more and growing



Well... he did come third. And that was good enough for the excitable tifosi, who turned out in force

increasingly frustrated with his multi-move defences. Ross Brawn even had to get on the radio to remind his driver of what was acceptable practice. It took a further nine laps before Hamilton could dispatch the multiple world champion at the Ascari chicane.

Button took a risk in being first to make the final stop and change to the harder tyre, but a huge push saw him on Alonso's gearbox exiting the first chicane on lap 36, passing him at the next corner. Schumacher kept his tyres too long, making his final stop on lap 37, which meant Lewis was in front of him as he exited the pits.

Up front, Vettel had the race under total control to take an emotional victory on a circuit where he'd had his first win just three short years ago. Button took a well-judged second, while Alonso gave some joy to the tifosi with third. Schumacher settled for fifth after a race that reminded us of the old Michael. Further back, Alguersuari impressed again as he climbed from 18th on the grid to seventh.

Vettel's march towards the title is relentless, but even if the outcome is a foregone conclusion, the racing remains gripping on circuits not generally known for exciting events. 🏁

The GP you didn't see on TV

Taking you behind the scenes at Monza



Is this the latest round of cost-cutting measures? Surely Mark Webber should be concentrating on the driving?



The Pot Noodles are cunningly concealed under a layer of fruit



Jay Kay's already-subdued hair is further subdued by a flat cap



First-aid practice takes place amid a huddle of intrigued bystanders and a six-pint bottle of milk

























It's not exactly Banksy, but the tifosi have certainly got their point across with the spray cans...

Italian Grand Prix stats

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

THE GRID

	1. VETTEL RED BULL 1m22.275secs Q3		2. HAMILTON McLAREN 1m22.725secs Q3
	3. BUTTON McLAREN 1m22.777secs Q3		4. ALONSO FERRARI 1m22.841secs Q3
	5. WEBBER RED BULL 1m22.972secs Q3		6. MASSA FERRARI 1m23.188secs Q3
	7. PETROV RENAULT 1m23.530secs Q3		8. SCHUMACHER MERCEDES 1m23.777secs Q3
	9. ROSBERG MERCEDES 1m24.477secs Q3		10. SENNA RENAULT NO TIME IN Q3
	11. DI RESTA FORCE INDIA 1m24.163secs Q2		12. SUTIL FORCE INDIA 1m24.209secs Q2
	13. BARRICHELLO WILLIAMS 1m24.648secs Q2		14. MALDONADO WILLIAMS 1m24.726secs Q2
	15. PÉREZ SAUBER 1m24.845secs Q2		16. BUEMI TORO ROSSO 1m24.932secs Q2
	17. KOBAYASHI SAUBER 1m25.065secs Q2		18. ALGUERSUARI TORO ROSSO 1m25.334secs Q1
	19. TRULLI LOTUS 1m26.647secs Q1		20. KOVALAINEN LOTUS 1m27.184secs Q1
	21. GLOCK VIRGIN 1m27.591secs Q1		22. D'AMBROSIO VIRGIN 1m27.609secs Q1
	23. RICCIARDO HISPANIA 1m28.054secs Q1		24. LIUZZI HISPANIA 1m28.231secs Q1

THE RACE



THE RESULTS (53 LAPS)

1st	Sebastian Vettel	Red Bull	1h20m46.172s
2nd	Jenson Button	McLaren	+9.590s
3rd	Fernando Alonso	Ferrari	+16.909s
4th	Lewis Hamilton	McLaren	+17.417s
5th	Michael Schumacher	Mercedes	+32.677s
6th	Felipe Massa	Ferrari	+42.993s
7th	Jaime Alguersuari	Toro Rosso	+1 lap
8th	Paul Di Resta	Force India	+1 lap
9th	Bruno Senna	Renault	+1 lap
10th	Sébastien Buemi	Toro Rosso	+1 lap
11th	Pastor Maldonado	Williams	+1 lap
12th	Rubens Barrichello	Williams	+1 lap
13th	Heikki Kovalainen	Lotus	+2 laps
14th	Jarno Trulli	Lotus	+2 laps
15th	Timo Glock	Virgin	+2 laps

Retirements

Daniel Ricciardo	Hispania	39 laps - not classified
Sergio Pérez	Sauber	32 laps - gearbox
Kamui Kobayashi	Sauber	21 laps - gearbox
Adrian Sutil	Force India	9 laps - hydraulics
Mark Webber	Red Bull	4 laps - accident
Jérôme D'Ambrosio	Virgin	1 lap - gearbox
Vitaly Petrov	Renault	0 laps - accident
Nico Rosberg	Mercedes	0 laps - accident
Vitantonio Liuzzi	Hispania	0 laps - accident

THROUGH SPEED TRAP



Fastest: Bruno Senna, 215.59mph

Slowest: Jérôme D'Ambrosio, 132.89mph

TYRE COMPOUNDS USED



Soft **Medium** **Intermediate** **Wet**

CLIMATE

Sunny 31°C

TRACK TEMP

41°C



FASTEST LAP

Lewis Hamilton, lap 52, 1min 26.187secs




FASTEST PITSTOP

Sebastian Vettel, 21.378secs (entry to exit)

DRIVERS' STANDINGS

1st	Sebastian Vettel	Red Bull	284pts
2nd	Fernando Alonso	Ferrari	172pts
3rd	Jenson Button	McLaren	167pts
4th	Mark Webber	Red Bull	167pts
5th	Lewis Hamilton	McLaren	158pts
6th	Felipe Massa	Ferrari	82pts
7th	Nico Rosberg	Mercedes	56pts
8th	Michael Schumacher	Mercedes	52pts
9th	Vitaly Petrov	Renault	34pts
10th	Nick Heidfeld	Renault	34pts
11th	Kamui Kobayashi	Sauber	27pts
12th	Adrian Sutil	Force India	24pts
13th	Jaime Alguersuari	Toro Rosso	16pts
14th	Sébastien Buemi	Toro Rosso	13pts
15th	Paul Di Resta	Force India	12pts
16th	Sergio Pérez	Sauber	8pts
17th	Rubens Barrichello	Williams	4pts
18th	Bruno Senna	Renault	2pts
19th	Pastor Maldonado	Williams	1pt
20th	Pedro de la Rosa	Sauber	0pts
21st	Jarno Trulli	Lotus	0pts
22nd	Heikki Kovalainen	Lotus	0pts
23rd	Vitantonio Liuzzi	Hispania	0pts
24th	Jérôme D'Ambrosio	Virgin	0pts
25th	Timo Glock	Virgin	0pts
26th	Narain Karthikeyan	Hispania	0pts
27th	Daniel Ricciardo	Hispania	0pts
28th	Karun Chandhok	Lotus	0pts

CONSTRUCTORS' STANDINGS

1	Red Bull	451pts	9	Williams	5pts
2	McLaren	325pts	10	Lotus	0pts
3	Ferrari	254pts	11	Hispania	0pts
4	Mercedes	108pts	12	Virgin	0pts
5	Renault	70pts	 For comprehensive F1 statistics visit www.forix.com		
6	Force India	36pts			
7	Sauber	35pts			
8	Toro Rosso	29pts			



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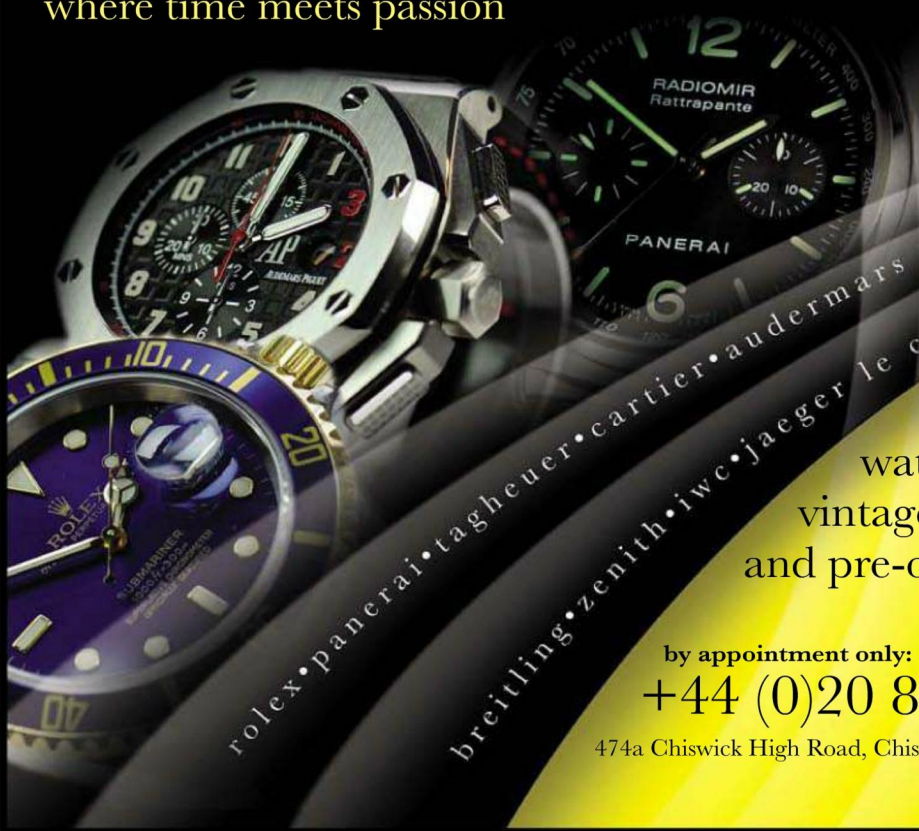
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My month in F1

FRANK WILLIAMS

Every issue. Only in *F1 Racing*

PASTOR'S ONE TO WATCH

It was great for Pastor to score his first point at Spa. He overtook five cars on the first lap of the Belgian GP and you've got to be good to do that. I don't know if he'll be world champion, but it would be stupid to say 'no way'. He has a lot going for him: he's jolly, charming, determined, articulate and he never loses his cool.

A CHAT WITH LEWIS

Lewis must be feeling frustrated this year. He's obviously got the talent, but the results aren't coming. He's a fierce competitor and if he thinks someone has done him in on the track, he'll talk to that driver. He dropped in to our motorhome on the Saturday evening of Spa to have a chat with Pastor, and I'm told they were together for quite a long time. I was in the pit garage at the time – that was probably the safest place to be!

AERO SET FOR A BOOST

Jason Somerville, our new head of aero, has arrived. He worked for us a while back, before going to Toyota. We had exactly the same engine as Toyota at the time, the same tyres – the same everything. Yet their car was quicker than ours, so the difference must have been mainly aero. Jason's a good man, but we'll see what impact he's had six months from now.

FATHER OF THE BRIDE

We didn't see Bernie at Spa until Sunday morning because he was at his daughter Petra's

wedding in Rome. I've heard it was fabulous and, before you ask, no, I wasn't invited – but Bernie's not much of a 'racer' these days, is he?! If he'd organised the wedding for Saturday morning, he could have been at Spa in time for qualifying. Clearly, he's a society man now!

SENNA NAME RETURNS

Bruno Senna did blindingly well at Spa, didn't he? I was astonished; I didn't think he was that quick. It's a great story for F1 to have the Senna name back at the sharp end, although he's got a way to go before he reaches Ayrton's level.

MONZA MADNESS

Monza's always an emotional race, with lots of atmosphere. The Italians love Ferrari – in fact, they love everybody – and they all try to get in for free. The whole weekend is typically Italian.

When I think of the Italians that have raced for us, there was Riccardo [Patrese] in the early '90s and before him [Arturo] Merzario. He was a nice guy, but his name takes me back to the '70s, when we were 20th on the grid and struggling from one race to the next. We only attracted drivers with enough money for about three races.

MY NEW GADGETS

I've been shopping. I've just bought an iPhone and an iPad, which my nurse tells me are brilliant! The only things I find annoying are the earpieces because they fall out the whole time. I'm trying to convert the headpiece that I had on my Motorola for my iPhone.

BERNIE'S BIG DEAL

The BBC/Sky deal is still in the news, with some people questioning Bernie's motives. Let me tell you, Bernie does things for two reasons: to make a profit and to promote F1. It's not his wish to screw F1 into the ground and

take as much money as he can; he does what's right for the sport and that's the case with the Sky deal in 2012. I have a lot of time for Bernie; he's a great bloke – a remarkable character.

LOOKING AHEAD

We're now at the lower end of being points-scoring competitive and we've got a good chance of maintaining that level through to the end of the year. If we got lucky, perhaps in a race where six cars are taken out at the start, we might get towards the top end. I'm feeling bullish about our chances at the remaining flyaway races.

On my mind this month...

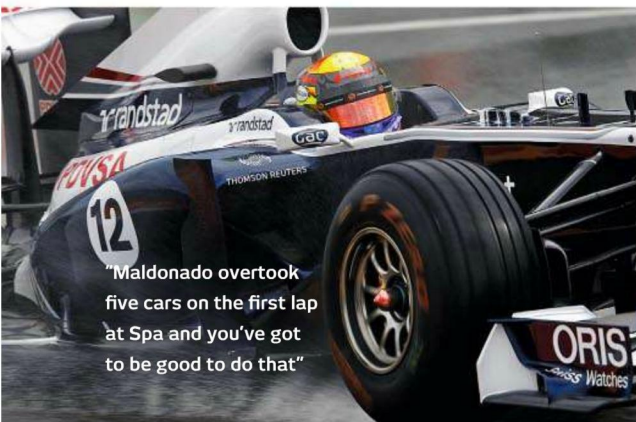
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"If Lewis thinks someone has done him in on the track, he'll talk to that driver"

"We didn't see Bernie at Spa until Sunday morning because he was at his daughter's wedding in Rome"

"Arturo Merzario was a nice guy, but his name takes me back to the '70s when we were struggling"

"It's not Bernie's wish to screw F1 into the ground; he does what's right for the sport"



"Maldonado overtook five cars on the first lap at Spa and you've got to be good to do that"

For more information on Williams and what they're up to, visit www.attwilliams.com

ALAN HENRY



Forty years and counting on the frontline of Formula 1

F1's popularity could be at stake with TV deal

The more I hear of the detail involved in the plans to share the UK's F1 coverage between the BBC and Sky channels from the start of 2012, the more I am convinced that the deal has the making of a fundamental litmus test of the sport's global popularity with the man in the street.

I offer this at the end of a week in which it was announced that BBC chiefs are to face rigorous questioning from MPs following what has been described as a "furious backlash" from fans about the plans. Ultimately, it's not simply about the 'fans' who, I suspect, will pretty much put up with what they are offered to get their fix of the F1 action, but the viewing equivalent of the 'floating voters' who are mildly interested but are unlikely to change their habits – which in this instance means paying a Sky subscription – if the rules of engagement are changed.

According to informed sources, this furious backlash has prompted the House of Commons' Culture, Media and Sport select committee to discuss the matter with senior BBC personnel, including the director-general Mark Thompson, at their planned meeting in late September. Specifically, Don Foster MP, Liberal Democrat spokesman for Culture, Media and Sport, has written to Thompson to seek answers about how the BBC/Sky contract came together and whether the BBC acted in the best interests of the fans.

"I suspect most casual viewers will not stump up for Sky coverage"

have neither the urgency nor appeal of the current format.

The key appeal of BBC's current free-to-view excellence is a sense of getting the inside track without being lectured. Brundle and Coulthard don't get in the viewers' way, instead involving them in a manner that is absorbing and exclusive. Take away the immediacy of live coverage and the risk is that fans will drift away. I know little about MotoGP, but if I stumble upon it, I will watch and enjoy. Spreading F1 coverage thinly and inconsistently risks nurturing a similar indifference towards it. Long term, that could be a big mistake.



The split coverage deal between the BBC and Sky could lead to the sports casual fans drifting away

I suspect that the majority of fans will be remarkably upbeat about these developments. Most casual viewers will not stump up the monthly subscription for Sky coverage. They are more likely to roll with the punches, see how the new 'split' arrangement works and then, after a few months, decide whether the new 'austerity Beeb' coverage is good enough for them. And if not, they'll earmark Sunday afternoons for trimming the hedge or mowing the lawn instead – all tasks that are low-priority options when they can enjoy the high-quality Brundle/Coulthard commentary package. Waiting to see the Beeb's highlights will

WEBBER SIGNING PROVES THAT LOGIC PREVAILS

I suspect many readers will have enjoyed the way in which Mark Webber and Red Bull team principal Christian Horner have been seen to be subtly jousting over whether or not the gritty Australian would remain with the team for 2012 – and will have sighed with relief when the deal was signed just before the Belgian GP. You could make a



Smiles all round as Webber sticks with Red Bull for 2012

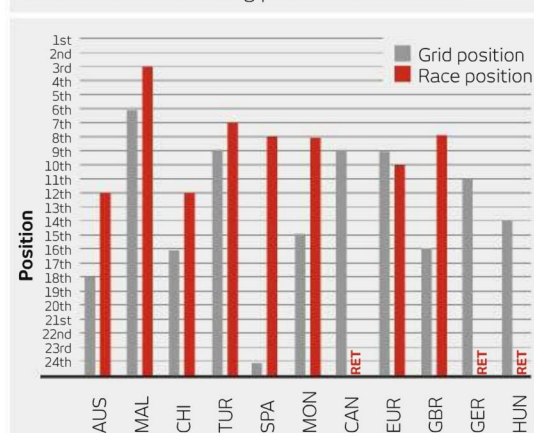
persuasive argument for replacing Webber with up to half a dozen young stars, but sticking with what you know is often the best choice. Keeping Sebastian Vettel happy – but not too happy – is clearly the priority here.

NOT SO QUICK NICK



After 182 outings, it fell to the Renault management to call time on Nick Heidfeld's F1 career just before the Belgian GP, where he was replaced by Bruno Senna. A nice bloke and a good driver on his day, Nick ultimately lacked the spark to convince team principals he had something special to offer on a long-term basis. Don't bank on him picking up another F1 drive in the future. That story, I fear, is over.

Nick Heidfeld's declining performance in 2011



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The Singapore GP preview

by Heikki Kovalainen 25.09.2011 / Marina Bay

A long, rough and rocky ride, that takes place under the cover of night...



T14

T7



HEIKKI'S TOP OVERTAKING SPOT

It's very tough to overtake anywhere in Singapore. The best place is probably Turn 7 because it comes after a long-ish straight. After that, the only other place where you can really attempt a move is the right-hander at Turn 14.

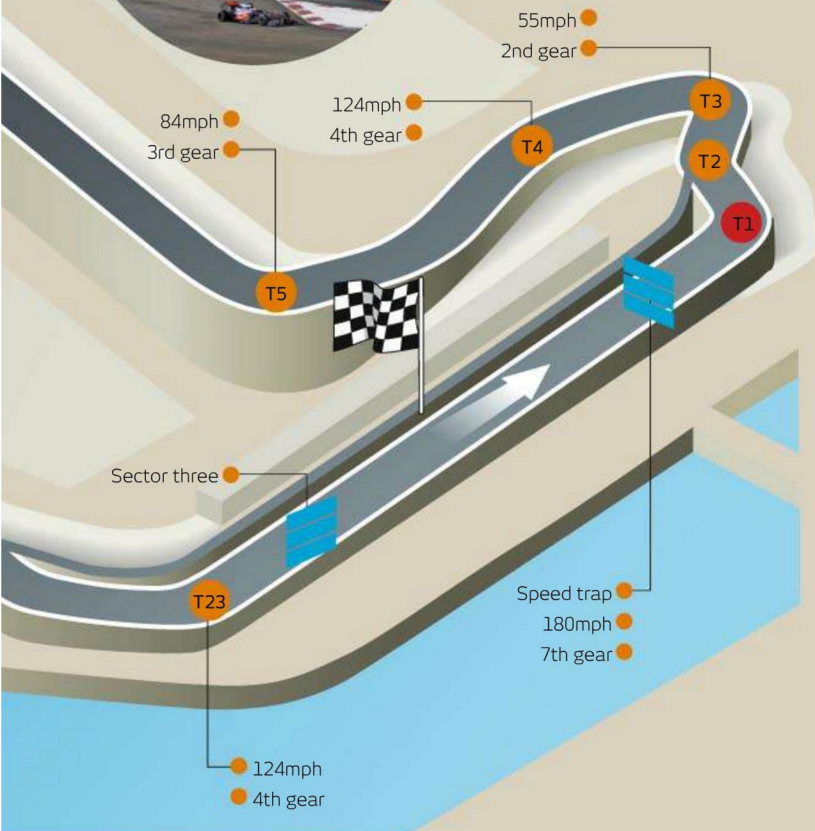
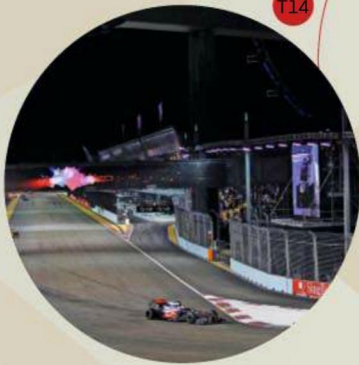
T1

HEIKKI'S INSIDE TIP

At this circuit you need to push to get your braking points as late as possible. There are a lot of heavy-braking areas so there's a lot of lap time to be gained or lost. Turns 1, 10 and 14 are all corners where you can find a couple of tenths of a second if you brake late enough.

T10

T14



Brace yourself for a rough ride...

I enjoy racing in Singapore. The circuit is very long with a lot of corners and that means it's tough for the cars and tough for the drivers physically. It's hot and humid and bumpy and with 23 corners a lap it can really take its toll, so you have to be well-prepared. The race is also one of the longest of "Because the track is so bumpy, you can end up feeling quite bruised after the weekend"

the year, too, and that makes it one of the most demanding for the drivers.

The fact that this is a night race makes it extra-special but there aren't really any problems with adapting to racing later in the day because you just stay on European time. I eat and sleep at the same times I would at home and that seems to suit me quite well, although I try to arrive in Singapore as late as possible so my body doesn't start adapting to the local time automatically.

Because the track is so bumpy, you can end up feeling quite bruised after the weekend. The cars often bottom-out and produce sparks, which looks spectacular from the outside although from the cockpit the car is very stable. Because it's a long lap it can be hard to get the tyres working properly and if you're not careful they can give up after a lap, even if they're new. That makes qualifying tricky, so you need to find a set-up that makes the tyres last.



All you need to know

CIRCUIT STATS

Round 14/19

Track length: 3.152 miles

Race length: 192.2 miles

Laps: 61

Direction: Anticlockwise

F1 debut: 2008

Lap record:

1min 45.599secs

Kimi Räikkönen (2008)

Last three winners:

2010 Fernando Alonso

2009 Lewis Hamilton

2008 Fernando Alonso

Tyre allocation

Prime: Soft

Option: Supersoft

TV SCHEDULE

Timetable (UK time)

Fri 23 September

Practice 1 11:00 - 12:30

Practice 2 14:30 - 16:00

Sat 24 September

Practice 3 12:00 - 13:00

Qualifying 15:00

Sun 25 September

Race 13:00

The Japanese GP preview

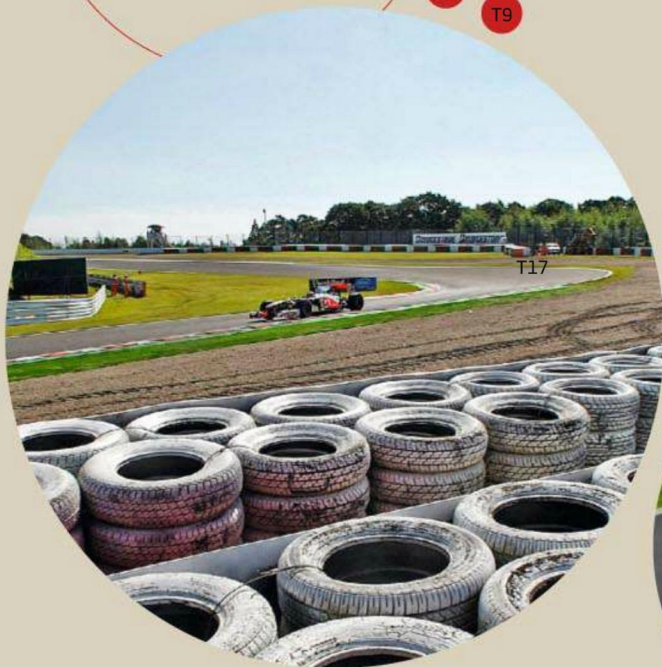
by Heikki Kovalainen 09.10.2011 / Suzuka

An all-time classic, where a committed driver can really make a difference



HEIKKI'S INSIDE TIP

You can make up time at the Degner Curves. The entry to Turn 8 is quite fast and there's a kerb on the inside that you have to commit to. If you miss the apex, there's a kerb on the exit that pulls you away towards the outside wall.



HEIKKI'S CIRCUIT HIGHLIGHT

I love the opening sequence of corners. From Turn 1 until Turn 7 it's all about high speed. Turns 1 and 2 are quick, positive-camber corners and then the Esses – Turns 3,4 5, 6 and 7 – probably make up the best sector in the whole sport.



T17 T16 T11

HEIKKI'S TOP OVERTAKING SPOT

The best place to overtake is definitely into the chicane at the end of the lap at Turns 16-17. It comes after what is basically a long straight followed by 130R, which is a flat-out corner. We saw Kobayashi overtaking into the hairpin at Turn 11 last year – that's really the only other opportunity.



High-speed fun with enthusiastic fans

The Suzuka circuit is a favourite of a lot of F1 drivers – it's up there with Spa – and it's very easy to see why. I think it's a great track because it's fast with lots of high-speed corners, a very smooth surface and lots of changes to the gradient. It's an excellent circuit and a great place to visit.

"There are several places where if you don't commit yourself to the corner you can easily lose a tenth"

The fans at Suzuka are always very passionate and, for some reason, they have always seem to have a particular love of the Scandinavians and especially the Finnish drivers. I always have a lot of fans here, as did Kimi Räikkönen and Mika Häkkinen. It's a very old-school sort of circuit without big Tarmac run-off areas and that's why I like it, because it means a committed driver can really make a difference.

There are several places where if you don't really commit yourself to the corner you can easily lose a tenth of a second. But if you're fully committed and you're not worried about crashing the car, you will definitely be able to make up some time.

The fast nature of the track at Suzuka means that it can be difficult to follow other cars closely though. For this reason, you need to find a set-up that gives you good high-speed stability, no matter what the overall downforce levels of your car.



All you need to know

CIRCUIT STATS

Round 15/19

Track length: 3.608 miles

Race length: 191.053 miles

Laps: 53

Direction: Clockwise & anticlockwise

F1 debut: 1987

Lap record:

1min 31.540secs

Kimi Räikkönen (2005)

Last five winners:

2010 Sebastian Vettel

2009 Sebastian Vettel

2006 Fernando Alonso

2005 Kimi Räikkönen

2004 Michael Schumacher

Tyre allocation

Prime: TBA

Option: TBA

TV SCHEDULE

Timetable (UK time)

Fri 07 October

Practice 1 02:00 - 03:30

Practice 2 06:00 - 07:30

Sat 08 October

Practice 3 03:00 - 04:00

Qualifying 06:00

Sun 09 October

Race 07:00



The Korean GP preview

by Heikki Kovalainen 16.10.2011 / Yeongam

A tricky circuit with the longest straight in F1, Korea could spring a few surprises in its second year



T7

T8

T9

T10

HEIKKI'S CIRCUIT HIGHLIGHT:

Probably my favourite part of the track is the section from Turn 7 through to Turn 10. All the corners are very fast here, in particular Turn 8 where the change of direction is actually quite rapid.

HEIKKI'S INSIDE TIP:

There's time to be made up in the last sector. From Turns 12-13 onwards it's quite tricky and Turns 13, 14, 15 and 16 are also tough to get right. They're all slow to medium speed but there are a few different lines that you can take – and to get the sequence right, you need to stay on the line.



T12

T13

T14

T15

T16

HEIKKI'S TOP OVERTAKING SPOT:

Turn 1 and Turn 3 are definitely the best places to overtake at Yeongam. Turn 3 is probably slightly better because the straight leading up to it is just that little bit longer.



T1

T3

52mph
2nd gear

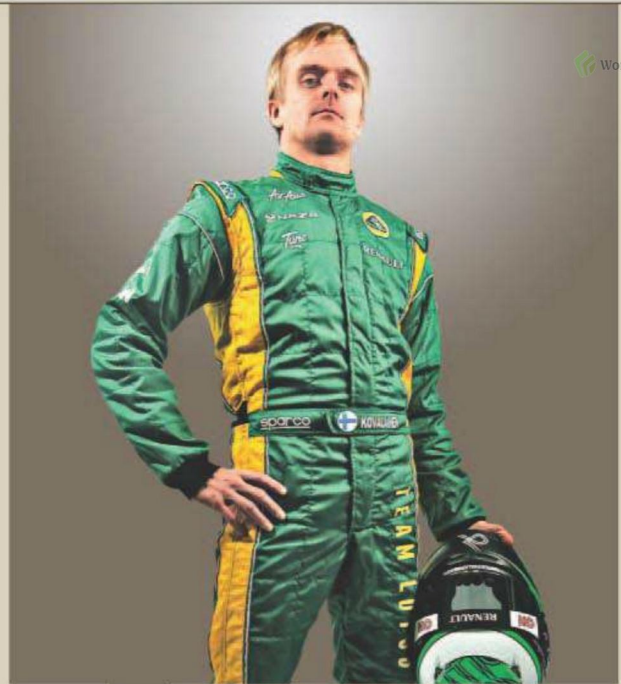
T6

T5

54mph

2nd gear

T4



After the rush, things can only get better

Last year was our first year in Korea and I really enjoyed it. We didn't know quite what to expect, but I think they did a great job with the Yeongam circuit and I suspect that it will be even better this October, because last year there was a bit of a rush to get it all finished in time.

Also the race last year ran on for quite a long time – mainly because of the weather – and by the end it was

“Last year, the race ran on and the podium ceremony took place in almost total darkness.”

very nearly dark. We were right on the edge of being able to continue – just another few laps and it would have been too dark to race. As it was, the podium ceremony took place in almost total darkness. Hopefully this year the race will finish at a more normal time.

In terms of the circuit itself, I really enjoyed racing on it last year. There are a couple of long straights – including the longest straight on any circuit in Formula 1 – that lead up to some very good overtaking places.

The track also contains some fairly tricky sections. Starting at Turn 6 and going through to the end of the lap there are a lot of medium and high-speed corners and, at times, it seems as if you're almost constantly turning left and right. In terms of a good lap, you really need to hook up the last section to record a competitive lap time.



All you need to know

CIRCUIT STATS

- Round 16/19
- Track length:** 3.488 miles
- Race length:** 192.1 miles
- Laps:** 55
- Direction:** Anticlockwise
- F1 debut:** 2010
- Lap record:**
1min 50.257secs
Fernando Alonso (2010)
- Last year's winner:**
Fernando Alonso

Tyre allocation

- Prime:** TBA
- Option:** TBA

TV SCHEDULE

- Timetable (UK time)
- Fri 14 October**
Practice 1 02:00 - 03:30
Practice 2 06:00 - 07:30
- Sat 15 October**
Practice 3 03:00 - 04:00
Qualifying 06:00
- Sun 16 October**
Race 07:00



Inside the mind of... **ANTHONY DAVIDSON**

The pen-and-paper-based Q&A that you can win

Full name: ANTHONY DENIS DAVIDSON Nickname: ANT

Occupation: DRIVER, COMMENTATOR, SIMULATOR DRIVER, (FATHER!)

Describe yourself in three words: TENACIOUS ANALYTICAL REALISTIC

Who is your favourite F1 driver in history and why? SEINNA. HE WAS THE MOST COMPLETE DRIVER
(I'M NOT SURE WHY I'M WRITING IN CAPITALS, BUT I'VE DONE IT NOW!)

What's your favourite corner in F1? TURN 8, TURKEY Who's your best mate in F1? NO I'M NOT SAYING YOU CROFTY!!.....

What's the best grand prix you've ever seen? SUZUKA, 2005 (EPIC!) Who do you owe your success to? MY PARENTS, AND MY SPEED!

What was your best overtaking manoeuvre? THE NEXT ONE.

If F1 could introduce one new rule, what would it be? THE NORDSCHLEIFE MUST BE PART OF THE F1 CALENDAR

What would you be if you weren't an F1 driver? CR, AN LMP1 DRIVER?

What's the best piece of advice you've ever had in F1? DRIVE FAST, AND TAKE BIG RISKS!

What's your career highlight so far? WORKING WITH DAVID CROFT, OR WINNING THE 12 HRS OF SEBRING.

What car do you drive? PEUGEOT RCZ 168D

What was the last thing Bernie Ecclestone said to you? "THEY ALWAYS FORGET THE SMALL GUYS" HUNGARY 2002

Who's the sport's toughest competitor (apart from you)? MR. E (OF COURSE)

Please draw a quick self-portrait: 

I declare that all the information on this form is correct to the best of my knowledge

signed 

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Anthony Davidson made his Formula 1 debut with which team?
a) McLaren
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