

FERRARI'S 20,000BH  
ROLLER COASTER

Even the gearbox  
weighs 70 tonne



# Villeneuve, Hill and Mansell on... F1'S GREATEST SHOWDOWN

Controversial opinions inside

## WHY IS A MATERNITY MACHINE USED IN F1?

How ultrasound helps  
teams go faster

## LIFE IN THE (NOT SO) FAST LANE

Jarno Trulli and Heikki  
Kovalainen on Lotus

## 53,000 MILES IN SIX WEEKS

Jenson Button on the hectic  
schedule of the final five races

## BERNIE AT 80

A unique look at his  
uncompromising life







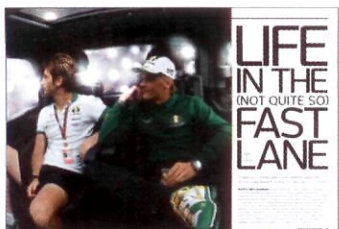
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74 The room that becomes Jenson Button's home over the weekend of a grand prix

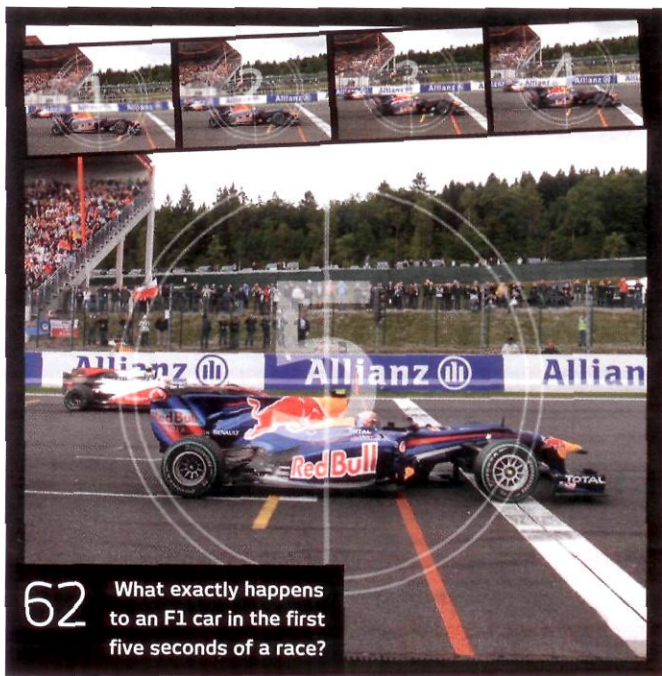


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"A championship showdown is your one chance. Nothing else exists."

That's what you call **pressure**

Jacques Villeneuve knows exactly how it feels. See how he rates this year's contenders on **page 46**



62 What exactly happens to an F1 car in the first five seconds of a race?

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We're the first to visit this incredible park in Abu Dhabi: Ferrari World



World exclusive!





# Parade

**Do not alight here** With his Lotus ablaze, Heikki Kovalainen decides that it's safer not to drive down the pitlane in the closing stages of the Singapore GP and parks his car on the start/finish straight

**Where** Marina Bay, Singapore **When** 9.59pm, Sunday 26 September

**Photographer** Lorenzo Bellanca/LAT

**Details** Canon EOS-1D Mk III, 148mm lens, 1/800th at F2.8











# Parade

**On a wing and a prayer** Lewis Hamilton considers whether the world championship is a lost cause. His bold attempt at overtaking Mark Webber caused him to crash out of the Singapore Grand Prix  
**Where** Marina Bay, Singapore **When** 9.15pm, Sunday 26 September  
**Photographer** Lorenzo Bellanca/LAT  
**Details** Canon EOS-1D Mk III, 16mm lens 1/100th at F2.8











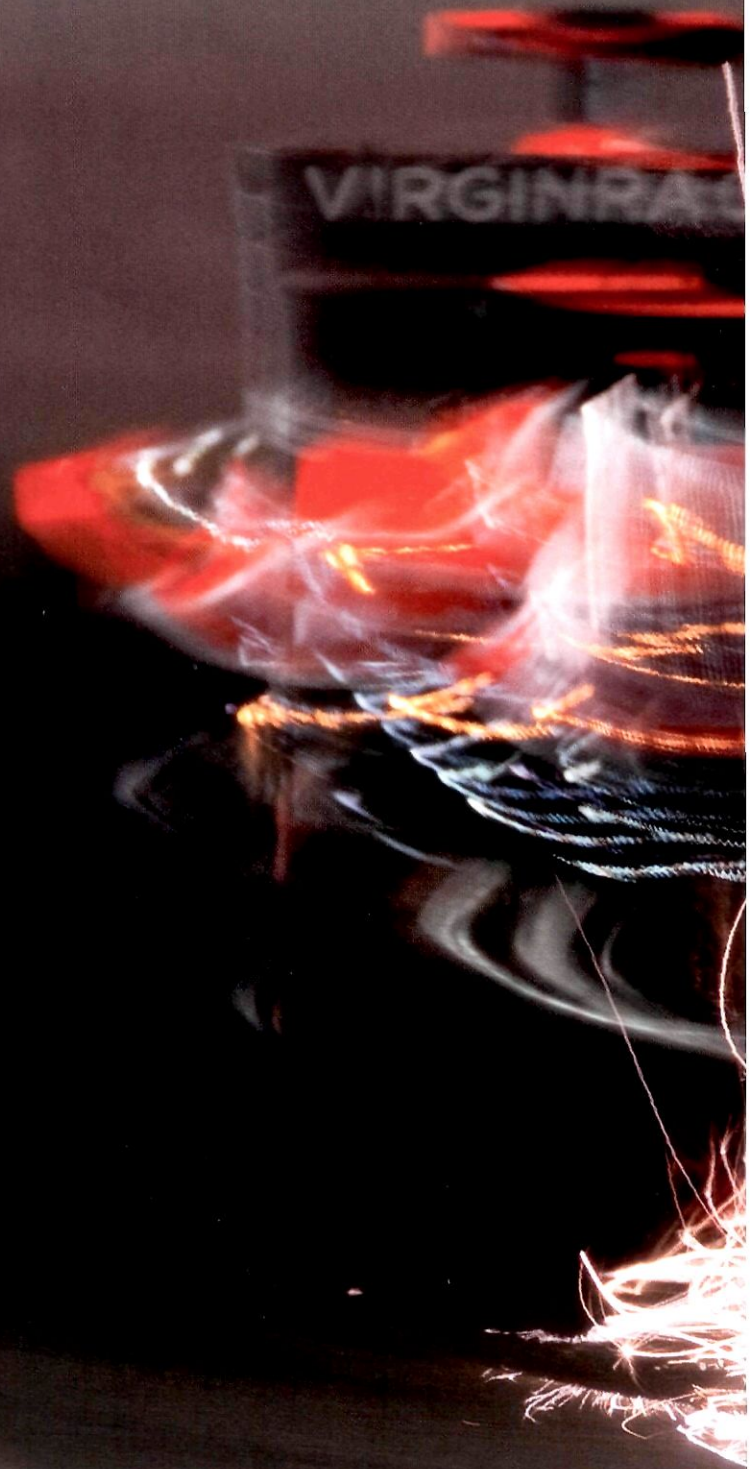
# Parade

**Flashdance** The notorious bumps on the streets of Singapore produce an electrifying light display when the bottom of the Virgin strikes the asphalt, creating a pyrotechnic show Guy Fawkes would have been proud of.

**Where** Marina Bay, Singapore **When** 8.29pm, Sunday 26 September

**Photographer** Lorenzo Bellanca/LAT

**Details** Canon EOS-1Ds Mk III, 600mm lens, 1/4th at F14











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 F1 Racing published monthly in Australia, Brazil, Bulgaria, China, Croatia, Czech Republic, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Middle East, Netherlands, Philippines, Poland, Romania, South America, Spain, Taiwan, Turkey, UK, USA. Formula One, Formula 1 and F1 trademarks of Formula One Licensing BV, a Formula One Group company, are used under licence.

**Circulation queries**  
 Frontline, Park House, 117 Park Road, Peterborough, Cambs PE1 2TR. Tel: +44(0)1733 555161. ISSN 13614487. EAN 07713614480012. Printed by Wyndeham Heron, The Bentall Complex, Colchester Road, Heybridge, Malden, Essex CN9 4NW. Covers printed by Wyndeham Impact, Grafton Way, West Ham Industrial Estate, Basingstoke, RG22 6FY. Colour by FMG, 90-92 Pentonville Road, London N1 9JF. Reproduction in whole or in part of any photograph, text or illustration without written permission from the publisher is prohibited. Due care is taken to ensure that the content of F1 Racing is fully accurate, but the publisher and printer cannot accept liability for errors and omissions. F1 Racing is a member of the Audit Bureau of Circulations.

**F1 Racing Subscriptions**  
 PO Box 326, Sittingbourne, Kent ME9 9FA. Tel 08456 777818. Fax 01795 414 555. Overseas: +44(0)1795 592 990. Email f1racing@servicehelpline.co.uk. US & Canada subscription queries: Tel 1-866-918-1446. Email haymarket@msnews.com. F1 Racing (USPS 025186) is published monthly by Haymarket Magazines Ltd, c/o Mercury International Ltd of 365 Blair Road, Avenel, New Jersey 07001. For subscription rates please contact: Tel 1-866-918-1446. Email Haymarket@msnews.com. Periodicals paid at: Railway NI. Postmaster please send address correction changes to F1 Racing, c/o Mercury International at above address. F1 Racing is published 12 times a year by Haymarket Consumer Media.



## STOP AND GO / Hans Seeberg / 11.2010



# Who could have predicted it would turn out like this?

Brilliant races, controversy, outrageous overtaking manoeuvres, simmering rivalries and the most wide-open showdown in living memory: it's a cliché to say this season's had it all – but it really has.

There's another vital ingredient that's made 2010 everything it is though: mistakes. No matter how hard Formula 1 strives for perfection, human error will always play a huge part in the agonies and ecstasies of the sporting spectacle and, for some reason, 2010 seems to have had more than any other recent season. Take Red Bull, widely acknowledged to have the best car on the grid but with a poor record at converting their multiple pole positions into wins. With the additional issue of the sometimes combustible relationship between Mark Webber and Sebastian Vettel, we should be thankful they didn't have both championships sewn up by July.

Elsewhere we've seen the best and worst of Ferrari, woefully off the pace at times but with Fernando Alonso coming good at just the right moment to reassert his post-Silverstone conviction that this will be his year. And what of McLaren? The team-mate rivalry that was supposed to spill over never happened, but driver and team mistakes have cost them dearly just when they couldn't afford it.

It's incredible to think that even after all this, any of these five drivers could still leave Abu Dhabi as the 2010 Formula 1 world champion. It's almost unheard of in any other sport and illustrates what an unmissable and deliciously unpredictable sport Formula 1 is. Roll on the next instalment...

**Tom Clarkson raids Jenson Button's hotel room – and discovers he really does use Head & Shoulders. Read about Jenson's life on the road on page 74**



**If it's a case of who's not going to be the first to blink, our money's on fierce HRT boss Colin Kolles. Jimmy puts your questions to him on p40**



**As Bernie turns 80, Alan Henry reflects on his F1 involvement (page 64)**



**Jimmy has a nice chat with Jarno and Heikki – both considerably less scary than Colin Kolles – about their first year at Lotus (page 88)**



**Jonny is nearly laughed out of Ferrari World (p94) when its chairman discovers he supports Man United...**

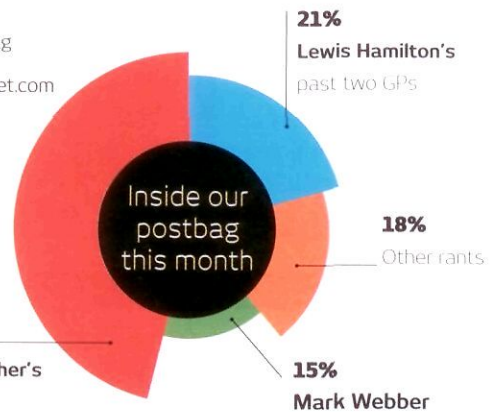


Special thanks to Alexandra Schieren, Matt Bishop, Steve Cooper, Silvia Hoffer Frangipane, Clare Robertson, Wolfgang Schattling, Nicola Armstrong, Sabine Kehm, Katie Tweedle, Britta Roeske, Luca Colajanni, Roberta Vallorosi, Stefania Bocchi, Liam Clogher, Claire Williams, Bradley Lord, Clarisse Hoffmann, Will Hings, Lucy Genon, Eric Silberman, Fabiana Valenti, Tom Webb, Hanspeter Brack, Heike Hientzsch, Alba Saiz, Tracy Novak, Rachel Ingham, Andy Stobart, Chris Hughes, Matt Jumanji Majende, Jon Barber, Karim El Guanani, Michele Pignatti, Claus Frimand and Hannah Griffiths. No thanks to Getting stuck in the mud at Montlhéry and two weddings in three days. Jimmy's dancing is not improving with age...



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## STAR LETTER

It's the traditional circuits like Spa where you don't need to be on pole to win

## Why pole has never been more important

I've been an avid F1 fan for 35 years so I was fascinated by your graphic (October issue, page 28) showing the pole-to-win ratio of the various 2010 grand prix circuits on the Formula 1 calendar.

While everyone talks about the importance of pole at Monaco, a whopping 12 of the 17 circuits where races have taken place demonstrate a greater need to be on pole to win than around the streets of the Principality. The four where it seems less necessary are also 'traditional' circuits: Spa, Interlagos, Monza and Silverstone.

Can we explain the results as having been unfairly skewed by the many years of less aero-sensitive GPs at the traditional circuits? Or is the Hermann Tilke philosophy – one long straight, a hairpin and a series of twisty bits where it's nigh-on impossible to pass – not working well enough for the modern era of F1 aerodynamics they were intended to challenge?

It's interesting to note that, of the seven circuits demonstrating the greatest need to be on pole, six had Tilke involved in the design.

I've never been one to moan much about the lack of overtaking in F1 and am not simply 'Tilke-bashing' as the cars are now obviously extremely aero-sensitive. But it would be revealing to see how your chart would change if, say, only the races from the past ten years were shown.

**Mark Adkins**

*By email*

## STAR PRIZE

Mark Adkins wins an Italian leather holdall from Caracalla Bagaglio's Commemorative Motorsport Collection.

For more information, visit [www.cbfil.co.uk](http://www.cbfil.co.uk)



## Support for Lewis

I've been reading the comments about Lewis Hamilton's first-lap exit in Italy. It's true to say that it was Lewis's fault, something that, to his credit, he has acknowledged. But he's come in for a lot of flak that I personally feel is unjustified.

Lewis is a pure racing driver. I've been going to the British GP since the 1970s and watching someone like him makes it worth every penny. So Lewis: ignore the negative comments. For me, drivers like you make F1 the great sport it is.

**Bill Dale**

*London, UK*

## Mercedes' cunning plan

Much has been written about Michael Schumacher's lack of form and disinterest, but given the testing ban, if you were Mercedes, how would you play catch-up?

I'd hire the world's most experienced driver as a one-man test team and enter him in all the races. Every development he came up with, I'd add on the number one car – Nico Rosberg's.

Perhaps this is his real role...

**Chris Molyneux**

*Simon's Town, South Africa*

## F1: it's better than football

With the World Cup not living up to its hype, the weather affecting the golf and Nadal making Wimbledon look easy, I thought to myself: is there any better sport than F1?

It's not affected (negatively) by the weather: in fact this season's wet races have produced fantastic entertainment. No GP goes by

without some kind of controversy and with only a few races to go, five drivers are still in with a chance at the title. If football is 'the beautiful game', F1 is 'the beautiful sport'.

**Alastair Conway**

*Glasgow, UK*

## Even more support for Lewis

The only thing worse than what happened to Lewis in Singapore was that Webber got away with it!

I can't be the only one who saw from Webber's onboard camera that Lewis was clearly in front going into the corner. Commentators said: "What was Webber meant to do?" He could try braking I guess...

**Mark Watson**

*By email*



*Both McLaren and Red Bull, with their holier-than-thou attitude on team orders, are gifting this year's title to Alonso.*

**Tim Creedon**

*What has been overlooked by many is how much Michael Schumacher is enjoying driving and being in F1 this year.*

**Euan Gorrie**

*Webber has proven that he can race and beat the best. Of all the drivers in contention he is the one that deserves it the most!*

**Sam Higham**



# FITPASS

News. Opinion. Analysis. Now



## HOW TO WIN THE WORLD CHAMPIONSHIP

With just three races to go, *F1 Racing* speaks exclusively to seven world champions about what Webber, Alonso, Vettel, Hamilton and Button have got to do to claim the sport's ultimate prize



**JACK BRABHAM**  
**Keep a cool head in qualifying**

"The way Formula 1 is now, it's vital to qualify well for every race left on the calendar. Qualifying on pole in Singapore set Fernando Alonso up for that win and, while overtaking will be a little easier at the remaining races, it's still preferable to secure the best possible track position in any given grand prix. To qualify well, though, you need to keep a cool head, forget about everything else that's going on around you and just focus on the job in hand."



**MARIO ANDRETTI**  
**Make the first lap count**

"The key to this championship is the first lap of the remaining races. We've seen that everybody has a different agenda in the championship, be it Lewis Hamilton fighting for the title or Felipe Massa fighting to hold on to his drive at Ferrari. That first lap is where the mistakes usually happen and the balancing act for championship hopefuls is to be careful but aggressive. On that

front, very little has changed since my title win in 1978 – those first-lap mistakes could be costly then and are still costly now."



**ALAN JONES**  
**Have the right mental attitude**

"It's all in the head – the driver who's the most solid up there will end up world champion. Mental toughness means a lot and the guys who have experienced the real highs and lows and ups and downs of racing and of life will be the best set when it comes to the crunch. As a driver, you can fill your head with too much 'shall I do this or that, or what happens if this or that happens'. You have to keep your head clear at all times and just take each race as it comes. So think less and you'll drive better – especially in the high-pressure situations."



**NIKI LAUDA**  
**Stay aggressive but don't make mistakes**

"The key as a driver is to not make mistakes. For Lewis Hamilton, that has been a big, big problem

recently and mistakes by him have turned around the world championship. But before the past three races he had been incredibly aggressive and made fewer mistakes, whereas Vettel had made a few big mistakes earlier in the season. So people say Hamilton's mistakes cost him, but Red Bull would have been much further ahead in the championship had it not been for the times when they ruined races with errors. Any problem is more obvious in the final races of the season so the person who makes the fewest mistakes but stays aggressive will probably win."



**SIR JACKIE STEWART**  
**Take it one race at a time**

"A lot has been made of the fact that just a handful of points separates several drivers in the standings, but the title hopefuls have to completely forget about that. If you start worrying about points and where you need to finish, it just scrambles your mind. Instead, you just need to keep your head down and treat each race as if it is the only issue and that winning it is your only target. If your objective is to win





**SAUBER'S MEXICAN DIRECTION**

The Swiss team have signed a new driver and a very wealthy investor from Latin America. Intrigued? Find out who we're talking about on page 20



**GREAT BALL OF FIRE!**

Despite Heikki proving a dab hand with a fire extinguisher in Singapore, that flaming Lotus is still going to cost a lot to fix. Turn to p26 to find out what happened... and how much



every race and you get close to doing that, the chances are that you will win the championship. But it's not easy – you have to stay calm and let that calmness come through to the team. If you're going for the win rather than specific points, it tends to make it easier to achieve."



**JOHN SURTEES**  
**Keep on doing what you're doing**

"Don't change a single thing. The reason you're in contention for the championship is that you've been doing the right things all season,

so keep the same rhythm. Tension will creep in if you start doing things differently. So stay as natural as you can. It's the same as a rider on a horse – you don't show the horse your anxiety or the horse will be affected by it. The same goes with an F1 driver and his team: if you run around like you're on hot bricks, it will distract everyone and throw them off course. So, keep doing what you've been doing all season long."

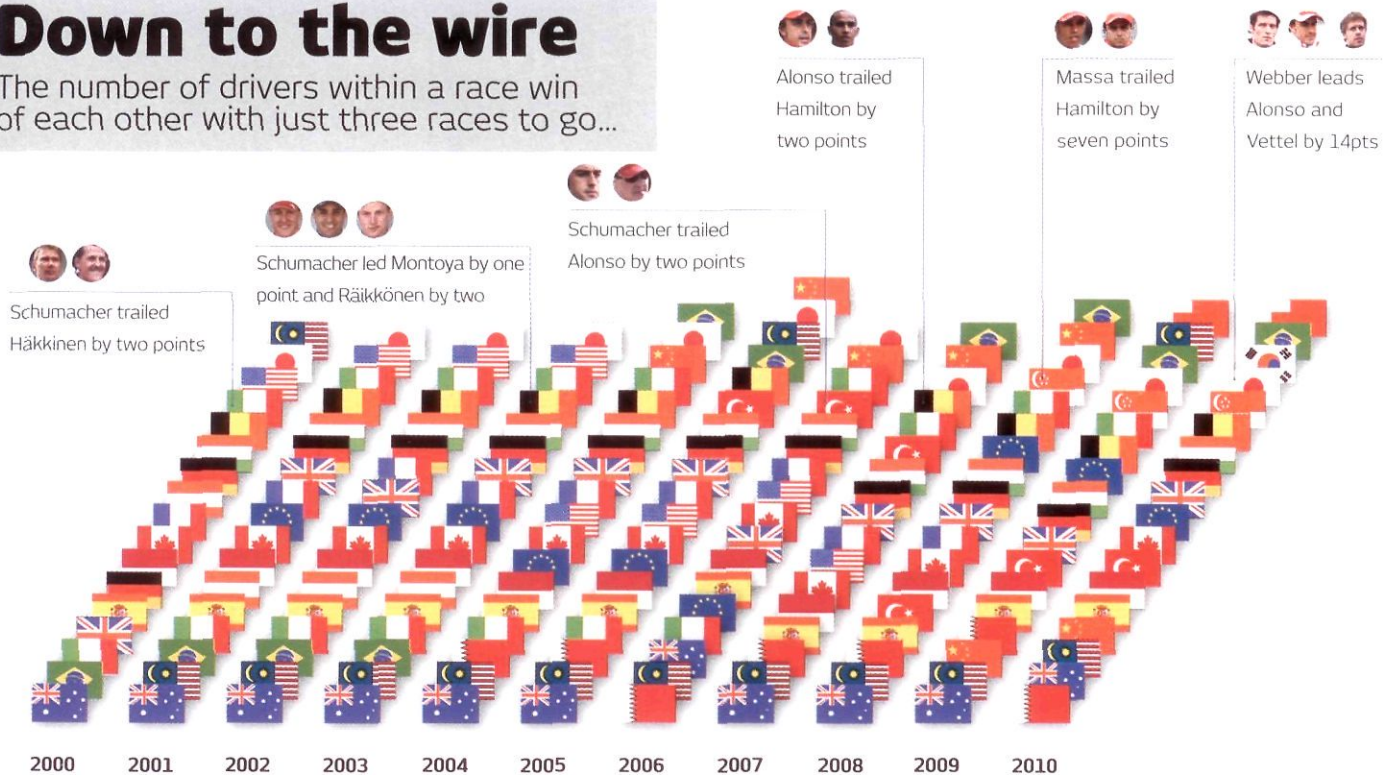


**EMERSON FITTIPALDI**  
**Don't lose the title on a single corner**

"It's difficult to give one piece of advice as the drivers going for the championship are in very different positions. Fernando Alonso needs to keep winning races, while finishing in the top two will probably make Mark Webber world champion. But my advice to all of them is to take care: they have to be careful not to make mistakes. A single error at this point can cost you the championship, whether it's a mistake overtaking or allowing yourself to be overtaken. You can lose a championship in a single corner but not win it, except at the last race where you can afford to be a bit more gung-ho."

**Down to the wire**

The number of drivers within a race win of each other with just three races to go...





NEWS

# F1 welcomes the world's richest man

Cash-strapped Sauber link up with Mexican investors and driver for 2011

**The Sauber team** is set to take on a Mexican flavour next year thanks to a much-needed injection of cash from the country's telecommunications giant Telmex, which is headed up by Carlos Slim, the richest man in the world.

With a fortune estimated at \$53.5 billion, Slim topped the Forbes world rich list earlier in the year, overtaking Microsoft founder Bill Gates. Also stepping up to F1 is the promising young Mexican driver Sergio Perez, who has been supported by Slim through the 'Escuderia Telmex' young driver programme. Perez finished second in the GP2 series this season and before that enjoyed success in British F3 with experienced outfit T-Sport.

As team-mate to Kamui Kobayashi, Perez will become the fifth Mexican driver to race in F1, following Hector Rebaque, the Rodriguez brothers Pedro and Ricardo and Moisés Solana. He will be joined at Sauber



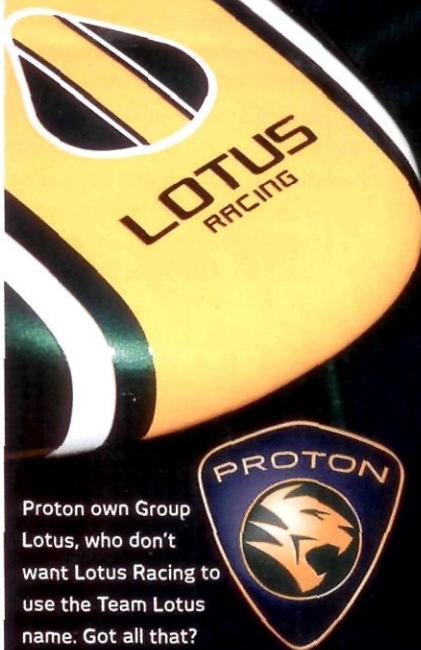
Telmex, which is owned by Carlos Slim (inset), sponsored Sergio Perez in GP2 this year

by fellow countryman and 2010 GP3 series champion Esteban Gutiérrez, who has been confirmed as their 2011 test and reserve driver following a successful association with the team this year.

F1 Racing understands that Telmex and Perez had spoken to a number of

teams, including Williams, about a possible drive, but were eventually swayed by Sauber's links to Ferrari through their engine deal. Tellingly, after Perez signed his deal with Sauber, Ferrari went on to announce that the Mexican has joined their young driver programme.

NEWS



Proton own Group Lotus, who don't want Lotus Racing to use the Team Lotus name. Got all that?

## The Lotus position

Three major signings and a lot of wranglings about their name – it's been a busy old month for the Norfolk team...

On track, things aren't looking at all bad for Lotus Racing. Already the most convincing of this year's new teams, they look set for greater things in 2011 when they will use Renault engines and Red Bull Racing's gearbox and hydraulics system. Throw in a new long-term contract with technical chief Mike Gascoyne and the future should be looking rosy.

But the team is currently involved in a row with Group Lotus, makers of Lotus road

cars, over the use of the name Lotus in F1. Group Lotus declined to renew the team's licence to race under the Lotus Racing banner, and parent company, Proton, said they would take: "All necessary steps to protect [our] rights in the Lotus name, including resisting any attempts to use the Lotus name in the 2011 F1 season."

One such attempt is the use of the name Team Lotus, that Lotus Racing team principal Tony Fernandes

has just acquired. All Lotus's racing activities between 1954 and 1994 were carried out under the name Team Lotus, a separate company to the road car division, and Proton want to stop it being revived in 2011.

The High Court will decide whether Proton and Group Lotus have power of veto over Team Lotus. But the easiest option might be for Fernandes to take a stake or acquire Group Lotus from the Malaysian car manufacturer.



NEWS

# FIA to help find the next Vettel

F1's governing body is launching an academy to help young drivers struggling to get a lucky break

The FIA is setting up a groundbreaking new programme to help develop driver talent around the world. It will be called the FIA Institute Academy and will be open to drivers aged between 17 and 23.

"It's going to achieve a lot of things," says former F1 driver Alex Wurz, who is going to be responsible for the driver training aspect of the curriculum. "For every Sebastian Vettel, there are many drivers who don't make it into F1 and we want to help them all. This will be a social safety net for drivers."

In its first year, the academy will select 20 aspiring drivers from five regions from around the world (North, Central and South America; Western Europe; Central and Eastern Europe; the Middle East and Africa; and Asia). They will be whittled down to the course total of ten participants at an evaluation day in February at Wurz's Test & Training International circuit in Austria.

The ten students who make it onto the course, which is fully funded by the FIA Foundation, will be educated in areas such as driving, nutrition, sport psychology, planning and media. They will also work towards

gaining an instructors' certificate, which will be applicable throughout their careers.

As Wurz explains: "Being trained as instructors means they will be able to work for car manufacturers irrespective of what happens in their racing careers. If we find the next F1 superstars, that's great, but the training certificate, combined with everything else they learn, will give them a chance to earn a living doing what they love, which is working with cars."

Alex Wurz will run the driver training element of the FIA's scheme



## FIVE MINUTES ON THE PHONE WITH... RUBENS BARRICHELLO AN F1 REGULAR FOR 18 YEARS



**How does it feel to have over 300 races under your belt?**

"It feels great! I feel very proud to have done so many and I don't feel any older than I did when I started with EJ back in 1993. Physically I'm fine and I still have lots of energy. I love driving Formula 1 cars and I enjoy working with the team, trying to improve performance."

**Are the cars easier to drive today than they were in 1993?**

"They're different, but I wouldn't say they are easier. Today's engines rev much higher than they did back then and the cars generate more downforce, so it's a different challenge. They're still bloody fast!"

**How has the Williams FW32 progressed this year?**

"We thought the car was doing well during winter testing, but we lost ground to our rivals during the early races. We then worked

hard to improve every aspect of the car and it was much better by the middle of the season. In Singapore we had a big aero upgrade, which translated to on-track performance immediately, and we had our last upgrade of the year at Suzuka."

**Do you think the team can return to their former glories?**

"I think so, yes. We have a great factory in England and lots of really good people in it. We've made a lot of progress this year and I hope that rate of progress will continue into next year."

**What's it like to work with Sir Frank Williams?**

"Frank's one of the reasons why I came to Williams. He's so passionate about the sport. For a long time Williams were the only independent team on the grid, but Frank never stopped fighting. I have a lot of respect for him and I've always wanted to drive for him."



Rubens has started over 300 grands prix and isn't planning on stopping

PHOTOS: CHARLES COATES/LAT; GLENN DUNBAR/LAT; DREW GIBSON/CPZ; MARK THOMPSON/GETTY IMAGES; CLIVE MASON/GETTY IMAGES



## F1 Mastermind

Your chosen specialised subject: the world's greatest sport...



- 1 Who inherited the 1985 San Marino GP when Alain Prost was disqualified for being underweight?
- 2 The Mistral Straight is part of which former grand prix circuit?
- 3 How many times did Jim Clark win the Monaco Grand Prix?
- 4 Who scored Ligier's only win of the 1990s and where did it occur?
- 5 Why were Mario Andretti and Bobby Unser banned from starting the 1968 Italian GP?
- 6 How many British drivers won grands prix in the 1980s?
- 7 Which F1 driver was killed in a support race at the 1959 German GP meeting at the AVUS circuit?
- 8 Who is the only Dutch driver to have stood on an F1 podium?
- 9 Which Italian driver finished on the podium at the 1995 Australian Grand Prix?
- 10 James Hunt won the 1976 title with third place in the final round in Japan. But who won that race?



## THIS BOY CAN DRIVE

Keeping an eye out for the Hamiltons of tomorrow



### Pastor Maldonado Who is he?

The 25-year-old is bidding to become only the third Venezuelan to race in F1 and was linked to both Campos and Stefan GP pre-season. He's still looking for a seat and was in with a chance of the drive at Sauber before Sergio Perez was confirmed.

### Is he any good?

Having won the GP2 series, he follows in the footsteps of Nico Rosberg, Lewis Hamilton, Timo Glock and Nico Hülkenberg. He set a record for the most wins in a season, although his success came at his fourth attempt.

### Anything else we need to know about him?

He has a contract with Felipe Massa's manager Nicolas Todt, plus backing from numerous Venezuelan organisations. He also has the support of President Hugo Chavez for his ambassadorial work back home.

### F1 chances

Despite decent backing and the fact there are more F1 seats up for grabs than in previous years, Maldonado has struggled to land a drive so far. He's added a major title to his achievements this year but it remains to be seen what difference this will make.

## OBITUARY

# Peter Warr 1938-2010

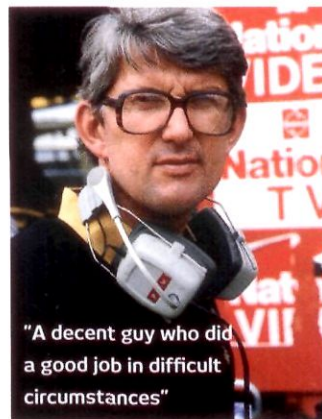
F1 mourns the passing of the former Lotus team manager and secretary of the BRDC

**Peter Warr**, who succeeded the late Colin Chapman as team manager of Lotus after the company's founder died in 1982, once memorably predicted that Nigel Mansell would never win a grand prix 'as long as he has a hole in his backside'. Truth be told, a lot of people lined up to agree with him at the time, but we were proved oh-so-wrong by the moustachio'd Brummie.

Warr, who died on 4 October at the age of 72, had a tempestuous relationship with the 1992 world champion, as keeper of the Lotus flame in the post-Chapman era. He was instrumental in attracting Ayrton Senna to drive the Lotus-Honda in 1987 but was made the fall guy for the team's poor showings the following year and left the team in the middle of 1989 before a brief stint as secretary of the British Racing Drivers' Club in 1991.

Beneath his gung-ho exterior, Warr was a decent guy who did a good job in difficult circumstances. Bernie Ecclestone led the tributes to him, saying: "Not only have I lost a good friend, but Peter will also be missed by the thousands of people that knew him. When he was in Formula 1 he helped me to build it into what it is today."

Alan Henry

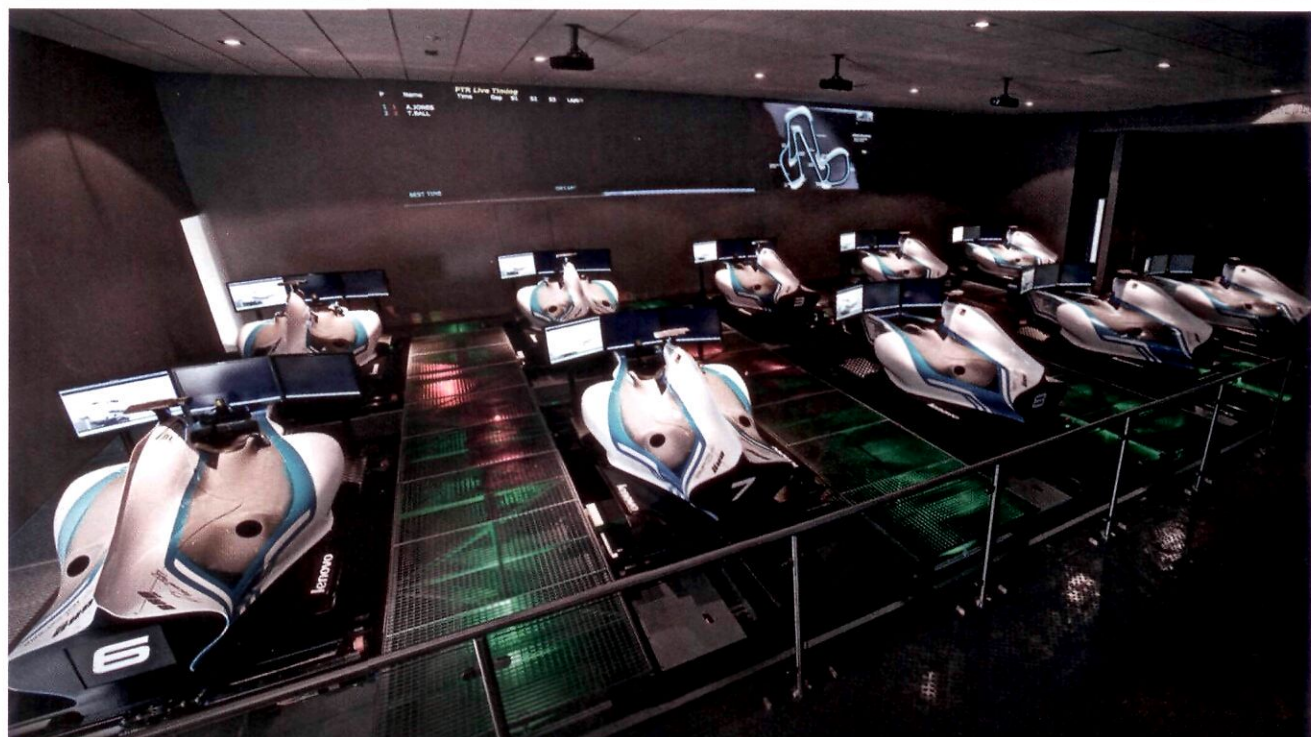


Peter Warr celebrates Ayrton Senna's win for Lotus at Portugal in 1985

Answers: 1 Elio de Angelis 2 Paul Ricard 3 Zero 4 Olivier Panis 5 Monaco 1996 6 They were taking part in a race at Indianapolis less than 24 hours beforehand 7 Jean Behra 8 Jos Verstappen 9 Gianni Morbidelli 10 Mario Andretti

PHOTOS: LAT ARCHIVE





NEWS

## Your first step to a race seat?

The new PureTech simulator centre in Surrey aims to give fans a taste of F1 reality

Imagine accelerating from 0-100mph in just 3.1 seconds, your body being subjected to an F1-esque G-force of 1.5G, as you race wheel-to-wheel against the competition into the first bend. Sound too good to be true? Well this is the kind of realistic race experience that's now being offered by a new simulator centre in Surrey.

Ten state-of-the-art, full-motion simulators and over £1million of technology are housed in the PureTech Racing Centre near Gatwick. The simulators have all been designed and built in-house and are based around a carbon-fibre single-seater monocoque that moves around on rails to create an authentic 'on-track' feeling.

Each 'sim-cell' also features a seven-speed paddle-shift gearbox and a four-point racing harness to strap you in tightly because of the motion forces. It's all been designed to allow motorsport fans to go racing in a realistic environment without the associated costs and risks – when you step out of the car you'll even be presented with a data sheet to show you where you need to improve.

It's a simulator system that was originally developed for professional race teams. "We've been developing the motion system for over three years now," says technical director Tim Ball. "Unlike other types of simulators that have come from the aircraft market, we developed it purely for single-seater track racing so you can feel understeer and oversteer accurately."

Eventually, PureTech want to help fans move from simulator to track. "We want to make motorsport more accessible and bring new blood into the sport," says Ball. "If you watch the World Cup on TV you can go straight out and kick a ball around. With motorsport, you watch it on TV but there's no way of doing it without spending huge amounts of money. Here you can come and learn how to race. The things you need in the racing world – concentration and precision – you can work on here in our simulators."

So whether you've got ambitions to race or simply want a fun evening out with friends, this could be the place for you.



Three big screens give you a view of the road ahead



NEWS

# Heikki's' Lotus goes up in flames!

And as you can imagine, it caused a fair bit of damage...

**£130,000**

The total estimated cost of fixing the fire damage

**Engine**

This can be repaired without breaking FIA seals

**Destroyed**

The engine cover, rear wing, hydraulics pack, rear electrical looms and sensors

**Gearbox**

Casing to be replaced as a precaution

**79secs**

The estimated time the car was in flames

**Rear suspension**

Mostly destroyed but some parts, such as the dampers, have been salvaged

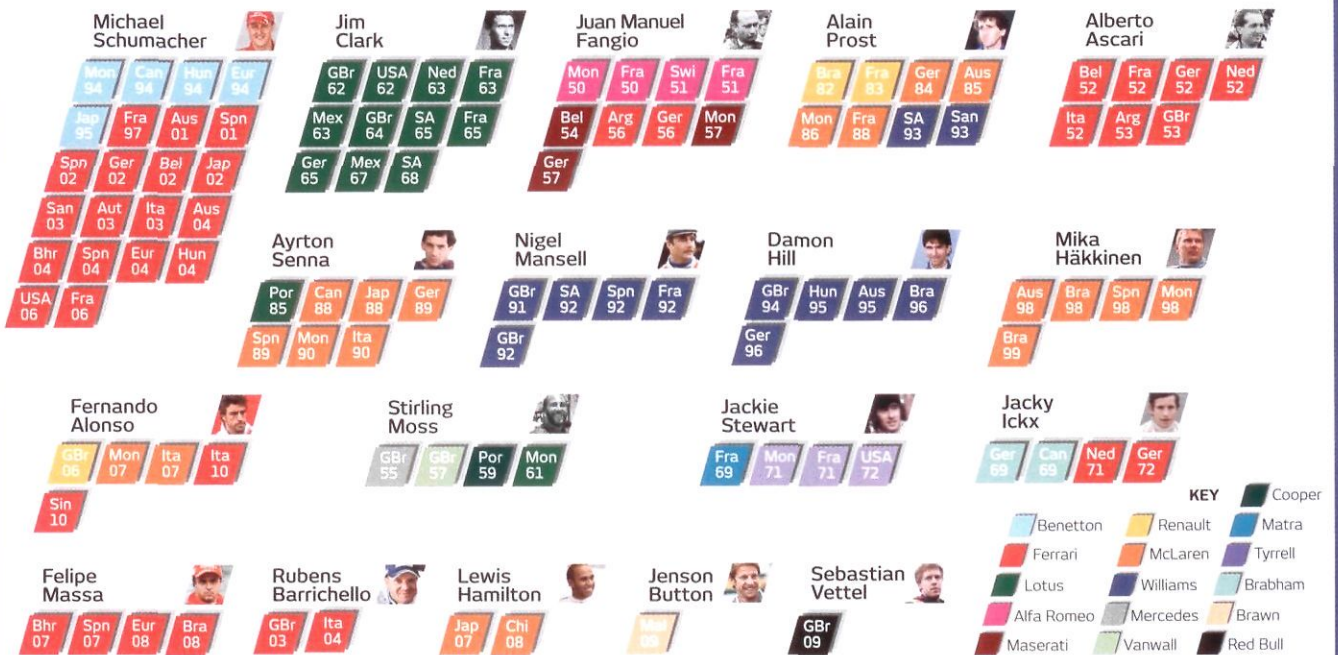
**4**

The number of extinguishers it took to completely put out the fire



## Hat-trick heroes

Fernando Alonso recently scored back-to-back hat tricks after securing pole position, victory and fastest lap in Italy and Singapore. But how does he stack up against other drivers?





NEWS

## Indian GP track construction bang on schedule... so far

Never mind Korea – this lot are seeming pretty confident



It might look like some sand and an orange suitcase, but these are the GP's completed earthworks. We're told it's already driveable...

Indian GP organisers have told *F1 Racing* they are confident that they will not face the same problems with circuit construction that have blighted the build up to this year's Korean GP.

Despite the huge task of creating a new track from scratch, work on the undulating 3.19-mile circuit is progressing well. "The land we're working on was completely flat and we had to move over 4million cubic tonnes of earth to achieve the track elevation," explained Mark Hughes, vice president of operations at JPSI, the company that is building the track near New Delhi. "The earthworks are now complete and although the asphalt isn't down, you can still drive the track and get a great sense of how it will rise and fall."

If all goes to plan, the circuit should be completed five months before the country hosts its first GP on 30 October 2011. "The actual track – asphalt, run-off areas, tyre barriers, guard rails and safety fences – is scheduled for completion by the end of May next year," Hughes said. "The FIA will then come for their first homologation inspection and if we have to make any changes it gives us a few months to make them. The remaining infrastructure, such as car parks and grandstands, will continue to be worked on until the beginning of October."

NEWS

## Senna set for official world premiere

After six years in the making, the film is set for release in the late F1 legend's home city

The much anticipated feature-length documentary *Senna*, about the life of the three-time world champion, will get its official world premiere in São Paulo on 3 November, just before the Brazilian Grand Prix.

The film, which is set for release in the UK on 3 June 2011, has been produced by Academy Award winners Working Title and tells the story of Senna's F1 career from his 1984 debut with Toleman to his untimely death in 1994. It has been made with the full co-operation of the Senna family and the film makers have also been granted unprecedented access to Formula 1 archives.

Viewers will get a generous slice of classic F1 action alongside previously unseen footage of the Brazilian legend, including extracts from home movies. This will be complemented by dialogue from the likes of Alain Prost, Ron Dennis, Frank Williams, Ayrton's sister Viviane and his mother Neyde.

Director Asif Kapadia believes Senna's story is perfect for the big screen: "It's amazing. We have this great three-act structure to work with: his rise, his success, and the challenges he faces when he gets to the top. There's tension, drama, tragedy. It is absolutely what films should be about, and it is all real."





NEWS

# Meet the world's biggest F1 fan

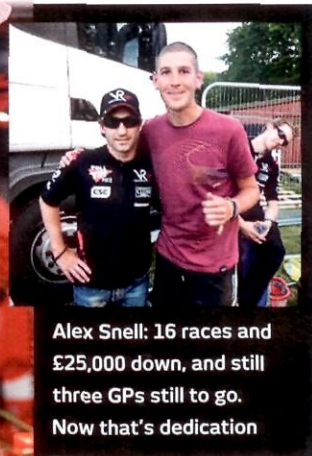
How far would you go to follow your favourite sport? Possibly not quite as far as this man...

**Think you're a massive** Formula 1 fan? Meet Alex Snell. In 2010 the 31-year-old Englishman is living his dream, attending every single race of the season. It's a journey he's been planning for five years and one that has cost him a small fortune.

"It had always been a dream but the real plan was crystallised on a slightly drunken afternoon watching the Brazilian Grand Prix with friends in 2005," Alex told *F1 Racing*. "We agreed that if we could do anything in the world, we'd attend the entire season race by race. It was the usual banter and nobody thought anything of it. But I woke up the next day and thought 'why not?'"

Alex started saving immediately. He moved back in with his parents and afforded himself absolutely no luxuries. "I went nowhere and did nothing: no holidays, no new clothes, no CDs. Literally nothing.

"I didn't honestly believe it was going to happen until I'd saved £10,000 and then I thought that if I could save that much then



**Alex Snell: 16 races and £25,000 down, and still three GPs still to go. Now that's dedication**

I could do it. In the end I saved £20,000. I've probably spent about £25,000 but it's a once in a lifetime thing!"

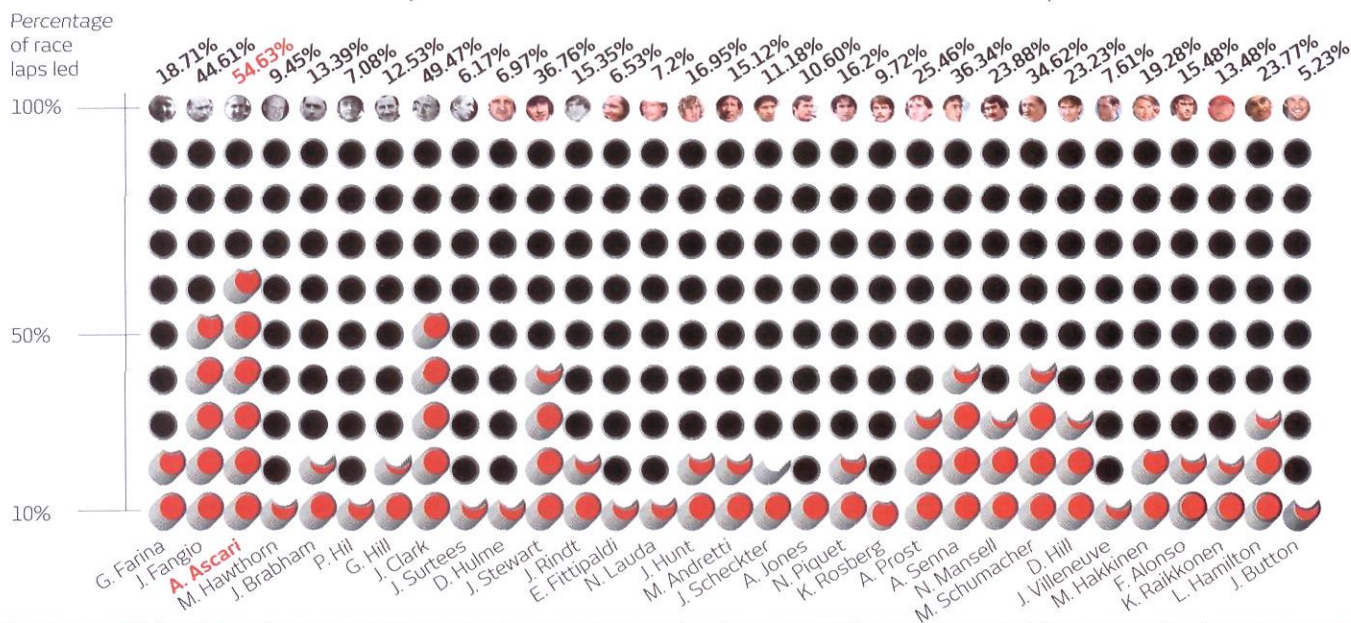
As for his highlights Alex finds it hard to narrow them down: "Australia was somewhere that I'd always wanted to go. Monaco was amazing because you get so

close to the track and to the drivers and I never expected that. Canada had the most amazing atmosphere. But trackwise, Spa and Monza reminded me why I fell in love with Formula 1 in the first place. Massive tracks, huge history, great corners, famous names... just totally unbelievable."

STATS

## Alberto Ascari led over half the laps he raced

See how he compares with his fellow Formula 1 world champions...



PICTURES: LAT ARCHIVE



# VETTEL SETS RECORD WITH WIN IN JAPAN

Suzuka victory extends German's lead of the Castrol Rankings to a 29th week



Sebastian Vettel made Castrol Rankings history after winning the Japanese Grand Prix at Suzuka.

The Red Bull driver's success kept him in the number one spot for a 29th consecutive week, breaking Jenson Button's record.

Vettel's Red Bull teammate Mark Webber remained second in the

Castrol Rankings after his second place in Japan.

Fernando Alonso beat Lewis Hamilton to the final podium spot at Suzuka and moved ahead of the McLaren driver for fourth in the Castrol Rankings as a result, the only move in the top ten.

## Castrol EDGE Expert performances

### F1 Kamui Kobayashi

Sauber's Kamui Kobayashi (right) had an eventful grand prix in his home country. He moved up nine places from 68 to 59 in the Castrol Rankings – the biggest gainer in the top 100.



### V8 Supercars Mark Skaife

Mark Skaife won the Bathurst 1000 for a sixth time – his second V8 Supercar win in two starts this year. He moved up 129 places to 984th in the Castrol Rankings.

### Nations Rankings Australia

Germany and Australia led the way in Japan – likewise in the Nations Rankings, where Australia's duo of Webber and Will Power (right) lead Germany's Vettel and Nico Rosberg.



### NASCAR Jimmie Johnson

Jimmie Johnson finished third in the NASCAR Sprint Cup race at Fontana. But it wasn't enough to overhaul Lewis Hamilton, and he remains sixth in the Castrol Rankings.

### Castrol EDGE Performer of the Month

Fernando Alonso was the Castrol EDGE Performer of the Month for September, but who will be the top-ranked driver in October? Visit the website to find out. [www.castroldriverrankings.com](http://www.castroldriverrankings.com)

## Castrol Rankings

### CURRENT STANDINGS

1	↔	Sebastian Vettel		F1	24,243
2	↔	Mark Webber		F1	23,139
3	↔	Sébastien Loeb		WRC	21,292
4	▲	Fernando Alonso		F1	18,505
5	▼	Lewis Hamilton		F1	18,390
6	↔	Jimmie Johnson		Sprint Cup, Grand Am	17,803
7	↔	Will Power		IndyCar	17,656
8	↔	Jenson Button		F1	17,056
9	↔	Dario Franchitti		IndyCar, Grand Am	15,474
10	↔	Kevin Harvick		Sprint Cup, Nationwide, Trucks	14,541

DATA CORRECT AS OF 11 OCTOBER 2010

The Castrol Rankings analyse 2,000+ drivers in 500+ races and rallies across five continents. Go online today to find out more

POWERED BY AUTOSPORT.COM

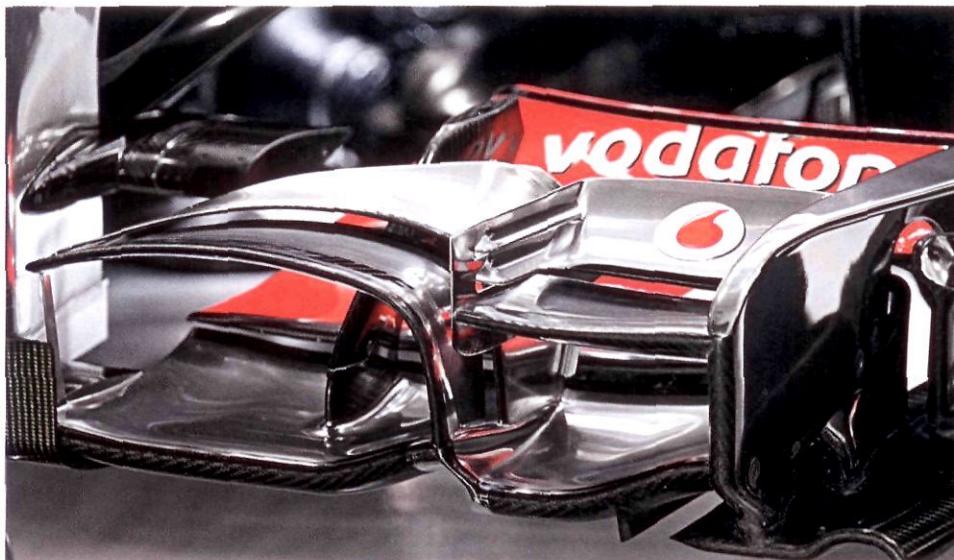




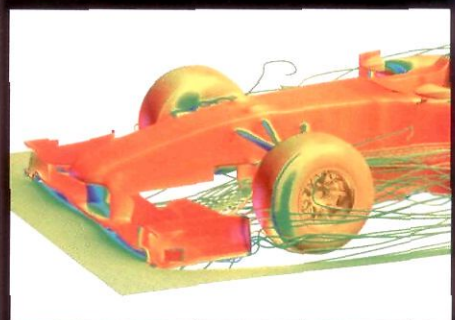
# Pat Symonds' TECHNOLOGY MASTERCLASS

Lifting the cloak of secrecy on F1's complicated parts

## THIS MONTH: THE FRONT WING



### HOW THE FRONT WING WORKS



This CFD image (above) shows the crucial role the front wing plays in directing airflow over the rest of the car, explaining why teams like McLaren have such complex designs (left)

### Why is the front wing such a critical part of car design?

There are two reasons. Firstly, downforce is produced at the rear of the car by the rear wing as well as by several other parts of the bodywork, such as the diffuser. But at the front of the car, nearly all the downforce is produced by the front wing. Secondly, because the front wing is the first part of the car to plough into the air, the way it uses that air, and where it diverts it to once it has used it, will influence the way the rest of the car works aerodynamically.

### So does the front wing have a greater effect on performance than any other part of the car's aerodynamics?

Yes, it is probably true to say that. A poor front-wing design will undoubtedly produce a wake that damages the rest of the car – particularly the critical airflow that goes underneath it. It is also fundamental to what the driver feels in the car since a mediocre front-wing design can make the car very difficult to drive.

### Why is the endplate such a crucial area of the front wing?

The 2009 aero rules tried to produce downforce at the outer part of the wing to aid overtaking.

Consequently, the centre part of the front wing was closely regulated and the outer part was left much freer for the aerodynamicists to work their magic. This has allowed the designers to produce complex shapes that position the wake very precisely.

### One of the most common upgrades a team brings to a race is a new front wing. Why? Is it easier to develop than other parts?

It certainly isn't easy to develop. Much of the working part of the wing is immediately in front of the tyres and these will have a fundamental effect on it. The wing can even be affected by the slightly different tyre profile that occurs as the tyre pressure changes. Most importantly, it needs to work well as the front wheels are steered into a corner as this is when the downforce is really needed. It also needs to work consistently through the full ride-height range.

### Is the development of front wings simply all about trying to increase downforce?

Far from it. The key to successful aerodynamics is consistency and often maximum downforce is sacrificed in favour of aerodynamics that will work well under all conditions. These qualities

will provide the driver with more feedback and allow him to drive the car much closer to the limit than 'peaky' force variations will.

### We've seen some teams change the position of the mandatory camera mountings on their front wings – how much of an effect would this have had?

In itself, the effect of camera positioning will be small – although if the camera is placed badly it will have a detrimental effect on airflow. Formula 1 is all about attention to detail and this is a good example of it.

### Some teams' wings look more complex than others (like Red Bull vs Hispania). Does increased complexity equal a better wing?

Einstein said: "Everything should be made as simple as possible, but not simpler." This is particularly apt in terms of engineering design. The placing of the vortices that come off the various parts of the front wing is extremely important, but it is also pretty complex and the top teams are certainly not adding intricacy without good reason. The Hispania front wing shows a lack of initial understanding and an even greater lack of development.

Turn to pages 104 and 108 for Pat's analysis of the Singapore and Japanese Grands Prix >

PHOTO: SUTTON IMAGES





# RAW NEUVE

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



## Chicanes are no good for Formula 1

**"This situation with** bad chicanes has been going on for years, but lately it's got even worse in Formula 1. There are two main problems that come out of them: they're not very exciting for drivers and fans, and it's not clear when and how people should be penalised for cutting them.

They keep putting them in because it's an easy way to slow a track down, but they're not nice to watch and they're not great for racing because they're too easy to cut. The new one in Singapore that Lewis Hamilton criticised is very, very slow. There's Tarmac all around it but they've just put a bunch of kerbs in the middle, so it doesn't look natural and there's no way you can overtake through it, either. They've done it because somewhere along the line, someone decided it would be exciting to



Lewis Hamilton was no fan of the chicane at Turn 10 in Singapore

see cars going over kerbs and you can see the sponsors better when the cars go slower.

The problem is that there doesn't seem to be a penalty for cutting chicanes these days. Look at Monza: Nico Hülkenberg cut the first chicane three or four times. Doing this gives you a big advantage, so there should be some sort of drive-through penalty if you do it – even if you don't overtake anyone as a result. If you know there's a price to pay for it, you'll stay within the limit. I like how they do it in NASCAR. In Montreal, if you cut the last chicane you have to

stop between two cones and get going again. The first chicane at Monza used to be a double and it was difficult: you carried a lot of speed, jumped the kerbs and it was fun. Now it's boring. The first time I drove it, I was behind Enrique Bernoldi and every time I got close to him he cut the chicane without even trying to make it. So I couldn't get past him.

Some corners need to be slowed down because the cars are so fast now, but generally chicanes don't bring anything to F1. It's cheaper than making proper corners, though."



## More action on track – not in the pits

**"I'm not a fan** of the rule that says drivers have to use two types of tyre during a race. It's a fake rule because people are only coming in to change tyres, not because they need to.



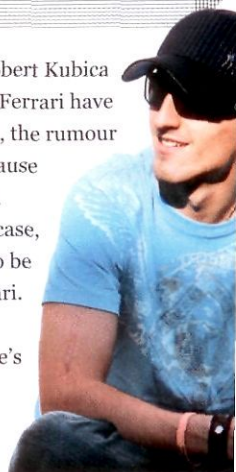
Having two types of compound was meant to engineer on-track excitement, but it's a false way of doing it. Monza would have been better to watch if Button and Alonso hadn't had to stop. And Vettel made his stop on the last lap to meet the regulation rather than because he needed to. Likewise with Massa on the third lap in Singapore – it was artificial.

We need a tyre war: when this happens, you have one tyre that's on the limit but doesn't last long, so you have a choice to make. Pitstops aren't exciting – I'd rather see racing."



## Gossip can be a good thing

**"The rumours** about Robert Kubica replacing Felipe Massa at Ferrari have started again. For a driver, the rumour mill is very important because it can raise your value and earning potential. In this case, Kubica will be delighted to be linked to a team like Ferrari. As for Massa, it won't be what he wants to hear – he's had a crap season so far and things aren't getting any better..."



### THE JV KEY



Silly shunt



Driver error



Controversy



What a car



Fantastic drive



Good call



Bad call



# MURRAY WALKER



**“Who would you say is the greatest Formula 1 driver of all time? Take your time – it’s not an easy one to decide...”**

I was walking in Hampshire, a few years ago when a chap came up to me and said, “Murray, that Michael Schumacher is the greatest driver who’s ever lived.” “Hang on,” I said, “Yes, he’s one of the greatest but what about Nuvolari, Caracciola, Clark and Fangio – to mention only four?” “Never heard of them!” he replied.

And that’s the problem. Most people are only aware of their own times and not of the history of the sport. So where to begin? Before World War I, when motor racing was in its infancy, with men like Felice Nazzaro, Christian Lautenschlager

and Georges Boillot, racing their mighty FIATs, Mercedes and Peugeots? They were superstars of their pioneering era but most people have never heard of them. So how about the interwar years, which included the Bugattis, the Alfa Romeos and the near-invincible Mercedes-Benz and Auto Union Silver Arrows? Or Formula 1, which began in 1950? Or the whole lot from 1895 to date?

And how do you define ‘greatest’? Most wins? Most championships? Personal charisma? Overcoming strong opposition? Leadership qualities? Appeal to the public? There are so

many considerations to take into account. For me, it is an amalgam of them all. But it’s not possible to objectively evaluate the many drivers who, over the years, could be regarded as ‘the greatest’, since they raced at different times, to different regulations, on different circuits, in different cars and against varying competition.

Was Bernd Rosemeyer, whose brilliant career covered only three years from 1935 to 1937, racing the hard-to-drive rear-engined Auto Union, ‘greater’ than his German countryman Christian Lautenschlager, who won the 1908 and 1914 French Grands Prix for Mercedes? Was Ayrton Senna, who won three world championships, ‘greater’ than Stirling Moss who won none? Many would say yes – but not me.

Statistically, there’s no contest. Michael Schumacher is the ‘greatest’ of them all. No one else has got anywhere near his amazing achievement of seven world championships, 91 wins and just about every other numerical record there is. Both Michael Schumacher and the equally gifted Ayrton Senna, single-mindedly applied themselves to mastering every aspect of their craft, from incredible personal fitness to politics, tactics and strategies and motivating everyone in their team and their suppliers to favour them over their team-mates. And so they should. Racing is about winning and the first person you have to beat is your team rival.

In spite of his charisma and achievements, Senna’s on-track ruthlessness, like at Japan 1990, grimly rules him out for me. As it does Schumacher, combined with the fact that while Michael could have beaten any of his team-mates over a whole season they were contractually obliged to defer to him. Yes, as Schumacher often declares, F1 is not a game but, in my opinion, both he and Senna sullied their images by taking their determination to win a step too far.

What we’re left with, I submit, is the fact that whoever is ‘the greatest’ is a purely subjective judgement. Some will favour and passionately argue for driver A, while others will be equally in favour of drivers B, C or D. In voicing my thoughts, I’m first of all going to hide behind the fact that this magazine is called *F1 Racing*, which enables me to ignore all the gallant and talented competitors who raced before 1950 – including, for me, the greatest of all time, Tazio Nuvolari. There: I’ve said it. In my opinion, no one before



**“In my opinion, no one before or since has had Tazio Nuvolari’s combination of determination, ability, success and charisma”**

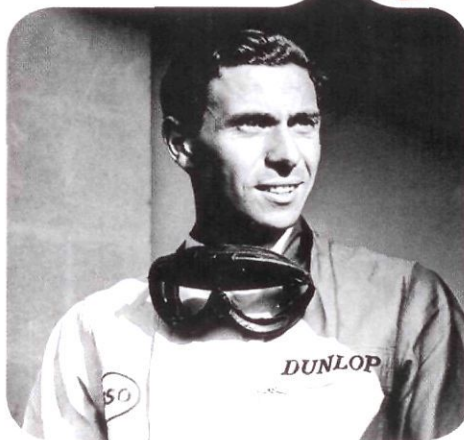




# Forthright chatter from the legend of F1



"Jim Clark is out, because Fangio, Stewart and Prost have a better claim"



"I've said before that Fangio is the greatest, but I've changed my mind..."



"Senna's on-track ruthlessness, rules him out of the short list"



or since has had his winning combination of determination, ability, success and charisma but many will disagree – especially today's countless enthusiasts who have never heard of him!

So who's 'the greatest'? Remembering my requirements – driving ability, achievements, personality, strength of opposition, leadership qualities and effect on the public I've nervously narrowed my list to seven. Nervously, because I face a barrage of vilification from the passionate supporters of those I've left out. Here goes. My short list is: Michael Schumacher, Stirling

Moss, Jim Clark, Ayrton Senna, Juan Manuel Fangio, Alain Prost and Jackie Stewart. Not Jack Brabham, Niki Lauda or Nelson Piquet, all of whom won three world championships? Sorry, but no. Not Alberto Ascari, Mario Andretti, Emerson Fittipaldi or the charismatic Gilles Villeneuve? Or Big John Surtees, the only man to have won both motorcycle and F1 world championships? Sorry, but no again.

For the supreme accolade I've already explained why, unacceptably to most people I suspect, Schumacher and Senna have failed to

make the grade. So now there are five. Moss, Clark, Fangio, Prost and Stewart. And this is where it really hurts me. Despite the fact that he finished second no less than four times in the drivers' championship and was undoubtedly the greatest ever sportscar driver (which doesn't count because I'm only talking about F1), I have to leave Sir Stirling on the sidelines. If this were a balloon debate, next out of the basket would be Jim Clark. Why? Simply because I think that those remaining have a better claim. Three to go then. Oh gosh, this is awful. Grit your teeth Murray – it's Alain Prost next. Four-time world champion, the deepest thinker of them all and a driving style to die for... but still not enough.

So who's the greatest – Fangio or Stewart? I'm on record many times as saying it is Fangio but, with the passing of time, more thought, and taking my comprehensive definition of 'greatest' into account, I have to say I've changed my mind. No one, but no one, in the history of our great sport has the CV of Sir Jackie. Three-time world champion with impeccably 'clean' driving against some of the stiffest competition of all; the man with a sparkling personality and persuasive tongue whose tireless and much-derided crusade for greater safety has saved countless lives; the founder and leader of his own very successful F1 team; a truly great ambassador; an eloquent and outspoken promoter of Formula 1 and a tireless ex-president of the British Racing Drivers' Club, which hosts the British Grand Prix. Jackie has it all and is my top man. 🏁



"Three-time champion with impeccably 'clean' driving, a great ambassador and an promoter of F1, Sir Jackie Stewart has it all"



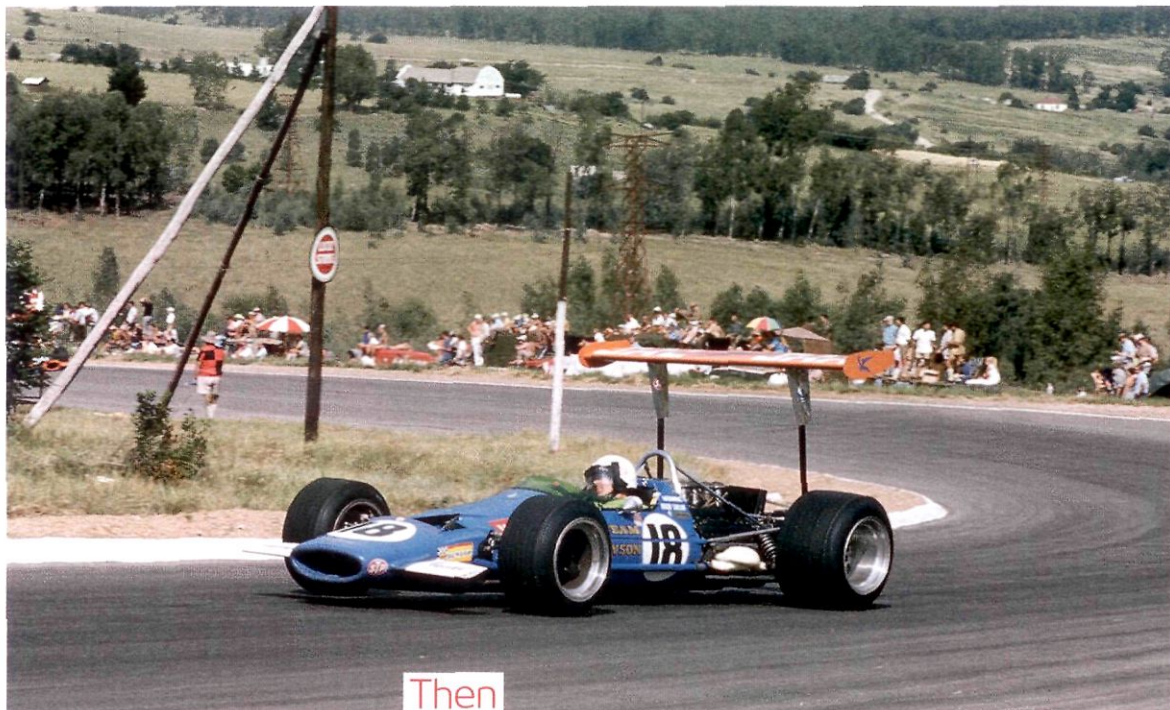




WHATEVER HAPPENED TO...

# BASIL VAN ROOYEN

Once offered a Tyrrell seat. Now invents vibrating head massagers



Then

Qualified ninth at Kyalami in '69, and had an offer from Tyrrell he never got to take up

Despite a wealth of experience in saloon car racing in his native South Africa, Basil van Rooyen had never driven a single-seater when he received a surprise phone call from compatriot racer John Love, just before the 1968 South African GP.

Love had acquired a 3-litre Brabham Repco, which meant the Cooper Climax he'd driven to second place at the 1967 event was available – if van Rooyen wanted to race it. Despite an attempt by F1's regular drivers to block his entry on the grounds of inexperience, van Rooyen qualified 20th before retiring with a blown gasket. He then used his sponsorship to buy Jack Brabham's BT24 before it left Johannesburg.

Some good results in South African F1 races followed, and van Rooyen persuaded Bruce McLaren to sell him a McLaren M7A with which he entered his second world championship race, the 1969 South African GP; he came fourth in first practice before qualifying ninth. Brake problems ultimately put him out of the race.

While tyre testing at Kyalami, van Rooyen suffered a huge shunt when



Now

Uses his knowledge of polymer parts to make vibrating head massagers

his rear tyres became unseated, sending the car into the barriers and ejecting him over 90 metres. At the age of 31, having recovered from four broken vertebrae and a punctured spleen, van Rooyen decided against pursuing his fledgling F1 career.

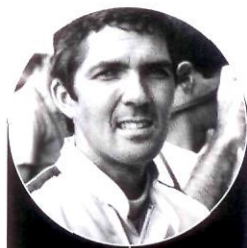
"After practice for the 1969 South African GP, Ken Tyrrell invited me to drive in his team alongside Jackie Stewart, but my crash meant I couldn't. Being 31 with limited experience I realised I'd missed my chance, and went back to racing saloons and a business life in South Africa running Superformance – a motor accessory and tune-up centre.

"I sold the company in 1973 and then ran a presentation packaging company. I did 12 years there, taking four weeks off to compete with Peter Brock in the Bathurst 1000 touring car race. Later, I moved to Australia with my wife and two sons and ran a similar operation there for 17 years, before retiring at 65. Then I started inventing.

"I'd become frustrated by my pool cleaner getting stuck in corners and leaving parts of the pool floor dirty. So using my knowledge of transmission and moulded polymer parts, I designed a prototype that steered the cleaner randomly. The final product, the Twister, which I designed and engineered, is now on sale.

"In recent years I've been working on a new two-stroke engine, which is very exciting. I've also patented a bike with long cranks, and the 'HeeBeeGeeBee' – a vibrating head massager that has sold close to 500,000 units.

"I still follow Formula 1 avidly. Nothing compares to it in terms of the buzz it gives you as a driver and I wish I could have driven in more races. But business can give you a similar sense of satisfaction."



**1968: makes his F1 debut**

Qualifies 20th in Kyalami and lasts 20 laps before a blown gasket ends his race



**1969: F1 career high**

Qualifies ninth for the South African GP and is offered a drive by Ken Tyrrell



**Now...**

The 71-year-old is spending his retirement inventing things you never knew you needed



# "THE BEST RACE I'VE BEEN TO"



Passion, drama and excitement from your greatest grand prix moments

 MAGNY-COURS 1996 / Dean Sills / 42 / UK

## "This is the only GP I ever saw Damon Hill win"



"In 1996, me and my wife Fiona went to Magny-Cours to watch the French GP. We got there just in time for the warm-up (what happened to that?) – seeing F1 cars flying around the track was pure magic, with each driver storming through a fast corner with hardly a lift of the throttle. There was just the sound of each car producing a loud rumbling noise like thunder and the sweet smell of fuel.

"As a spectator, you got to see a great deal of the action at Magny-Cours because a lot of the track was visible from any part of the circuit. As the formation lap began, I was filming the cars when I suddenly saw smoke coming from the back of Michael Schumacher's Ferrari. Wow! His engine had failed. This meant Damon Hill inherited pole position.

"When the red lights went out, Hill got the start he wanted, quickly pulling out a comfortable lead. It might not have been the best race for action but it was special because, of all the GPs I've been to, it's the only one where



I saw Hill win! He led until pitting on lap 27, which gave Villeneuve the lead. Villeneuve was in pain due to his huge crash in qualifying but was driving well. After his pitstop Hill overtook Alesi and moved up into second place.

"When Hill came home in first place, I cheered so loudly. Villeneuve was second in the other Williams, followed by the Benetton's of Alesi and Berger, then the McLarens of Häkkinen and Coulthard. It was a nightmare for the Ferraris, with Irvine also going out with gearbox problems.

"The other great thing was that there were five British drivers: Hill, Coulthard, Brundle, Herbert and Irvine. I met Damon a few years later and he was a true gentleman."

### 1996 FRENCH GP

- Of 16 races, this was the ninth. After his win, Hill was 25 points up on closest rival Villeneuve
- Retirements included Frentzen, Verstappen and 2009's Ferrari 'star' Luca Badoer
- Martin Brundle and Rubens Barrichello came eight and ninth for Jordan

 MONZA 2010 / Jamey Price / 23 / USA

## "Schuey nearly ran me over on his bike in the paddock!"

"It was only a few weeks ago, but Monza 2010 was the best race I've been to. I've seen Schumacher win twice (US GP in 2005; US GP in 2006) and I've seen Hamilton win twice (US GP 2007, Monaco 2008), but this one takes the cake.

"I fell in love with F1 in 1998 as an 11-year-old, channel-surfing on the old

satellite TV when the Monaco GP was on. Since then, I have been a Ferrari fan and any true Ferrari fan has to make the pilgrimage to Monza.

"I was nearly run over by Schuey on a bike on Friday morning. I sat on the old banking with two new friends listening to the



GP2 race and enjoying the afternoon sun on Saturday, and I watched the first lap of the race from the old banking overpass before Ascari. The noise from the cars blasting through the tunnel was unforgettable. And of course I had to run onto the track with my fellow tifosi to celebrate Alonso's win."



"Any true Ferrari fan has to make the pilgrimage to Monza"

 SPA 2010 / Alannah Capon / 16 / UK

## "It was pouring, and Lewis skidded off in front of us!"



"I grew up watching F1 and couldn't wait for my first race at Silverstone last year with my family. This year I wanted to go to Spa, so I got permission to go with a friend, got a job, saved my pocket money and eventually had enough.

"The adrenaline kicked in when we arrived during FP1: the roar of the cars through Eau Rouge was incredible. On race day we sat for hours on the inside of Rivage waiting for the start...



we were freezing but shaking with excitement! About five laps before the end it was pouring with rain – Lewis Hamilton was leading the race and skidded off right in front of us! I will never forget my experience that weekend."

TELL US YOUR GREAT GP MOMENTS! If you've got a story from a race you've been to, email us at [thebestraceivebeento@haymarket.com](mailto:thebestraceivebeento@haymarket.com)



# Colin Kolles

He may be F1's only Burberry cap-wearing dentist, but why did he name HRT after a well-known medical treatment? And does he really own one of Hitler's cars? The jovial yet slightly unnerving team boss will see you now...

WORDS JAMES ROBERTS PORTRAITS LORENZO BELLANCA/LAT

**Dr Colin Kolles** is not a man you want to get on the wrong side of. He is a forceful, uncompromising operator who gets results and has established himself with a reputation as a man who is adept at rescuing teams from the financial abyss. He's a fighter; a survivor.

Romanian-born Kolles studied dentistry in Germany after his family fled the Ceausescu regime, but he always had a passion for racing. When Jordan found themselves in dire financial straits at the end of 2004, Kolles stepped in, with investment from Midland boss Alex Shnaider, and rescued the team. He also steered the Silverstone-based squad through various guises as Spyker and, subsequently, Force India, helping to move the team up the grid.

Kolles took up the reins of the Campos outfit at the 11th hour this season and transformed them into Hispania. With two drivers secured, he worked miracles to get the team onto the 2010 grid. The plan now is to take them off the back row. It's a tough job and he's already split with chassis manufacturer Dallara following a disagreement between the two parties. The first question put to Kolles attacks this subject head on. "Why did you split with Dallara?" He stares intensely then quietly states: "For obvious reasons." He follows this with his trademark

intimidating silence... This interview could be over sooner than we think. "What are those obvious reasons?" His response is direct: "I thought I only had to answer the question on the card, I didn't know you are allowed to ask me more questions." Er, this Q&A session has to fill six pages and could get rather tricky. I suggest another card. Kolles looks down at it in disdain. "I don't answer this one."

What? This is a disaster. Why not?

"It's not addressed to me."

One look at the card gives the explanation. A spelling mistake has crept in. It reads 'Collin' Kolles. Then he bursts out laughing. The Hispania team principal, as you'll see, is never one to be underestimated...

## **Having failed miserably at Jordan/Midland/Spyker what makes you think you're going to succeed with HRT?**

*Gerry Moriarty, Ireland*

I don't think that we failed at Force India – I think that we succeeded. I think that the people who are in charge now will fail because everything I have done, I've done by myself, including the windtunnel upgrade, the decision to run a complete engine and gearbox package and to put James Key in charge of development

and Simon Phillips in charge of the windtunnel aero project. We have done a very good job and we have built the team up to be a mid-grid team, to be competitive, close to the top, and I can assure Mr [reads name on card] Moriarty that the success of the team these days has nothing to do with the people in charge...

## **Colin, what do you think about team orders? Most people believe they are part of the game – do you agree? Would you ever tell your drivers to change their positions to benefit the team?**

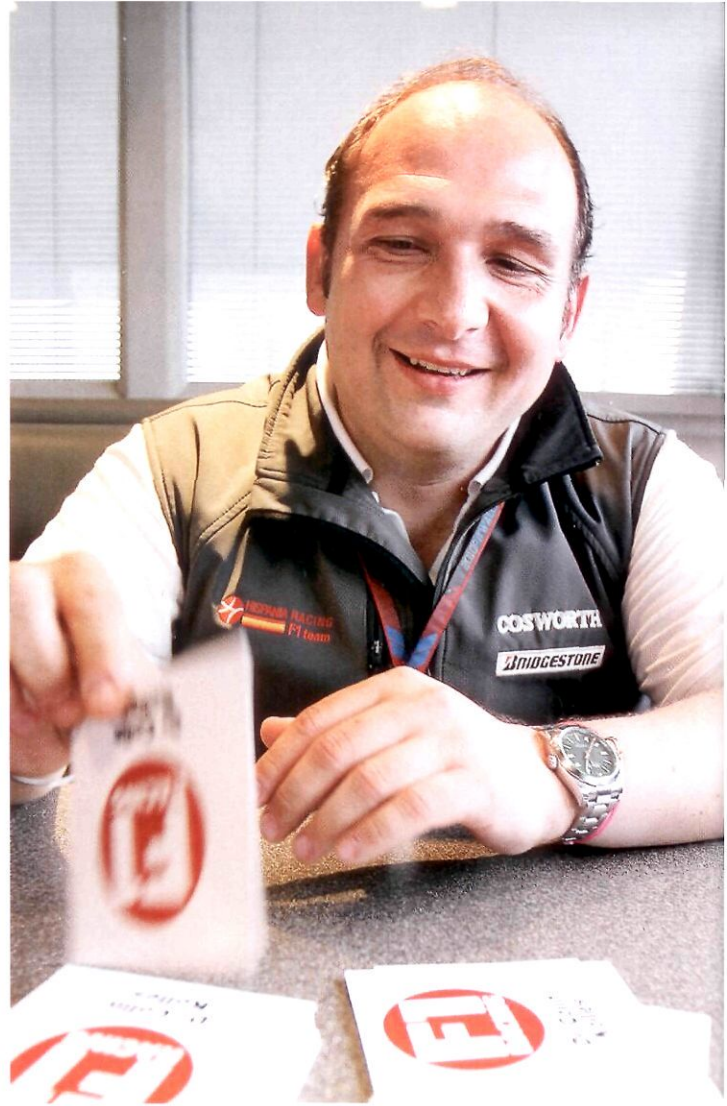
*Marcos Gómez Revuelta, Spain*

Of course I would tell them. But when I tell them, it will look different to how other teams have done it in the past. It wouldn't be so obvious and I wouldn't be breaking the regulations because nobody would take any notice of it... I'm not in a position to criticise what another team have done but, I tell you, you can do it in a way where no one would take any notice of you. You can do it cleverly and I think I could do it more cleverly than Ferrari. The interests of the team is the priority, not the driver, and, again, I think it's how you manage the situation. You give team orders to drivers to tell them how to behave in the first











corner. Is that breaking the regulations? It's all about how you manage so-called 'team orders'.

**What do you make of Bernie Ecclestone's comments that the new teams have brought little to the sport?**

*Gurs Singh, USA*

Well, he's right. We haven't brought too much to the sport up until now. We have to achieve results. We have to be here for more years and then we have to create something worthwhile for the sport. He says Lotus is a nice name and would like to keep it in Formula 1, but he's not saying that they are doing okay. The new teams have to establish themselves. We have to prove we have the right to be here.

**Dr Kolles, how helpful is it for the team to exchange their regular drivers race by race with someone nowhere near as good as them, not just for car development consistency, but also for driver morale?**

*Ian Bushnell, UK*

Look at Bruno Senna's qualifying and race results in Germany after he'd been dropped for the British Grand Prix: it helped him. Sometimes pressure is not so bad. If a driver is not sitting in the car one weekend, he should think about the reasons why he's not sitting in the car that weekend. He should think very carefully. I think this will help him as a person and also mentally. It was not a financial decision. Bruno did a good job after Silverstone – maybe in other races he did not do everything right.

**You're no stranger to managing teams on smaller budgets. Considering HRT lack sponsorship, what is the long-term survival plan?**

*Emma Griffiths, UK*

To get more sponsorship. To keep the costs under control and to get more sponsors – this is the key. It's very difficult to find sponsorship.

**It's obvious to fans that the switching of your drivers is down to financial reasons – why else pick Sakon Yamamoto over the more experienced Christian Klien? Why can't the team be honest and admit that money is the reason? People would respect the decision a whole lot more.**

*Lindsey Bamister, UK*

No. It was not because of financial reasons. We issued a press release and there is no more to be said about this. The press release said that it was an internal matter and we have four drivers and we want to have them all in the car. We want to see how the other drivers are doing.

**What do you love most about F1?**

*Indradjid Sofwan, Indonesia*

The things in the background...

**What happened to your Burberry cap?**

*Padeepa Manoj, UK*

I still have it. You want me to wear it again? I'll bring it to the next race. In Australia, back in 2005, our marketing director told me I had sunburn and that I should buy a hat. By coincidence, in the lobby of the hotel we were staying in, there was a Burberry shop, so I went and bought myself a Burberry cap. And this was the big blow. Then at the end of the season, all the mechanics wore Burberry caps and I had a T-shirt that read 'Chavski.' I must still have that T-shirt somewhere, but I'm not looking to wear it every day. [laughs]

**Here's an easy question for you. Do HRT have enough money to: a) finish the 2010 season; and b) compete in Formula 1 in 2011?**

*Phil Renwick, UK*

We will finish the season. We will be on the grid next year. I think as long as I have something to say in this team, we will be on the grid. I am personally confident. I don't know if all the teams will be on the grid next year. Probably not, but I do not know the balance sheets of the creditors list of the other teams. To be honest with you, to keep a team alive you need the right balance. I don't say that we have the right balance, but I think that I know how to keep a team alive and also to move it forward. And there are some other people who don't know this. I'm confident that as long as people are listening, we will be there.

**Realistically, what are the long-term ambitions of HRT? Will they ever be able to compete for podiums and wins?**

*Garry Robinson, UK*

Of course we want podiums and wins, but you have to be realistic. It takes three to five years. If next year we make it to the middle of the second half of the grid, we'll have made a good improvement. It takes a number of years to compete at the level of Williams or Force India during the season.

**Why haven't you been asked to take a leading role in a leading team yet?**

*David Chubb, UK*

I don't know. Maybe I am not corporate enough. What are the big teams? They are corporate teams. I can be corporate, but the thing is, in a small team you cannot work in a corporate way. You have to find other ways to get results... you know what I mean? Who are the top teams?

**I want to know what you have for breakfast in preparation for a busy day?**

*Nick Briner, Australia*

Sometimes nothing. Sometimes fried eggs. Is that the secret? Of getting fat – yes. [laughs]



"At the end of the season, all the mechanics wore Burberry caps and I had a T-shirt that read 'Chavski'. I must still have that T-shirt somewhere, but I'm not looking to wear it every day"

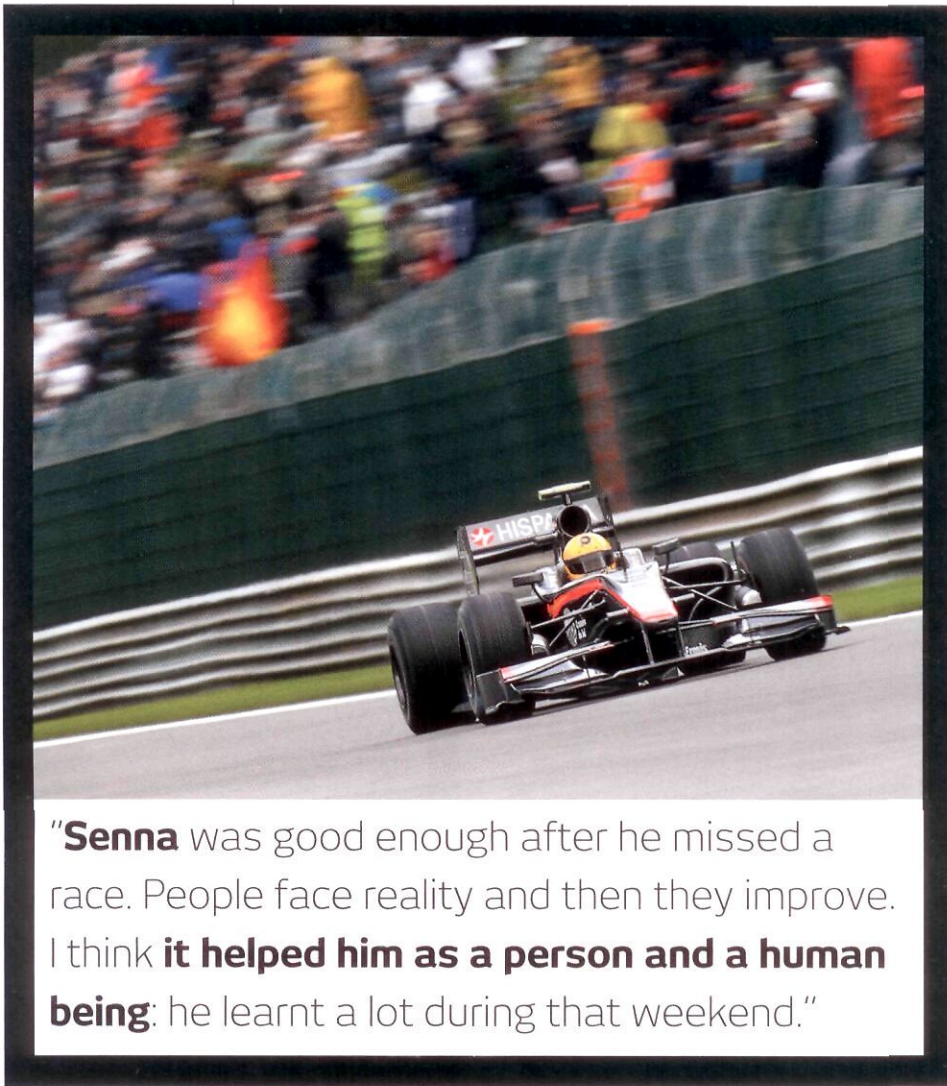


**Why the dull grey livery?**

*Don Cameron, UK*

Do you think it's dull? I don't think that it is. I think it's a unique colour. You have a minimum of three teams that are blue. You have two teams that are white. You have two teams that are mainly red. You have one green. And one is chrome, one silver and the other is dark grey.





**"Senna** was good enough after he missed a race. People face reality and then they improve. I think **it helped him as a person and a human being**: he learnt a lot during that weekend."

These are the major colours. Another colour is black and that is even more dark. Also, if you have a major sponsor, you have to go with their colours – it's not always the team's decision.

**If budget was not an issue, who would you pick as your drivers from the current line-up for 2011?**

*Ray Farrell, UK*

I would choose Fernando Alonso and Robert Kubica. It would be a question of management, but Fernando is one of the quickest and most professional drivers in Formula 1 and I think that these two would fit well together – they understand each other. I also think that Vettel would be up there. I found Vettel when he was very young and I tested him in an F3 car before he was bound by any contract. He was a young boy who was very dedicated.

**Did you really receive a critical email from Bruno Senna?**

*Ivan Korobetskiy, Russia*

I have not received a critical email from Bruno Senna. Maybe someone else did, but not myself. I did not see this email either. I think that this is

a rumour and I'm not going to explain to you why. Everyone is talking about critical emails and I think the whole story was a little bit different to that – and I know that it was. As I said before, I think that out of the situation, certain people got more mature and learnt from the situation.

**Why did you rename the team after the well-known medical treatment, hormone replacement therapy?**

*Louis David, UK*

Well this is not the case. I think that some journalists said this, but it's Hispania Racing Team. That's why it is called this.

**At Magny-Cours in 2007 when Christijan Albers drove off with the refuelling rig attached, what were you really thinking during that incident?**

*Jonathan Schutte, South Africa*

[long pause] I was really feeling sorry for Christijan Albers, because he was in such a difficult situation during that weekend. There were hard discussions with the shareholders and the people supporting him, so I felt sorry for him

and could not believe that one thing had led to another. It was not bad luck, it was a mistake, but it came during a weekend when there was a lot of pressure, a lot of trouble, and then this happened on top of it all.

**So is running a Formula 1 team really like pulling teeth then?**

*Peter Oliver, UK*

Sometimes. Pulling teeth is not actually hard work, because how you pull out teeth is a technique. If somebody just pulls out a tooth with force, then it's not the right way. You can learn a lot out of this study.

**Which of these would you sacrifice: sponsorship income or an extremely talented driver? And why?**

*Luís Branco, Portugal*

I would sacrifice a talented driver because the team is the primary interest and keeping the team alive is the number one priority. If the team is secure, then a lot of talented drivers are welcome. I'm not against talented drivers at all – but sponsorship is the number one priority, because without it the most talented driver in the world isn't going to go further than one metre. That's the point.

**How hard is it to keep a Formula 1 team from going bankrupt?**

*William Lamb, UK*

It's a 24-hour job. You get some sleep, but every day you have to deal with suppliers and you have to deal with sponsors to get more income. The reality is, you need to pay your bills and to get paid. Without this circulation you are unable to run. You won't survive without funding or deliveries of spares or engines or fuel.

**Is Bruno Senna good enough to be with you next season?**

*Manuel Farias, Chile*

We'll see. I think that he was good enough after he missed a race – he improved and that was the purpose of the exercise. People face reality and then they improve. I think that it helped him as a person and a human being: he learnt a lot during this weekend. That's my personal opinion.

**When was the last time that you got really angry, and why?**

*Ales Horvat, Croatia*

[reads card] From Croatia... hmm. *Really* angry... I have to... to be honest with you, you might not believe it, but my style is not to be really angry. People might think that I am, but I don't waste my time by going into a room or a corner to cry, or to think for two hours to try to find a solution. My reaction is that I am maybe angry for two minutes, then I have a mechanism



## Dear Colin, what would you rate as a higher motivation for you: to work with a team from the bottom of the grid and improve them, or to work in an established organisation like Ferrari, McLaren, Mercedes or Renault? Please explain...

Eddy Marukian, Bulgaria

Well, to move it forward up the grid. There is no other motivation. There is no desire to be the 11th or 12th team – the motivation is to move it forward as we did with Jordan/Midland/Spyker. I think the biggest progress was in the Midland time when Mr Shnaider took the right decisions. I convinced him to make the

windtunnel upgrade, to upgrade the aero and CFD facilities and this was a long-term plan. We knew that in 2009 that there would be a regulation change, so we put all the resources for 2009 together. We had three windtunnels working and that's where all the success in 2009 came from.



Chandhok's out and might not be back. Senna was out, but then it was him and Yamamoto. Now Christian Klien's getting a go in the HRT, too



to sort out the problem. For me, it's two minutes then I know now you are on my list and it's only a matter of time before I deal with you. There is a saying: 'sometimes it's better to stay calm on the bank of the river and to wait for the dead bodies to float past you...'

### Hi Colin. How many drivers have you used your dentistry skills on?

Dean Sills, UK

Not too many. Maybe four or five. But they weren't all Formula 1 drivers – F1 drivers I've only worked on two: Tiago Monteiro and Christijan Albers.

### Will Hispania use Toyota's car next year?

Tomek Swiatek, Poland

We will use Hispania's car. We are talking to a lot of suppliers.

### What's your best memory from F1 so far?

Matti Viitasaari, Finland

There are a few memories. If I were to put it all into one, I'd say that it's when you achieve something that is unexpected. If people expect you to be on the back of the grid and you are not – then this is definitely a good memory. Markus Winkelhock leading the race at the Nürburgring was a good memory – but also a bad one because we were leading by a lap and then they stopped the race. We could have had a good result then.

### Is it true you have one of Hitler's cars?

Matilda Sturridge, UK

No. I think that someone else in the paddock has one of Hitler's cars, but not myself. I have a car collection, but I don't have Hitler's car.

### What is your ultimate goal that you want to achieve by the end of the 2010 season?

Becki Mitchell, UK

To finish the season, to consolidate, to stabilise and to improve some small things. To finish tenth in the championship.

### Please say Karun Chandhok will drive again this year...

George Davies, UK

We'll see...

## JOIN OUR READER PANEL

Want to put a question to a big name in Formula 1? Visit [www.f1racing.co.uk](http://www.f1racing.co.uk) and join our Reader Panel, where you'll get to do just that. We'll let you know which interviews are coming up.





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DOWN TO  
THE WIRE



"A championship showdown is

**intense.**

Your whole life

is resting on one race,

**one chance.**

It dominates

your every thought;

**nothing else exists.**

That's what you call

**pressure"**

**Jacques Villeneuve** knows better than anybody how the climax of an F1 season can affect a driver. Writing exclusively for *F1 Racing*, he recalls the demands of his winning year in 1997 – and gives his controversial opinion on the chances of **Webber, Alonso, Hamilton, Button** and **Vettel** in 2010

**WORDS**

JACQUES  
VILLENEUVE

**PICTURES**

SAM BARKER  
ADRIAN MYERS  
STEVEN TEE  
LORENZO BELLANCA  
GLENN DUNBAR  
ANDREW FERRARO  
STEVE ETHERINGTON  
GETTY IMAGES

**There's one word that** describes being in the showdown for the Formula 1 world championship: intense.

It's a situation where you have your shot and it might be the only time you ever get that chance – you just never know.

You realise it's there to be grabbed and it can only go wrong, so it changes the way you look at it. But everyone reacts to it differently: some guys start making a lot of mistakes because of the pressure; others just focus and everything else stops existing – that's the way it was for me.

I've been involved in two title showdowns, in 1996 and 1997. In the first, Damon Hill had basically won the championship with four races to go – I'd just somehow kept on delaying it for him. There wasn't the same amount of pressure on me because it felt like the title was basically his even though I could mathematically still have won it. I knew that the car would be good the following year, so I was still happy and it was nothing like the pressure of being involved in the 1997 championship showdown. But make no mistake





## DOWN TO THE WIRE



about it: this year's championship is shaping up to be one of the closest there's ever been... and all five drivers will be feeling the pressure.

### When you're in a showdown,

it dominates your every thought – you start the season knowing you're going for it. For me, it was the natural evolution of my career; the goal I'd been working towards ever since I knew what F1 was. We started the season brilliantly and were way ahead of Ferrari, so it was quite relaxed. Suddenly, Ferrari got closer and ended up overtaking us. But when I have to come from behind that's when I'm at my best. I remember we got penalised for something with one race to go, and we felt as if we'd been beaten politically, which gave us extra incentive to fight back. I don't know if it was anger, but I just wanted it more. Somehow, before that weekend, I knew it would work out. I didn't know how – I just knew.

I could feel the electricity and the expectation the whole weekend. But you know what? The

night before the race was when I slept the best. I didn't change my routine or anything, I just went to bed and passed out. I was so focused on what was going to happen that I just relaxed about it in the end. I thought, 'It's now or never, there's no point stressing about it.'

The six weeks before the final race of the season I'd decided to stop testing as well. At the time, we were testing a lot and I was just doing lap after lap. Sometimes you find that if you don't do something for a while, when you come back to it you're brilliant; somehow there's an excitement and your body's had time to digest what you've been learning all that time. Just keeping doing the same thing means the things you learn stay hidden, so I felt I needed to get away and have a break to move forward. I just kept my energy for the showdown and it worked.

Sometimes, if people are on the verge of achieving something big, they don't want people around them to talk about it – it's too much. I was never like that. It was happening; it wasn't a taboo subject. I felt like I wanted to pump myself

up a bit, so it was good that people wanted to talk about it the whole time. Whenever people motivate you it helps; it gives you that little bit extra. And when you're in the car and the championship is down to the wire, you have to give more than you think you have available. You have to stay focused and also, in the back of your mind, you know that if you don't win it you might not get another chance. Ever.

It's funny, because when I lost the title fight in 1996 I didn't feel like it would be my last ever chance, but that's how it felt in 1997. And thinking like that does change your approach. You take it more seriously. Nothing else exists. You'll do anything it takes, within the rules. I mean, your whole life is resting on that one race, that one chance. It was why I'd started racing,



**JV on Webber:** Being the underdog brings out the best in him. He's one of F1's fiercest competitors, he's out to prove people wrong and pressure makes him stronger







**JV on Vettel:** His team protects him when he makes mistakes, which means he won't learn. So he's not wholly to blame for the impetuous streak that's holding him back



and my whole life was coming down to this one moment. It's a very special and powerful feeling.

This year, Red Bull and McLaren still have both their drivers in the running, like my situation with Damon at Williams in '96. In this scenario, there isn't the same energy in the team, because ultimately someone's going to win so the atmosphere is much more relaxed. But in 1997, when it was against Ferrari and they hadn't won the drivers' championship for many years, there was a completely different feeling at Williams. It was extreme, and everybody could feel it.

You could say that the media pressures have increased since my championship-winning year,

but I don't think it's something that affects the drivers. It shows how important it is, because if there was no media hype then it wouldn't mean as much. The more attention it gets, the more important it is. I don't think the drivers are used to it though, which is why they make mistakes. They haven't been prepared because they've been pampered. That's what makes Webber and Alonso so strong – they've never been spoiled.

What's happened throughout your career and your time in Formula 1 is what forms your psychological make-up. And the guys who have had it tough do better when it's crunch time, like Mark and Fernando. I think it has a huge



effect when you compare these guys to some of the pampered younger guys. Just look at the different seasons Mark Webber and Sebastian Vettel have had: Vettel is the one who's been protected as the year has worn on, but it's clear that Mark's been getting stronger while Vettel's been making more and more mistakes.

Mark Webber impresses me. He's been getting better every year: he's hard-headed, he's a fighter and he's focused. He's probably the fiercest competitor out there alongside Alonso and he doesn't really make many mistakes. The pressure doesn't seem to get to him, it just makes him stronger. He seems to be better as an underdog, because when the team were against him that resulted in his best performances, and he's retained that strength since. He's on a roll.

**"The guys who've had it tough do better when it's crunch time."**

**That's what makes Webber and Alonso strong – they've never been spoiled"**







# LAST RACE TITLE SHOWDOWNS

The F1 world championship has gone down to the wire on 25 occasions since 1950. This is what happened at each one of them...

**1950 MONZA**  
Farina, Fangio, Fagioli

By winning the final round at Monza, Farina took the first world drivers' title in his Alfa Romeo by three points from Fangio

**1951 PEDRALBES**  
Fangio, Ascari, González

Victory on the Barcelona streets gave Fangio the first of his five world championships

**1956 MONZA**  
Fangio, Collins, Behra

Englishman Collins could have won the title, but in an incredibly sporting gesture chose to hand his car over to Fangio

**1958 AIN-DIAB**  
Hawthorn, Moss

Moss needed to win and set the fastest lap. He did it, but second place was enough to hand the crown to Hawthorn

**1959 SEBRING**  
Brabham, Brooks, Moss

Brabham led after Moss retired, but ran out of fuel on the last lap, pushing his car by hand to fourth place and the title

**1962 KYALAMI**  
Hill, Clark

As only the top five scores counted, Clark could have been champion with a win, but an oil leak put him out after 21 laps

**1964 MEXICO CITY**  
Surtees, Hill, Clark

Hill led going into the finale, but when he tangled with Lorenzo Bandini he spun and ultimately lost out to Surtees

**1967 MEXICO CITY**  
Hulme, Brabham

Hulme was five points ahead, going into the last race. He came third behind his team-mate and took the title

**1968 MEXICO CITY**  
Hill, Stewart, Hulme

Hulme retired when his suspension failed and Stewart had an engine misfire. This gave the win and the title to Hill

**1974 WATKINS GLEN**  
Fittipaldi, Regazzoni, Scheckter

Fittipaldi and Regazzoni were tied on 52 points, but it was Emmo who came out on top

**1976 FUJI**  
Hunt, Lauda

Back after his fiery shunt, Lauda dramatically pulled out after just two laps in the Fuji rain. Hunt needed – and got – third place

**1981 LAS VEGAS**  
Piquet, Reutemann, Laffite

Leading Piquet by a point, Reutemann took pole but drifted off and ultimately lost out

**1982 LAS VEGAS**  
Rosberg, Watson

Watson had an outside chance at the title and took second in the race, but fifth was enough for Rosberg to triumph

**1983 KYALAMI**  
Piquet, Prost, Arnoux

Prost led Piquet in the points, but his last race for Renault ended ignominiously when his turbo failed

**1984 ESTORIL**  
Lauda, Prost

Prost thought he was in luck when his McLaren team-mate qualified 11th, but Lauda won the title with second place

**1986 ADELAIDE**  
Prost, Mansell, Piquet

Mansell led his rivals by seven points, but an exploding tyre put paid to his hopes. Prost's race victory secured his crown



Vettel, on the other hand, has shown he has an impetuous streak, but I don't think you can just blame him for that – you have to blame the team as well. If he makes a mistake and the team don't tell him it was his fault, he won't learn. Look at Istanbul: the team didn't come out and blame him, and the result of that is that he'll keep doing the same thing again and again. It's Red Bull's fault for spoiling him. It's like after Monza with McLaren, when the team said they had the right

strategy. Well it was clearly the wrong strategy, what's wrong with admitting it? You made an error, you messed up, fine – there's no point trying to hide it, you just end up annoying the fans and losing credibility. That's where Webber is good: he's blunt, he tells it like it is and that's it.

People say it will be hard for Vettel if Webber wins the title this year. I don't know – will it? His future is guaranteed. What's hard about that? He's been given a career by Red Bull since he was

young, and he's known pretty much all his life that he's going to be in F1 at some stage and he's probably going to be a champion. Same as Lewis.

What makes it difficult for Vettel is that he joined the team certain that he was the guy who was going to win the championship for them; now the guy who's looking good to win it is his team-mate. That wasn't supposed to happen. If Webber wins it I'm sure that Vettel will smile grudgingly for the cameras, but this is something



**1994 ADELAIDE**  
Schumacher, Hill

Schumacher led Hill by one point and the pair led one-two until Schuey closed the door on Hill, ending both their races



**1996 SUZUKA**  
Hill, Villeneuve

Villeneuve needed to win and hoped his team-mate would fail to finish. But in the end it was Villeneuve himself who retired with a loose wheel



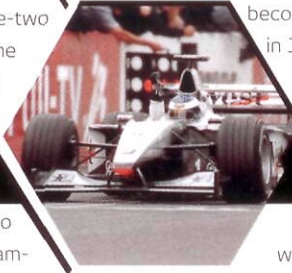
**1997 JEREZ**  
Villeneuve, Schumacher

Michael was one point ahead. When Jacques tried to take the lead, Schuey was excluded for blocking him



**1998 SUZUKA**  
Häkkinen, Schumacher

Schumacher's quest to become the first Ferrari champ in 19 years was scuppered when his tyre blew in Japan



**1999 SUZUKA**  
Häkkinen, Irvine

The task of winning Ferrari's elusive championship crown fell to Eddie Irvine in 1999, but he was beaten at Suzuka by Mika Häkkinen



**2003 SUZUKA**  
Schumacher, Räikkönen

Kimi needed a win and for Schumacher not to score, but although Schuey qualified 14th, he won by finishing eighth



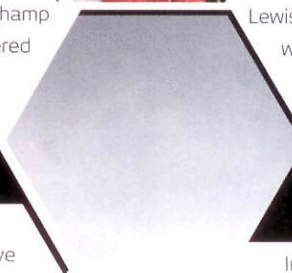
**2006 INTERLAGOS**  
Alonso, Schumacher

Following a puncture, Schuey fought through the field to claim fourth place, but it wasn't enough to topple Alonso



**2007 INTERLAGOS**  
Räikkönen, Hamilton, Alonso

Lewis led Alonso by four points, with Kimi a further three back, but it was the Finn who triumphed



**2008 INTERLAGOS**  
Hamilton, Massa

In a thrilling showdown Lewis overtook Glock at the final corner to steal the crown from the home hero





## DOWN TO THE WIRE



**JV on Hamilton:** He's superbly fast and less hot-headed these days. But he's still making mistakes – and that's what could cost him the championship



I've never understood. Team-mates always smile and look happy when they don't win and their team-mate does. I find it false.

You're never happy when your team-mate beats you. Ever. But they all seem to have this fake smile nowadays. It's very annoying. It's the politically correct thing to do I suppose, but it's not human, is it? If you're a sportsman and a fierce competitor there's no way you can think like that, because if you do then you probably don't want to win anyway. It just doesn't add up.

**The situation at McLaren** is interesting. Jenson got his wins when he wasn't the quickest, which is great and is how you win

championships. And, as always, he hasn't made mistakes. He probably wasn't going to win at Monza, but the team didn't help him. Lewis, on the other hand, does make the odd mistake, like we've seen recently at Monza. It's a trend that you see a lot with the newer drivers – they can't really judge when it's their corner to make a move or not. Just because you put your wheels there it doesn't mean the other guy knows: you have to be able to think for the other guy as well, and the younger ones don't seem to be able to do that. Those mistakes could well end up costing Lewis the championship. It would be a shame because he's superbly fast.

You have to know when to fight and when not to, and it's something that Lewis is normally

good at. With someone like Vettel, he just seems to get upset. Just concentrate on the driving, otherwise all that'll happen is you'll get penalised. You always see footballers getting angry at the referee: what are they going to get out of it? In top-level sport you have to be able to keep your cool.

Generally, I think hot-headedness is an area in which Lewis has improved. Recent errors aside, he doesn't make as many mistakes as he used to and he seems to keep his mouth shut a bit more, too. He just seems to have calmed down a little, and it makes him more likeable. I think that not having his dad at all the races has helped him to mature; if your dad's around the whole time, you can't become a man – you don't take responsibility. That's not necessarily an F1 observation, it's just human nature.

I'm a big fan of Alonso – he's such a hard fighter. He'll generally get the best out of a car, and sometimes – like this year – probably slightly more than the car deserves. Look how he hounded Jenson in Monza: Jenson wasn't even making mistakes because nothing ever really gets to him, but Fernando would not

**"You have to know when to fight and when not to, and that's something Lewis is good at – whereas Vettel just seems to get upset"**



give up. And his race in Singapore was flawless. One thing that's interesting about Alonso is that unlike some of his competitors, he doesn't seem to care what people think of him. People compare his attitude to Schumacher's, but I think it's a little different: Michael just wanted to destroy everybody and that's not the same thing. Alonso just wants to win, beat everyone else and do his job well.

A situation like a championship showdown is something you can't switch off from, and

you know that people will be criticising you. Sometimes it's constructive and you can learn from it. It's like in my championship-winning year: you do tend to read a little bit about what's being said about you, because sometimes you're just sitting around and there'll be a racing magazine lying about. And the championship is in your mind so much you can't help it. I would think that these days the guys going for the title would spend more time on the internet. There's a lot more being said. I don't know whether it's a good or a bad thing, but the key issue is: can they block it out? Sometimes you just want to prove people wrong, and for some people like Webber, that's a strength.

A question people sometimes ask about a championship showdown is whether it's easier to be chased or do the chasing. I'd say doing the chasing is easier, because you can't do anything wrong – you can only win it. If you're leading, you can only lose it, and it's not really the same approach. The feeling of winning the whole thing is better if you've had to come from behind, too.

**JV on Button:** Jenson doesn't make mistakes – nothing seems to get to him. He can win races even when he's not the fastest – and that's how you win championships



## NIGEL MANSELL

**"Jenson Button is a class act in my mind and still underrated"**

The thing that all the drivers have to remember about a championship showdown is that it's never over until it's over. Having lost the title with 18 laps to go in Adelaide in 1986, I know that only too well. So you've got to keep your head down and keep doing the best job you can, both on and off the circuit.

Taking each of the drivers individually, I think **Mark Webber** has handled himself incredibly well over the past few races and is right in there with a chance at the title. On the other hand, **Sebastian Vettel** has made too many errors. He needs to settle. He's extraordinarily quick but lots of things have happened with him, either on his own – like that Safety Car penalty in Hungary – or with other people. He's very young and he's got many years in front of him but it's a big shame when you take another driver out, especially when it's the current world champion. You just have to be more in control of what you're capable of.

I feel sorry for **Jenson Button** after what happened at Spa, because he was driving a superb race and to be taken out by a silly error on Vettel's part was a great shame. My advice to Jenson is to keep plugging away – like I said, it's never over until it's over. I think McLaren are such a great team that there isn't a number one and a number two driver any more – they can put the same amount of effort into both cars. In years gone by, that wasn't possible because there were reliability problems or there was only one new part available. But that isn't the case today.

I never doubted Jenson – I said before the season that he would surprise a lot of people and he's done that. I'm very proud of him. When you've won the jewel in the crown you've got nothing to prove. Jenson is a class act in my mind and still underrated.

Then you've got **Lewis Hamilton**, who's been a lot cooler under pressure this year. His drive in Spa was fantastic – he stayed away from the trouble and on the day he was the class of the field. He was very lucky when he went through the gravel though – he was inches from hitting the wall. But he kept it together and all credit to him for that.

With **Fernando Alonso**, I think that his crash during practice at Monaco hurt him. He should have won that race. He's a great driver but he was shaken up a little bit from that and it has taken both him and Ferrari a little while to bounce back from it.





## DOWN TO THE WIRE



It's this stage of the season where people wonder whether the drivers will be trying to be more cautious, but you can't change the way you drive – you'll just start making more mistakes, plus it would make the situation even more stressful. It's an interesting situation for the drivers who are renowned for really going for it, like Hamilton and Vettel, because you have to really decide when to go for it and when not to. You can't be on the edge for every lap of every race.

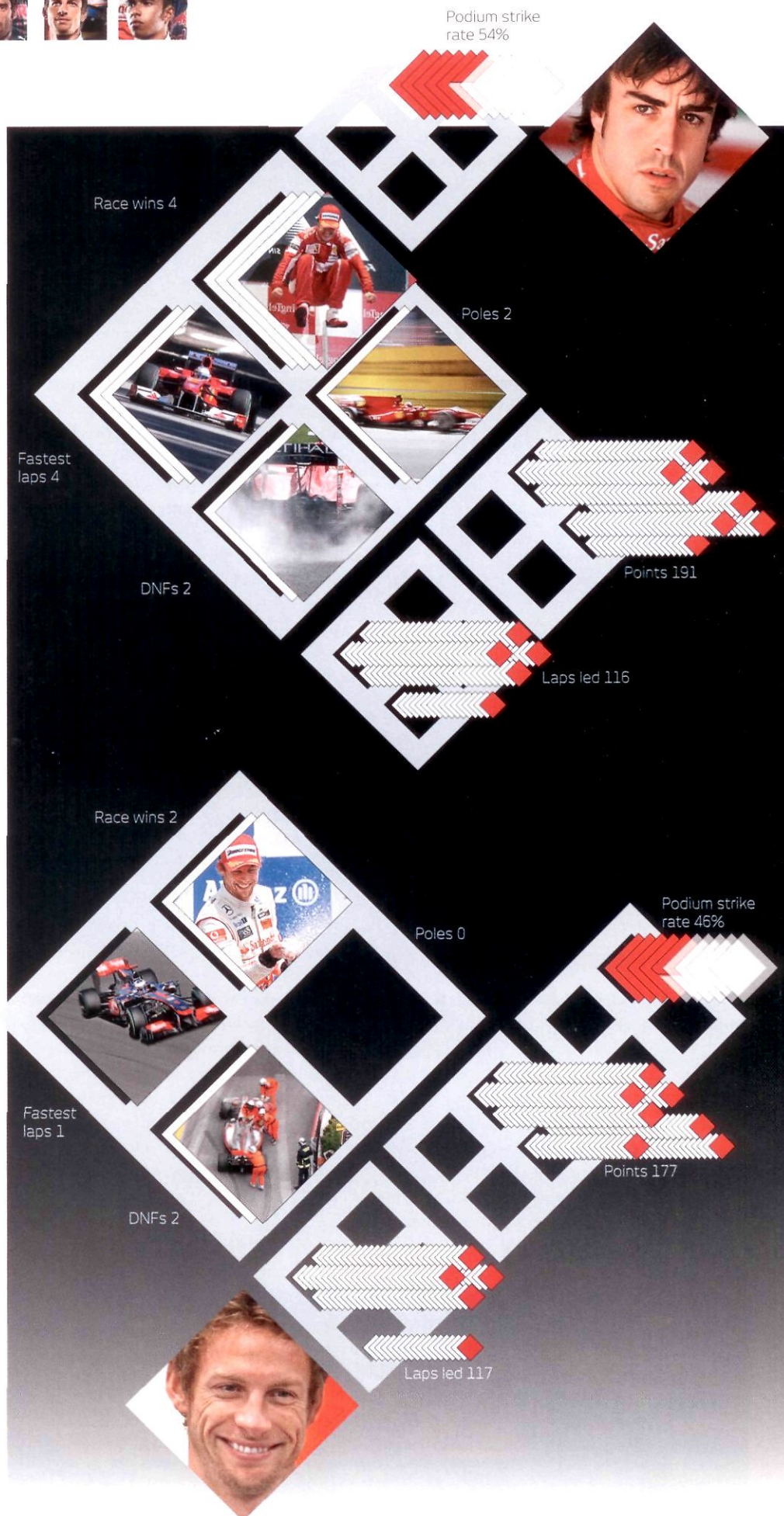
I think Lewis, Jenson and Fernando have an advantage over Webber and Vettel, because to have experienced a title showdown that you've won will really help. It takes the edge off the intensity. If you've had a shot at it and you didn't win it, you're going to stress a lot more about it. That's why you sometimes see drivers really take off *once they've got that first victory under their belts*, which is what happened with Webber.

Losing out on a championship showdown can affect people in different ways, and it's how you lose it that matters, I suppose. Obviously I wasn't happy when I lost out to Damon in 1996, but it was my first season and I knew I had to learn. For 1997, everything was geared around winning the title – plus Heinz-Harald Frentzen had been brought in to win the championship that year, which made me a bit angry. But it actually gave me even more motivation.

Looking at this year's battle, Alonso is the only guy who has a team-mate who can't win it. That's similar to me and Frentzen in '97, as he was out of the running by the time it came to the last few races. Who can say how much support Fernando will get from Felipe? Drawing on my experience with Heinz-Harald that year, we actually got along fine and worked well together.

There was rivalry between us but there wasn't any animosity, and that was quite helpful. So will Felipe help Fernando out? The thing is, Massa is slower. That's a fact. Once the other team-mate can't win the championship he should help his team-mate. But it's great that with just a few races to go, five drivers can technically still be crowned world champion. It shows the refuelling ban has worked – now they just need to get rid of tyre changes and it'll be even better.

**So who's my money on** to win this year's showdown? Mark Webber. Definitely. I'm not going to sit on the fence like a lot of people do these days – if he doesn't win then I'm wrong and that's that. I really believe in him because of the way he's been driving this year. In previous seasons there always seemed to be something







Race wins 4

Podium strike rate 57%

Poles 5

Points 202

Laps led 314

Fastest laps 2

DNFs 1

Podium strike rate 54%

Points 181

# TALE OF THE TAPE

How the main contenders are shaping up in 2010, up to and including the Singapore Grand Prix

Race wins 2

Podium strike rate 64%

Poles 7

Race wins 3

Fastest laps 3

Laps led 189

Poles 1

DNFs 2

Points 182

Fastest laps 3

DNFs 4

Laps led 100







**DAMON HILL**

**"Mark has complete focus, but Lewis is using the high-risk strategy"**

**"Webber's biggest challenge will come from Alonso. The way it is for Ferrari now, it's all or nothing. And that's where the danger can come from"**

missing, but the way he's fought – often against his own team – has been seriously impressive. If he wins it, he's won it himself, not because the team has helped him. It shows that he's strong, and when someone is strong like that they're very difficult to beat. Barring any mechanical failures, he's an unstoppable force right now.

The only small question mark I have about him are his starts, and they're the kind of things that can play on the mind. If you keep having bad starts then the chances are they're only going

to get worse. You'll keep thinking about it, and when it doesn't come naturally it's a lot harder. There's no reason for him to suddenly have good starts at this stage of the season. Plus, the more time you have to think about something like that in a hotel room, the worse it can become. So he needs to not let it affect him.

I expect Webber's biggest challenge to come from Alonso. The way it is for Ferrari now, it's all or nothing, and that's where the danger can come from. Alonso is just really fast in a race, as

"Personally, I think this is a two-horse race. If Vettel hadn't T-boned Button in Spa it might have been different. You should never say never, but Hamilton and Webber do look like the two guys who've been building up to something as the season's gone on.

In **Mark Webber** I see complete focus – he's not allowing himself to be distracted at all. It's really impressive and he's become a formidable competitor. There was a period when it all seemed to be swinging in favour of Vettel, but Mark's responded to that and has taken on the attitude of someone who's determined not to be overlooked. The fact that Mark's been able to respond should show that there's not really any favouritism at Red Bull.

**Lewis Hamilton** continues to use the high-risk strategy. No one's going to change the way Lewis attacks and that will make him vulnerable to incidents, but he's gaining experience. When you combine his talent with his experience, he's going to be one of the toughest nuts to crack in F1.

Youth is a gift, in that you can have a blue-sky attitude to life – things could only get better for **Sebastian Vettel** when he arrived in F1. He was so optimistic and was revelling in the opportunity. But now a few clouds have turned up, it seems to have confused him. When things aren't going right he doesn't cope as well. This clearly shows a maturing process that's not fully evolved. That's where Mark has the edge on him – he's been through some hard times and he's just that bit tougher.

There have been some impetuous moments when Sebastian's desire to put things as he wanted them to be got the better of him. Sometimes his judgement is not as sound as it should be, but he's an incredible talent and he's still young. The issue is whether he can learn from the bad experiences and not blame it on external factors. He probably felt that Red Bull was going to be his team. It can be destabilising if you thought it was going to be your party but it doesn't turn out that way.

What can you say about **Fernando Alonso**? He's a fiery competitor and someone people enjoy watching. Whether he can motivate Ferrari I don't know. Sometimes a team need someone who isn't just waiting for them to do it. Maybe it's too early to say that, because at Renault he had some great moments, and it's hard to work out how much influence you have when you first get to a team like Ferrari."

**JV on Alonso:** he knows what he wants and doesn't care what people think of him. He's a hard fighter who can get more from a car than it should really be giving







we've seen recently with his back-to-back wins in Monza and Singapore. I saw him race in Formula 3000, and I remember having dinner with Flavio and telling him, "You have to sign this guy Alonso." And he did. Then again, I also told him to sign Webber. I just recall that in F3000 Alonso wasn't that great in qualifying and he wasn't in a brilliant team, but once the race came he was incredible and never gave up. He knows what he wants, and that's what a racer should be. It's what a winner should be.

Despite recent events, Lewis is still in with a shot – but he can't afford any more mistakes and needs to judge every situation well. One more error like Monza and he's out. My feeling with him, though, is that it's those kind of high-pressure situations where he makes mistakes.

Winning the world championship is an incredible feeling. When it happens, you feel like you're going to win the next five. You're on a roll and all you see is blue sky ahead. Achieving your life's dream is incredible, as is the feeling of

## The incredible formula that proves Mark Webber will win this year's Formula 1 world championship!

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

We asked a doctor of physics to analyse 40 years of F1 statistical data to work out which driver will be this year's world champion...

**The mind-boggling formula** above has been created through the analysis of a compilation of wins, poles, podiums, average finishing positions and retirements for the top three drivers from the past 40 years of grand prix racing. And it suggests that Mark Webber is the driver most likely to win this year's world championship.

Dr Mark Peace, lecturer and doctor of physics at Reading University, created the formula based on patterns in the data we compiled, and we then applied it to each of this year's five world championship contenders. That produced each driver's mathematical likelihood of winning and Webber came out on top, followed by Lewis

Hamilton. As we approach the final few races of 2010, anything could happen. But it might be worth a flutter based on the maths...

### The key to the formula (pictured)

- p** = number of poles in the season
- r** = number of retirements in the season
- w** = number of wins in the season
- s** = number of second and third places in the season
- f** = number of point-scoring positions lower than first, second and third
- a** = Average race finish in season


**"Can you imagine what people would've thought three years ago if you'd said**

**Mark Webber would be champion?"**

**It doesn't sound so far-fetched now"**

proving people wrong – which is something that Mark would have if he won it. Can you imagine what people would've thought three years ago if you'd said Mark Webber would be world champion? It doesn't sound so far-fetched now.

Waking up as world champion is a special feeling. Obviously you wake up with a hangover, but I wasn't surprised I'd won it. I worked hard for it – it didn't fall out of the sky, did it? The bigger question is how the guys who don't win it will cope. I think Lewis would be fine – he's won it before and he knows he'll challenge for it again. The same goes for Alonso and probably Jenson. Mark's situation is different because he clearly doesn't have the team's support and if he doesn't win it this year it could cost him. Even for someone with his mental strength, it would be tough for him to get over not winning it.

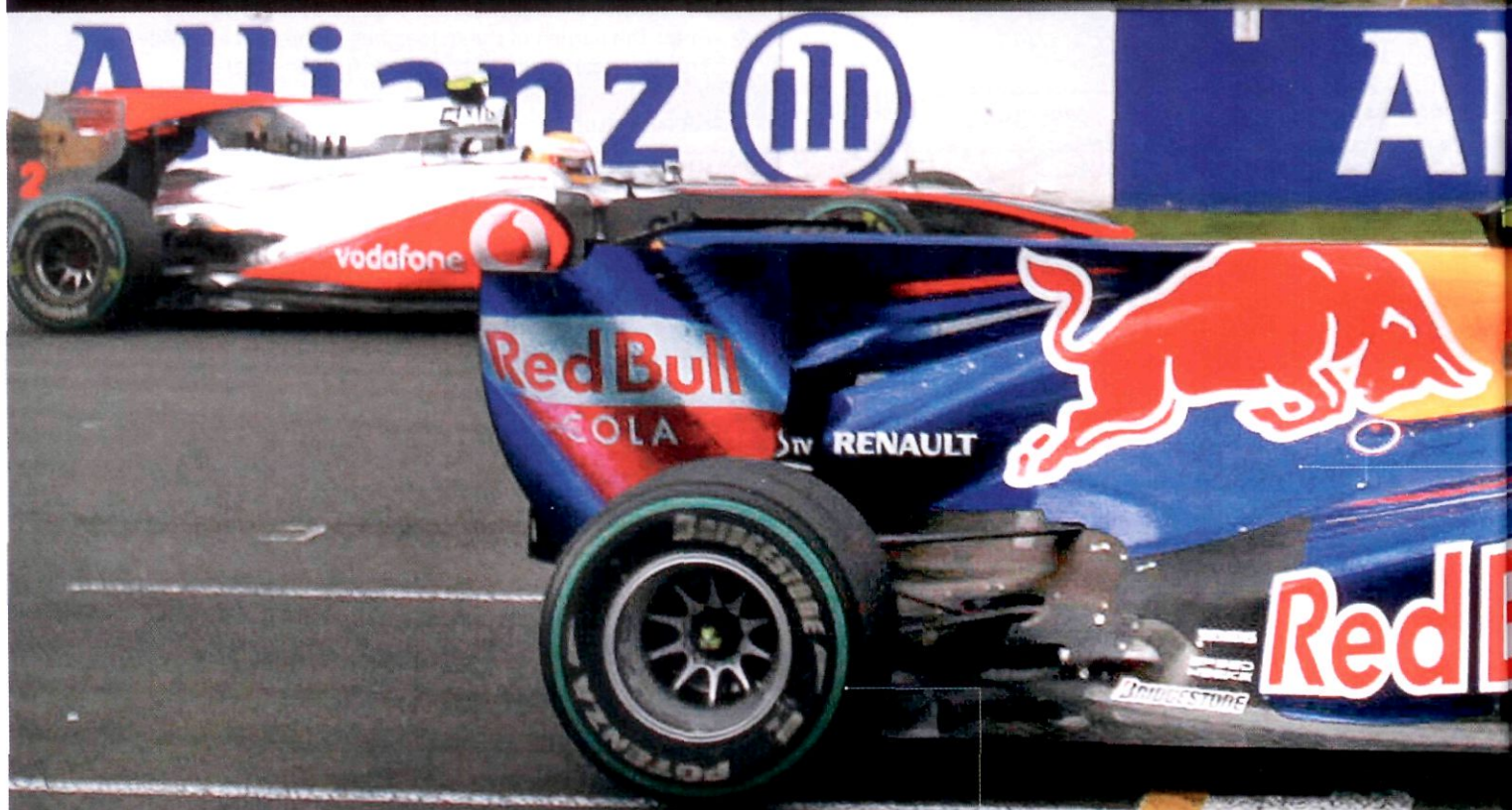
But maybe not as tough as for Sebastian Vettel. 





# WHAT HAPPENS TO AN F1 CAR... IN THE FIRST FIVE SECONDS OF A RACE

In this small window of time, a driver who makes a good start can cover 135 metres and reach 120mph. **Pat Symonds** explains why getting a good start involves more than dumping the clutch



Overtaking is now so difficult, you could argue that race-start performance is every bit as important as qualifying. Before 2004, the success or failure of the procedure lay entirely with the engineers who developed the automatic launch control – but these days, the driver

plays a significant role. It's a complex process which, like everything in racing, is finely balanced between success and failure. A clutch that is slightly cooler than expected or a tyre that is slightly hotter than it should be can easily bog down the engine, making even the most skilled driver look for all the world like a learner with L-plates.



## Warm up the tyres quickly

A good start requires a balance between getting the tyres warm and keeping the engine cool. Because F1 cars have no fan, the radiators heat up pretty quickly on the formation lap when the cars are going slowly. Tyres cool quickly and drivers need to get tyres to their optimum temperature through hard acceleration and weaving.



## Why practice makes perfect

### When does a start actually start?

Preparing for the start of a race begins a long time before the lights go out. Even before getting to the circuit, engineers will review the starts from the previous year. And from the beginning of running on Friday, drivers will practise their starts to calibrate the setup of the engine and clutch for specific circuit and tyre conditions.

These practice starts cannot all be done on high fuel loads so significant adjustment needs to be made for

this. After qualifying, other factors are considered, such as grid position and whether the car will be on the clean or the dirty side of the track.

### Is it all down to the driver?

As well as a race engineer, each car also has a control engineer assigned to it. Part of the control engineer's job is to analyse data from each practice start. Every engine is subtly different, and allowances have to be made as ambient conditions change.

The most important practice start takes place at the beginning of the formation lap. Here, things are as close to real start conditions as can be experienced. But even so, the tyres and engine will still be at different temperatures and the control engineer will ask the driver to make alterations to the clutch map or pre-start revs based on the data he sees. He will advise the driver how many burnouts to do to get the right tyre temperatures for optimum traction without overheating the engine.



### Get the engine up to peak speed

The driver treats the engine gently on the formation lap, but as the lights come on he sets the pre-start revs at 13,000rpm. In two seconds, the engine is working at peak speed. Valves open and close 150 times per second, while pistons travel up and down 300 times per second, reaching 90mph and achieving an acceleration of 8,700g.



### Don't just dump the clutch

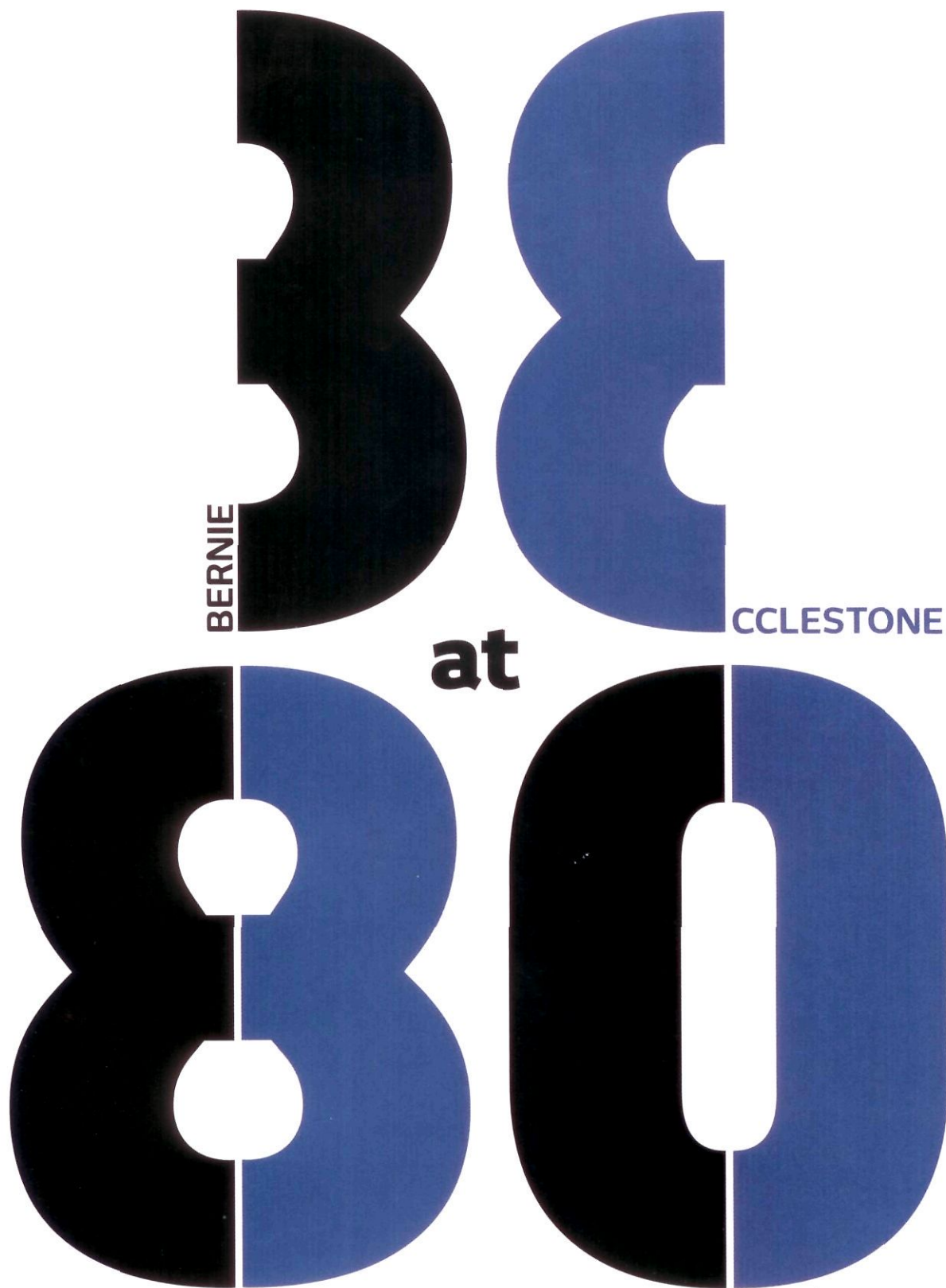
Acceleration is limited by tyre grip. The driver should maintain ten per cent wheel slip until there is enough downforce for good grip. To stop the engine bogging down, he holds down one clutch paddle and keeps the other on the biting point. As the lights go out he releases the first paddle then, once underway, the second.



### 0-120mph in five seconds

At the start of the race, the car reaches 60mph in 2.5 seconds and 100mph in 4.2 seconds. After five seconds the driver will be in fourth gear, doing nearly 120mph, and will already have covered 135 metres. His reactions are all-important: If he is just a tenth of a second late reacting to the lights he can lose seven metres by the first corner.





BERNIE  
ECCLESTONE  
at  
80

WORDS ALAN HENRY  
PORTRAIT LORENZO BELLANCA/LAT

As uncompromising as ever, the man people simply call 'Bernie' is not about to retire yet. **Alan Henry**, who's known him for nearly 40 years, reflects on the life of F1's relentless ringmaster

**The first time I met** Bernie Ecclestone was in the spring of 1972, when I was a junior staffer on *Motoring News*, still cutting my teeth on F2 reporting. I was instructed to make an appointment with the new owner of the Brabham F1 team and it was arranged that I should turn up at Bernie's South London business headquarters in Bexleyheath.







# The seven laws of Mr E

You don't make it to the top just by making the tea...



In 1974, when number two driver Richard Roberts said he wanted his name on the Brabham, Bernie had it plastered over the entire car... then promptly replaced Roberts with Rikky von Opel



Bernie employed Nelson Piquet on a \$25,000 retainer. Quite a bargain by 1980 standards – and even more of a bargain when you consider Piquet repaid him with two world titles

**1** Never forget who pays the wages

**2** Always drive a hard bargain



To have described Bernie's emporium as a car sales showroom would be correct but like calling the Titanic 'damp': accurate but only part of the story. In those days, most car showrooms were rather grotty, oil-stained establishments, but this was something else altogether. The stock was immaculately presented, tyre sidewalls were neatly buffed and there were drip trays under every sump – although I doubt there would have been any likelihood of even one drop of oil falling on the spotless floor. Aside from anything else, it wouldn't have dared.

Bernie beckoned me to sit down in a comfortable chair opposite his desk. But instead of taking his own chair, he perched on the edge of the desk looking slightly down at me. I can't remember if I felt intimidated, but I do recall it added a certain importance to the conversation, which tripped along at a brisk pace.

Not that I was hurried off the premises. Far from it. After we'd finished chatting he took me into the workshops at the back of the building where the Brabham BT34 'lobster claw', which had won the previous year's Silverstone International Trophy in the hands of Graham Hill, was sitting freshly repainted in the team's new white 1972 livery. The appointment ended after he drove me in an Audi 80 to a local pub for a quick sandwich and half of bitter. Everybody in the bar seemed to know Bernie. Why was I in any way surprised?

I should add as a footnote that, midway through our conversation at the showroom, Bernie excused himself to attend to the needs of two potential customers, a lady and gentleman who had strayed in off the street apparently

interested in a Ford Cortina. Bernie, as I recall, convinced them that what they actually needed was the significantly more dowdy Humber Hawk as a matter of some urgency, but they went away delighted nevertheless. Even back then, Bernie always came out on top in a deal.

**It's incredible to think** that Bernie Ecclestone reaches the age of 80 on 31 October, yet still works the sort of punishing schedule that would exhaust people half his age. Like so many highly motivated men, F1's commercial rights holder seems to be keeping his business foot more tightly welded to the throttle pedal than ever before at a time when the stereotypical pensioner is supposedly reaching for their slippers and a late evening cup of Horlicks.

There can be few, if any, sporting oligarchs who have such complete control over their individual domain as Ecclestone. From the moment he took control of the Brabham F1 team, he was playing the long game. "Bernie won over the other team principals with promises of wealth beyond anything they could have imagined four decades ago," said one of their number. "He delivered on that promise, but in the process also made himself ten times richer. Nothing wrong with that!" He is also tough and unrelenting, not a man to forget a slight, and he radiates a certain distant formality, which means people can get so close and no further. Taken as a whole, Bernie likes to keep his distance.

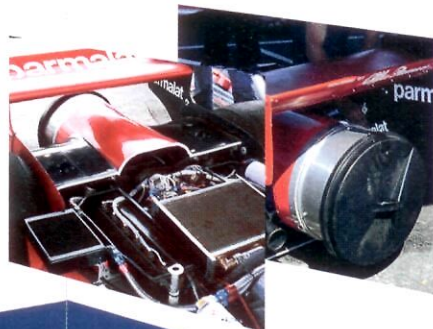
Walk into any F1 paddock today and you will see lines of perfectly parked transporters in immaculate formation. It is a far cry from the gravel and roughly laid Tarmac that – if



A young Charlie Whiting was taken on as a Brabham mechanic in the 1970s. Whiting is now the FIA's race director, safety delegate, permanent starter... oh, and head of their F1 technical department

Andrea de Cesaris wanted to come in for new tyres at the 1987 San Marino GP. Bernie said no. De Cesaris begged, and Bernie still said no. When Bernie finally relented, de Cesaris was so stressed he went back out and immediately crashed the car

When the radical fan car won the 1978 Swedish GP, there was outcry from the other teams. Bernie, who had his eye on FOCA leadership, simply withdrew the car



**3**  
Put the right man  
in the right job

**4**  
Never be the  
first one to blink

**5**  
Play the  
long game

you were lucky – might have greeted you back in the 1960s. Bernie has been responsible for this remarkable transformation. To those who worked for the Brabham F1 team in the 1970s – and were driven mad by Bernie's insistence that advertising decals on the rear wing endplates were a couple of millimetres out of line – it was no surprise. "Delegation," he would memorably announce, "is the art of accepting second best."

There are many tales that reflect Bernie's unique methods of dealing with a situation. For 1974, Carlos Reutemann stayed on as Brabham number one driver, but the number two slot was now filled by Richard Roberts, a rising F3 star who, by coincidence, lives in the next village to me in the remote Dengie peninsular in rural Essex. Roberts' promotion to the Brabham squad was assisted by some sponsorship from estate agent Bruce Giddy, whose business was called Giddy & Giddy – I kid you not!

Roberts' tenure lasted for just three grands prix and the Race of Champions at Brands Hatch

at which, it's probably fair to say, he didn't impress Bernie as a potential future champion. Before the inevitable happened and he was dropped from the Brabham line-up, his repeated complaints that his name was nowhere to be seen on the car were dramatically addressed when Bernie told the mechanics to place a huge sticker reading 'RICHARD ROBARTS' extending from the front of the cockpit to the back of the engine cover. It was only used once.

Bernie might have had some of the world's best drivers, but once they were employees, they were just that and never mind their celebrity status. He paid Nelson Piquet just \$25,000 for his 1980 season with the Brabham team, a modest retainer by the standards of the times, but with the proviso that there would be bonuses if he drove Procar and other categories.

When Piquet became involved in the drivers' strike at the 1982 South African GP, Bernie was furious. Once the confrontation was resolved, he put Nelson through the hoop, insisting he wouldn't be allowed back in the cockpit until he'd had a medical check following his night spent 'camped out' with his fellow dissenters.

This was very much a case of Bernie laying down a marker, letting his drivers know who was in charge. As if they ever had any doubt.

Mr E could be one of the boys, but from 1971 to 1989, when he owned the Brabham squad, he was definitely the man in charge. Many people who worked for him discovered to their cost that it was 'my way or the highway.' He had a tight coterie of loyal insiders, many of whom remain in F1 in senior positions. Some remember just how difficult he could be on the pitwall.

"Oh God, yes, he could be an interfering so-and-so," recalls Charlie Whiting, the FIA race director and safety delegate who was chief mechanic at Brabham when Ecclestone owned the team. "He was always standing on the pit wall with a couple of stop watches that he didn't know how to use. Then he would lose track, mutter 'damned stopwatches!' and throw them down. But yes, he did like to be involved."

In particular, Whiting recalls the 1987 San Marino GP, when Riccardo Patrese was running second in the Brabham BT56 – pretty good for a Brabham back then. He needed new tyres, but Bernie wouldn't let him stop. "His team-mate Andrea de Cesaris was getting frantic. 'I wanna come in, I wanna come in,' he was shouting over the radio. Bernie was shouting 'No, stay out, stay out!' and I'm going, 'Bernie, for Christ's sake, he's got to stop for tyres, they're screwed!' In the meantime, Andrea was getting more and more emotional. Eventually he came in for tyres with about six laps to go, then went straight out and immediately crashed the car because he was so stressed out by it all. So I think perhaps Bernie got a little more deeply involved than

**B** I once asked Bernie how many people worked at Brabham. "About half of them," he shot back

BERNIE  
ECCLESTONE

PHOTOS: LAT ARCHIVE



■ He's famously hard-nosed when it comes to business, but Bernie is a devoted dad to his two daughters, Petra (21) and Tamara (26)



**6**  
**Family comes first**

■ Bernie stood by his old allies Max Mosley and Flavio Briatore during their scandals. He's known for being as good as his word – although you still need to read the small print...



**7**  
**You can't put a price on loyalty**

he should have done but, at the end of the day, it was his bat, his ball and he wanted to play the game exactly as he saw it." In turn, I once asked Bernie just how many people worked at Brabham. "About half of them," he shot back, always the master of the one-liner.

**Yet one thing Bernie** has always been is a racer. He was tough with Gordon Murray, but respected him and approved of his 'on the edge engineering' which was probably best encapsulated by the Brabham 'fan car.' As the years rolled by he may have ostensibly changed from a team owner to the sport's all-

powerful commercial rights holder, but he still loves the sport. He relishes life on the edge, always striving to make the next deal he cuts the most profitable and successful ever. Competition is still the air that fills his lungs each day.

Yet he also knows when it is best to make a tactical retreat. After the 'fan car' won the 1978 Swedish GP, there was an outcry from Brabham's rivals. So Bernie withdrew it on the spot and it never raced again. The solidarity of the F1 Constructors' Association, his emergent power base on the long journey to becoming the sport's most powerful man, was more important to him than short-term success on the circuit.

Niki Lauda, who drove for him in 1978 and 1979, remembers that Bernie was hard but fair. Tough to nail down to a contract, but totally reliable once you'd finally reached an agreement, no matter how painful or protracted a process that might be. "If you have a disagreement with him, he's not one to bear a grudge," says Lauda. "Once it's sorted, he moves onto the next thing. He's not the sort of person to dwell on things."

Overwhelmingly, though, Bernie ploughed his own furrow. He was sufficiently rich and confident in his own business judgement not to worry about what others thought about him. "I don't worry about anything," he once told me. Not in business, anyway. Family is another matter altogether; he is devoted to his daughters Tamara and Petra. In their company, he comes over as a bit of a softy, truth be told.

Yet he would be happy to run things to the edge of the regulations. In 1981 there was controversy surrounding the lightweight Brabham BT49C used by Nelson Piquet to qualify at various grands prix. The unanswered question that hung in the air, of course, was 'is the car not just lightweight but underweight?'

At the end of the day it was the normally placid Ligier driver Jacques Laffite who went off the deep end on the subject during an interview with the French newspaper *L'Équipe* at one Monaco GP. Laffite accused Brabham of running an illegal underweight car in qualifying, "but nobody will do anything because it's a Brabham, owned by Ecclestone. Nobody can touch him. Everyone is frightened of him."

That suited Bernie fine. If keeping the other teams slightly on their back feet was the direct result of the Brabham team's gamesmanship, then that was okay with him. He knew who to cultivate and look after and his loyalty to old friends in controversy such as Max Mosley and Flavio Briatore is cited by those who admire him as one of Ecclestone's more admirable traits.

Most people who have shaken on deals with him speak of a willingness to stick to his word. But you'd better listen closely. Back at the start of the 1994 season, when in-race refuelling was being re-introduced to F1, there was a dispute over who would supply the refuelling rigs. "Eventually, Bernie said 'Okay, I'll supply the rigs,' and the whole matter seemed to have been put to bed," said Arrows boss Jackie Oliver. "So the rigs were duly delivered, followed by invoices from Bernie. We all rang up and said 'We thought you were going to supply the rigs?' And he replied: 'I said I was going to supply them, I didn't say I was going to pay for them.'"

I once asked why he kept the Brabham name for so long after Jack had ceased to be involved. He responded instantly: "Why change a great brand name? If we went into business together and bought Marks & Spencer, we wouldn't rename it Ecclestone & Henry, would we?"

No. But I wish we had. **BT**

## HE SAID WHAT? BERNIE'S NOT ONE TO MINCE HIS WORDS

**"If you have a look at a democracy it hasn't done a lot of good for many countries – including this one."** In an interview with *The Times* in July 2009, Ecclestone expressed his opinions about totalitarian regimes.



**"They think they've got me by the balls – their hands aren't big enough."** Said in 1998, when Williams and McLaren thought they had him over a barrel by refusing to sign the Concorde Agreement. They didn't.

**"If they come in here with a gun and hold it to my head, they had better be sure they can fucking pull the trigger."** In 2009, some teams threatened not to send their cars to the Australian GP. Bernie called their bluff and asked the freight company to cancel their shipments anyway.



**"I have never cheated anybody. If I do a deal, I don't need to write it down on paper."** Ecclestone famously only had verbal and handshake agreements with many of his drivers over the years, including Niki Lauda







THUMP-THUMP-THUMP-THUMP-THUMP-THUMP-THUMP-THUMP-THUMP

DRIVING A FORMULA 1 CAR TAKES ITS TOLL  
ON THE BODY'S MOST VITAL ORGAN.  
RENAULT'S DOCTOR **RICCARDO  
CECCARELLI** EXPLAINS JUST  
WHAT IT HAS TO PUT UP WITH

# Matters of the heart

ILLUSTRATION PETER CROWTHER



# F

ormula 1 produces one of the

highest heart rates of any sport in the world, with drivers' hearts undergoing an average of 184 beats per minute for nearly two hours – not bad when you consider a resting heart rate is 60-80bpm. No other sport can match that level of intensity and, as a result, F1 drivers have to have extremely strong hearts, like cyclists. They also have to undergo incredible stresses on their bodies, requiring the constitution of an astronaut to deal with huge acceleration and braking forces. Added to that, drivers need a lot of strength in the neck, biceps and upper arms to be able to deal with the strong G-forces and steering

Arnold Schwarzenegger. That used to make me mad, as drivers don't need that much muscle – they need endurance, like a marathon runner.

"People ask how much a driver is affected by the forces inflicted on him when racing, but it's not actually that intense because lateral force – the force he would feel in acceleration and deceleration – isn't too much of a problem. More of a problem is vertical force, which can be caused if there's a vibration on a tyre or if a car

but before it was introduced drivers often hit their head on the steering wheel, despite being strapped tightly into their seat. That's because our bodies are elastic and when a car hits a wall head on, the joints in every part of the body stretch by two or three millimetres – hence we're able to deal with lateral forces in a crash. If we were made of wood, there would be no give during an impact and it would be a big problem.

"The other issue with vertical force is the damage blood can do to your body. I've never experienced it in Formula 1, but I recall a time in Indycar racing when the banking was so steep that drivers were blacking out because the vertical force was taking blood away from their brains. The importance of blood flow and the heart is one of the most interesting areas of study and something I first started researching in 1989

## "Theoretically, if a driver can increase his heart rate throughout the

required in high-speed corners. So the athlete in an F1 car should be much like a boxer; strong but fast – but also fit like a cyclist. It's quite an unusual mix of different abilities.

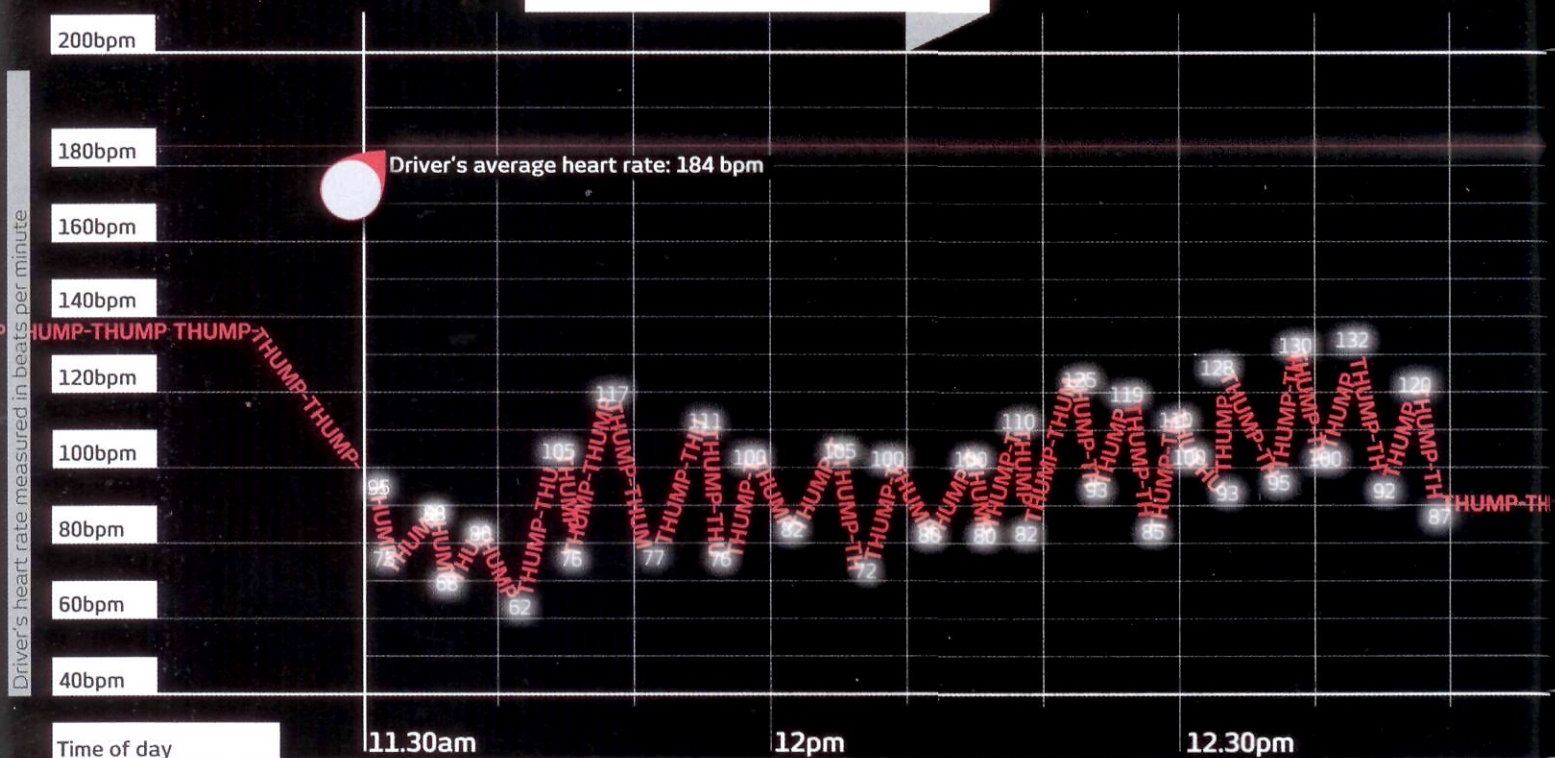
"Racers need to be lightweight to help set up and allow the engineers to move the weight ballast around, but not too thin either. At last year's Malaysian GP, Fernando Alonso was suffering because he had a bit of a fever. Then during the race, his drinks bottle broke so he wasn't able to take in any fluids. He was in a bad way and because he had lost weight, the lack of nutrition affected the fluid in his muscles, exacerbating the problem because he was too thin. In the past, people used to comment on how fit a driver was when he had muscles like

hits a bump regularly. Those vertical forces can cause movement among the abdominal organs and can even jolt the brain around. Lateral force can be a problem during an accident, when the G-force can be as high as 50G, even for a fraction of a second. That's because if the brain weighs 3kg, in a 50G accident, you multiply the force and it will suddenly weigh 150kg, which can damage the skull. Thankfully, the introduction of the Head And Neck Support (HANS) device has done so much to prevent injuries of that nature,

when I was able to place an electrocardiogram onto a driver and measure his heart rate to understand what was happening. Then, in the mid-'90s, we were able to synchronise a driver's heart rate with other parameters in the car and we could overlay the two sets of telemetry.

"The first thing you notice is that the heart rate will change many times during a lap and it has a different rate depending on whether the driver is racing along a straight or is taking a corner. This is because all the organs are not tightly stitched to the body – they move around and the heart can move position, so as the weight configuration changes, the muscle around the heart has to compensate for that. So in the corners we can detect an increase in the electrical

How a driver's heart rate changes during a GP





activity of the muscles and that is picked up by the electrocardiogram we've strapped to a driver.

"Then we noticed a very strange phenomenon. A driver's heart rate is close to 180bpm for an entire grand prix, but we did a test at Magny-Cours one year that showed that when he accelerated out of the slow Adelaide hairpin, his heart rate dropped to around 54bpm for the next five seconds. It then returned to 180 beats again. This happened at the same point of the track on every single lap and when I analysed the results and asked the driver if he'd noticed anything, he said no. So I was trying to understand why this was happening under acceleration and I spoke to cardiologists at various universities.

"We have two nervous systems – voluntary and involuntary – and there are various functions that the involuntary one is divided


car. So at the next race I suggested that he run up and down on the spot behind the pits and get his heart rate up, so that when this reaction occurred his heart rate didn't drop too low. And it worked.

"Heart rate changes at other points. When a driver knows he's going to pit, his heart rate increases by 15-20 beats per minute. This also happens when a driver is told to push: his pace increases by roughly 0.3secs a lap and his heart rate goes up by about 15bpm. Theoretically, if he can increase his heart rate throughout the race, he could improve by 20 seconds – it might be beyond the human limit, but that's the sort of targets we push for with training.

"Another phenomenon that surprised us during our study is a spike in heart rate you see

a driver is cocooned in overalls this doesn't happen. His arteries dilate to compensate for the heat, but once he gets out of a car and removes his overalls, his blood pressure drops. The sympathetic reaction of the body is to squeeze and pump the blood – hence this spike in heart rate. If this didn't happen, his blood pressure would be so low he would collapse.

"Some people are better at recovering than others and may need to sit down on the chairs ahead of the podium ceremony. You might think it's because they're not fit but that's not so: they're just reacting to the blood pumping round their bodies again. Think of how you feel when you get out of a sauna: you suddenly feel better when you have a shower. It's the same response.

"We continue to do a lot of research at Formula Medicine to understand exactly what a driver is undergoing, and the more that we understand, the more we can improve performance – ultimately it's the goal that everyone wants to achieve." 

## race, he could improve by 20 seconds"

into. One part regulates sweat and breathing and another controls the body when it's at rest. It is the latter part that is stimulated when a driver comes out of that corner and we see his heart rate drop. We think that the acceleration force might accidentally trigger an electrical response in his body that brings about this reaction.

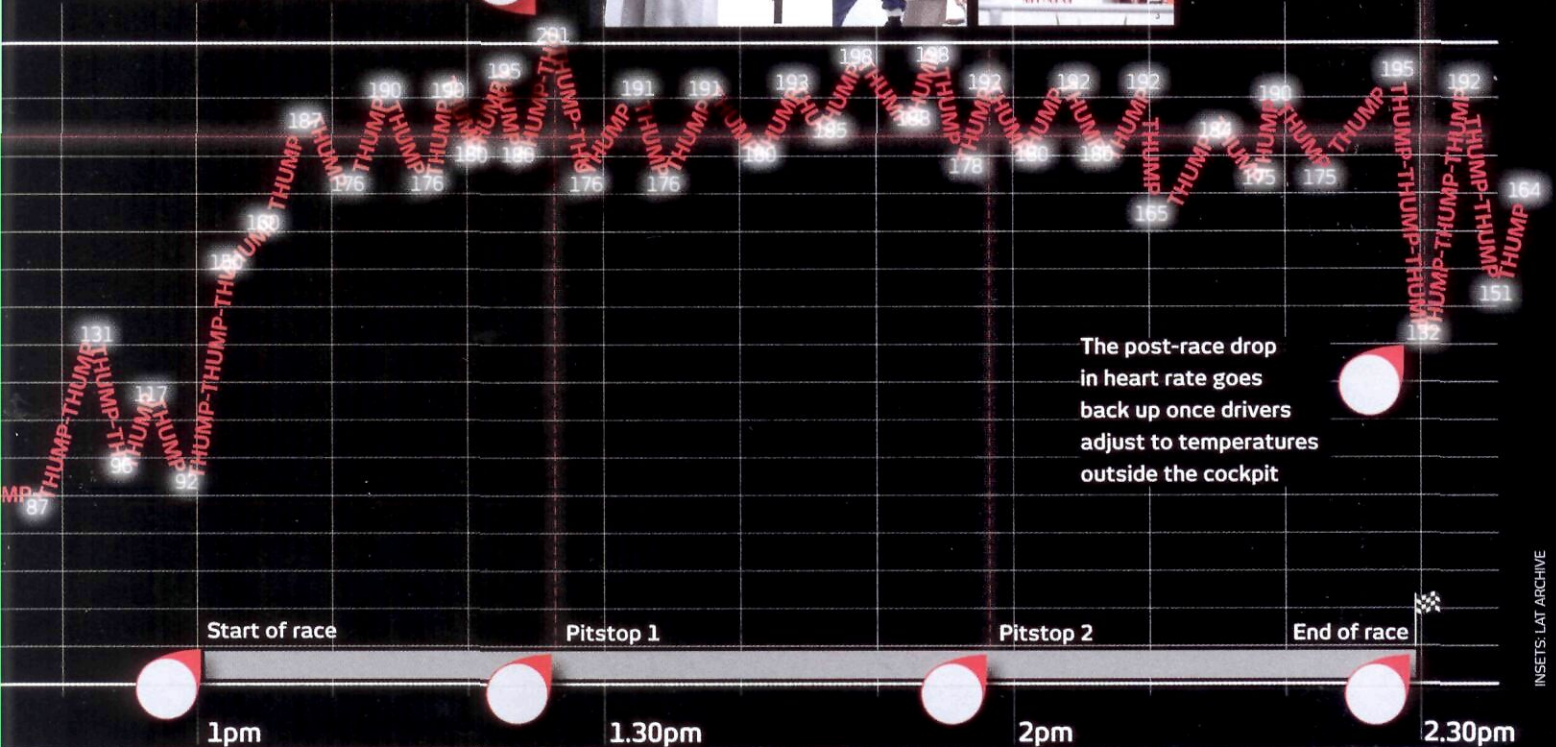
"This is significant because drivers need to be aware of this problem before they get into a car. Once in GT racing, a driver jumped in to replace his team-mate and from a standing start he said that he began to feel dizzy and nauseous in the

after a race [see graph]. When a driver comes into *parc fermé*, his heart rate drops from 180bpm to a normal level and then after a few minutes suddenly shoots back up to 180bpm again. At first we couldn't understand why. During a grand prix, the temperatures are so hot that it causes the temperature of the blood to rise. Under normal circumstances, sweat will reduce the blood temperature, but because

Once a driver gets out of a car his blood pressure will suddenly drop – which often means he needs to sit down until it returns to normal




Driver's highest heart rate: 201bpm



The post-race drop in heart rate goes back up once drivers adjust to temperatures outside the cockpit





# DO NOT DISTURB

Jenson Button is getting over his jet lag. Between Monza and Abu Dhabi he'll live out of hotels, **spending only four days at home**

WORDS TOM CLARKSON PORTRAITS LORENZO BELLANCA/LAT

**S**ixty-three days separate the Italian GP on 12 September and the season-closing race at Abu Dhabi on 14 November. And for most of that time, Jenson Button will live in hotel rooms like this.

The incessant travel sounds exhausting, and he doesn't try to hide his nonchalance about our photoshoot, but don't feel too sorry for the reigning world champion. He might only be spending four days back at home in Guernsey over the coming months, but staying in some of the best hotels in the world isn't such a hardship... particularly when you have first dibs on the penthouse suite.

"They might be comfortable," says Jenson, "but that doesn't make them home. The reason I choose to stay in my motorhome at the European races is because it literally is my motorised home; I have my own bed in there and all my favourite things around me. That's not the case when I'm in a hotel – then there's no getting away from the fact that I'm on the road. It's a different experience altogether."









This is the not-unappealing view from on top of the Singapore Conrad, which is Jenson's home for now



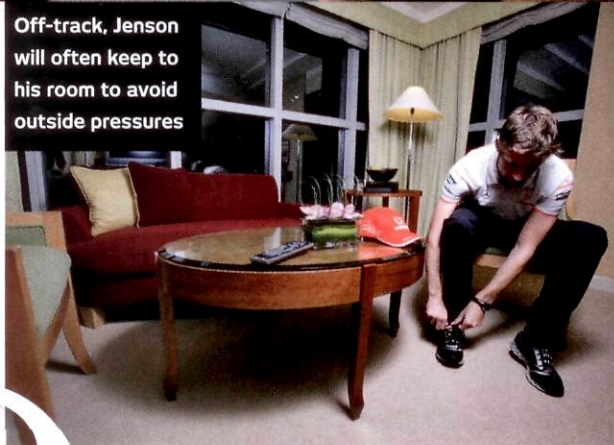
Jenson isn't the only one with a packed schedule. Five flyaway races end the season, and drivers are jetting all over the place. After Singapore, Lewis Hamilton went to a PR event in Berlin; Mark Webber flew to Melbourne; and Rubens Barrichello returned home to São Paulo. All had to reconvene at Suzuka a few days later.

Jenson flew to the UK after Singapore to spend a day on the simulator at the McLaren Technology Centre, before flying to Paris Fashion Week for a couple of days and then out to Tokyo the weekend before the Japanese GP. At no point did he touch down in Guernsey; his nights were spent in aeroplanes and hotels.

We caught up with Jenson in his suite at the Conrad Centennial Hotel at the Singapore Grand Prix weekend. It's within walking distance of the Marina Bay circuit and it's plush. He has a sitting room with a library and a huge flat-screen television; there's a king-sized bed and another TV in the bedroom, and a bathroom with a bath deep enough to swim in and a shower that fires water from all angles.

At the end of the bed is Jenson's suitcase. It's open, but still packed. He says he doesn't unpack when he's on the road; he grabs clothes – black trousers and a team shirt –

Off-track, Jenson will often keep to his room to avoid outside pressures



Curtains are stuck down with Velcro to keep Jenson on European time



**"I miss being at home and sleeping with a window open. At these big hotels, you have to listen to the air-con"**



from his bag as and when he needs them. His wash bag sits unpacked by the sink in the bathroom as well, except for a bottle of Head & Shoulders that he's left in the shower. It's true: he actually uses the stuff.

And that's it. There's no more evidence that Jenson has taken up residence. No magazines, no iPad, no books. McLaren's PR team have placed a set of overalls on the bed for the photoshoot, but these are normally kept at the racetrack.

The 2009 champion shares a few snippets with us, such as the revelation that he uses a single pillow at night and relies on his mobile phone as an alarm clock. But neither of those facts scream 'racing driver' any more than the rubber duck in the bathroom.

A few details point to his involvement in the Singapore GP, such as the blinds being stuck down with Velcro to ensure no light creeps in while he's on European time and a security guard standing by the lift to ensure his privacy. On the bedside table is a note stating that the restaurant, gym and swimming pool will remain open all night, should Jenson wish to use them when he gets back from the track.

The presence of a security guard might sound excessive, but all 507 rooms in the hotel are full during the grand prix week and,



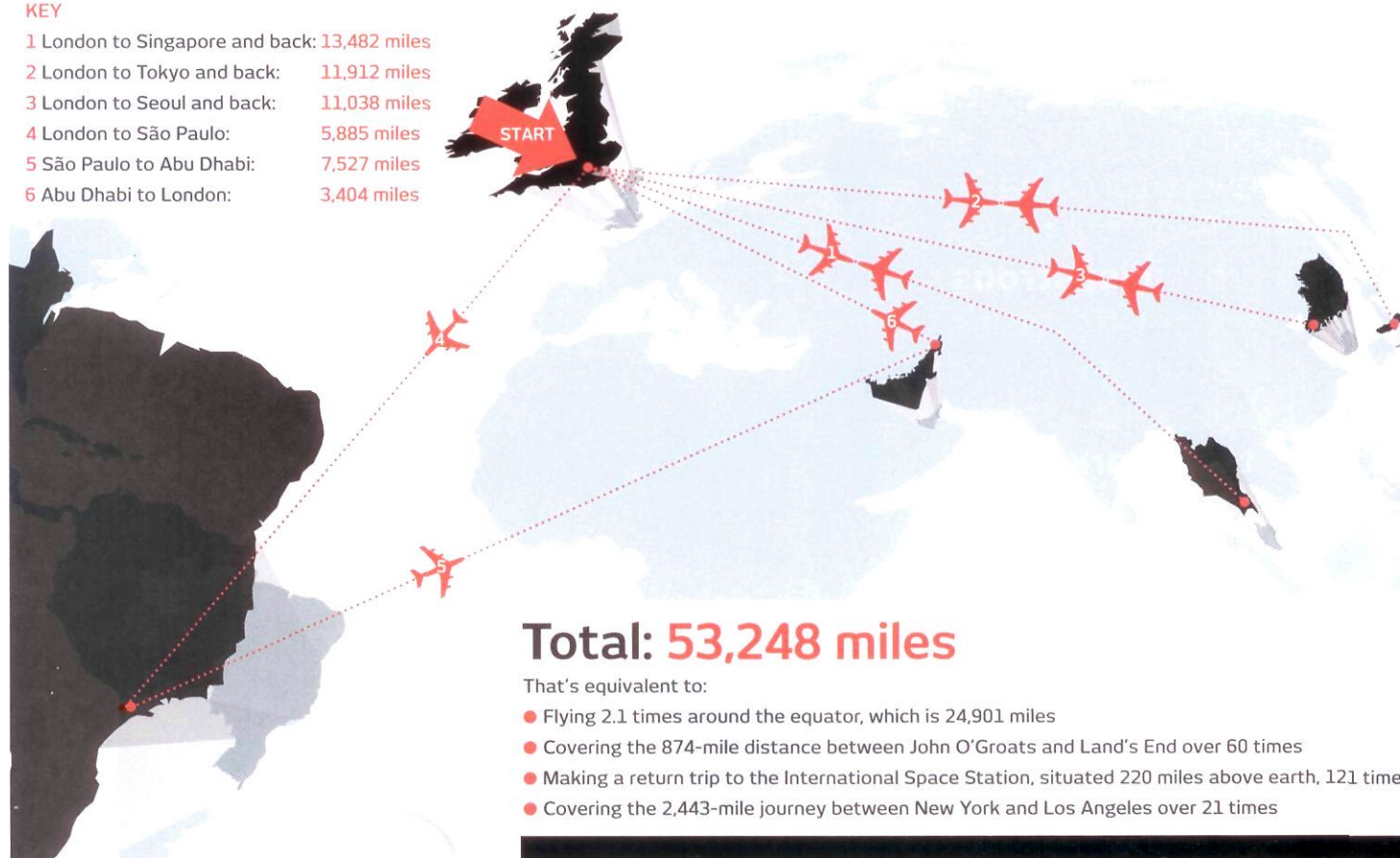


# "I'M GLAD I'VE GOT AIR MILES"

The staggering distances flown by F1 drivers for the final five races of 2010

## KEY

- 1 London to Singapore and back: 13,482 miles
- 2 London to Tokyo and back: 11,912 miles
- 3 London to Seoul and back: 11,038 miles
- 4 London to São Paulo: 5,885 miles
- 5 São Paulo to Abu Dhabi: 7,527 miles
- 6 Abu Dhabi to London: 3,404 miles



judging by the throng of fans waiting for Jenson and Lewis (who's in the adjacent room), no security measures are too extreme.

"When I arrived at the hotel for the first time it was manic," says Jenson. "There was a crowd of people waiting to greet me in the lobby; there was a camera crew and various photographers. It's great that the people in Singapore are enthusiastic about F1, but it was too much.

"We keep funny hours at this race, so the fans aren't there waiting for us when we get back at 3am. When you have this level of attention, you can feel trapped and, as a result, spend longer than you might want in your room because it's easier."

If life on the road isn't a bed of roses, flowers are important. Jenson likes fresh flowers in his suite and he's become obsessive about the details in a hotel room as he's got older.

"I've stayed in plenty of bad hotels over the years," he says, "and I try and avoid them now.

**"If I owned a hotel, I'd make sure everything was perfect. Fresh flowers, fresh fruit, the position of the TV..."**



I don't need anything too smart, just clean. If I owned a hotel, I'd make sure everything was perfect. The rooms would all be clean and the air conditioning would work properly, but what makes people want to come back are the details. Fresh flowers, fresh fruit, the position of the TV and the layout of the bathroom are all important."

Jenson's critical eye isn't unusual in F1. The people who travel to every race spend so much time in hotels that they become experts, and many are hoteliers. David

Coulthard owned a hotel in Monaco, Red Bull adviser Helmut Marko has a couple in Graz, and Bernie Ecclestone famously goes around straightening the towels in the loos of his Hotel Olden in Gstaad.

Jenson's needs are more than catered for in Singapore, but that shouldn't come as a surprise because the Conrad is owned by the Hilton Worldwide Group, who have been

sponsors of McLaren since 2005. It's in their mutual interests to make Jenson's stay a nice one. Ditto Lewis Hamilton.

That isn't the case at all of the remaining races. The Suzuka Circuit Hotel, for example, is pretty basic, but all the drivers stay there because there are few other nearby options. And it's a whole lot better than Korea where there are no big hotels within commuting distance of the Yeongam racetrack.

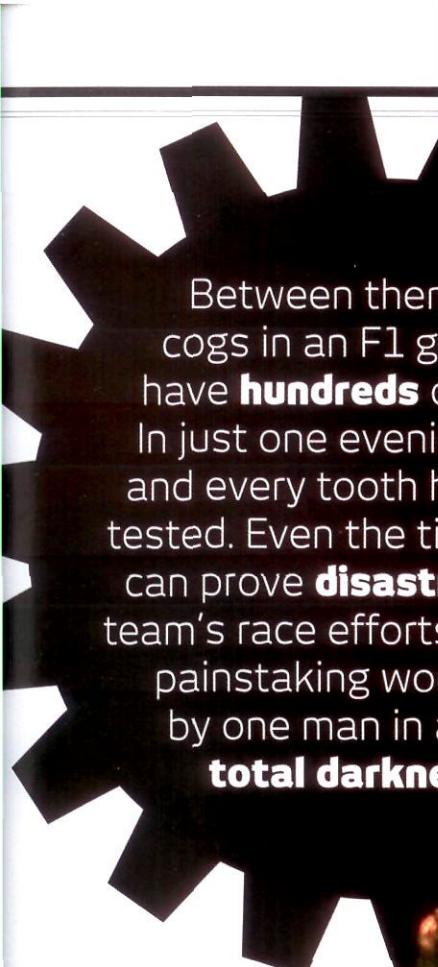
"On the whole," says Jenson, "hotels at the flyaway races are better than in Europe. Suzuka is an exception, but it's clean and I love the circuit so much that I'll forgive the hotel its imperfections!"

Jenson will be back in a Conrad for the Brazilian GP in São Paulo, before ending the year in Abu Dhabi's Hilton. He's not slumming it, but he'll be dying for a night at home by the end of the season.

"What I miss most about being at home is being able to open the window," says Jenson. I always like to sleep with the window open and you just can't do that in these big hotels. You have to listen to the buzz of the air conditioning instead. Damn it."



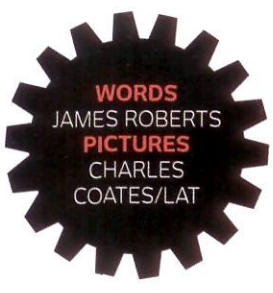




Between them, the  
cogs in an F1 gearbox  
have **hundreds** of teeth.  
In just one evening, each  
and every tooth has to be  
tested. Even the tiniest flaw  
can prove **disastrous** to a  
team's race efforts. It's slow,  
painstaking work done  
by one man in almost  
**total darkness...**



Welcome  
to the  
**twilight  
zone**



**WORDS**  
JAMES ROBERTS  
**PICTURES**  
CHARLES  
COATES/LAT



# S

tep inside the front of the Lotus truck late on a Friday night in the F1 paddock, and you'll find one of the darkest places in the pitlane. This bleak, black room has been converted into a laboratory, and the work carried out here will determine whether the team's car will finish the race or not. It's incredible to think that after all the man hours and investment that go into getting two Formula 1 cars to every grand prix, the fate of Jarno Trulli or Heikki Kovalainen on a Sunday afternoon could all be decided by the intricate work that's carried out by one man, in the dark.



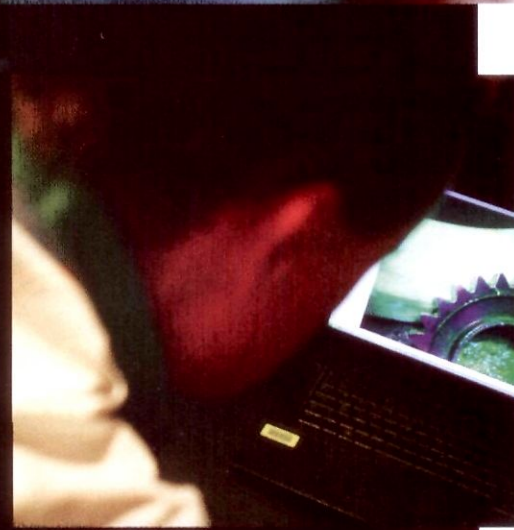
Screws from the nose are soaked in what looks like liquid Kryptonite to reveal hidden flaws

**WITH THREE DESK** fans to keep him cool while he's cooped up in his darkened room, Andy Houston is busy with his expensive laboratory equipment. His job title at Lotus is 'NDT operator' and, just like a cog in a wheel, his role is small but crucial. NDT stands for 'non-destructive testing' and it involves detailed investigation work on a variety of key components of the car.

"Put simply," says Houston, "my job is to look for faults you wouldn't normally see with the naked eye." After Friday practice, Lotus, like every other team in the pitlane, dismantle their chassis and go through its parts with a fine-tooth comb. The wings, wheels, floor, engine and gearbox are all removed, the fitting and finer components are checked – and then everything is put back together again.

*F1 Racing* pops into see Houston early Friday evening and, just as he's explaining his role, a colleague arrives with a tray load of gear cogs that have been taken out of the back of Jarno Trulli's gearbox and are ready for non-destructive testing. Houston picks up one of the dog rings and explains the methods used to detect whether it's faulty or not. "Looking at this cog alone, you wouldn't think there was anything wrong with it, but actually we have a process that can detect the slightest crack in the teeth of a cog. If that goes undetected, the cog will snap off in the gearbox and destroy the car."

Inside the dark room, on a workbench, is a green ring. This is a 3,000 amp magnetic coil that magnetises ferrous metals. Each cog is sprayed with a fluorescent magnetic particle dye that soaks into any cracks on the gearbox component. Under an ultraviolet light, the luminous green ink instantly reveals where





any potential flaw or crack lies in the gear cog. This Friday evening, Houston will have to check over three gearboxes' worth of ratios, which is 42 separate cogs in total. If they are all fine, they will be returned to the car. If any of them are damaged, they are returned to Lotus's supplier, Xtrac.

Sitting next to the magnetic coil on the counter is a little transparent plastic cup filled with luminous magnetic particle fluid. In it are half a dozen screws, which Houston is about to check. "These are the pins that hold the front nose on the car, so they are obviously very important and bear a lot of weight. The slightest fracture could be critical, so they have to be checked rigorously under ultraviolet light for any cracks – although in the business we don't call them cracks, they are known as 'indications'. This is because they could be anything from a fault in the manufacturing process to a stress item. Although what is clear is that the bigger the indication, the bigger the crack."

So far this weekend, the portable lab has already tested 160 components, mostly parts that were used at the last race and are being checked ahead of this weekend. In theory, anything on the car can be tested: rear wings, front wings, the brackets holding the brake pedal, the gearbox casing, the spline drive from the gearbox, the whole diff assembly, pinions, uprights on the suspension, steering columns, and steering arms. But those items that can't be magnetised, such as the carbon fibre front wing, can't be subjected to the luminous green magnetic dye test. In instances such as this, another expensive contraption inside the portable laboratory is used. Look around, and on another workbench is a £30,000 ultrasound machine that works in a very similar way to those found on maternity wards.


**If a slight crack in the cog's teeth goes undetected, it can snap off and destroy the car**

The probe is smothered in gel to keep it airtight and is then run over the front wing. With each motion, the probe emits 64 ultrasonic pulses, which are bounced into the wing and reflected back to form a neat image on a screen. The moment an air bubble or delamination is detected, the image is distorted and the fault becomes apparent.

A smaller and more simplified version of the ultrasound machine is the eddy current probe, which also forms part of Lotus's NDT kit. The theory behind this device is similar, but instead of emitting an ultrasound pulse, the £150 probe sends out an electrical current that seeks out flaws in metal, typically aluminium and titanium. "This tool is predominately used in aircraft investigations when they are looking for fractures that have led to a crash," Houston explains.

The final tool is a more familiar-looking device: it's an endoscope – a video camera on the end of long snaking wire. This is useful if a car has had an accident and the team want to check that nothing has been damaged in hard-to-reach places. For example, it can be inserted up the steering column and into the gearbox or engine. In addition, sideways lenses and magnifying lenses are all available as attachments.

"Nearly 90 per cent of all NDT testing is portable; it is used on aircrafts, pipelines and oil rigs," adds Houston. "We do some testing at the factory but because it's portable, we've set up this area in the front of the Lotus truck."

By using the four types of NDT testing, Lotus ensure that no part of the car is left unchecked. Every component is examined in this small room, in minute detail. It's all part of the rigorous procedures that define F1. Nothing is left to chance. The hours spent in this dark room every racing weekend is testament to that. 

**Ultrasound, probes and endoscopes are all used to seek out tiny cracks and flaws**





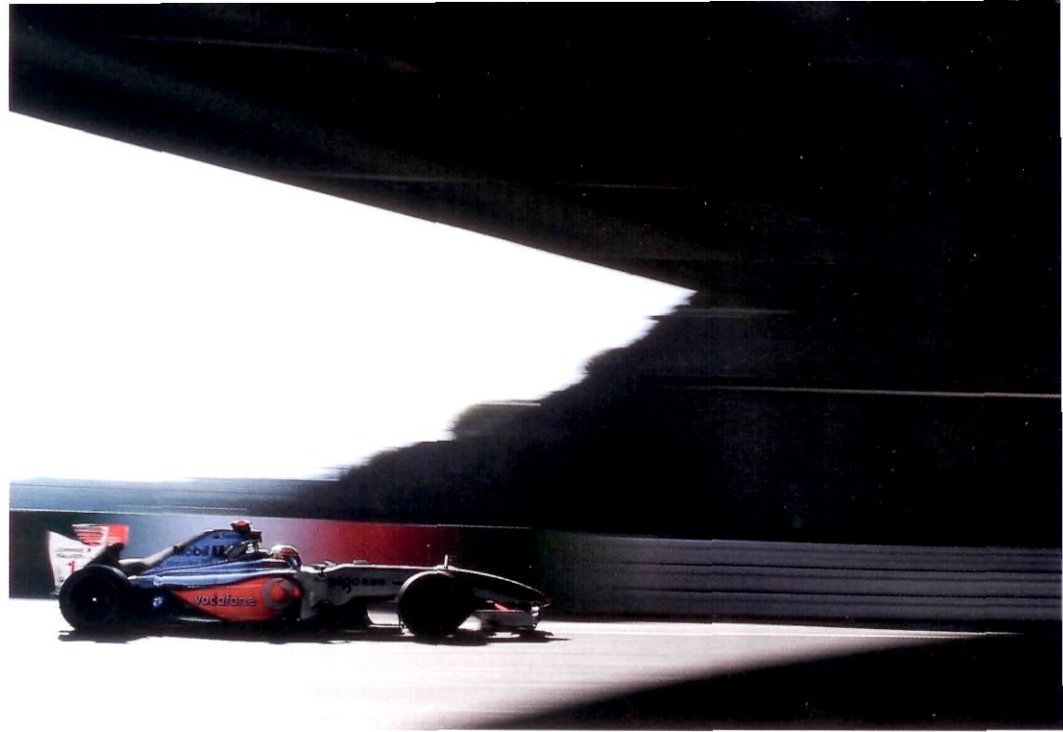


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# “You don’t have a favourite corner at Suzuka,” says Rubens Barrichello. “You love it all.” *F1 Racing* pays homage to a classic track and asks: is it F1’s best?

WORDS  
TOM CLARKSON

**Rubens Barrichello** isn’t alone in his love of Suzuka; its undulating sweeps and unique figure-of-eight layout combine to make it the most challenging 3.2 miles of asphalt anywhere in the world. When asked to describe the circuit with a single word, drivers use adjectives such as ‘awesome’, ‘fast’ and ‘brilliant’, and many have driven their greatest races at this track. We never saw a better performance from Ayrton Senna than his drive from the back in 1988; ditto Damon Hill in the wet in 1994 and Kimi Räikkönen in 2005. All three enjoyed their day of days in Japan and others will surely follow.

“It’s the best track I’ve driven,” says Lewis Hamilton. “I love the way it flows and it has so many fast, challenging corners. Last year I felt overwhelmed to be there and to race on a track where so many greats have driven. It was an amazing experience and I can’t wait to go back.”

Up until 2009, 15 of the 21 grands prix that have been staged here have been won by world champions and that figure reads as 16 if you also include Senna’s controversial 1989 victory. He crossed the finish line first, but was later disqualified for cutting the chicane after a mid-race collision with Alain Prost.



PHOTOS: CHARLES COATES/LAT; LAT ARCHIVE; MARK THOMPSON/GETTY IMAGES; CLIVE MASON/GETTY IMAGES; VLADIMIR RYS/BONGARTS/GETTY IMAGES; GETTY IMAGES



## JAPAN'S FAILURE IN F1

Japan has arguably the best racetrack in the world – but a less than enviable record when it comes to other aspects of F1

No Japanese driver, for example, has ever finished any higher than third in a grand prix – and since 1967, the country's only victory as a constructor came when Jenson Button won for Honda at the 2006 Hungarian Grand Prix. Japan's best drivers have never left home. Kazuyoshi Hoshino is reckoned to be the greatest Japanese driver ever; he won the Japanese Formula 3000 when Eddie Irvine and Heinz-Harald Frentzen were contesting the series, but he couldn't be lured to Europe.

Honda enjoyed success as an engine supplier in the late 1980s and early 1990s, but never rediscovered that form after the late '90s, when they tended to meddle with their European-based F1 programme from afar. Toyota did the same and never managed a win, despite spending hundreds of millions of dollars.

Had Honda not bailed out of F1 in 2008, they would have re-discovered their winning ways as a constructor in 2009. They left the Brackley-based team to run the show and that group of people produced one of the best cars in Formula 1 history. The only problem was, it was called a Brawn.

So very nearly a Japanese success story...



Alessandro Nannini inherited Senna's win in 1989 and Gerhard Berger, Riccardo Patrese, Barrichello and Sebastian Vettel are the only other victors at the track. They have nearly 30 GP wins between them and are great drivers.

"Suzuka is a fantastic track," says F1 track designer Hermann Tilke. "It has some fast and challenging corners that test the drivers and cars, but what makes it so special is the topography. There are lots of undulations and it's possible to build a great racetrack when you have hills."

That's where Suzuka's designer, John Hugenholtz, scored over Tilke. When the Dutchman was commissioned by Honda in 1962 to build a test track for the company, he was able to pick the ideal location. Tilke, on the other hand, doesn't get free rein; he often has to build circuits on unwanted land, such as a swamp in Shanghai and flat, reclaimed land in Korea.

The best way to appreciate the magnitude of the challenge presented by Suzuka is to let the drivers talk us through a lap. Aptly, it begins adjacent to an amusement park on a steep downhill slope. This presents a problem before the race has even started.

"To avoid rolling forward and jumping the start," says Mark Webber, "you keep your foot on the brake. That's another thing to think about when the lights go out as you have to release the clutch and the brake at the same time."

The cars accelerate quickly downhill and are flat-out through Turn 1 at 170mph, unless, of course, they crash into each other – like Senna and Prost in 1990. They then brake hard for Turn 2 and begin a long, five-corner climb through a section called the Esses. The minimum apex speed is 125mph, so car stability is vital.

"To be quick through here," says Fernando Alonso, "you need a car with a good front end. You're asking it to change direction very quickly and any understeer on an uphill section kills

the lap time because you don't recover the momentum until you reach the top."

A short straight follows before the cars are thrown into Degner Curves 1 and 2. These right-handers have high kerbs and drivers must be precise with their lines. Hit one too hard and you risk 'doing a Webber'. Mark bottomed out over a bump during practice last year and before he knew what had happened, he'd launched over a kerb and into the tyre wall on the outside.

"You approach Degner 1 over a slight crest," says Nico Rosberg, "which makes it difficult to see your apex. The inside kerb is very short and you have to hit it spot-on to be fast."

The cars then pass under the track to begin the anti-clockwise section of the lap. The next corner, the hairpin, is the slowest, but it doesn't break the rhythm of the lap because it isn't preceded by a long, Tilke-length straight. It's just another twist on the roller-coaster ride.

The cars are then flat through the next right-hander before coming to the Spoon Curve. It's a double-apex left-hander that tightens towards the exit and is followed by the longest straight on the lap, which takes the cars back to the pits.

"I really like Spoon," says Jenson Button. "You have to be very precise with your line and your braking. If you go into the second part too fast, you'll understeer wide and have to get out of the throttle, which will penalise you all the way to the chicane. It's a crucial corner on the lap."

The cars are back into seventh gear as they turn into 130R, the fastest corner on the lap. It was eased in 2003 for safety reasons, but drivers still have to be exact with their lines at 195mph. It's not an overtaking spot, unless your name's Fernando Alonso. He overtook Michael Schumacher around the outside of 130R in 2005 in one of the bravest moves of modern times.

"My battle with Michael is something that I will always remember," says Fernando. "It

## THE DECIDER

The championship has been won at Suzuka on ten occasions – including 1990 when Ayrton Senna shunted his main rival Alain Prost out of the race to take the title







## RACE OF CHAMPIONS

Every GP at Suzuka has been won by a world champion – the only exceptions being Gerhard Berger, Alessandro Nannini, Riccardo Patrese, Rubens Barrichello and Sebastian Vettel



“Drivers like Suzuka because it punishes mistakes”

*Kimi Räikkönen*

was a nervous moment, but I had more momentum than him and it came off.”

Had Michael and Fernando touched, F1 would have had a disaster on its hands. When Allan McNish got it wrong through 130R in 2002, he punched a hole in the Armco barrier on the outside. Luckily, he went in backwards and was able to walk away from the wreckage.

“We don’t want people to get hurt,” said Kimi Räikkönen on the eve of last year’s Japanese Grand Prix. “But one of the reasons drivers like Suzuka is because it punishes mistakes. It’s narrow and the gravel traps are near, which isn’t the case on the new tracks. This track rewards you if you stay on the limit and don’t go over it.”

The last combination of corners on the lap is the chicane. It’s a slightly incongruous right-left flick that offers the best overtaking opportunity, although it’s attracted controversy over the years. It was the scene of the infamous Senna-Prost collision in 1989 and also the place where Adrian Sutil tried to take everyone off in 2009.

But the chicane was part of Hugenholtz’s original plan for the track, which is yet another reason to celebrate this fabulous circuit. It remains almost the same as it’s always been.

“It really hasn’t changed much since Senna’s day,” says Barrichello. “They’ve eased 130R, but

the rest is as it was back then. I can watch an in-car lap with Ayrton and the feeling is the same as it is now; it’s fantastic.”

Senna used Honda power for six of his ten full seasons in F1 and he spent a lot of time at Suzuka. When he wasn’t racing at the track, he was testing for Honda; he did much of the development work on the V12 that McLaren raced in 1991 and ’92, and he had a lot of input into their NSX supercar. Type ‘Senna NSX’ into YouTube and you’ll get the picture.

This inextricable link between Senna and Suzuka enhances the track’s legend. The Brazilian experienced the highest and lowest points of his career at the circuit; he won two of his three world titles at Suzuka; he started from the front row five times and he took three brilliant victories, if you include the one that was taken away in 1989. But he also revealed the flaws in his genius at the track.

He shunted with archrival Prost on two occasions, once in a premeditated attack at the first corner (1990) that prompted Prost to claim: “The problem with Ayrton is that he thinks he can’t kill himself.” But fans loved Senna’s desire to win, and none more so than the Japanese fans.

They turned up in their thousands to watch him test a roadcar and the GP usually sold out a year in advance. His legacy continues to this day. You still see Brazilian flags emblazoned with his helmet in the grandstands; Nacional baseball hats are still sold from the merchandise stalls, as are T-shirts with the ‘Senninha’ caricature on them. It’s no surprise that Japan was the first country in the world to release a trailer for the new Senna movie, due out in the autumn.

The Japanese love Suzuka as much as they loved Ayrton Senna, and so do we. It’s the last true drivers’ track on the Formula 1 calendar and, let’s be honest here, we like the fact that it’s just a little bit dangerous. It sorts the men from the boys. 🏎️

## THREE REASONS WHY SUZUKA IS F1’S TOUGHEST DRIVER CHALLENGE

### 1 Degner 1 and 2



### 2 The Esses



### 3 130R







Tune Group

BRIDGESTONE

MAZA GROUP

LOTUS  
RACING

Malaysia

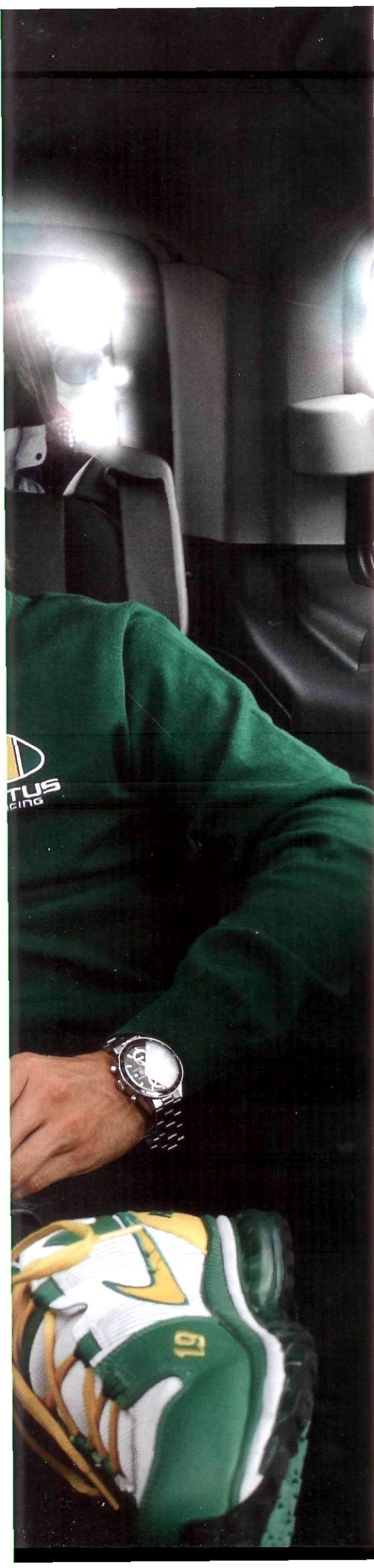
HACKETT  
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LOTUS

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# LIFE IN THE (NOT QUITE SO) FAST LANE

WORDS  
JAMES  
ROBERTS  
PICTURES  
LAT

These two drivers are more used to podiums. So can they bring the good times back to Lotus?

**As the late summer** sun shines through the windows of the Lotus motorhome, Jarno Trulli and Heikki Kovalainen seem relaxed. They've qualified 17th and 18th respectively at Monza, and are equal on head-to-head performances. This year's Lotus won't go much further than the ninth row of the field so, for these two, the aim now is to beat each other.

In truth, the T127 has never looked like threatening the sharp end of the grid, and Lotus have had to make do with being quickest of the three new teams. So this season has been difficult for Trulli and Kovalainen: both have spent the majority of their careers with front-running teams and both have won races. But sitting down with them at Monza, there is no hint of regret in racing for non-point-paying positions. The spirit at Lotus is high, and there's a genuine desire to take the team forward. And as you're about to discover, it seems as if the competitive urge is just as strong fighting for the ninth row as it is for the front...



**You've both previously driven for top teams, so how's this year been with Lotus?**

**Heikki Kovalainen:** It's pretty much as I expected. I knew we wouldn't be able to fight the established guys ahead of us, as we didn't have enough time to prepare the car prior to the start of the season. But we made it to Bahrain and we made it to the finish, which was a good first step.

**Jarno Trulli:** When we first signed up we knew about the problems and the hard work. In some ways we have exceeded in terms of results, but I'm a bit disappointed things haven't turned out better. I've had a lot of unreliability, but I'd prefer to have it this year, rather than next when we have a better car. I accept this as a transition season where we are building the team up.

**HK:** Reliability was worse than I was expecting at the start of the season but, to be honest, it's some of the suppliers who have let us down. This is the price we have to pay and, as Jarno said, this is a transition season. Lotus have adapted to F1 quickly; we just need time for the engineers and designers to work on next year's car.

**How much have you enjoyed working together as team-mates?**

**JT:** Well, before signing I knew there was a list of possible team-mates, and when Mike Gascoyne met me I said it wasn't down to me to choose, but that I'd rather have somebody good, than bad. It might sound stupid, but I've always thought that having a good team-mate helps you as otherwise you get lazy. If you've got someone pushing you, helping you with development, it raises the game for everyone.

**What's Heikki's strongest asset?**

**JT:** He's relaxed and open to talk to. He enjoys driving here and wants to show how good he can be and this helps the entire team. I definitely prefer him to some other drivers I've had...

**Heikki, what have you learnt from Jarno?**

**HK:** I know he's quick and strong and with the experience we both have we've pushed the team forward. We've both come from big teams so we know what we need to do to become successful. As Jarno is a quick driver, I know that if I don't

give 110 per cent on the track he'll be ahead of me, so it's an important motivator for me to push harder. If you have a strong team-mate, you can compare problems and work together to get the maximum out of the car.

**What would you say each other's best drive of the year was?**

**JT:** It's difficult to say – he has had some strong performances this year while I didn't shine very much... [laughs] Too many times this year I've had a problem during the weekend and it's difficult when you stop and have to start again. You lose your rhythm – especially now there is no testing and time in the car is so limited. And



The Lotus name inspires huge loyalty, which Heikki and Jarno hope to repay with next year's car

there were some times when I needed to look at Heikki's data because I was completely lost.

**HK:** Jarno is quick in qualifying and I think Hockenheim qualifying was his best – he found something I didn't have and the gap was big. And at Silverstone, especially with the problems I had in the race, he was very quick again.

**JT:** Even though it was Heikki's telemetry, as I had no data that weekend.

**HK:** Yeah, without any practice or qualifying, straight to the race – Jarno finished ahead of me comfortably. That was his strongest race.

**Have you been able to contribute to the performance of the T127?**

**JT:** This year, after only five races, we identified all the problems on the car. There is nothing more we can do with it, so the priority is to keep the other new guys behind us because the gap to the teams ahead of us is too big at the moment.

**HK:** The chassis design and efficiency is wrong and the aero package is not optimised. The balance is not the biggest problem, but if you look at our straightline speed and the grip, the fundamentals aren't right. It's unfair to judge as we haven't had time to build a proper car. Now we're preparing for next year and that will be the first time we can judge how good Lotus will be and how we'll perform against other teams.

**JT:** Next year, we'll have our own people working in our own windtunnel, so when we give feedback, the staff will be able to analyse and push things forward. For now, we're not pushing forward, we're trying to build up the team and not thinking too much about the performance.





**HK:** There's not much more we can do with this car. The focus is next year. We have to maximise the setup for every session and if someone has a problem in front, we attack as hard as we can.

**How difficult is it to keep pushing in a car that is not competitive?**

**HK:** You have to take the view that we won't be fighting for pole, but we can be the best of the new teams. And every race weekend, especially if there are difficult conditions, such as rain, we have to take our chance – that's what motivates me. And to see the team grow, as we're actually not so new any more.

**JT:** The motivation comes when you close your visor. You don't care about oversteering or the efficiency of the car – you just go for it.

**HK:** You have to maximise every moment.

**JT:** When you get out of the car and look at the lap times and see you're two seconds off – that's devastating. But it only happens when you get out of the car. Afterwards, you go back to the engineers and work to improve by one or two tenths, especially if your team-mate is ahead. There is motivation until the time you don't have the speed any more. Then it's time to...

**HK:** Do something else?

**But look at Michael Schumacher this year, he still loves driving...**

**JT:** We love driving, but the day I'm not up to speed any more is the day I leave the circuit forever. I have to realise that when it's time, and I mustn't be too stubborn just because I love driving the car. I can do plenty of other things – but I still love what I'm doing now. I don't want to look stupid; you can be slower and when the day comes that I'm off the pace, I'll want to quit.

**Jarno, are there any similarities with the year you spent with Minardi in 1997?**

**JT:** It's very similar – the only big difference is, back then, I had to learn about myself and

I was doing that in every single run, every lap, every race – it was vital. That's the thing that's changed. But the team structure and resources are very similar; the only difference is that Lotus today looks a lot better professionally.

**Do either of you see this season as a springboard to return to a top team again? How do you think team bosses judge your drives this year?**

**JT:** At the moment, I don't think they can look too much at our performance. For both of us, it's a way to prove we deserve a better chance. Heikki is younger than me, so has more chance than me to join a top team again. But from my position, I want the satisfaction of getting good results with some different resources. Ferrari, McLaren and Red Bull have huge resources, yet the other teams are able to get on a podium or close to a win. So I hope the same will be true for Lotus: it might take three to five years, it's difficult to say. I want to be there to score the

first point, the first podium, to give the team the first achievement every time. And then we'll see. I obviously wish to get back to a competitive car as this is what every driver needs.

**HK:** At the moment, the plan for me is to take Lotus to the top. I know other teams are watching and that is a very good situation. But, for now, I'm comfortable and motivated here. You have to make a decision whether you believe in this team or not, and if you do then you should stay. And I really do believe in this team.

**Jarno, did you warn Heikki about Mike Gascoyne before he joined?**

**JT:** He got to know him – but, you're right, Mike is not the sort of person who calms down easily. Sometimes he's very aggressive, but not because he wants to be bad – it's more the way he wants things to be done. He just wants you to deliver. He puts in a lot of effort, a lot of passion and he wants to see the same level from everyone else in the team.

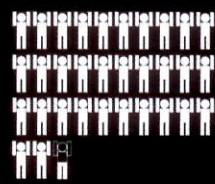
**WHAT A DIFFERENCE A YEAR CAN MAKE**

From third- and fifth-placed teams to back of the grid...

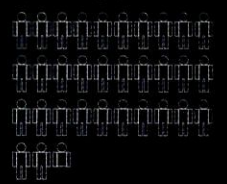


**JARNO TRULLI**

Points scored in 2009 with Toyota: 32.5



Points scored in 2010 up to Singapore: 0



"THERE IS NOT MUCH MORE WE CAN DO WITH THIS CAR... THE FOCUS IS ON NEXT YEAR"



**HEIKKI KOVALAINEN**

Points scored in 2009 with McLaren: 22

Points scored in 2010 up to Singapore: 0



**HK:** I've enjoyed working with him. He's a tough leader – he knows what he wants and he has experience and a clear direction. I'm happy to talk to him and if he's not happy then he talks to me. And I talk to him if I'm not happy...

**Does it feel special to drive for a prestigious name such as Lotus in F1?**

**JT:** We're lucky to drive for Lotus, because it is a big name. If we bring this team to a level they deserve, we'll be more than happy.

**HK:** I couldn't believe the Lotus Festival at Snetterton this year and the amount of Lotus fans: almost 20,000 people. It's a cool brand and the feeling in the team is good. Team boss Tony Fernandes looks like a man who drives a Lotus car, and his heart is fully in it. **F1**

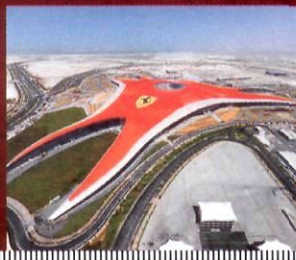




# The ultimate park and ride

With one of the biggest roof structures and the fastest roller coaster in the world, Ferrari World in Abu Dhabi is quite a spectacle. *F1 Racing* was first in line for a look around

WORDS JONATHAN REYNOLDS PICTURES ANDY TIPPING







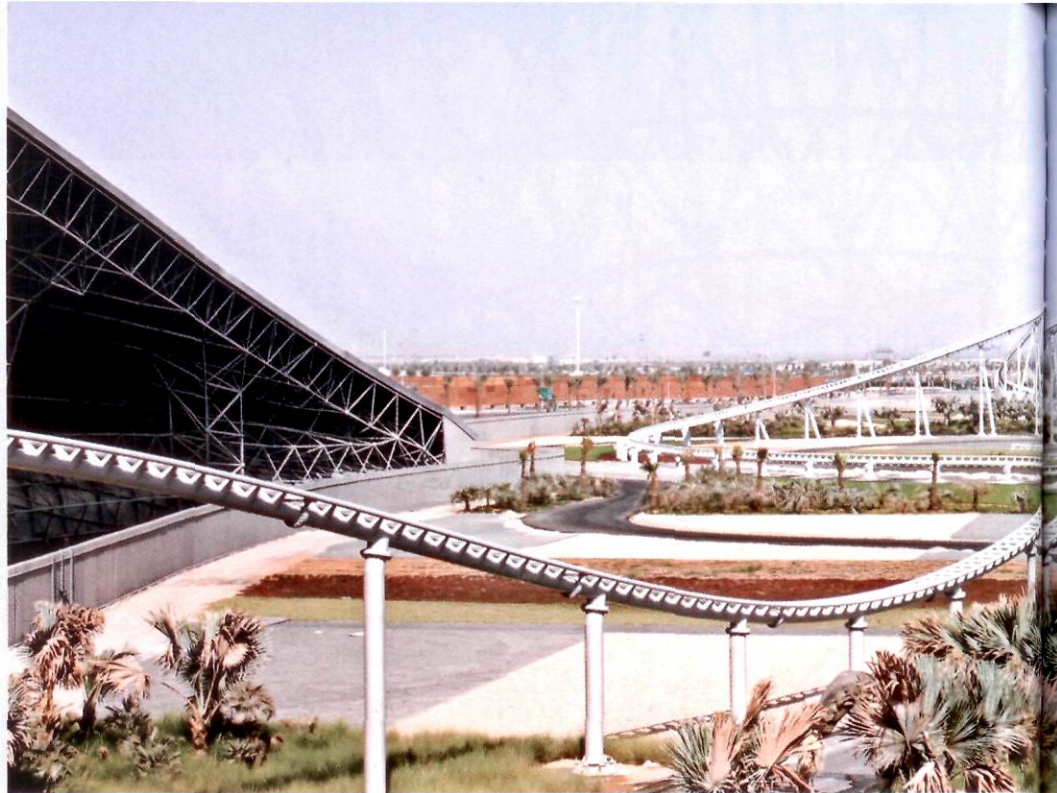


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himmering through a haze of heat, the gigantic red structure seemingly hovers on the horizon. Dominating the landscape for miles around, its radical appearance brings to mind an alien spacecraft. Metal tentacles spill from its body, twisting and turning in a dizzying sequence of curves. But this isn't science fiction: the building is Ferrari World Abu Dhabi, the world's first Formula 1 theme park, and the tentacles are the rails for its main attraction: the daunting 150mph Formula Rossa roller coaster.

Over 12,370 tonnes of steel were used to reinforce the gargantuan 200,000 square metre curved roof that gives the Ferrari World building its iconic look. Initial earthworks for the building, which is situated on Yas Island a stone's throw from the GP circuit, were started in November 2007, and it's now the largest indoor theme park in the world, topped by the largest Prancing Horse badge ever produced. Inside, in a space the size of ten full-size football pitches, the developers have packed in over 20 attractions including high-octane rides, interactive displays and classic cars all designed to celebrate the passion surrounding F1's most historic team.

What sets Ferrari World apart from other theme parks is a desire to ground every ride or exhibit in racing authenticity. Take for example the eye-catching ride at the hub of the building, G-force, which, as you might imagine, gives visitors a taste of the kind of G-forces F1 drivers experience. Housed within a large glass funnel that dominates the interior of the building, the ride fires passengers 62 metres skywards beyond the height of the roof generating some 4G in the process. "Normally this type of ride comes with



*"The essence of grand prix racing is to be the fastest so why would we not want to have the **quickest roller coaster?**"*

28 seats," explains Ferrari World park manager Andy Keeling. "We've reduced it to 24 seats so we could give each passenger a Ferrari race seat to make a further connection to racing."

The Formula Rossa roller coaster meanwhile has carriages that are styled like elongated F1 cars with front and rear wings and is finished in a paint supplied directly from Maranello, which adds to the authenticity of the experience. It accelerates at a similar rate to that of an F1

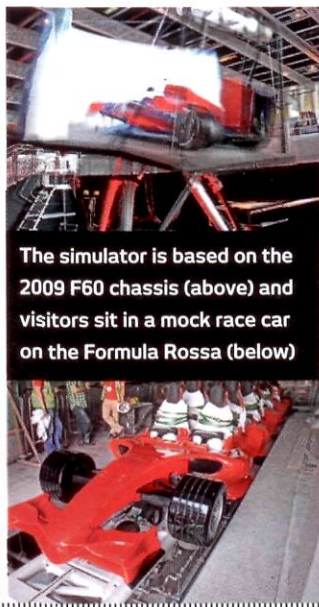
car, reaching 150mph from a standing start in a nerve-shredding 4.8 seconds. This is achieved via a hydraulic winch system of the sort used to launch jets from aircraft carriers, which generates a mind-blowing 20,800bhp. In fact the ride is so fast that riders will be required to wear protective glasses to shield their eyes from the windforce. When it opens on 27 October, Formula Rossa will become the fastest roller coaster in the world, an important milestone according to Keeling: "The essence of grand prix racing is to be the fastest so why would we not want to have the quickest roller coaster?"

Elsewhere, in an area branded Scuderia Challenge, visitors have the chance to drive the local circuit at the wheel of an F1 race simulator. Ferrari World has eight high-tech, full-motion simulators linked up for multiplayer action, but the real stars of the show are the two top-of-the-range driving simulators of the type that Fernando Alonso and Felipe Massa hone their skills on back in Maranello. These machines are of a calibre rarely available for public use and one is based around a 2009 F60 chassis complete with a multi-buttoned steering wheel. If you're not sensitive to motion sickness, then this one attraction may be worth the admission price alone. "There's only one step further on than driving the F60 simulator," smiles Keeling, "and that's to get out in a real car on circuit."

But attention to detail is not just restricted to the adrenaline-fuelled attractions. One of the most appealing areas of the park is the pitlane and paddock area, which has been authentically reproduced in the style of a European grand prix and features life-size Ferrari trucks, motorhomes and a pitwall gantry. Visitors will be allowed to explore previously off-limits areas like the F1 garage and can even take part in changing tyres



Ferrari World (red area) shown next to the Yas Marina circuit. Quite big, isn't it?



The simulator is based on the 2009 F60 chassis (above) and visitors sit in a mock race car on the Formula Rossa (below)





At 150mph, the Formula Rossa will be the fastest roller coaster in the world

## The amazing facts behind Ferrari World, Abu Dhabi

The Fiorano GT Challenge roller coaster, which features two Ferrari F430s 'racing' on parallel tracks, uses **16.7 miles** of control cables

The Formula Rossa roller coaster uses **1.2 miles** of track and reaches a top height of **52 metres**

There are over **four miles** of guttering used on the iconic roof

The gearbox for the Formula Rossa roller coaster weighs in at an almighty **70 tonnes** and the ride uses **44,000 litres** of hydraulic oil



No – it's not crazy golf. This is Ferrari World's junior GP driving experience, to get them started young

The **200,000m<sup>2</sup>** roof uses enough aluminium to cover **16,750 Ferraris**

Maximum spectator capacity for the venue will be over **9,000 people**

in a pitstop. "We chose the European paddock setup because a lot of our visitors from Asia will never have seen a paddock like this," explains Keeling. "Motorhomes and trucks are used only at European races, and this is a chance for them to be transported 3,500 miles. It's very authentic – all the tools and equipment in the garage have come straight from Ferrari so you'll be touching things that have been used by the team."

Dotted around the rest of the temperature-controlled facility you'll find a showroom of classic Ferrari cars; a cinema running films about the Scuderia's history; a junior GP driving experience that gives kids as young as three a first taste of racing; a water-based ride that takes you inside a Ferrari engine; souvenir shops; an Italian piazza; a four-dimensional ride that adds smells and atmospheric conditions such as wind to motion; and even a display showing how Ferrari's windtunnel works. It should be more than enough to entertain the thousands of visitors the park will draw.

The entire project is a graphic illustration of the enduring power of the Ferrari brand, which

dwarfs that of their on-track rivals, particularly in the Middle East. "Ferrari is a world renowned brand and it means everything to have them involved," says Ferrari World chairman Mohammed Al Mubarak. "We all grow up hoping to one day own a Ferrari and here, even if it's just for one day, you'll feel like you do."

The Italian marque are justifiably conscious of maintaining their revered image and have been heavily involved with constructors Aldar from the earliest stages of development, their influence shining through in the kind of small details that will delight the hardcore fans. For example, the restaurants at Ferrari World (Mamma Rossella, Cavallino and Il Podio) are all named after famous dining spots in or around the team's Maranello base.

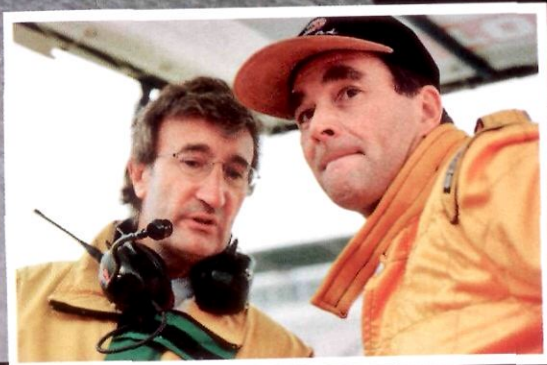
So expect Ferrari World Abu Dhabi to become another must-visit site for the *tifosi*, drawing fans from around the world, like the spiritual centres of Maranello and Monza. If you've ever passionately cheered on the Scuderia, the chances are that a pilgrimage to this theme park in the desert will be a journey you won't regret. **ⓐ**





# Way back when

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



THIS  
MONTH  
**14**  
YEARS  
AGO

## It really is all over now

With **31 race wins** and a world title on his CV, Nigel Mansell's Jordan-Peugeot test at Silverstone in November 1996 was big news. Was a comeback on the cards for the man whose F1 career had ended so unsatisfactorily at McLaren 18 months earlier? Although he showed some speed, the answer was, ultimately, no.



THIS  
MONTH  
**15**  
YEARS  
AGO

## Bye-bye Adelaide: Damon Hill dominates Down Under...

After ten glorious years hosting the Australian GP, Adelaide waved farewell to F1 in 1995 as the race switched to Melbourne. It had been one of the most popular events on the F1 calendar and the scene of a number of exciting showdowns, so it was no surprise when the final race drew a record crowd of 210,000 people. They watched a dominant Damon Hill lap the entire field twice in his Williams, a feat that had only been achieved in F1 once before, by Jackie Stewart in Spain in 1969. But the usual end-of-season parties were subdued, following Mika Häkkinen's life-threatening practice accident. Thankfully, the Finn made a full recovery.



THIS  
MONTH  
**32**  
YEARS  
AGO

## ...and dad Graham clinches second world title in Mexico

Although he was leading the championship going into the 1968 Mexican Grand Prix, Graham Hill's second title was by no means a foregone conclusion. Jackie Stewart (pictured here behind Hill) and pole-sitter Jo Siffert both had genuine chances but, in the end, Hill made light work of the task. He was ahead at the end of lap 1 and when Denny Hulme retired on lap 11 and Stewart suffered fuel-feed problems around the halfway point, Hill was able to coast to a comfortable win over Bruce McLaren.



# The only way is up

Vettel's Suzuka victory puts him joint second in the standings and closes the gap to Webber





MAIN: GLENN DUNN; LAT INSETS: PETER VAN EGMOND/LAT; STEVE ETHERINGTON/LAT; ANDREW FERRAROLI/LAT

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## SINGAPORE GP



## JAPANESE GP



## OPINION



## PREVIEWS



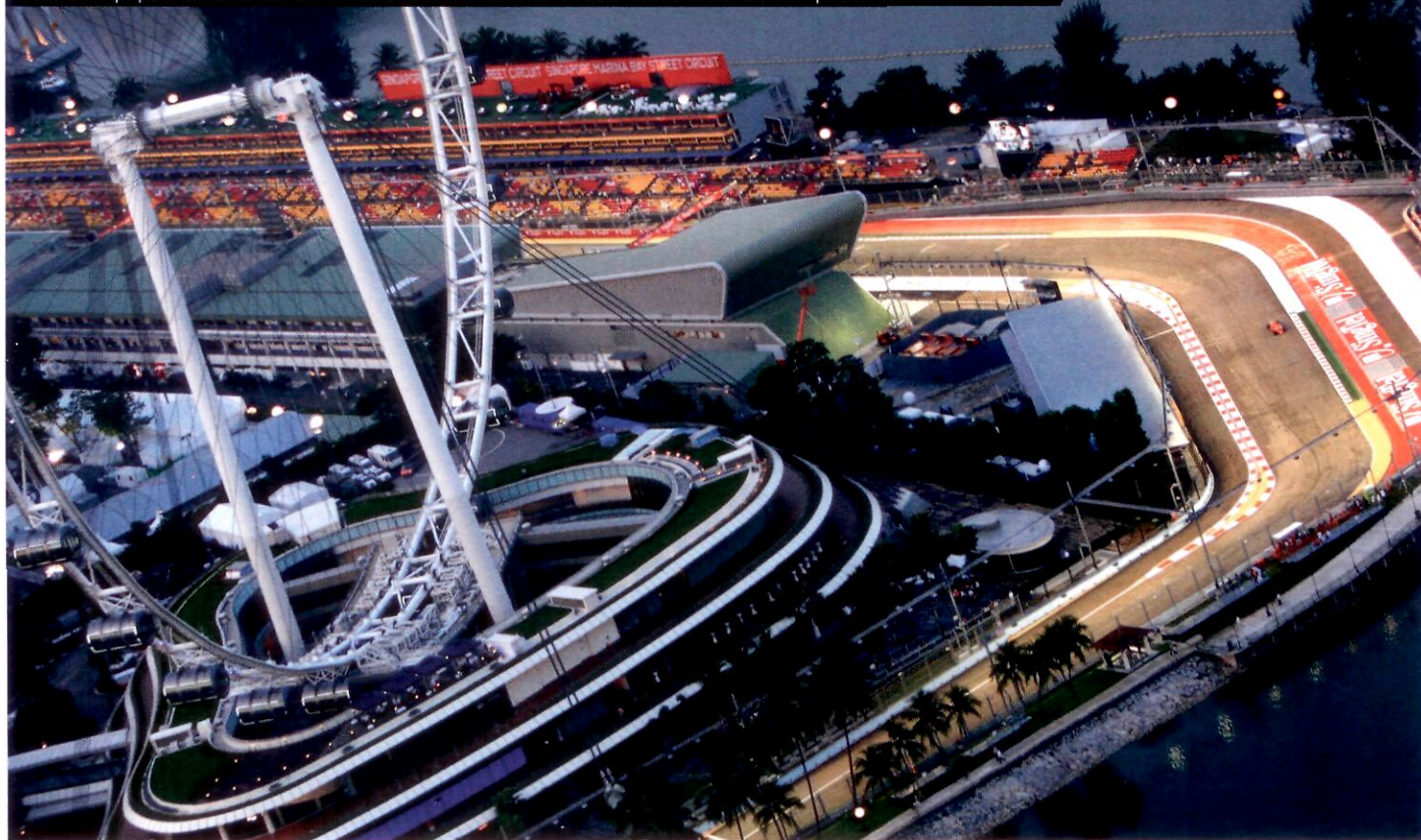


# RACE DEBRIEF by Pat Symonds

## The Singapore Grand Prix

26.09.2010 / Marina Bay

Alonso pips Vettel to win ...Lewis crashes out ...Heikki turns part-time fireman



## Too close for comfort

Alonso squeezes past Vettel to take the win by 0.3 seconds, Lewis crashes out following contact with Webber and with only four races to go, just 25 points separate the top five drivers...

Although it's only in its third year, the Singapore GP is rapidly becoming an unmissable event for many race fans. This year's attendance totalled 240,000 over the three days and, in addition to the spectacular nighttime setting of this floodlit race, each one of those spectators was treated to an exceptional exhibition on the track.

When it was first announced as a venue, many teams were concerned about the possibility of rain since Singapore is subject to severe tropical rainstorms. Prior to 2010, the fears were unrealised, but this year's afternoon rain, while not particularly heavy, left the track damp on Friday and Saturday. The new surface was holding the water, particularly at Turn 5, making tyre assessment more difficult than normal.

With high humidity, low winds and no sunlight to dry the track, the teams couldn't

carry out all their normal evaluations. In particular, the customary long runs on high fuel loads and soft tyres that are done at the end of second practice were yielding variable results. Those that ran early were seeing the effect of the improving track more than the degradation of the tyres. Still, Vettel did an ominous run of seven laps on high fuel with an average lap time of 1min 52.8secs and low tyre degradation. It was 0.6secs faster than Webber's. Unfortunately, an error by Alonso that left him in the escape road at Turn 18, hid his full potential.

In terms of tyres, the problem at Singapore, as at Monaco, is generally wear of the rears due to the large amount of traction required out of the slow corners. This means that even if the tyre performance degradation has been established over a few laps in practice, the tyre can still fall off a cliff-edge of grip very suddenly when the

wear becomes such that the tyre can no longer retain heat. Prior to the race it would have been hard to predict when this would occur as the wear measurements are difficult to establish unless a good number of laps are completed.

After some complaints in previous years about the circuit's bumpiness, the organisers had addressed this for 2010. There had been extensive resurfacing at Turn 5 and the approach to Turn 7, which made overtaking easier than

"This is a difficult circuit. It's easy to lose speed in any of the corners"



it had been in previous years as the cars were more able to use alternative lines in the braking areas. It also negated some of the advantage that teams like Renault had hoped to gain with their superior grip on uneven track surfaces.

Massa had a serious gearbox problem in Q1, leaving him stranded on the circuit before he could set a time. With the last grid position guaranteed for him, at least the penalties he incurred for the subsequent change of engine and gearbox had no practical effect. The change of engine was both precautionary and tactical in that, this being his ninth engine of the season; he should have suffered a ten-place grid drop. By making the change when he was already on the back row, Ferrari could bring the additional engine into play with no real consequence.

Thereafter, qualifying turned into a titanic battle between Alonso and Vettel. Both drivers were continually finding new limits from their machines with Vettel taking the advantage in Q2 and Alonso coming good when it really mattered in Q3, on a circuit that he loves.

For the drivers, Singapore is a difficult circuit to get right. It is so easy to make a small error and lose time in any one of the 16 real corners on the track. In qualifying, only Hamilton set

## The story of the race

▼ **Fernando Alonso, leads from pole as the grand prix gets under way**



## SINGAPORE



► **The Safety Car appears on lap 32, leaving Webber behind backmarker Di Grassi...**



► **...which brings an overtaking move on Webber by Hamilton. It fails to come off and Lewis crashes out**



► **Heikki's Lotus catches fire and, to avoid a pitlane accident, he puts it out himself on the start/finish straight**



▼ **Despite Vettel pushing him hard at the end, Alonso takes his fourth win of the year by a mere 0.3 seconds**



## View from the paddock

### The heat is on

Forget Malaysia, Bahrain and Abu Dhabi: the toughest race of the year for the drivers is Singapore. The mercury rarely drops below 35°C, even at night; the streets feel airless and the humidity is stifling.

Jenson, Lewis, Rubens, Robert and Nico wore cool-jackets on the grid, but they just delayed the inevitable. Halfway round the formation lap they were sweating – and then Lewis's drinks' bottle stopped working.

After two hours of hard racing, they dealt with their discomfort in different ways. Fernando Alonso downed a can of ice-cold coke before going on the podium, while Mark Webber had rigged up a paddling pool in his private room inside the Red Bull hospitality area and a ten-minute bath in chilled water quickly set him right.

Rubens Barrichello seemed more worried about his body odour than the heat. He burnt joss sticks throughout the weekend in his driver's room at Williams and came away smelling of roses after finishing sixth.

Spare a thought for the guys at Hispania: Christian Klien and Bruno Senna had nothing more than a wet towel with which to wipe themselves down.

**Tom Clarkson**

all his fastest sector times on his best lap. Had everyone managed it, Vettel would have stolen pole by nearly 0.2secs from Alonso and Webber would have displaced Button for a second-row start. Ifs and buts are, however, irrelevant and Vettel's brush with the wall at Turn 13 consigned him to P2. But this illustrates how close the top three teams are – less than half of a per cent of lap time separates them.

Once the race started, the Safety Car was out after just two laps due to Liuzzi stopping in a dangerous position following a suspension failure. The backmarkers duly pitted but, to most

people's surprise, so did Webber from fifth. It seemed an odd strategy but Red Bull's strategist, Phil Courtney, is a man for lateral thinking. His strategy for Vettel in Monza was brave but well thought out and this call let Webber leapfrog the McLarens for a podium finish.

The other architect of the strategy was Webber himself. His aggressive overtaking of Kobayashi and Schumacher let him take advantage of the McLarens' delayed stop and come out in front of the silver cars. The subsequent collision between him and Hamilton was, in my opinion, too close to call and I am pleased the stewards agreed.

MAIN: LORENZO BELLANCA/LAT; INSETS: ANDREW FERRARO/LAT; STEVE EATHERINGTON/LAT; CHARLES COATES/LAT; LORENZO BELLANCA/LAT



Talking of strategy, McLaren found to their cost the rapid loss of performance as their rear tyres wore down. It appeared they suffered more than others and, by lap 23, they had overstayed their welcome on the track. Unfortunately they were left with little room to manoeuvre. A pitstop can set you back around 28 seconds on the road, so Hamilton could not stop before lap 21 or he would have been behind the Kobayashi/Schumacher battle. His race with Webber was long gone. Similarly Button, some six seconds further back, was in a similar predicament.

While Red Bull made a great strategy call with Webber their call with Vettel was not so wise. Stopping on lap 29 he followed Alonso into the pits. The outcome was inevitable even without Vettel making the error of leaving the car in second gear and so fluffing his pit exit. As soon as he saw Alonso pit he should have stayed out – there was nothing to lose as there was already evidence that the harder tyres were not giving great first-lap performance. The third place car was well over 30 seconds behind him and presented no threat. Glock and Heidfeld were the only traffic in front and should have been easy to pass. The gap prior to the pitstop was 1.8 seconds so it was a lot to ask to close it down but it would certainly have been worth a try.



Lewis Hamilton was out of the race after a failed attempt at passing around the outside of Mark Webber

The second use of the Safety Car on lap 32 gave Hamilton the chance he had been looking for. As soon as it had gone, the battle recommenced. Unsettled by Glock and Di Grassi in front of him, Webber lost time at Turn 5 which left the tiniest opportunity for Hamilton going into Turn 7. The collision was almost inevitable and for the second race in a row Hamilton failed to score after contact while attempting to overtake. Webber carried on to claim a very lucky third place since post-race

inspection showed his right front tyre to be within an ace of coming off the rim.

At the race to the finish, Alonso and Vettel were each trying to force the other into an error. Alonso was a worthy winner but by just 0.3secs. Singapore showed that with the modern cars, overtaking is possible even on this type of circuit and while Hamilton is down, he's not out. The top five drivers are separated by just 25 points and with the cars more evenly matched than ever, the prospects remain mouth-watering. **F1**

## The GP you didn't see on TV

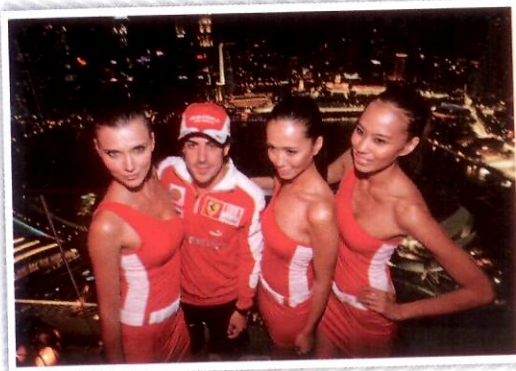
Taking you behind the scenes at Singapore as the weekend unfolded



In case anyone else missed the really important stuff, Ms Scherzinger was on hand to photograph her armpit



A hard day at the office for the McLaren boys. Whose turn is it to make the tea?



At the Ferrari party, Alonso couldn't wait to get rid of these women and get stuck into the Twiglets



Heidfeld: out of the race and oblivious to the looming danger of a flip-flop in the face



# Singapore Grand Prix stats

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

## THE GRID

 <b>2. VETTEL</b> RED BULL 1m45.457secs Q3	 <b>1. ALONSO</b> FERRARI 1m45.390secs Q3
 <b>4. BUTTON</b> McLAREN 1m45.944secs Q3	 <b>3. HAMILTON</b> McLAREN 1m45.571secs Q3
 <b>6. BARRICHELLO</b> WILLIAMS 1m46.236secs Q3	 <b>5. WEBBER</b> RED BULL 1m45.977secs Q3
 <b>8. KUBICA</b> RENAULT 1m46.593secs Q3	 <b>7. ROSBERG</b> MERCEDES 1m46.443secs Q3
 <b>10. KOBAYASHI</b> BMW SAUBER 1m47.884secs Q3	 <b>9. SCHUMACHER</b> MERCEDES 1m46.702secs Q3
 <b>12. PETROV</b> RENAULT 1m48.165secs Q2	 <b>11. ALGUERSUARI</b> TORO ROSSO 1m47.666secs Q2
 <b>14. HEIDFELD</b> BMW SAUBER 1m48.557secs Q2	 <b>13. BUEMI</b> TORO ROSSO 1m48.502secs Q2
 <b>16. LIUZZI</b> FORCE INDIA 1m48.961secs Q2	 <b>15. SUTIL</b> FORCE INDIA 1m48.899secs Q2
 <b>18. GLOCK</b> VIRGIN 1m50.721secs Q1	 <b>17. HÜLKENBERG*</b> WILLIAMS 1m47.674secs Q2
 <b>20. DI GRASSI</b> VIRGIN 1m51.107secs Q2	 <b>19. KOVALAINEN</b> LOTUS 1m50.915secs Q1
 <b>22. KLIENT</b> HISPANIA 1m52.946secs Q1	 <b>21. TRULLI</b> LOTUS 1m51.641secs Q1
 <b>24. MASSA**</b> FERRARI No time Q1	 <b>23. SENNA</b> HISPANIA 1m54.174secs Q1

## THE RACE



### THE RESULTS (61 LAPS)

1st	Fernando Alonso Ferrari	1h16m24.572s
2nd	Sebastian Vettel Red Bull	+0.293s
3rd	Mark Webber Red Bull	+29.141s
4th	Jenson Button McLaren	+30.384s
5th	Nico Rosberg Mercedes	+49.394s
6th	Rubens Barrichello Williams	+56.101s
7th	Robert Kubica Renault	+86.559s
8th	Felipe Massa Ferrari	+113.297s
9th	Adrian Sutil† Force India	+132.416s
10th	Nico Hülkenberg‡ Williams	+132.791s
11th	Vitaly Petrov Renault	+1 lap
12th	Jaime Alguersuari Toro Rosso	+1 lap
13th	Michael Schumacher Mercedes	+1 lap
14th	Sébastien Buemi Toro Rosso	+1 lap
15th	Lucas di Grassi Virgin	+2 laps
16th	Heikki Kovalainen Lotus	+3 laps/fire

### Retirements

Timo Glock Virgin 49 laps – hydraulics
Nick Heidfeld BMW Sauber 36 laps – accident damage
Lewis Hamilton McLaren 35 laps – accident damage
Christian Klien Hispania 31 laps – hydraulics
Kamui Kobayashi BMW Sauber 30 laps – accident
Bruno Senna Hispania 29 laps – accident damage
Jarno Trulli Lotus 27 laps – hydraulics
Vitantonio Liuzzi Force India 1 lap – accident damage

### THROUGH SPEED TRAP



**Fastest:** Robert Kubica, 181.76mph



**Slowest:** Heikki Kovalainen, 171.88mph

### TYRE COMPOUNDS USED



Super soft Medium Intermediate Wet

### CLIMATE



### TRACK TEMP



### FASTEST LAP

Fernando Alonso, lap 58, 1min 47.976secs



### FASTEST PITSTOP

Fernando Alonso, 30.236secs (entry to exit)

### DRIVERS' STANDINGS

1st	Mark Webber Red Bull	202pts
2nd	Fernando Alonso Ferrari	191pts
3rd	Lewis Hamilton McLaren	182pts
4th	Sebastian Vettel Red Bull	181pts
5th	Jenson Button McLaren	177pts
6th	Felipe Massa Ferrari	128pts
7th	Nico Rosberg Mercedes	122pts
8th	Robert Kubica Renault	114pts
9th	Adrian Sutil Force India	47pts
10th	Michael Schumacher Mercedes	46pts
11th	Rubens Barrichello Williams	39pts
12th	Kamui Kobayashi BMW Sauber	21pts
13th	Vitaly Petrov Renault	19pts
14th	Nico Hülkenberg Williams	17pts
15th	Vitantonio Liuzzi Force India	13pts
16th	Sébastien Buemi Toro Rosso	7pts
17th	Pedro de la Rosa BMW Sauber	6pts
18th	Jaime Alguersuari Toro Rosso	3pts
19th	Heikki Kovalainen Lotus	0pts
20th	Karun Chandhok Hispania	0pts
21st	Lucas di Grassi Virgin	0pts
22nd	Jarno Trulli Lotus	0pts
23rd	Bruno Senna Hispania	0pts
24th	Timo Glock Virgin	0pts
25th	Sakon Yamamoto Hispania	0pts
25th	Nick Heidfeld BMW Sauber	0pts
25th	Christian Klien Hispania	0pts

### CONSTRUCTORS' STANDINGS

1	Red Bull	383pts	9	Toro Rosso	10pts
2	McLaren	359pts	10	Lotus	0pts
3	Ferrari	319pts	11	Hispania	0pts
4	Mercedes	168pts	12	Virgin	0pts
5	Renault	133pts			
6	Force India	60pts			
7	Williams	56pts			
8	BMW Sauber	27pts			

\*Five-place grid penalty for replacement gearbox. \*\*Ten-place grid penalty for replacement engine and five-place grid penalty for replacement gearbox. †20s drive-through penalties added for leaving the track and gaining an advantage.



For comprehensive F1 statistics visit [www.forix.com](http://www.forix.com)



# RACE DEBRIEF by Pat Symonds

## The Japanese Grand Prix

10.10.2010 / Suzuka

Rain delays qualifying ...Vettel and Alonso joint second in standings



# So very nearly the hat trick

In a repeat of last year, Vettel takes pole and the win at Suzuka – but Webber's not letting him get away with that fastest lap...

Suzuka is not only a classic track with *more difficult corners than any other* circuit on the calendar, it is also gaining a reputation for springing weather-related surprises. In 2004 it was a typhoon that delayed qualifying – and this year it was torrential rain. It may seem ridiculous that the supposed epitome of automotive engineering, the F1 car, is incapable of running in such conditions, but it is worth considering what is going on in these extreme circumstances.

The Japanese weather service, which is generally very accurate, was showing that the rain over Suzuka peaked at around 80mm an hour on Saturday. Even with the typical ten-degree slope that crowns the flat parts of the track, engineers who study these sort of things will tell you that such conditions will lead to a water-film build up that is between four and five millimetres deep.

Now the physics of these things is such that *no matter what you do there is a finite limit* to how much water a tyre will displace before it rises up on the film of water. When it does, the tyre is said to be aquaplaning and all grip will be lost. Racers often talk about changes they make for the wet and these can make the car easier to drive and even increase grip in pre-aquaplaning conditions. What they will not do is alter the onset speed of aquaplaning.

The current Bridgestone wet tyre is capable of shifting 61 litres of water per second. That's equivalent to six buckets of water a second – a pretty impressive figure. Now, without getting bogged down by the maths, it can be shown that with a 5mm depth of water, that tyre will aquaplane at just over 90mph. By way of contrast, an intermediate tyre clears around 34 litres of water per second and that would aquaplane at as little as 51mph in these extreme

conditions. The pattern and depth of the tread can of course make a difference (which is why the intermediate tyre aquaplanes at a lower speed) but other than a small effect from altering tyre pressure, there is nothing that can be done with the car setup to make it driveable in the sort of conditions we saw in Suzuka. The only answer would be narrower tyres (which would play havoc with the aerodynamics) or a deeper and more aggressive tread pattern, which would make the car very hard to drive as the track dries.

While the circuit may be terrifying in the wet, it is still daunting in the dry. The wonderful sequence of corners from Turn 2 to Turn 7 require the type of precision more familiar to Aksel Lund Svindal, gold medal winner at the Super-G slalom at the 2010 Winter Olympics. Misplace the car by a few centimetres in any of those turns and the penalty multiplies in the subsequent corners. It's what makes Suzuka one of the few circuits where even top-level drivers benefit from the experience of racing there. Any world-class driver will get to within a per cent or so of their ultimate performance on most new tracks in a few laps. Not so at Suzuka, where old hands like Schumacher and those who served their racing apprenticeships in Japan show a distinct advantage.

Unfortunately, just as we see at Spa, the supreme performance of the current cars has tended to neuter some of the more spectacular corners. The infamous 130R corner is so named because its geometric radius used to be 130 metres, although it was modified some years ago to make it less severe. Of course, part of a driver's skill is to make the corners as large as possible by finding the racing line. On this corner it makes the true apex radius more like 195 metres, which means that as they reach around 190mph accelerating out of the previous corner the corner is easily flat. At this sort of speed the radius would need to drop to around 160 metres to make it a challenge.

One area that has produced a tricky test over the past few years is Degner, a corner taken at

*"This circuit is terrifying in the wet and daunting in the dry"*



around 165mph, which is immediately followed by a third-gear 140mph corner. A small mistake in the first part leads inevitably to a trip across the gravel in the second one.

It was here this year that Lewis Hamilton's season reached its nadir during first practice on Friday. The bumps on the entry to the first corner pushed him onto the exit kerb and from then on he was a passenger until the car eventually clipped the barriers. You didn't need to be an expert in body language to read how he felt as he folded his arms and stood motionless beside his wrecked car. The outcome of the incident was that he entered qualifying with just four timed laps under his belt, a fact that made his third fastest time in qualifying all the more impressive. His problems didn't end there, however, as a pre-qualifying gearbox change dropped him five places down the grid.

Second practice proceeded in a normal way although, considering Saturday's extremely wet weather was predicted with great certainty, it was surprising not to see more tyre work being done. What was done was not giving a clear picture of how the tyres may behave but equally the thorough washing of the track the following day probably negated the few lessons learned.

## View from the paddock

### Strain shows for Massa

As the cars streamed out of the garages for Q3 at Suzuka, one man sat forlornly towelling his face. Just as Felipe Massa thought life couldn't get any worse – it did.

He'd already been forced to put up with yet more gossip about his future at the team, with Stefano Domenicali having to deny he would be replaced for next season. But for a man with notoriously fragile confidence, Massa's failure to make it into Q3 was not going to improve his mental state any further. Comprehensively beaten by Fernando Alonso all season, he was half a second off the Spaniard in Q2 – it wasn't good enough. To make matters worse, his race lasted only a few hundred metres as he took out both himself and Tonio Liuzzi on the first corner. Like Saturday's washed out qualifying, it never rains... it pours.

So what now for Felipe Massa? The Formula 1 paddock is an unforgiving environment, question marks about his future will surely intensify and it will take careful management to keep him motivated. It is a real shame for someone who's a genuinely nice guy. Sadly, we know what happens to nice guys in top-level sport.

**Hans Seeberg**

## The story of the race

Lucas di Grassi ploughs into the barrier on the way to the grid and is out before the race begins



### SUZUKA



It's a messy start as Petrov takes off Hülkenberg, resulting in a five-place grid penalty at Korea



Kubica is out on the third lap as his wheel comes off under Safety Car conditions



Hamilton loses third gear, which makes it possible for Button to overtake him



Vettel manages to hold off Webber to take victory. Webber responds by cheekily taking the fastest lap



With third practice a non-event and qualifying delayed until Sunday morning, Saturday took on a surreal feeling. Mechanics eased the tension of waiting for the inevitable cancellation, by floating all manner of amphibious craft in the river that was flowing down the pitlane.

Ultimately, qualifying on Sunday morning played out in a familiar manner. Kubica produced another great result for Renault and Schumacher was no doubt relieved to make tenth. Williams once again got both cars in the top ten as they continued to challenge Renault and Mercedes for the honour of fourth fastest

chassis. Perhaps the most interesting aspect was Button's choice of hard tyres for his final run. He had professed himself more comfortable on them on Friday and felt he could steal an advantage in the race if his competitors' softer tyres went off after a few laps. Had he put fuel in for just one lap rather than the three he attempted to do it could have worked well as that lighter fuel load alone would, theoretically, have put him in third place on the grid.

The race saw the most untidy start we have seen for a long time and by the time the Safety Car was deployed at the end of the first lap



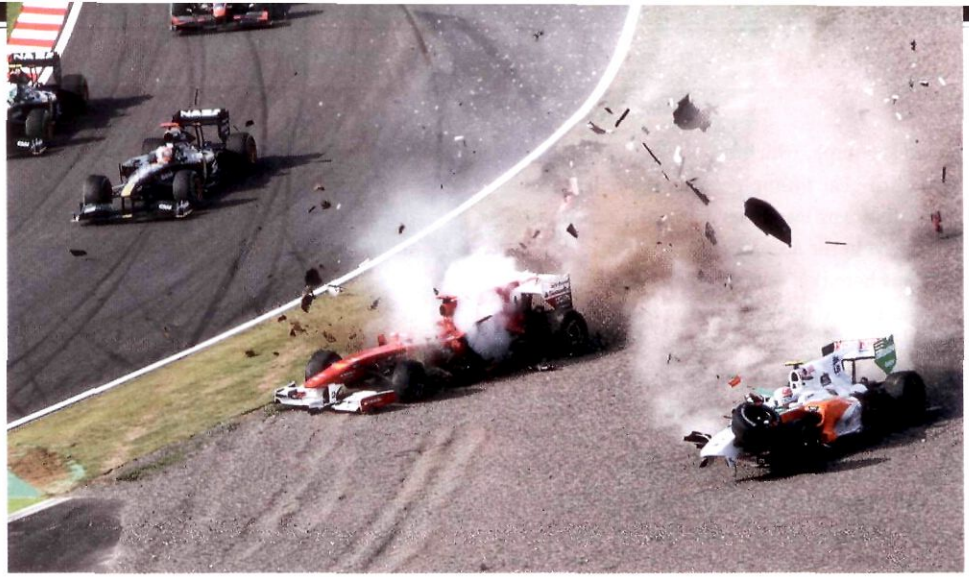
## FINISHING STRAIGHT

we were down to 19 cars, soon to become 18 as Kubica lost a wheel, thankfully at low speed. Of these, a significant retirement was Massa who attempted a rash move into Turn 1 that ended in the coming together of his Ferrari and the Force India of Vitantonio Liuzzi.

The Safety Car played into the hands of those on the softer tyre. The slow pace was perfect for conditioning the tyres, so they maintained their performance for a much longer period. Button's intelligent gamble was brought to nothing by this simple fact. He could now choose between having to stay out on the harder tyre or risking an early stop and a long stint on the softer tyre. McLaren chose to keep him out, which resulted in a fourth place but only by dint of overtaking team-mate Hamilton, who had lost third gear.

Up front, Vettel was cruising to victory but had to stay aware of Webber who was holding station around two seconds behind. Webber cheekily made his point by setting fastest lap on his final tour. Alonso drove a lonely race to take the final podium spot and keep his championship dreams alive – if slightly dented.

While the front-runners were not providing much excitement, further back there was plenty of action. Schumacher, after the misery of Singapore, was having one of his best weekends



Felipe Massa's rash overtaking move on Vitantonio Liuzzi into Turn 1 puts both of them out of the race

of the year, challenging Rosberg lap after lap until the latter retired following a spectacular failure at Turn 7. Kamui Kobayashi was giving the home fans plenty to cheer about with some remarkable overtaking. He had run a similar strategy to Button, although he did stop slightly earlier for his soft tyres. He proceeded to make full use of their superior grip and although he had not raced on this circuit for seven years he seemed to make the hairpin his own private overtaking spot.

By 2010 standards, the Japanese Grand Prix was not a classic race but this circuit will always provide a special thrill for the aficionado who enjoys seeing a vehicle and its driver pushed to the limit. The championship remains tight. Safe race finishes are no longer enough to secure the championship. A retirement at this stage would be disastrous but equally the 2010 world drivers' champion, whoever he may be, needs to pull out something special between now and 14 November. **F1**

## The GP you didn't see on TV

Taking you behind the scenes in Suzuka as the weekend unfolded



As ever, all other nations are put to shame by the lavish proportions of the Japanese fans' cameras



The track marshals turn to witchcraft to help clear the sodden circuit of surface water...



Peace symbols in front of cut-outs of Vettel and Webber. We don't think it'll work



It might not be the fastest vehicle to hit the circuit, but Lewis is thrilled that this one does have third gear




Formula 1's most luxuriant beard is back – extra cooling devices are duly laid on



# Japanese Grand Prix stats

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

## THE GRID

 <b>1. VETTEL</b> RED BULL 1m30.785secs Q3	 <b>2. WEBBER</b> RED BULL 1m30.853secs Q3
 <b>3. KUBICA</b> RENAULT 1m31.231secs Q3	 <b>4. ALONSO</b> FERRARI 1m31.352secs Q3
 <b>5. BUTTON</b> McLAREN 1m31.378secs Q3	 <b>6. ROSBERG</b> MERCEDES 1m31.494secs Q3
 <b>7. BARRICHELLO</b> WILLIAMS 1m31.535secs Q3	 <b>8. HAMILTON*</b> McLAREN 1m31.169secs Q3
 <b>9. HÜLKENBERG</b> WILLIAMS 1m31.559secs Q3	 <b>10. SCHUMACHER</b> MERCEDES 1m31.846secs Q3
 <b>11. HEIDFELD</b> BMW SAUBER 1m32.187secs Q2	 <b>12. MASSA</b> FERRARI 1m32.321secs Q2
 <b>13. PETROV</b> RENAULT 1m32.422secs Q2	 <b>14. KOBAYASHI</b> BMW SAUBER 1m32.427secs Q2
 <b>15. SUTIL</b> FORCE INDIA 1m32.659secs Q2	 <b>16. ALGUERSUARI</b> TORO ROSSO 1m33.071secs Q2
 <b>17. LIUZZI</b> FORCE INDIA 1m33.154secs Q2	 <b>18. BUEMI</b> TORO ROSSO 1m33.568secs Q1
 <b>19. TRULLI</b> LOTUS 1m35.346secs Q1	 <b>20. KOVALAINEN</b> LOTUS 1m35.464secs Q2
 <b>21. DI GRASSI</b> VIRGIN 1m36.265secs Q1	 <b>22. GLOCK</b> VIRGIN 1m36.332secs Q1
 <b>23. SENNA</b> HISPANIA 1m37.270secs Q1	 <b>24. YAMAMOTO</b> HISPANIA 1m37.365secs Q1

\*Five-place grid penalty for replacement gearbox.

## THE RACE



### THE RESULTS (53 LAPS)

1st	Sebastian Vettel Red Bull	1h30m27.323s
2nd	Mark Webber Red Bull	+0.905s
3rd	Fernando Alonso Ferrari	+2.721s
4th	Jenson Button McLaren	+13.522s
5th	Lewis Hamilton McLaren	+39.595s
6th	Michael Schumacher Mercedes	+59.933s
7th	Kamui Kobayashi BMW Sauber	+64.038s
8th	Nick Heidfeld BMW Sauber	+69.648s
9th	Rubens Barrichello Williams	+70.846s
10th	Sébastien Buemi Toro Rosso	+72.806s
11th	Jaime Alguersuari Toro Rosso	+1 lap
12th	Heikki Kovalainen Lotus	+1 lap
13th	Jarno Trulli Lotus	+2 laps
14th	Timo Glock Virgin	+2 laps
15th	Bruno Senna Hispania	+2 laps
16th	Sakon Yamamoto Hispania	+3 laps
17th	Nico Rosberg Mercedes	+6 laps/dnf/accident

### Retirements

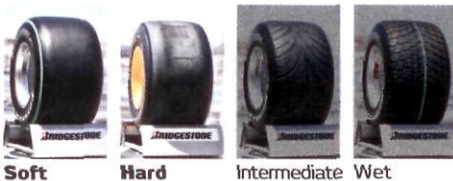
Adrian Sutil Force India	44 laps – oil leak
Robert Kubica Renault	2 laps – loose wheel
Nico Hülkenberg Williams	0 laps – accident
Felipe Massa Ferrari	0 laps – accident
Vitaly Petrov Renault	0 laps – accident
Vitantonio Liuzzi Force India	0 laps – accident
Lucas di Grassi Virgin	0 laps – did not start/accident

### THROUGH SPEED TRAP



<b>Fastest:</b> Michael Schumacher, 193.01mph	<b>Slowest:</b> Robert Kubica, 124.16mph
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### TYRE COMPOUNDS USED



### CLIMATE



### TRACK TEMP



### FASTEST LAP

Mark Webber, lap 53, 1min 33.474secs



### FASTEST PITSTOP

Jenson Button, 21.252secs (entry to exit)

### DRIVERS' STANDINGS

1st	Mark Webber Red Bull	220pts
2nd	Fernando Alonso Ferrari	206pts
3rd	Sebastian Vettel Red Bull	206pts
4th	Lewis Hamilton McLaren	192pts
5th	Jenson Button McLaren	189pts
6th	Felipe Massa Ferrari	128pts
7th	Nico Rosberg Mercedes	122pts
8th	Robert Kubica Renault	114pts
9th	Michael Schumacher Mercedes	54pts
10th	Adrian Sutil Force India	46pts
11th	Rubens Barrichello Williams	41pts
12th	Kamui Kobayashi BMW Sauber	27pts
13th	Vitaly Petrov Renault	19pts
14th	Nico Hülkenberg Williams	17pts
15th	Vitantonio Liuzzi Force India	13pts
16th	Sébastien Buemi Toro Rosso	8pts
17th	Pedro de la Rosa BMW Sauber	6pts
18th	Nick Heidfeld BMW Sauber	4pts
19th	Jaime Alguersuari Toro Rosso	3pts
20th	Heikki Kovalainen Lotus	0pts
21st	Jarno Trulli Lotus	0pts
22nd	Karun Chandhok Hispania	0pts
23rd	Lucas di Grassi Virgin	0pts
24th	Timo Glock Virgin	0pts
25th	Bruno Senna Hispania	0pts
26th	Sakon Yamamoto Hispania	0pts
27th	Christian Klien Hispania	0pts

### CONSTRUCTORS' STANDINGS

1	Red Bull	426pts	9	Toro Rosso	11pts
2	McLaren	381pts	10	Lotus	0pts
3	Ferrari	334pts	11	Hispania	0pts
4	Mercedes	176pts	12	Virgin	0pts
5	Renault	133pts	 For comprehensive F1 statistics visit <a href="http://www.forix.com">www.forix.com</a>		
6	Force India	60pts			
7	Williams	58pts			
8	BMW Sauber	37pts			



# The burning issue

## Why has 2010 been one of the closest F1 seasons ever?

**Anthony Davidson:** The reason it's been so close is because all the front-runners are making mistakes. The teams have made mistakes, the drivers have made mistakes and reliability has come into the equation more than usual as well.

**Alex Wurz:** I agree. It's been one of the most up and down seasons I've ever known. On paper, and in terms of lap time, Red Bull had the dominant car until mid-season. The RB6 is still the fastest car at some tracks, like at Suzuka, but the team has failed to maximise what they've had due to reliability issues and their drivers crashing.

**AD:** As a result, we haven't had a runaway leader like we did at the beginning of last year.

**Fernando Alonso:** I think the reason it's so close is because of the regulations. They are so tight that it's been very difficult for a team to gain a technical advantage. The cars at the front of the grid, and particularly those from Ferrari, McLaren and Red Bull, have been very evenly matched, and that's why four drivers from three different teams have won races in the dry.

**AW:** That's also true, but there's no getting away from the mistakes. All of the top teams and drivers have made them. Remember when McLaren left a sidepod cover in Jenson's car in Monaco, when he

was well positioned on the grid? And if Mark Webber hadn't crashed into Heikki Kovalainen in Valencia, he would probably have won the championship already. He lost a lot of points that day.

**FA:** With the leading cars being so close to each other in performance, the drivers have had to push the whole time. Every lap of every grand prix weekend.

**Hiroshi Yasukawa:** There isn't a single reason why it's been so close this year. I think the points system has helped; I think the regulations have closed the performance gaps at the front; and let's not forget the narrower front tyre that Bridgestone introduced this year. It has limited the set-up options for the teams and that has also been a contributing factor.



Button retired in Monaco after mechanics left a cover in his sidepod



Mark Webber's terrifying crash in Valencia cost him a lot of points

**AD:** The tyres are certainly a factor, but I don't think it's got anything to do with the new points structure, or the lack of fuel stops or anything like that. Really, it goes back to the mistakes. No one driver or team managed to build up a lead early in the year that allowed them to back off later on. It's been very different to some of Michael Schumacher's really dominant years at Ferrari, hasn't it?

**AW:** Yes, it's been very different. And I really don't know why people have made so many mistakes. There has always been a lot of pressure in Formula 1. But I'm not going to complain because it's been a great year for the fans.

### The jury



**Anthony Davidson**  
5 live commentator

"No one driver or team built up a lead early in the year that allowed them to back off later on"



**Alex Wurz**  
Former F1 driver

"There's no getting away from the mistakes. All of the top teams and drivers have made them"



**Fernando Alonso**  
Double world champion

"The regulations are so tight that it's very difficult for a team to gain a technical advantage"



**Hiroshi Yasukawa**  
Bridgestone boss

"There isn't a single reason why it's been close this year.. but I think the points system has helped"



# ALAN HENRY

Forty years and counting on the frontline of Formula 1

## The real star of the Mercedes show is Nico

**Formula 1** is never anything short of totally predictable. From the moment Mercedes-Benz decided to strike out on their own as team owners at the start of the 2010 season, the doomsayers were warming up in the pitlane.

For every individual who praised the notion of reviving the legendary Ross Brawn/Michael Schumacher partnership, there was one urging caution and predicting that simply because

Brawn stormed to victory in the 2009 world championship, there was no guarantee that they would reproduce that form as Mercedes for a second straight year.

For Schumacher, of course, the 2010 Mercedes experience has required a certain unexpected mental recalibration. Given his, how shall I put it... *confidence* – some would say monumental arrogance – you might reasonably have expected him to have been throwing his toys out of the pram at a very early stage in the year. Yet his rather understated approach to all the drama this year has been one of Michael's most impressive facets. The winks to the camera as he steps up to the weighbridge from ninth place are all very chummy – certainly better than the thunderous glares that so often accompanied disappointing moments during his Ferrari years.

Making the Mercedes F1 operation work as a well-oiled machine was never going to be easy, particularly when race-by-race comparison with the McLaren-Mercedes squad was inevitable. But while there was never much doubt that McLaren would be as good

**"The only driver who can deliver a world title in a Silver Arrows is Keke's boy"**

sufficient credit for making a seven-time champion look as though he has two left thumbs.

Schumacher may pick up the threads of his career next season in what Mercedes will hope turns out to be a user-friendly car. But, as he grinds from disappointing race to disappointing race, the notion that he will be able to bag an eighth title crown is romantic, Peter Pan-style claptrap. Ross Brawn and Norbert Haug may well ensure that things improve dramatically but, as things stand, the only driver who can deliver a world championship at the wheel of a Silver Arrows is Keke's boy from the Côte d'Azur. Trust me.



Schuey in 2010: relaxed, but not exactly competitive

as they have been in 2010, nobody imagined that Mercedes would end up falling so far short of the mark. Yet you have to accept the logical explanation that what we've seen this year is a progress of technical transition for them that should lead to much better things in the future.

All that said, the one thing that amazes me is why the other teams aren't falling over themselves in a bid to find a loophole in Nico Rosberg's contract that would enable him to pick up an established front-line drive for 2011. This young German has in so many ways been the star of this year's show and I don't think he has received anywhere near

## LOTUS FUTURE LOOKS MUDDLED

**Speculation continues** to surround naming rights for the Lotus F1 team. Air Asia entrepreneur Tony Fernandes claims he had a deal to use the iconic 'Team Lotus' title from 2011. Then up pops Proton, claiming that the Team Lotus rights, reportedly sold to Fernandes by James Hunt's younger brother David (who had owned the name since 1994) are owned by them and that's an end to it. Except it probably isn't. Fernandes strikes me as a razor-sharp business brain and he won't be inclined to take no for an answer.

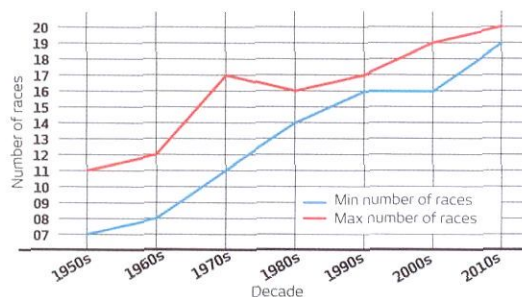


Lotus Racing, Team Lotus – what will those green cars be called in 2011?

## THANK HEAVENS SILVERSTONE IS SAFE

**The explosion** of interest in F1 throughout Asia and the Far East will boost the calendar to 20 races with the arrival of GPs in India and Korea. And the likely arrival of Russia in 2012 will bring that number to 21. So F1 could become a year-round affair with races every other weekend for ten months. That means zero room for expansion in Europe, and I found myself at Silverstone recently thinking that if the BRDC hadn't saved the GP by the skin of its teeth, F1 could have been exiled from these shores for good.

Minimum and maximum number of GPs held per year





# The Korean GP preview

by Robert Kubica 24.10.2010 / Yeongam / 07.00

The new circuit at Yeongam was scheduled to be ready in time for F1's inaugural visit...

### T3: A CHANCE TO PASS?

"Both Turn 1 and Turn 3 are tight corners at the end of long straights which should offer good overtaking opportunities, although it's difficult to know until we race there."

### T15 & 16: WATCH THE WALLS

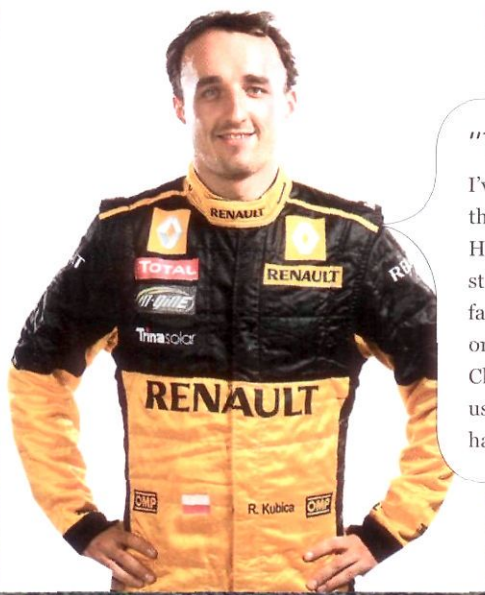
"The first and last sector of the lap has a bit of a street circuit feel – like Abu Dhabi – with walls right on the edge of the track. That could make it interesting if you make a mistake..."

### T17 & 18: TRICKY FINISH

"Looking at the final corners on the lap, there's an increasing radius Turn 17 right-hander, which opens out into a quick left-handed switchback kink onto the straight."







"This won't be the first time I've raced in South Korea, as I actually competed in the Formula 3 race there at Changwon with Lewis Hamilton and Nelson Piquet Jr. That was on a street circuit, while this is a new purpose-built facility. I've seen the layout and I've watched the onboard clip from the car driven by Karun Chandhok on YouTube, but I didn't find it all that useful, because he wasn't at racing speed and they hadn't finished work on the track surface or kerbs.

"We haven't done any simulation work and I haven't yet had the chance to try it on a video game, which would help me to understand the braking points and overall lines around the circuit. But, to be honest, I don't really need a simulator, because every time I jump into a car at a new track, it doesn't take long to get up to speed. I hear the organisers have left things quite late in preparing the track, so I think it will be an interesting event, from a driving and logistical point of view."



## All you need to know

### CIRCUIT STATS

Round 17/19  
**Laps** 55  
**Venue**  
 Korean International Circuit, Yeongam  
**Circuit length**  
 3.492 miles  
**Race distance**  
 192.099 miles  
**Lap record**  
 N/A  
**2009 pole**  
 N/A  
**2009 winner**  
 N/A  
**Tyre allocation**  
 Soft and hard  
**Average weather**  
 21°C, typical mix of sunshine and showers  
**Location**  
 The track is situated in South Jeolla, which is 200 miles south-west of the republic's capital, Seoul.

### TV SCHEDULE

Timetable (UK time)  
**Friday 22 October**  
 Practice 1  
 02.00 - 03.30  
 Practice 2  
 06.00 - 07.30  
**Saturday 23 October**  
 Practice 3  
 03.00 - 04.00  
 Qualifying  
 06.00  
**Sunday 24 October**  
 Race  
 07.00



# The Brazillian GP preview

by Robert Kubica 07.11.2010 / Interlagos / 16.00

A physical, anticlockwise challenge just outside São Paulo with a chance of the odd shower...

## T1 & 2: OUTBRAKE A RIVAL

"Interlagos is a track with a number of overtaking opportunities and the best one is into the first couple of corners. With a good tow along the start/finish straight you can outbrake a rival here."

## T3 & 4: BALANCE YOUR SETUP

"There are a number of long straights on the track and top speed aids overtaking. As a result you need a careful compromise between downforce and outright speed for the lap to help you overtake."

## T14 & 15: TAKE CARE UPHILL

"It doesn't seem especially steep when you watch it on television, but there is a big uphill section coming out of the last corner that places a lot of demand on power and traction from the engine."



©2009 Google





"There is always a great atmosphere in Brazil because of the many passionate fans. It's usually very exciting to watch because of the changeable weather and it's actually quite tricky to drive when it rains because rivers of water form across the track. This is due to the undulations in the circuit as well as the monsoon downpours that are a characteristic of São Paulo. "Qualifying was delayed last year due to heavy rain, but I thought the organisers did a very good

job, even scoring the surface of the Tarmac to help with drainage. Come the race, we saw a lot of overtaking because there was quite a big speed differential between those cars competing with a dry-weather setup and those running more wing, having gambled on a wet setup.

"The circuit is an old-fashioned track and it's quite challenging to drive. There is a mix of high- and low-speed corners and it's quite bumpy, so you need to have a car that is comfortable to drive."



## All you need to know

### CIRCUIT STATS

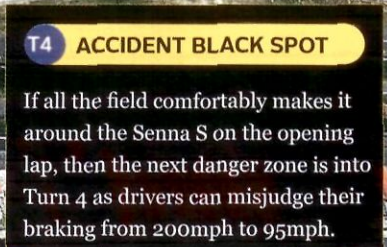
- Round 18/19
- Laps** 71
- Venue** Interlagos
- Circuit length** 2.677 miles
- Race distance** 190.083 miles
- Lap record** 1m 11.473s (2004) Juan Pablo Montoya (Williams)
- 2009 pole** 1m 19.576s Rubens Barrichello (Brawn GP)
- 2009 winner** Mark Webber (Red Bull)
- Tyre allocation** Super soft and medium
- Average weather** 26°C, humid with thunderstorms likely
- Location** 10 miles from São Paulo

### LOOK OUT FOR...



#### T1 BEST OVERTAKING SPOT

With a long uphill blast out of the last corner, the best place to overtake is late on the brakes and downhill into Turn 1, but it's easy to run wide and lose the place again on the overlap.



#### T4 ACCIDENT BLACK SPOT

If all the field comfortably makes it around the Senna S on the opening lap, then the next danger zone is into Turn 4 as drivers can misjudge their braking from 200mph to 95mph.



#### T5 POTENTIAL PASSING SPOT

If a rival passes you into Turn 4, there's a chance he'll run wide and you can nip back inside at Turn 5. But as Trulli and Sutil discovered last year, it doesn't always work...

### TV SCHEDULE

- Timetable (UK time)
- Friday 5 November**
- Practice 1 12.00 – 13.30
- Practice 2 16.00 – 17.30
- Saturday 6 November**
- Practice 3 13.00 – 14.00
- Qualifying 16.00
- Sunday 7 November**
- Race 16.00

MAIN PHOTO: GOOGLE; INSETS: LAT ARCHIVE, SUTTON IMAGES



# The Abu Dhabi GP preview

by Robert Kubica 14.11.2010 / Yas Marina / 13.00

The biggest, most expensive purpose-built F1 facility in the world hosts the season finale

## T8 & 9: DEFEND YOUR POSITION

"Having lots of wide run-off areas at the end of the long straight doesn't help with overtaking as it's easier to defend your position than to attack. If you miss your braking point, you can still stay ahead."

## T11 & 12: A SECOND CHANCE

"Although you can defend at the end of the first long straight, it can compromise your exit speed heading onto the next one. So you might find someone will be prepared to gamble into the following chicane."

## T16 & 17: DON'T SLIDE THE REAR

"The one aspect of this circuit I find annoying is the off-camber corners. Here it is easy to get on the power, then lose traction and slide the car's rear, which can cost you time. It's hard to get right."



## LOOK OUT FOR...



## T8 BEST OVERTAKING SPOT

Turn 7 is low speed so following cars aren't affected by aero turbulence as much as they would in a high-speed turn. This gives them a good chance to pass as they go into Turn 8.

## T1 ACCIDENT BLACK SPOT

Expect trouble at Turn 1, but more specifically under it! The tight and twisty pit exit tunnel runs under the track and one small error on the dust will completely block the pit exit.



## T11 POTENTIAL PASSING SPOT

Getting a good tow from both long straights will improve overtaking into the tight corners that follow, but it's easy to counterattack once you've been passed.





"The Abu Dhabi track on Yas Island comes across really well on television. It looks amazing, especially with that huge hotel illuminated in many different colours that spans the track. So much money has been invested here and when I first walked around the track I thought it would offer a lot of overtaking opportunities. But actually, there were fewer than I expected last year. "Another issue I remember from 2009 was that we had three practice sessions in daylight and then

both qualifying and the race itself took place at dusk, heading into night. That made it hard because the change in temperature affected the track conditions and changed the behaviour of the car. But we'll be able to prepare for it this year. "Finally, it's the last grand prix of the season, but that doesn't mean we're all going on holiday once it's over. A few days after the race, all the teams will be conducting their first tests on Pirelli rubber at the track in preparation for 2011."



## All you need to know

**CIRCUIT STATS**  
 Round 19/19  
**Laps** 55  
**Venue** Yas Marina  
**Circuit length** 3.451 miles  
**Race distance** 189.742 miles  
**Lap record** 1m 40.279s (2009) Sebastian Vettel (Red Bull)  
**2009 pole** 1m 40.948s Lewis Hamilton (McLaren)  
**2009 winner** Sebastian Vettel (Red Bull)  
**Tyre allocation** Super soft and medium  
**Average weather** 24°C, clear skies  
**Location** Yas Island, Abu Dhabi on the Arabian Peninsula

**TV SCHEDULE**  
 Timetable (UK time)  
**Friday 12 November**  
 Practice 1 09.00 - 10.30  
 Practice 2 13.00 - 14.30  
**Saturday 13 November**  
 Practice 3 10.00 - 11.00  
 Qualifying 13.00  
**Sunday 14 November**  
 Race 13.00

MAIN PHOTO: GOOGLE. INSETS: CHARLES COATES/LAT. SUTTON IMAGES





# Inside the mind of... **SEBASTIAN VETTEL**

The pen-and-paper-based Q&A that you can win

Full name: SEBASTIAN VETTEL Nickname: SEB / THE VET

Occupation: F1

Describe yourself in three words: others can do

Who is your favourite F1 driver in history and why? Jochen Rindt, he was a real character, smart and outspoken!

What's your favourite corner in F1? Puhon / Spa T10/M Who's your best mate in F1? /

What's the best grand prix you've ever seen? Brazil 1991 Who do you owe your success to? Family

What was your best overtaking manoeuvre? too many ... I love when you fight with someone right to the edge but always fair!

If F1 could introduce one new rule, what would it be? No new rules every year!

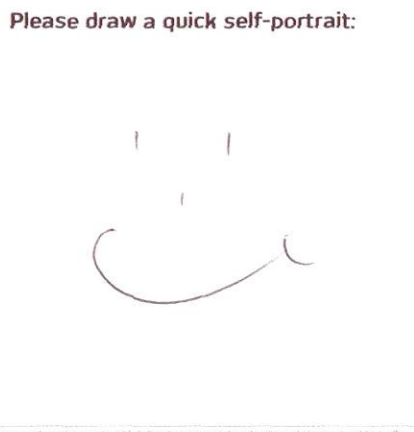
What would you be if you weren't an F1 driver? Don't know, Engineer probably

What's the best piece of advice you've ever had in F1? Be yourself, don't change for nobody, enjoy!

What's your career highlight so far? several Grand Prix wins but my target is to become a champion What car do you drive? /

What was the last thing Bernie Ecclestone said to you? Don't you fuck it up

Who's the sport's toughest competitor (apart from you)? the others :)



I declare that all the information on this form is correct to the best of my knowledge

What are the three key elements to a perfect lap?  
confidence  
intuition  
control

signed [Signature]  
**WIN THIS FORM!**

At which race did Sebastian Vettel become the youngest F1 driver ever to secure a pole position?  
a) China 2007  
b) Italy 2008  
c) China 2009  
Email your answer to writeoff@haymarket.com or enter at www.f1racing.co.uk. The winner will be chosen at random.

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