Lotus F1 Team Preview

Introduction by Gerard Lopez

Forward Progress

The Lotus F1 Team Chairman sets out the team's ambitions for the year ahead.

New season, new name. We are very proud to kick off our 2012 campaign under the name of Lotus F1 Team, continuing with the evocative black and gold livery which made such a well-received return to Grands Prix in 2011.

As well as a new name for the team we have a new chassis designation: E20. The E is for Enstone, our state of the art Formula 1 facility nestled in the heart of the Oxfordshire countryside. More specifically, it's for the personnel that make up Enstone to highlight the pride we have in every single employee who shares our beliefs and goals.

We have two new race drivers too, with Romain Grosjean promoted to a race seat after impressing us with his potential after just two Friday runs in the car in 2011.

Racing alongside Romain will be 2007 Formula 1 World Champion Kimi Räikkönen. After two years contesting the World Rally Championship Kimi returns to Formula 1 fresh for a new challenge, and with 156 Grand Prix race starts, 18 wins and one world championship we are convinced that Kimi will provide a vital ingredient in driving us forwards.

In 2011 we pushed on with developments behind the scenes, and the addition of the 60% wind tunnel which was implemented during the course of last season should pay dividends for this year's car. We're not standing still either, and our next exciting resource to go online will be a 'Driver in the Loop' simulator to enhance our assets at Enstone yet further.

Last year we saw flashes of strong potential from the R31 and the team, but ultimately we fell short of our goals. That is the nature this highly competitive sport and we are pushing forwards leaving no stone unturned in our quest to reinstate Lotus as the team to beat.

Our aim for 2012?
If you look at the history of Enstone, there were World Championships won in 1994-95 and 2005-6. This ten year cycle obviously appeals and we are set on repeating this history. We want a step nearer our goal in 2012. If we finish in fifth place in the Constructors' Championship we will be disappointed. If we finish fourth we can reflect over a good step forwards. If we finish in third position we will be very happy. We know the competition is intense, but that is why we compete.

Eric Boullier: "We want to be seen as a top team"

The Team Principal puts 2011's travails behind him and looks forward to the potential of the 2012 season.

How are you looking forward to 2012 and what do you hope can be achieved?
Obviously 2012 is very welcome after a poor 2011 and very hectic year. It's clear we've maintained our ambition on track and we want to carry on the full restructuring, progress and change that we started one year ago. We now have a clear target. We know that we have a strong commitment from our shareholders, that we want to be a top team and seen as a top team. 2012 will be the year of our final adjustment to be ready and fully operational from 2013 with an ambitious plan. For 2012 we expect to be in a position to fight for fourth place for the championship.

What lessons learnt in 2011 have been applied looking forward to the 2012 season?
We learnt many things last year because we went very far in term of creativity with our forward exhaust. We also went too far maybe by developing some very nice concepts, but being unable to revert back sometimes. I think it's just a question of process and how we handle all the projects and new ideas we have for the future. We definitely learned our lessons and our group is getting much stronger than before. It was a tough year, but a good year to learn from our experience.

Two new drivers including a former world champion who has been away from the sport for two seasons; is this a brave approach to the driver line-up?
I think our driver line-up reflects the ambition of this company and this team. It is clear that to have Kimi back on track - on top of being a nice media and PR action - we need a driver of the calibre of Kimi to be able to fight for the top positions. It is also good to have Romain joining us because he has clearly demonstrated his value, talent and speed over the last 18 months. He is definitely now mature and ready. He is good for the French market, for Total and for Renault. It's good to see him with us. He is our future. Additionally, we have a tried and tested third driver in Jérôme D'Ambrosio. He contested every race last season and did a good job with the tools at his disposal. He is fresh and motivated and will be looking over the shoulders of our two race drivers; to assist them at the tracks and also to learn as much as he can. He's a great addition to the squad.

What other assets can the team draw on for 2012?
Our new 60% scale wind tunnel which went operational last year has made a great contribution to the development of the E20 and we are using this resource as much as we can to push development of the car forwards. From April we should have our 'Driver in the Loop' simulator active and this is another superb resource to assist our engineers in developing the car. These are two areas which further demonstrate our intentions.

What's the team's overall approach to 2012?
We have conducted a very long and deep process since 2010. You cannot return to being world champion in one day or one month. You need time. We had a complete review of our process and structure. 2012 will be the final step towards building a winning and ambitious team, as I've said before; a clear target for 2012 and also after 2014.

Kimi Räikkönen
Lotus F1 Team Race Driver, Car No. 9

"Formula 1 is where you want to race"

The 2007 Formula 1 World Champion talks of his return to the sport with the Lotus F1 Team after two years away in the forests and stages of the World Rally Championship.

Why F1?
Formula 1 is something very special in my racing career, and you always want to race at the toughest level, so Formula 1 is where you want to race if you have a choice.

How quickly did the deal come about with the Lotus F1 Team?
Everything came together quite quickly. We shared a common goal and everyone was happy. This was the only way to do it and everything went pretty well from there.

What do you think of the team now you've completed two days testing?
I'm happy with the team, they are very nice people, very easy going and it was nice to work with them for the two days I did in the R30. I think we'll have a lot of fun in the season ahead and hopefully we will get some good results. I want a strong enough car to challenge for good results.

When did you decide to finish rallying and to go back to Formula 1?
When I did the NASCAR races, I enjoyed the racing and I want to do more racing. I still want to do rally and if I could I'd do them both at the same time – but this isn't possible. For sure I will do rallying again in the future. I want to do racing as I had a really good time in NASCAR racing against other people and I realised that I was missing this – that's when I decided that if there was a good chance to return properly that I would do it.

If you'd been in rallying with sufficient time could you have been as good as Sébastien Loeb?
I don't know! I don't think anyone is as good as him right now! For sure I could have improved, but I don't know how far. I'd improved last year from where I was in 2010. I went to rallying to see how well I could do and I still think that it's one of the most difficult sports that I have ever tried. |t's not easy! The guys at the front are very fast, but equally if you put them in a Formula 1 car they would probably have a similar story to me in rallying. I think I would need another couple of years with testing. With rallying there are so many different surfaces and it's completely different from Formula 1.

What are your thoughts on how F1 has changed since you last competed?
In 2010 I didn't really follow Formula 1 but I saw more races last year. It doesn't really look different, but there is overtaking in some different places where people can just drive past by opening the rear wing and the driver in front has no chance to defend himself – so is this really overtaking? I don't think it counts all the time. But for sure the show is better.
The tyres make a difference too, as there is a big speed difference between when the tyres are new and when the tyres are old. In the old Formula 1, you had to be so much faster than the guy in front of you to have any chance to overtake, but now with the tyres and the DRS, it's different.

Do you have anything to prove with your return?
I think people expect things from me, but as long as I know that I'm giving 100% and I'm happy with my driving then I'm happy. If those aspects are true and it's not enough, then it's not enough.

How's your motivation?
There's always talk about my motivation, written by people who don't know me and couldn't have an idea on how strong my motivation is. If I didn't feel I had the motivation, I would stop. My feeling is that I probably drove some of my best races in my last season in Formula 1 and I was very happy with my performance. I've never had any issues with motivation.

What are your thoughts on KERS and DRS – you didn't have them when you tested the R30.
I've driven with KERS before and DRS is just a button. Once you've done it a few times it will become automatic.

How well do you know your new team-mate, Romain Grosjean?
I think we will have a good relationship. I met him before Christmas and I raced against him in 2009. He seems a very nice and normal guy, so I don't see any problems there.

How is your fitness for Formula 1's challenges after two years rallying?
For sure, the G forces are different, but you get pretty good G forces in some tarmac rallies. The steering is probably a bit heavier in rallying too. You sit in different position and you use different muscles. Rallying overall is probably not as physically tough in short bursts like Formula 1 but it's pretty mentally tough as you spend the whole week for about 12 hours a day in a car driving. In this way rallying is much more tiring than Formula 1. The driving itself is more physical in Formula 1, but I'm looking forward to getting more sleep.

Lotus F1 Team is fighting to be back at the front, how can you help in this battle?
In my last year at Ferrari we weren't always at the front but I'm a good racer and I want to get to the front. Lotus started well last year and we hope that the new car will be strong.

Curriculum Vitae

Kimi Räikkönen makes a race return to Formula 1 after two seasons contesting the FIA World Rally Championship as well as selected NASCAR outings. He has nine years' experience in F1, with the 2007 Drivers' Championship, 18 race wins, 62 podiums, 16 pole positions and 35 fastest laps from his 156 race starts. He entered the sport in 2002 despite having only 23 races in junior categories under his belt. Kimi finished as runner-up in the Drivers' Championship to Michael Schumacher in 2003 and Fernando Alonso in 2005; and won the title in 2007, in his first year driving for Ferrari.

KEY DETAILS
Date of birth 17 October 1979
Place of birth Espoo, Finland
Nationality Finnish

KEY DATES
Pre 2000 – Karting, Formula Ford and Formula Renault
After an impressive karting career, including placing second in the1999 European Formula A championship, Kimi competed in the Formula Ford Euro Cup before graduating to the British Formula Renault winter series which he won, winning the Championship the following year, with seven wins from ten starts.

2001: Formula 1 debut with Sauber
Kimi scored a point in his debut race, with Sauber at the Australian Grand Prix. He completed the year having achieved four points scoring finishes and eight in the top eight.

2002 – 2006: The McLaren Years
Such was Kimi's debut that he moved to McLaren for the 2002 season as a replacement for two-time champion, Mika Häkkinen. He finished third in his debut race with the team and came close to winning the French Grand Prix. The following year Kimi won his first race, the Malaysian Grand Prix. Despite no further wins, a strong run meant he finished second in the title race, just two points adrift of Michael Schumacher.

2004 was to prove frustrating. Kimi took McLaren's only win that year at the Belgian Grand Prix. The following year he finished second to Fernando Alonso in the title race, with seven wins to his name.

2006 was to prove Kimi's final year at McLaren and the momentum did not continue from the year before, with Kimi finishing fifth in the standings.

2007 – 2009: Ferrari and Drivers' title
Kimi's debut for the prancing horse was a fairytale, with pole position, fastest lap and he became the first driver since Nigel Mansell in 1989 to win on his Ferrari debut. He followed that with a further five wins, stealing the title from under the noses of the battling McLaren duo of Alonso and Lewis Hamilton at the season-ending Brazilian Grand Prix. The following two seasons were more low-key, finishing third in the standings in 2008, and sixth the following season.

2010 – 2011: Rallying and NASCAR
The FIA World Rally Championship was the destination for Kimi with the Citroën Junior Team in 2010,

with a best finish of fifth in the Rally of Turkey. The following year he drove for ICE 1 Racing, with two sixth places in Jordan and Germany. He combined his rallying with two NASCAR outings.

KIMI'S RETURN TO F1

Prior to January 23rd 2012, the last time that Kimi Räikkönen turned the wheel of a Formula 1 car was at the 2009 Abu Dhabi Grand Prix, in his last race for Ferrari and the 156th race start of his career.

After ten seasons, 18 Grands Prix wins, 16 pole positions and 62 appearances on the podium, Kimi decided it was time to try something entirely different; rallying.

During his second season in the World Rally Championship, rumours began to emerge that Kimi was seeking a return to Formula 1, with the Williams team linked with a move for the 2007 World Champion.

These rumours finally came to an end when Kimi signed his two year deal with Lotus F1 Team. He has since spent time settling into his new surroundings at Enstone, culminating in two days of private running to get him
back into the groove of a Formula 1 car.

The challenge was to ensure that Kimi gained on-track experience ahead of the start of official testing. Formula 1 regulations meant that Kimi could not run last year's car, so instead the team ran a two year old chassis which he drove during two days of running at the 4.005 km Circuit de la Comunitat Valenciana Ricardo Tormo.

Over the course of the two days he completed 191 laps, using seven sets of Pirelli demonstration tyres. He was quickly up to speed and utilised the time to familiarise himself with his new team, test procedures, and race procedures.

A combination of setup analysis runs, qualifying simulations, and heavy-fuel load stints gave Kimi a good idea of what he can expect going into the 2012 season. The feedback from the team on their first experience with him was all very positive, and inspires a lot of confidence heading into the first official pre-season test in Jerez.

Kimi's thoughts
It's nice to get back into a Formula 1 car. It didn't take long to get used to driving again, I had no trouble feeling where to turn, accelerate and brake, but obviously adjusting to the new car and tyres will take slightly longer. It's not like when I went from Formula 1 to rallying before, that's a totally different sport. The conditions and style are completely the opposite to rallying; the only similarity is that you're driving a car!

Kimi's F1 Return Timeline

1 November 2009	Contests the Abu Dhabi Grand Prix – his 156th race start.
Pre-season 2010	Linked to a McLaren race seat before the team signs Jenson Button.
2009 – 2010	Contests the World Rally Championship.
September 2011	Linked with a return to Formula 1 with the Williams Team.
29 November 2011	Announced as a driver for Lotus F1 Team.
5 January 2012	Seat fitting at Enstone.
24 January 2012	Completes two days of running in a 2010 car at Valencia.
26 January 2012	Press conference in Zurich.
7 February 2012	Starts test programme.
18 March 2012	Australian Grand Prix – first race back.

KIMI'S WHEELS

For his re-acquaintance with an F1 car Kimi used a Renault R30, chassis number 3, as used during 2010 pre-season testing by Vitaly Petrov and Robert Kubica. The car was subsequently raced by Robert from the season-opening Bahrain Grand Prix until round thirteen, the Belgian Grand Prix. The R30-03 was also used for the end of season young driver test.

Simon Rennie: Kimi's Valencia Run
An Engineer's perspective

What are your impressions of Kimi after the two-day test in Valencia?
It went very well. He's a fantastic driver with a proven track record and a lot of experience so it was no surprise to see him on the pace straight away. Having said that, we were all impressed with how quickly he got up to speed in the car; his first run produced a lap that was only a few tenths away from his best lap of the day which was incredible to say the least. On the second day he was even quicker, so it was all very positive.

What was Kimi like away from the technical side? How did his relationship with the team evolve over the course of the two days?
He is very easy to work with; extremely professional and focused. But on top of that, he's extremely laid back and we had some good banter with him while he was with us which is important as it builds a good relationship with the guys. There were four engineers as well as myself working with Kimi and he made a real effort to keep each of us updated on what he liked and didn't like about the way the car felt. Again, this is really useful for us, as it helps us to get the car working in a way that suits him best, which ultimately will of course lead to him feeling comfortable and producing his quickest lap times.

We heard Kimi commenting that he felt an unexpected difference in the brake balance of the car at one stage; what happened there?
This really showed us something about Kimi. Overnight the brake balance was shifted slightly rearwards to help lock up the rear wheels during a bite point learn, and when Kimi returned to the car for his install lap the next day he instantly noticed the difference and exactly what had caused it. To have been out of a Formula 1 car for two years and still pick up on these subtle differences so quickly really demonstrates how sharp he is as a driver.

Kimi's F1 Record

Grand Prix starts	156
Points	579
Pole Positions	16
Podiums	62
Wins	18
World Championships	1 (2007)
Lap Records currently held	5 (Germany 2004, Belgium 2004, Japan 2005, Spain 2008, Singapore 2008)

F1 2009 Vs. F1 2012

There have been quite a few changes since Kimi last contested a Grand Prix. Here are some of the more significant ones

The Regulations
Refuelling: Part of Formula 1 since 1993, in-race refuelling was banned by the FIA at the end of the 2009 season. Kimi has not completed a race since this regulation change, and has therefore never driven a Formula 1 car containing a full distance's worth of fuel.

Team Orders
In 2011, the ban of team orders was lifted by the FIA. The regulations still state that any actions liable to 'bring the sport into disrepute' will be reprimanded, however teams are permitted to switch the positions of their drivers on track.

Defensive Driving
New rules introduced for the 2012 season state that drivers may not make more than one change of direction to defend a position, but may move back onto the racing line if enough room is left between the car and the edge of the track.

The Cars
Drag Reduction System (DRS) An aerodynamic aid introduced in 2011 to increase overtaking opportunities, the DRS system will be completely new to Kimi, although his reputation as one of the best overtakers in the sport will no doubt ensure that he uses it to full effect.

Adjustable Front Wings Used by Kimi during his last season in 2009, the adjustable front wing was effectively replaced by the DRS system in 2011. Tyres When Kimi left the sport in 2009, Bridgestone was the tyre supplier to Formula 1. In 2011 Pirelli took over this responsibility.

The Tracks
Delhi, India (Inaugurated 2011) and Austin, United States (Inaugurated 2012) are two circuits which Kimi will never have experienced (although the same can be said for the rest of the Formula 1 grid with regards to Austin). By contrast the Turkish Grand Prix, in which Kimi was victorious in the 2005 season, has been removed from the calendar.

The Competition
Of the 24 drivers competing in the 2012 season, Kimi will have faced only 60% of the field. Perhaps the most significant of these is fellow Formula 1 returnee of 2010 Michael Schumacher – In 2003, Kimi finished just 2 points behind the German legend in the Drivers' World Championship during only his third season of Formula 1.

Aside from competing with the Lotus F1 Team in 2012, having previously faced the outfit when it was known as Renault F1 Team during his previous Formula 1 career, Kimi will encounter a host of new teams on this season's grid.

The arrival of three new competitors (Team Caterham, Marussia F1 Team and HRT F1 Team) combined with the departure of the Toyota F1 Team and Brawn GP (now Mercedes AMG Petronas F1 Team) represents a significant swing in the population of the Formula 1 grid this year.

Kimi's A-Z

Animated: A word that has not frequently been used to describe Kimi's appearances in press conferences, interviews, etc.
Belgium: The Finn has won the Belgian Grand Prix more than any other race – with a total of four victories from his last five visits to the ultimate driver's circuit, Spa.
Champion: Kimi made his F1 bow testing a Sauber in 2000 at Italy's Mugello circuit. The only other driver on track, Michael Schumacher, saw enough to correctly declare him a future champion (see O).
Dahlman: On 31 July 2004 Kimi Matias Räikkönen married Jenni Dahlman, a Finnish model and former Miss Scandinavia.
Eighteen: Kimi has a total of 18 grand prix victories from his Formula 1 career so far. The first came at Sepang in 2003, the most recent at Spa in 2009 (see L).
Fastest laps: Kimi has an enviable total of 35 fastest laps, which places him third on the all-time list behind only Michael Schumacher (76) and Alain Prost (41).
G Forces: After two seasons in the WRC, Kimi's going to need to work on his neck to withstand F1's cornering forces.
Hinwil: Home of Kimi's first Formula 1 team, Sauber.
Iceman: The Finn has the word Iceman emblazoned on his crash helmet. He's cool, you see…
James Hunt: Another F1 world champion who has apparently offered Kimi both inspiration and a pseudonym for races in both snowmobiles and powerboats.
Karting: Kimi owned his first kart when he was eight years old. He started competing in 1988 and went on to take the Nordic Championship a decade later.
Last lap: The Finn produced perhaps his greatest victory at Suzuka in 2005 from 17th on the grid, storming through the field to pass Giancarlo Fisichella on lap 53 of 53.
Motocross: Kimi founded his own Motocross World Championship team, Ice 1 Racing.
NASCAR: Kimi has also ventured into racing in the United States, making his debut in the Camping World Truck Series last year (see X).
One point: This was the margin by which Kimi took the 2007 F1 world championship ahead of Lewis Hamilton and Fernando Alonso.
Pole: Kimi has taken a total of 16 F1 pole positions, the latest at Magny-Cours in 2008.
Queen: Anything HRH can do… In 2008 Kimi appeared on a set of Finnish postage stamps.
Renault: Most of Kimi's pre-F1 experience came in Formula Renault. He won the 2000 title with seven wins and ten podiums from ten races.
Snow: The Iceman is fond of anything freezing and white – with snowmobiles, snowboards and ice hockey among his favourite pastimes.
Twenty-three: Kimi famously only had a total of 23 car races in his life before he made his F1. He won 13 of them…
Unique style: No-one else dresses quite like Kimi in F1.
Victory: Winning the 2007 World Championship.
WRC: Kimi has a total of 59 points from his time in the World Rally Championship. He also has a stage victory to his name from the 2010 Rallye Deutschland.
X-rated: We learned from Kimi's NASCAR pit-to-car radio conversations that we should make sure he has enough in his drinks bottle…
Yacht: Yacht: Kimi is a big fan of yachting.
***Zzzzzzzz*:** At his first F1 race at Melbourne in 2001, Kimi surprised all by being cool enough to have a nap half an hour before going to the grid. He went on to score a point for 6th place and the Iceman was born.

Romain Grosjean
Lotus F1 Team Race Driver, Car No. 10

"It's a dream come true to get this drive"

Romain Grosjean makes a return to Formula 1 after contesting seven races in 2009. He talks about the challenge of his first full season in the sport he loves.

How does it feel to have a full-time F1 drive?
It's just starting to sink in. It's a dream come true to get this drive. A fantastic emotion and a fantastic challenge as well. I think the team has a really good line-up for this year, with Kimi and myself. Hopefully we can do something special. I think I'll only truly realise it when we get to Melbourne and I see my name on the official entry list. For now I'm really happy to be at the factory as much as I can, to get involved with the team and get ready for testing.

How do you view this season – you had a part season two years ago – so is this a part-rookie year?
It's difficult to say how I should view this season. For sure I did seven Grands Prix alongside Fernando [Alonso] and the experience I gained from that was helpful - and is still helpful today. On the other hand there are still some circuits that I don't know. But I don't think we can say I'm a rookie, just because of the experience I have. Let's say that I am a young driver who still has plenty of things to learn in Formula One, but we are all expecting a good season.

How and why is the 2012 specification Romain Grosjean different compared to the 2009 version?
Compared with 2009 I am two years older! No big difference, just an improvement in terms of many small things, including maturity. The 2009 experience was very helpful for me to understand things and grow up from that point. So it was difficult, but very good as well. The 2012 Romain Grosjean sees life a little bit different. My aim is to enjoy my number one passion, Formula One.

How did you get the drive for 2012?
The process for getting the 2012 drive really began with GP2, where my goal was to bring DAMS back to the top and show that I can be a team leader. For sure winning the title was something that we all wanted, but championships can depend on many things. Then there were the two Friday morning sessions in Formula One, which were a real test in terms of seeing if I had the speed, feedback and everything the team was looking for. I knew it was very important and it went well, but then you just have to wait. That was the most difficult part, but I knew I'd done everything - the best I could do - so I had no regrets. I was waiting and just trying to read the faces of the people in the team to imagine what the decision would be! That's always part of this job. You get used to it year after year.

How have your pre-season preparations gone?
My winter preparations have not been too bad. I've just been doing some training until I can drive the car. Fortunately it's not long until the first test on February 7. I'm trying to come to the factory as much as I can, to spend some time and discuss things with the engineers - grab a beer, or whatever! It's a long season - 20 Grands Prix plus testing - to spend with the same people and it's important that you get along well with everyone. I'm very happy to be with them and part of this team. I think I've changed since 2009 and the team sees that. The relationship is much stronger and much better today.

What do you expect will be your biggest challenge in 2012?
Formula One is a big, big challenge, but I think the biggest challenge personally will be to get 100 per cent out of myself and the car, every time. No mistakes. That is the life of a Formula One driver. You need to get 100 per cent out of the car, focus, concentrate and improve lap after lap. So I hope we can have a good car from the beginning of the season, some good ambitions going into the first race and just develop all season long.

What do you think of the new car?
From what I've seen of the new car so far, I can say that the colours are the same! We will see when get on the track. Hopefully it will be a good car and we can give it a nice nickname after the first test. Then we will try to improve it lap after lap and session after session.

It's a new tyre supplier since you last race in Formula 1 – do you expect that to make a difference?
I think Pirelli had a really, really good first year in Formula One. There have been some changes for 2012, and I think tyres will be key again. We need to get them working when we need, and save them when we need. Things have changed a lot since the Bridgestone era. It's part of the show today, to manage your tyres, and we have seen some big, big differences in tyre wear on some tracks which have made Formula One more attractive than a few years ago.

How is your knowledge of the circuits?
I don't know Albert Park, I don't know Shanghai, I don't know Canada, America nobody knows, India I don't know and Korea I don't know. So in the early stages of the season I know all the tracks except Albert Park and Shanghai. I know Sepang and Bahrain. We will see what happens.

Curriculum Vitae

Romain Grosjean makes a race return to Formula 1 after previously contesting the final seven Grands Prix of 2009.Prior to that Romain had secured the 2007 Formula Three Euroseries championship and won the inaugural GP2 Asia Series championship in 2008. After his 2009 F1 foray, Romain contested the inaugural FIA GT1 World Championship in 2010, winning the opening race of the season. He competed in his first Le Mans 24 Hours that year too. It wasn't long before he returned to single seaters, with partial campaigns in the Auto GP and GP2 seasons, and he ended with the GP2 Asia Series and GP2 Series championship titles secured.

KEY DETAILS
Date of birth 17 April 1986
Place of birth Geneva, Switzerland
Nationality French

KEY DATES
2000 – 2003: Karting and Formula Renault
Romain raced Karts from junior categories through to ICA karts, as well as completing Formula A races in 2002. He combined Formula ICA in 2003 with the start of his car racing career. Ten wins from ten races saw Romain crowned Swiss Formula Renault champion.

2004 – 2005: Formula Renault 2.0
Romain competed partial seasons in both the French and European Formula Renault championships, finishing as second best rookie in the 2004 French championship, including 1 win and 3 podiums. He won the title with 10 wins the following year.

2006 – 2007: F3 Euroseries
Romain finished 13th in the F3 Euroseries, which included two wins during the British F3 Championship rounds. For 2007, he took the title in impressive style in a closely-fought series, with a total of 6 wins, 6 podiums and 4 pole positions.

2008: GP2 Series and ING Renault F1 Team test driver
In 2008, Romain combined his responsibilities as test driver for the ING Renault F1 Team with campaigns in the GP2 Asia Series and GP2 Series. He won the Asia series, taking four wins along the way. Romain was also a frontrunner in the main Series, winning two races.

2009: GP2 Series and ING Renault F1 Team test and race driver
2009 was to prove to be a year of opportunity for Romain. He started the year as test driver for the ING Renault F1 Team as well as contesting the GP2 Series. By the European Grand Prix he was a full-time race driver for the team, starting seven Grands Prix as team-mate to Fernando Alonso.

2010 – 2011: Regroup and refocus
He contested the inaugural FIA GT1 World Championship, winning the first Championship Race. He also returned to single seaters scoring a first and second at his first event in the Auto GP series, and within three further races the title was his. In July he returned to the GP2 Series, which proved to be a precursor to a full-time return the following year. Late in the year, Romain became Pirelli's test driver.
2011 proved to be highly successful, with the GP2 Asia Series and the GP2 Series titles won, and a return to an F1 car with Friday runs at Abu Dhabi and Brazil for Lotus Renault GP.

MASTER CHEF!

And now something that has nothing to do with motor racing! When you're racking your brains and don't know what to serve for a party, the new Lotus F1 team driver has a couple of recipes for you. Cooking is his other passion.

F1 is not the only thing in the life of a driver. When Fernando Alonso isn't at the track there's nothing he likes more than playing video games. Romain Grosjean's passion is cuisine. It's not part of a family tradition even though some of his ancestors were good cooks. On his mother's side one of his great-great grandfathers of Italian extraction opened a restaurant in France. "It came about by accident," he told us at the start of our interview. "When I moved into a flat by myself at the end of my first season in GP2 in September 2008, I had to learn to cook. So I took the plunge. It's also a great way to have a good time with friends and cook them a nice dish. In addition, it's really relaxing!"

His local haunt

We met up with Romain in a Parisian restaurant, Le Pere Claude, in the 15th arrondissement where he's a regular in front of the stove! At least twice a month he tries to find enough time to share his passion with the customers either in the kitchen or in the restaurant itself. When we asked him to come up with a dish for New Year's Eve he invited us to his favourite haunt run by the Perraudin family – Claude the father and his sons Florian and Ludovic who manage the delicatessen in a street adjacent to the avenue de la Motte-Piquet. The 2011 GP2 Asia and GP2 Series Champion and Lotus F1 team driver decided to cook us a Chicken Bourbonnais stuffed with truffles and foie gras - or as it is called in France a 'poulet en demi-deuil.' The restaurant owner has christened it thus because of the striking contrast between the whiteness of the chicken and the blackness of the truffles. As a starter Romain gave us an Egg Gabrielle, a dish created by Ludovic Perraudin for his daughter who has this Christian name. Romain put on his apron and after setting the oven to pre-heat at 170° he began the trickiest part of the preparation; gutting the chicken, opening it up into two parts lengthwise, removing the meat from the carcass and keeping only the bones of the legs and wings. He does the job guided by his teacher; "You need a GPS to find your way around! For an anatomy course it's a good start as there's everything – heart, legs, lungs," he laughs. When the job's done he prepares the stuffing. All he has to do is to mix the chicken meat, the spices and then knead the lot while adding the truffles.

Culinary enrichment

During the season a driver visits many countries and this is a great way for Romain to enrich his culinary knowledge: "Especially in Asia, the continent I prefer in terms of flavours. But often I come back to French, Italian and Spanish products, which are still the benchmarks. What you discover are the spices. Recently I tasted shitake (black mushrooms) with which you can make a good risotto. To change tradition a bit you can brown with soya rather than sugar," he explains to us as he spreads out the stuffing with the aplomb of a great chef. He then adds 250 grammes of foie gras and ties up the chicken with the help of some string. "You can find some at your local butcher's or if he's a good businessman he'll sew it up for you," whispers Ludovic as he watches his pupil at work."If not then you can come here and it's readymade! Romain is an amateur, but he's devoted, enthusiastic and perfectionist. Like all top-class sportsmen he wants to get to the bottom of things. He really loves cooking and he's very humble and hungry to learn." The compliment goes straight to Grosjean's heart as he puts the finishing touches to his dish. When the chicken has been reconstituted he adds some oil, sticks in a thermometer and puts the beast into the oven for 1h 45m. "It'll be ready when the temperature's 82°. As accurate as a telemetry readout! Preparing the starter is a much simpler task. For his Egg Gabrielle he separates the white from the yolk, keeps the latter in its shell and then whips the whites. He butters a ramekin. "When you're with your friends and your egg doesn't want to come out of the dish, you look a bit of an idiot!" says Romain. He fills the ramekin half full of the white, puts the yolk in the centre and covers it to the edge of the pot. "Then you put it in a double boiler and cover it for three-four minutes and Bob's your uncle! The ideal thing is to accompany it with crème de champignons, blanched shallots over a low heat and fresh cream to which you add mushrooms and then mix it all together. Add some meat juices and the dish will make your mouth water. It's very easy to do and the wow reaction is guaranteed." We can vouch for that!

Boosted by KERS

In F1, drivers aren't always too keen on innovations. When KERS was introduced it presented a weight and packaging penalty, meaning that drivers looked closer at their diets. In Romain's case this only helped to boost his interest in his passion. "At the start of 2009, when Renault asked me to lose weight to fit into the car with the KERS system installed – if it turned out to be the case – I paid a lot more attention to what I ate. I quickly discovered that there was plenty of nice food to cook. The first chef who made me want to learn more was Marc Veyrat (the man with the hat, two-time Michelin 3 star and

awarded 20 out of 20 twice by the Gault et Millau Guide). He had a small programme on TV8 Mont-Blanc. I never missed an episode and when I was training on my rowing machine I put it in front of the box!" Romain decided to join a cooking school. Unfortunately it never happened, not only because of his hectic agenda, but also because of his age. "They don't take anybody under twenty-five. The fact that I knew the basics, had been to the great restaurants all over the the world and spoke English didn't make any difference, I didn't fit the bill. For me, the best school is here. Claude, Florian and Ludovic give me advice and with practice you learn the nuts and bolts. When you've got a grip of two or three basics then you can branch out and try different recipes." Ludovic Perraudin knows it all by heart: "You don't need that many qualities in the kitchen. Childhood memories, tasty dishes all help: the best technique isn't necessarily the most important thing."

Good times
We saw true complicity between master and pupil in the preparation of the food. "I met the Perraudin family in 2010," laughs Romain. "One of my friends never stopped talking about Claude - my girlfriend too. The first time I came here was the evening of a round of the Andros Trophy in Isola 2000. I just had my breakfast and I arrived back late in Paris. I'm greedy, and I didn't want any hassle so I rang Marion Jolles (from TF1) and asked her to book a table for me. As she did so in my name, Claude, whom I'd met in Dubai a short time before, put a bottle of champagne on ice for us. We left at four in the morning! This is how we became friends. Since then, whenever I have any spare time I like to spend it enjoying myself in the kitchen, coming here, chatting and having a look at the products."

Romain is strolling around the delicatessen when the thermometer hits 82°. The 'poulet en demi-deuil' is ready with fried potatoes, or as Ludovic suggests, tagliatelli. This mouth-watering dish is accompanied by a red Burgundy. After eating we decided to give the chef two stars in the AUTOhebdo Guide! Romain took advantage of it to say to our readers, "enjoy your meal!"

A politicians' hangout! The Pére Claude and its delicatessen

The restaurant Le Pére Claude, inaugurated in 1988, has become one of the favourite eating places of politicians from all parts of the French spectrum. Jacques Chirac is a faithful client. Among others are François Hollande, Alain Juppé and Jean-François Copé. "I once served Dominique de Villepin," admits Romain. In a convivial atmosphere you can taste some of the house specialties - frogs' legs, os à la moêlle goutière in veal juice, kidneys, sweetbreads with cream and truffles etc. Since 2009 the restaurant has added on a delicatessen. This is a real goldmine of flavours and products whose quality matches that of the in-house menu – including the famous 'poulet en demi-deuil!'

Le Père Claude
51 avenue de la Motte-Picquet,
75015 Paris

The Père Claude delicatessen
4 rue Général-de-Castelnau
75015 Paris

Tel: 33 (0) 1 47 34 04 04

Words Stéphane Enout (AUTOhebdo)

Romain's A-Z

Asia: Romain is the only man to have won the GP2 Asia Series twice – becoming champion in 2008 and 2011.
Bank job: To balance out the glamour of life as a Formula 1 racing driver (see J), Romain has put in plenty of stints of part-time work at a Swiss bank in Geneva.
Craftsman: Romain's grandfather on his mother's side was a very well known iron craftsman (Edgar Brandt) who constructed the ironwork on the unknown soldier's grave under the Arc de Triomphe.
Dual Nationality: Romain was born in Geneva to a Swiss father and a French mother on April 17, 1986.
Euroseries: Romain won the Formula 3 Euroseries title in 2007.
Formula Renault: Romain took a victory in his debut season in the French Formula Renault championship in 2004.
Gap year: Romain took a successful step back from F1 in 2010, becoming AutoGP champion despite missing a third of the season's races (see N).
Harbour master: After qualifying in 26th place for last year's Monaco feature race, Romain stormed through the field to finish 4th.
Ice ice baby: Kimi is not the only iceman in the Lotus line-up this year as Romain has also competed in Andros Trophy ice racing, taking a victory on only his second outing.
Jolles: Proving racing drivers – and bank workers – really do have a hard life, Romain's fiancée is French Formula 1 TV reporter Marion Jolles.
Karting: Romain made his debut competing in karts in 2000 at the age of 14. Only three years later he graduated to single-seaters**.**
Late starter: Romain's father wouldn't let him race until he improved his grades at school.
Multiple champion: The Frenchman is the only driver to have won the GP2 Asia and the GP2 Series in the same season (2011). Night owl: In 2010, Romain also fitted in victories in two of the first three races in the inaugural FIA GT1 world championship, plus visits to the Le Mans and Spa 24-Hour races.
Overtaking: Commentators gasped in disbelief as Romain pulled off a move to take three places in the space of two corners in last year's GP2 race in Barcelona.
Pau-fection: Romain has only made one appearance in the British F3 championship, but it wasn't too bad. At Pau in 2006 he took pole, then victory and fastest lap in both races.
Quick team-mates: After facing Fernando Alonso in 2009, now it's Kimi Räikkönen's turn.
Renault: Apart from his stints in Formula Renault, Romain already has seven F1 Grands Prix starts on his CV from his first stint in the top echelon with Renault.
Skiing: Romain's grandfather on his father's side, finished second in the skiing world championship in 1950, in Aspen.
Toques Blanches Lyonnaises: A very famous group of French chefs of which Romain is a member.
Unfinished business: Romain admits to an embarrassing moment in one Formula Renault race in 2004 when he stopped a lap too early…
Valencia: Romain made his Formula 1 debut at the 2009 European Grand Prix.
Winning habit: Romain has won at least one race in every year of his racing career, dating back to 2003.
X: Roman numerals time for Romain, who took a mighty total of X GPII Series podiums in MMXI, V of them on the top step.
You kidding? Let's be honest, there were a few better places that Romain could have picked to crash during practice for the 2009 Singapore Grand Prix…
Zolder: Romain took pole position for the prestigious Masters of F3 race at Zolder in 2007, only to stall at the start and finish 14th.

Jérôme D'Ambrosio
Lotus F1 Team Third Driver

"IT'S AN EXCITING NEXT STEP IN MY CAREER"

Jérôme D'Ambrosio has joined the team as third driver for the 2012 Formula 1 World Championship season. Jérôme, who competed last year as a race driver for Marussia Virgin Racing, will attend all races in 2012, working with the race driver pairing of Kimi Räikkönen and Romain Grosjean. The 26 year-old Belgian will participate in driver debrief sessions and be ready to stand-in for either of the two race drivers if required.

How does it feel to join the team?
It's a great feeling to be joining Lotus F1 Team and it's an exciting next step in my career. I contested a complete season in F1 as a race driver for a smaller team where I learnt a lot about Formula 1. Now I have the opportunity to work with one of the top teams with great potential for my future development. With my recent race experience I know I can make a valuable contribution to the team.

Wouldn't you rather be racing this year?
Of course, I would love to be racing, but racing with a top team. Being associated with Lotus F1 Team should be more beneficial than racing with a team further down the order. This opportunity is one I couldn't afford to miss. My desire to get back in a race seat in the future is motivating me to do the best job possible in my new position.

What do you think of Enstone?
I have known the team for a number of years and I am familiar with Enstone. It's a great facility and another world in size and amount of people; it's bigger and has so much potential and will give me so much opportunity to learn and develop as a race driver.

There's a new 'Driver in the Loop' simulator being built – will you be using this?
The new simulator will make up a big part of my contribution to the team during the season and it will also keep me sharp; I'm really looking forward to it and can't wait to start working with it. I can contribute highly to the team in this area. It's going to be a really intense programme once we're operational in that area – it's not just one session a week, it's full on. It's a really good tool for pushing development of the car and of myself as a driver so I am looking forward to doing a good job here.

As a driver who contested last season's championship what can you bring to the team?
I had a great season in Formula 1 and it was a fantastic opportunity but now I'm looking to develop. I can bring a lot more to the team with my race experience than someone who doesn't have any recent race knowledge. When you're first in Formula 1, everything is so new and so big. It's difficult to know where your focus should be, and how you should work, but this improves as your experience comes together. I know the tyres, I know the different compounds, and I have experience of the circuits and car set-up so I can contribute to the discussions with engineers and race drivers. I am very motivated to help the two race drivers and the team in any way I can, and of course I am always ready to get into the car if the opportunity ever arises. Having contested the 2011 season I'm race fit and raring to go.

What do you think of your team-mates, Kimi Räikkönen and Romain Grosjean?
I've never met Kimi so I'm looking forward to meeting him. He's a legend in Formula 1. I'm looking forward to watching him work with the engineers and understanding how a world champion goes about his work. I know Romain pretty well as we've raced together and been team-mates, we're the same generation of drivers, and we work well together.

How about the rest of the squad?
I know most of the team already so it will be great to be working closely with them. I had a great test with the team at the end of 2010 in Abu Dhabi so we all know each other and the feeling is great. I've had Eric Boullier as a team manager in GP2 so I know him well too.

Curriculum Vitae

After contesting the 2011 season as a race driver for Marussia Virgin Racing, Jérôme D'Ambrosio joins Lotus F1 Team for 2012 as third driver. Prior to his F1 debut, Jérôme contested the GP2 Series and GP2 Asia Series, and won the inaugural International Formula Master series.

KEY DETAILS
Date of birth 27 December 1985
Place of birth Etterbeek, Belgium
Nationality Belgian

KEY DATES
Pre 2002 – Karting
Jérôme starting karting at ten years old and was three times Belgian Champion, winning the Mini class in 1996, Junior in 2000 and Formula A in 2002. He won the Junior Monaco Kart Cup in 2000, and won World Cup Formula A in 2002.

2003 – 2005 - Formula Renault 1.6 Belgium – 1st / Formula König / Championnat de France Formula Renault 2.0 / Eurocup Formula Renault 2.0 / Formula Renault 2.0 Italia / Formula Renault Italia Winter Series – 3rd / Eurocup Formula Renault 2.0 / Italian Formula 3000 Light
D'Ambrosio moved into single-seaters in 2003, winning the Belgian Formula Renault (1.6 litre) championship, and finishing fourth in the German-based Formula König championship. He also won the Renault F1 Driver Development Programme, earning him a place on the programme for 2004. That year he finished fourth in the French Formula Renault 2-litre series. He switched to the Italian Formula Renault Championship in 2005, finishing fourth.

2006 – Euroseries 3000 / Formula Renault 3.5 Series / FIA GT Championship 2007 – International Formula Master
In 2006 he contested the Formula Renault 3.5 Series, with Tech 1 Racing, for four rounds. Then he switched to the Euroseries 3000, driving for Euronova Racing, taking three podium finishes and ending up fifth in the final standings despite missing the first half of the season. He also took part in a FIA GT Championship race, driving a Gillet Vertigo in the GT2 class. In 2007 he won the inaugural season of the International Formula Master series, with five race wins.

2008 – 2010 - GP2 Series DAMS GP2 Asia Series DAMS / Renault F1 Team Reserve Driver / Virgin Racing Test Driver
Jérôme contested the GP2 Series and GP2 Asia Series over three seasons, finishing as runner-up to team-mate Kamui Kobayashi in the Asia Series in the 2008-9 season. He took his first race win in the main Series in Monaco in 2010. In 2010 he also acted as reserve driver for Renault F1 Team and late in the season he drove for Virgin Racing during Friday first practice for three of the final four races.

2011 – Marussia Virgin Racing Race Driver
In 2011 Jérôme graduated to a race seat with Marussia Virgin Racing, as team-mate to Timo Glock. His best finishes were two 14th places, in Australia and Canada. In his home race, the Belgian Grand Prix, he finished 17th, beating his team-mate, Timo Glock.

iRace Professional
Young Driver Academy

Finding the F1 stars of tomorrow

A collaboration of Gravity Sports Management and Lotus F1 Team is working to find the Kimi Räikkönens and Romain Grosjeans of the future. Professional support is financed by new investment channels meaning that Lotus F1 Team will have a solid foundation upon which to nurture emerging motorsport talent.

The iRace Professional Programme includes development for the drivers in the following areas:

_ Driving skills
_ Physical Fitness
_ Health Education
_ Nutrition Consultation
_ Mental Development
_ Social Development
_ Business Ethics and Principals
_ PR Training

iRace Professional Drivers

Kevin Korjus

(Formula Renault 3.5)
Age 19
From Tallinn, Estonia

2012 Formula Renault 3.5
2011 5th, Formula Renault 3.5. The youngest person to ever win a FR3.5 race. Formula One Test driver for LRGP at Abu Dhabi Young Driver Test.
2010 1st, Formula Renault 2.0 Europe. 9 wins. The youngest person to ever win a FR2.0 race.
2009 5th, Formula Renault 2.0 Northern Europe.
2008 2nd, Formula Renault Finland. 3 wins.

Richie Stanaway

(Formula Renault 3.5)
Age 20
From Tauranga, New Zealand

2012 Formula Renault 3.5
2011 Formula Renault 3.5 1st, Formula 3 Germany, 13 wins. Race winner in GP3 in only his second race. Record-breaking 4th straight championship winning year in succession.
2010 1st, Formula Masters. 12 wins.
2009 1st, Toyota Racing Series New Zealand. 2 wins.
2008 1st, Formula Ford New Zealand.11 wins. Only second rookie ever to win the title.
2007 3rd, Formula First New Zealand. 4 wins.

Oscar Tunjo

(Formula Renault 2.0)
Age 16
From Cali, Colombia

2012 Formula Renault 2.0
2011 Eurocup 4th, Formula Renault 2.0 Junior Class.
2010 2nd, Formula BMW Pacific. 1 win.
2009 Number 1 graduate from Formula BMW Scholarship School, despite being the youngest driver entering.
2008 World Karting Championship
2004 Champion in all National and Regional Cadet Karting Championships in Colombia.
2001 At 5 years old, the youngest driver ever to receive a national Karting license

Estaban Ocon

(Formula Renault 2.0)
Age 15
From France

2012 Formula Renault 2.0 Eurocup.
2011 2nd, World KF3 Karting Championship. 1st, French KF3 Karting Championship.
2010 2nd, KF3 Trofeo Andrea Margutti.
2009 4th, KF3 Bridgestone Europe Cup.
2008 1st, French Cadet Championship.
2007 1st, French Minime Championship.

Dorian Boccolacci

(International KF3 Karting)
Age 13
From France

2012 International KF3 Karting Championships.
2011 1st, French KF3 Karting Championship. 2e, ERDF Masters Kart Juniors
2010 1st, French Championship (cadet), 1st, Bridgestone Cup (cadet).
2009 1st, Bridgestone Cup (Minime). 4th, French Minime Championship.
2008 12th, French Minime Championship. 8th, Bridgestone Cup (Minime).

E20: Technical Overview

James Allison: Formula 1 2012 Specification

Lotus F1 Team Technical Director James Allison looks to the season ahead...

How different is 2012 likely to be from 2011?
If you casually flicked through the regulations you'd be forgiven for thinking that there aren't many differences from last year, however nestling in there are some fairly profound changes. The most notable changes relate to the exhaust. The teams decided around Silverstone in 2011 that we were going to get rid of exhaust blown rear diffusers, and that point alone requires a very different design concept. Recent car designs have been heavily influenced by their rear exhaust configurations, and the intent of the rule is to stop that happening. The rules on the exhaust geometries themselves have been reinforced by some engine operation rules which don't sit in the technical regulations, but which arrived by Technical Directive quite late last year. The exhaust issue, although agreed in principle at Silverstone, continued to unfold as late as mid-November, so the challenge has been to roll with the punches as the detail emerged over a fairly extended period – trying to make the best of each version of the rules as they've come out, whilst trying to anticipate where the end position is going to be. It's certainly been an area which has preoccupied us and I imagine the rest of the grid too.

How much will the new regulations affect what we see on track?
Last year's cars had quite a variety of exhaust layouts, with differing levels of success. If the latest rules really have been successful in resetting the power of the exhausts to a much lower level, then that's an opportunity for a reshuffle of the pack.

What are your feelings on working with two new drivers for 2012?
Romain put in two very promising sessions at the end of last season, having not driven an F1 can for more than a year. He jumped in the car and was immediately competitive with our race drivers at the time, in a quite impressive fashion. I think that has gone a long way to getting him the ride for this year. So we're looking forward to a strong start with him.
Kimi's recent test in Valencia with the R30 showed that he has lost none of his speed and that he is full of appetite for the season ahead. It is going to be great for us to work with a driver of such clear quality.

What is completely new and what is more familiar on the E20?
Depending on where you look, some parts of the new car are a ground-up redesign and in other areas we have further optimised the best bits of the design philosophy we've adopted for several seasons. As far as the exhausts are concerned, our forward exhausts would now be illegal under the new rules and didn't live up to our expectations in any case. So that part of the car we say goodbye to and welcome in a complete re-design. The front and rear suspension layouts are substantially revised to try and give us better aerodynamic opportunities. The front wing is a continuation of the concepts we have worked on since the 2009 rules were published. The rear wing system, we've continued to try to work on having a satisfactory level of rear downforce stability, whilst having a maximum DRS switching potential.

How much help is the team's enhanced 60% wind tunnel for developing the E20?
The 60% wind tunnel has allowed us to expand dramatically the realism of the tests that we perform in our wind tunnel, so we get the car to more realistic steer and yaw values. Those are pretty fundamental things. That hopefully means that the car will be more tolerant of a wider range of cornering conditions.

How do you expect the E20 to perform?
We've worked hard and long on the car. We have tried to react to the regulatory picture as it's unfolded, but we will only really start to be able to judge how well we have done once we start to run the car in pre-season. Even then we won't really know until qualifying in Melbourne.

The testing schedule is rather different this year – nothing till February, then three tests followed by an in-season test at Mugello – does this make a difference?
The testing schedule with Mugello later on for this year gives us a fairly clear target mid-season. If there is anything particularly ambitious that we can't achieve at the start of the year, that is the point to aim for because it's our one opportunity to get a controlled test of an upgrade, rather than the type of compromised test when you run on a Friday.

There are 20 races scheduled and a test part-way through the year – how much of a challenge is this intensity for the season ahead?
The main challenge of 20 races is finding the stamina to keep up with such a gruelling schedule. We are sized appropriately for the current regulations of test bans and no test teams, and so all of the resources that we have to go racing come from the race team. Those 20 races, which kick-off with three pre-season tests that start in February, then go on to late November. With the exception of a brief window in August, where racing stops for a short while, it's an unrelenting grind for the guys who are the travelling teams. The challenge is to keep your energy up during what is now a very, very long season.

It's the second season of Pirelli's return to F1 – what can we expect from the 2012 rubber?
We ran the new Pirelli tyres in the Abu Dhabi test last year. It's fairly difficult to draw a clear conclusion, because you are not using your regular drivers and this makes it difficult to see the underlying performance of the tyres. But from what we could tell from our instrumentation the 2012 construction was not substantially different in its performance to the 2011 tyre. It remains to be seen how aggressive or otherwise Pirelli will be with their compounding. I'm not expecting big changes.

2012 will also see the second season of DRS can we expect any changes here?
Many teams, including us, spent a lot of time last year trying to find the right balance between stability and drag step. It will be slightly easier a year on to get that balance right. For the FIA, who have the responsibility of selecting the DRS switching point on the circuit, each track last year was a new venture for them A year on it will be much less of an adventure or the FIA to choose exactly where to put the DRS line for best effect. In places where by common consent overtaking was too easy last year they will make an appropriate adjustment to get a better result in 2012.

What's new about the E20?

1. **No forward blown exhaust – replaced with top exit exhausts**
   The 2011 generation of blown floors are discarded. For 2012, the exhaust must exit in a prescribed box that is in a similar location to the top exit exhausts of circa 2008. It is also subjected to particular exit angles and diameter as a means of providing further restriction.

2. **Lower noses**
   The nose regulations have changed, so the high-tip nose isn't allowed for improved safety. The car noses are lowered to 550mm above the reference plane (previously they could be 625mm high). This is to ensure that all parts of the nose are definitely below the height of the cockpit sides in the event of a T-Bone type of crash.

3. **Repositioned track-rod**
   Last year the track rod was aligned with the lower wishbone, now it's separate.

4. **Single apertures for suspension legs**
   Each suspension leg that emerges from the rear bodywork may have just one aperture. Suspension apertures allow the team a certain amount of aerodynamic development possibilities and from an aerodynamicists point of view, the more apertures the merrier.

5. **Captive wheel nuts for quicker pit stops**
   With no refuelling, the speed of the pit stop is defined by how quickly the tyres can be changed so every saving of a tenth of a second is invaluable. The nuts are now held to the wheels. As an aside, helium is banned for use in the pit stop guns for 2012 – the use of this low density gas enabled the guns to spin up to 30% faster, but it's very expensive.

6. **Panels**
   To give better protection to the driver in the event that a car T-bones him from the side, the homologated intrusion panel is increased in height to 550mm above the reference plane (the same height as the highest part of the new nose regulation above).

7. **FOM cameras**
   Recent seasons has seen the FOM nose cameras located in a manner clearly aimed at promoting the performance of the front wing rather than to deliver effective TV pictures. Now there is a minimum standard for the field of view of any nose mounted camera. A similar minor change is made to the roll hoop camera location to ensure that a clear picture is not sacrificed on the altar of downforce.

The E20 in numbers

0	The time taken in seconds for the gearbox of the E20 to change gear (drive is never lost during the gearshift).
0.1	How much faster in seconds the E20 goes each lap due to the reducing weight as the car burns fuel (not accounting for tyre degradation).
1.6	The time in seconds for the E20 to decelerate from 100 km/h to standstill.
3.0	The average time for the pit crew to change all four wheels and tyres at a pitstop.
4.9	How many seconds it takes for the E20 to reach 200 km/h from standstill.
5	The number of consecutive races each gearbox must survive before it can be changed without suffering a five-place grid penalty.
6	How many hours it takes for a complete rebuild of the car at the track with 12 mechanics (assuming sub-assembly is already complete). From scratch at the factory it would take 150 people seven days.
6.67	The number of seconds per lap that the KERS electric motor can be activated at full power.
7	The number of gears in the E20's gearbox.
8	The number of engines allocated to each driver in 2012.
10	The weight of a Pirelli front tyre in kilograms.
18.5	In psi, this is the average pressure for an F1 tyre.
30	The weight of a driver's head and helmet in kilograms during maximum braking of 4.5G (the same as a heavy suitcase).
42	The number of revolutions per second by a tyre when the E20 is travelling at 300 km/h.
60	The amount of water dispersed in litres per second by a wet Pirelli tyre travelling at 300 km/h.
87.75	The impact energy in kilojoules that must be withstood by the nose of the car when it is crash tested by the FIA. This is the same amount of energy as would be required to stop a 4 tonne elephant moving towards you at 25km/h.
90	The operating temperature in degrees Celsius of each Pirelli tyre.
130	Measured in decibels, this is how loud the RS27-2012 engine is at full revs.
400	The amount of braking energy in kilojoules that the KERS generator can place into the KERS battery in a single lap.
500	The temperature in degrees Celsius reached by the clutch during a race.
640	The minimum weight of the car in kilograms
900	The temperature in degrees Celsius of the exhaust gases when the car is on full throttle.
1,100	In degrees Celsius, this is the temperature a brake disc can reach during the race.
1,500	This is the total number of moving parts in each RS27-2012 V8 engine.
2,500	The number of gear changes the drivers have to make during an average Grand Prix.

4,000	The total number of parts that make up each RS27-2012 V8 engine.
11,000	The number of technical drawings produced by the time of the E20 car build (28% more than any previous car).
10,000	The number of aero parts tested annually in the wind tunnel.
30,000	The number of individual parts that make up each E20.
250,000	The amount of man hours that have gone into the design of the E20.

Lotus F1 Team E20 Technical Specifications

Chassis
Moulded carbon fibre and aluminium honeycomb composite monocoque, manufactured by Lotus F1 Team and designed for maximum strength with minimum weight. RS27-2012 V8 engine installed as a fully-stressed member.

Front suspension
Carbon fibre top and bottom wishbones operate an inboard rocker via a pushrod system. This is connected to a torsion bar and damper units which are mounted inside the front of the monocoque. Aluminium uprights and OZ machined magnesium wheels.

Rear suspension
Carbon fibre top and bottom wishbones with pull rod operated torsion springs and transverse-mounted damper units mounted in the top of the gearbox casing. Aluminium uprights and OZ machined magnesium wheels.

Transmission
Seven-speed semi-automatic titanium gearbox with reverse gear. “Quickshift” system in operation to maximise speed of gearshifts.

Fuel system
Kevlar-reinforced rubber fuel cell by ATL.

Cooling system
Separate oil and water radiators located in the car’s sidepods and cooled using airflow from the car’s forward motion.

Electrical
MES-Microsoft Standard Electronic Control Unit.

Braking system
Carbon discs and pads. Calipers by AP Racing.
Master cylinders by AP racing and Brembo.

Cockpit
Removable driver’s seat made of anatomically formed carbon composite, with six-point or eight-point harness seat belt by OMP Racing. Steering wheel integrates gear change, clutch paddles, and rear wing adjuster.

KERS
Motor generator unit driving into front of engine with batteries as an energy store. Motor Generator supplied by Renault Sport F1. Electronic control unit by Magneti-Marelli.

DIMENSIONS AND WEIGHT

Front track	1450 mm
Rear track	1400 mm
Overall length	5038 mm
Overall height	950 mm
Overall width	1800 mm
Overall weight	640 kg, with driver, cameras and ballast

RS27-2012 Engine Technical Specifications

Configuration	2.4l V8
No of cylinders	8
No of valves	32
Displacement	2400 cc
Weight	95 kg
V angle	90°
RPM	18,000
Fuel	Total
Oil	Total
Power output	750 bhp
Spark plugs	Semi surface discharge
Ignition system	High energy inductive
Pistons	Aluminium alloy
Engine block	Aluminium alloy
Crankshaft	Nitrided alloy steel with tungsten alloy counterweights
Connecting rods	Titanium alloy
Throttle system	8 butterflies

2012 Rules and Regulations

Lower Noses
The car noses are lowered to 550mm above the reference plane (previously they could be 625mm high). This is to ensure that all parts of the nose are definitely below the height of the cockpit sides in the event of a T-Bone type of crash.

Panels
To give better protection to the driver in the event that a car T-bones him from the side, the homologated intrusion panel is increased in height to 550mm above the reference plane (the same height as the highest part of the new nose regulation above).

Apertures and aerodynamics
An ambiguity in art 3.8.5 is cleared up to make it entirely clear that each suspension leg that emerges from the rear bodywork may have just one aperture. Suspension apertures allow the team a certain amount of aerodynamic development possibilities and from an aerodynamicists point of view, the more apertures the merrier.

Weight distribution
The 2011 regulations introduced a limited range of adjustment for weight distribution to cover the introduction of Pirelli tyres. This regulation proved successful and has now been extended to 2013.

FOM Cameras
Recent seasons has seen the FOM nose cameras located in a manner clearly aimed at promoting the performance of the front wing rather than to deliver effective TV pictures. A new article (20.3.4) has been introduced to ensure a minimum standard for the field of view of any nose mounted camera. A similar minor change is made to the roll hoop camera location to ensure that a clear picture is not sacrificed on the altar of downforce.

Suspension
Suspension members (wishbones/trackrods etc) are bound by strict aerodynamic limitations (limited chord, symmetrical section, maximum incidence angles etc). This is not true of the uprights which hold the wheel on to the suspension. Their design has always been free. There existed a possibility (albeit never yet exploited) that someone would make a giant, aerodynamic upright to make use of this hypothetical freedom. A change to article 10.5.3 has been introduced to ensure that the uprights may not protrude beyond the volume currently allowed for brake ducts – this prevents the giant upright problem from ever occurring.

Car floor
The floor under an F1 car (the so called step and reference planes) has to be designed flat. Because things cannot be made perfectly flat, a manufacturing tolerance of +/-5mm was permitted. It was felt latterly that this 5mm tolerance allowed for opportunities to design [illegally] some mild contours into the floor. To clamp down on this possibility, the tolerance has been reduced to +/-3mm.

Helium
Helium is capable of making the pit stop guns run at higher power for a given gas pressure. It is ruinously expensive however and has been banned for 2012.

Absorbing structures
Each car is fitted with energy absorbing structures on the side of the chassis which act as crumple zones in the event of a side on shunt. These structures are subjected to a crash test at the start of the season where a loaded sled hits them absolutely square on to the chassis. In addition, the structures have to pass a robustness test where they are subjected to a horizontal push-off load to make sure that they will not just flick off the car in the event that they experience a real crash that is not exactly perpendicular to the chassis. In previous seasons it has also had to be demonstrated by making stress calculations that the structures would be OK if subjected to a vertical load. For 2012, this stress calculation test is replaced by a physical test as a means of being certain.

Exhausts
The 2011 generation of blown floors are discarded. For 2012, the exhaust must exit in a prescribed box that is in a similar location to the top exit exhausts of circa 2008. It is also subjected to particular exit angles and diameter as a means of providing further restriction. This does not mean that exhaust generated downforce is a thing of the past – it is very hard to stuff that back into Pandora's box

Technical Directives
For many years there was a growing list of Technical Directives offering guidance on how to operate the electronics and software side of the car in a legal manner. There has been a concerted effort this year by the teams and the FIA to bring the settled parts of these TDs into the main body of the technical regulation to provide a more convenient and more permanent home for them.

Movers and Shakers at Enstone

New faces and familiar faces in new roles.

Paul Seaby

Current job title Race Team Manager
Previous job title Engineering Coordinator
Lives Shipston on Stour, Warwickshire
Age 45

If you weren't doing this what would you be doing
Working in the retail motor trade probably… how boring!

Favourite Lotus (race, road or both)
The Lotus 79 was my favourite driven by Mario Andretti, It was the first F1 car that caught my eye.

Greg Baker

Current job title Race team chief mechanic
Previous job title Race team number 1 mechanic
Lives Keresley End, Coventry
Age 46

If you weren't doing this what would you be doing
This is the only thing I have ever wanted to do!

Favourite Lotus (race, road or both)
Race: Ronnie Petersons Lotus 72. Road: 1972 Lotus Europe in Gold Leaf colours.

Daniel Pugh

Current job title Floating No.1 Mechanic
Previous job title No.1 Showcar Mechanic
Lives Horsham, West Sussex
Age 34

If you weren't doing this what would you be doing
Probably working in some car dealership somewhere!

Favourite Lotus (race, road or both)
James Bond's Turbo Esprit

Phil Mitchell

Current job title Engineering co-ordinator
Previous job title Senior Mechanical Designer
Lives Warwick
Age 45

If you weren't doing this what would you be doing
Architect. I am a great admirer of 20s and 30s modernist architecture.

Favourite Lotus (race, road or both)
Race; Lotus 88, the twin chassis car, a great example of Lotus innovation. Road; Early Esprit , clean simple styling.

Chris Richards

Current job title Performance Engineer (for Romain)
Previous job title Race Support Engineer
Lives Cookham, Berkshire
Age 32

If you weren't doing this what would you be doing
Travelling
Favourite Lotus (race, road or both)
1960s Lotus Elan

Julien Simon-Chautemps

Current job title Performance Engineer (Kimi Räikkönen)
Previous job title Same in Lotus Racing (now Caterham F1) and Toyota F1
Lives Oxford
Age 33

If you weren't doing this what would you be doing
I am doing what I always wanted to do.
Favourite Lotus (race, road or both)
340R

Tom Maton

Current job title Number 2 mechanic
Previous job title Number 1 mechanic. Fortec Motorsport Formula Three Team
Lives Witney, Oxfordshire
Age 27

If you weren't doing this what would you be doing
Something else in motorsport
Favourite Lotus (race, road or both)
1985 lotus 97T

Enstone: A question of pride

At Enstone, the home and the heart of Lotus F1 Team, the workforce strives hard to fulfil the team's goals on the track. Team work, passion and the desire to win begins in the factory.

Ever since its beginnings back in the 1950s, F1, the pinnacle of international motor racing, has been bathed in glamour.

You'd be forgiven for thinking that F1 thrives on corporate hospitality, motorhomes serving gourmet food, supermodels, champagne, and a cavalcade of glitter and fizz wafting around the paddock, a place as full now of Hollywood A-listers, TV cameras and pit girls as mechanics, team principals and technicians. Yet despite becoming the multi-million dollar business it is, F1 demands the same grit, grease and determination motor racing has always done. Only in spades. Behind the velvet rope, Lotus F1 Team's base in Enstone appears, at first, to be sleepy by comparison.

Tucked away in the Oxfordshire countryside far away from the roustabout that is the world's finest racing series, work continues unabated. The atmosphere at Enstone is determined, even studious. The near silent efficiency in which the workforce is going about its business feels uncanny. Yet things here are moving incredibly quickly. The days when a race car would be designed then 'tweaked' over the course of a season are long gone.

At Enstone major components of the cars can be redesigned, rebuilt and retested between each race, with the performance of the car tailored to each of the 20 different race tracks on the F1 calendar. You'd better be sure people are working fast. As with any F1 organization, this team has seen its share of ups and downs over the years. But despite having changed ownership so recently, its DNA remains largely untouched.

According to the staff working here, the atmosphere is exceptionally friendly for an F1 team, with people from different departments sharing ideas and experiences freely. Enstone employees understand better than most the transient nature of F1 success. The workforce is the backbone of Lotus F1 Team, and it has learnt to weather change by controlling their attitude to it. Performance at Enstone has got better by change, not by chance.

I think people work better when they are working in a harmonious way," says marketing account manager, Luca Mazzocco, of the team's friendly attitude. "Hierarchical control is important here but if you work with a team spirit, it reflects well on who we are and what we do." Which explains, says Luca, the team's world championship success in 1995 and then again, back-to-back, ten years later.

"You can see a pattern – if you look at '94 and '95 – Benetton had a team that inspired better results than the bigger players, and then won in 1995. But then this team did it again ten years later and achieved two consecutive championships in 2005 and 2006." Luca is keen to point out that it's coming up to ten years since the team last peaked. "You know there could be a genuine cycle there. It's what I believe, that we are ascending again." But even between the highlights, LRGP takes huge pride in how the team works together, even in the face of adversity.

"You really see the team at its best when people have to pull together to gets things done under great pressure," says Jenny Moore, travelling spares coordinator. "Moments when something has been developed late and has to be pushed through quickly. People work really well as a team to get it out of the door.

These are the times when you are reminded of just how good everyone is, and how good people are at working as a team to get the cars out on the track and running well. It's a great feeling."

At Lotus F1 Team, management has to balance experience with innovation, craftsmanship with efficiency and organization with communication. It's a constant battle to get right and success lies with its employees. As head of CFD, Jarrod Murphy says, "Winning is definitely about the people and how they work together. It's as simple as that. It defines what this team is."

Cary Kravets (1.5 years)
Junior Mechanical Designer
American junior mechanical designer Cary Kravets came to Enstone a year and a half ago fresh from Oxford Brookes, where he completed a Masters in Motorsport Engineering. He is now part of the mechanical design group.
“F1 was like this untouchable thing,” explains Cary excitedly, “...a couple of hundred engineers in the whole world get to go race these cars. We’re all part of something very special.”
Cary certainly has a fresh take on things and despite being one of Enstone’s newest faces he has worked on designing the oil tank, fuel cell and steering wheel. While other members of his team are assigned to specific areas, his training means he doesn’t yet have a specialization. so far he says he’s enjoyed working on the steering wheel the most. “It’s kind of the glory part; I got to work with the drivers to ensure that each steering wheel was how they wanted it.”
Cary is honing his skills by talking to more experienced members of the team, not just with people in the design office but in the build shop too, with the mechanics and the machinists. “They’re very open to my going down there and discussing things and answering questions like ‘how did you make this part?’.”
It’s an incredible opportunity. I love how fast everything goes, and it’s a never-ending development. We’ve got a new wing almost every race, something new on the car all the time; you’ll design a part and a week later it’ll be ready to go on the track. In any other industry you wouldn’t find a turnaround time anything like as fast as what we’re capable of here. It’s rewarding to create something that you can hold in your hands so quickly.”

Chris Martin (30 years)
Fabricator/Welder
Chris Martin joined in 1981 and is the longest serving employee at Enstone. The Fabrication department makes the metal components of the car - parts including radiators, exhausts, oil and water pipes - out of aluminium and titanium.
The work is exacting and highly-skilled and demands meticulous precision: “Everything [on the car] is so compact now,” explains Martin. There is no space for error. Everything is exact. Everything we make has to be right. Everyone knows that.
It’s a given to work to such a high standard and it’s a level that everyone is at and a level that we all work to. Personally, I like having to be so precise in my work and I take pride in what I do.”
Employees in fabrication have been working together for a long time and know one another well, which is important for when the job is at its toughest during the winter time: “When we are making a new car the mid January deadline is immoveable, so you have to put the hours in to get it done. But everyone just pulls together and gets on with it.”
Despite being so far from the track, even in the fabrication department the desire to excel is fierce: “We are constantly pushing the boundaries of the materials and working in such a way makes you very competitive. I think this unites everyone at Enstone regardless of their personality type. The best moments are watching the car go over the line in first position. We have had several world championships here and winning is a fantastic feeling.”

Luca Mazzocco (15 years)
Marketing Account Manager
Marketing account manager Luca Mazzocco has worked at Enstone for 15 years and is the longest serving member of the marketing team.
“As soon as I came here in 1996... I felt very comfortable. It’s very friendly, very open here. Obviously at work you need to have a system - people give orders and people execute them. But people know they are free to express themselves and present new and different ways of doing things.”
Luca says that, ultimately, this openness is responsible for the success of the team: “The Enstone-based team is not just the same core of people; otherwise - inevitably - it would grow old and die. It’s a mix of new blood too and fresh new approaches are equally important. Despite management changes, I haven’t seen any change in this friendliness and openness.”
As Luca’s job is to look after clients - he travels not just to many of the F1 races, but also to testing, car launches and other sponsorship commitments where he entertains VIP guests - this accessibility is invaluable: “Even if the mechanics are super busy working on the car they still make time to make clients feel at home and feel part of the team. It’s the same in the factory.
It’s clearly because people here love what they do and are proud of their work. Nobody is pointing a machine gun at them, people work late because they love their jobs and because they understand what it means to be part of a team. You couldn’t exist in a place like this if you didn’t love what you do.”

Jenny Moore (10 years)
Travelling Spares Coordinator

In Canada it was very cold and wet so let's just say we relied on our humour," laughs Jenny Moore, "...It already feels like a long time ago." It isn't, it's the following Wednesday and Jenny Moore, Travelling Spares Coordinator - and the only woman to work in the pit lane garage for the Lotus F1 Team - looks tired. Jenny has been coordinating spares at Enstone for almost five years but 2011 was her first full racing season working at the track. Based in the garage with the mechanics on race days she is also responsible for some tyre blankets (she takes one blanket off in the garage and on the grid for the race) and is 'nose off' on the pit stop, when required.

"Thankfully I haven't had to do that yet. It's all quite a thrill though and very hard work, challenging but also good fun. I was a PA for many years and I learnt to be very organized and pre-empt scenarios that may throw up different problems. I try to think ahead about which parts will be needed."

Jenny spends a lot of her time checking the stock so she knows exactly what is there and in what quantity so she can access it quickly. "I like to travel out early to get everything ready so that when the mechanics arrive everything is there. They are very focused on what they want to build and how long they've got to do it. You often have all of the mechanics asking for things at the same time so you have to know which jobs will take the most build time and then get those parts out first, and in order. You have to have a knowledge of the parts and where they go and how long jobs take. Then the mechanics stand the best chance to get the cars back out on track as quickly as possible."

David Hamer (23 years)
Senior Vehicle Performance Group Engineer

David Hamer has been with the Renault team since 1988. Originally responsible for the team's R&D facilities, he now runs the seven-post shaker rig performing technical analysis on the cars by simulating the forces they'll be subjected to on the racetrack. He has also worked at Lola and Arrows.

"I do track replay work," says David. "On this rig you actually profile the surface of every circuit that we race on, not just all of the bumps on the track but also the way the downforce is applied. It's quite a tricky thing to get right because the downforce can disturb the natural response of the car. A lot of people didn't make much progress with track replay but we stuck with it and our system incorporates elements we've added, even made ourselves, to tailor it to our exact needs."

David says that developing the system has taken many, many years and comes from his experience in testing; experience that has also been applied to the rig's software and data analysis. Where the team used to measure different elements using graphs to evaluate performance. Now they measure the force between the tyre and the road - the contact patch - and have an algorithm that allows them to convert it into a lap time. "This means whenever we make a change on the rig we generate an estimate of a lap time improvement or degradation. It's given us a means of saying that a car's set-up is faster by this amount and we can actually give a number that estimates the compromise between aerodynamics and mechanical grip. It's the biggest contribution I've made to this team and I suppose you could say I'm very proud of it."

Jarrod Murphy (15 years)
Head of Computational Fluid Dynamics (CFD)

Jarrod Murphy's tall frame leads us through a set of large doors, down a long corridor and into the heart of the Lotus F1 Team's Computational fluid dynamics (CFD) department housed in what is essentially a series of large rooms in a bunker-like building built into a hill behind the main Enstone factory. Like everywhere else at Enstone, the place is spotless, but here especially so. The facility is so new the floors shine.

Jarrod has been with the team since 1996, his first job in F1. Recruited straight out of university he spent three years in the stress department before moving into CFD: "We have one of the strongest CFD facilities in F1," states Murphy proudly, punching in a security access code and showing the 'cluster' - huge banks of computers running millions of computational simulations simultaneously, and noisily, it has to be said. "That's the noise of the fans because the cluster is running 24/7 evaluating many different ideas, and concepts. Usually new ideas start off in CFD before putting them into the wind tunnel to get some tunnel data. We're getting data constantly. It's the rate at which we find them that's crucial. All of the teams are improving their cars all the time; no team is standing still, so our job is to find them at a quicker rate than the other teams."

Murphy admits his team is motivated to do better, and be better, than other teams. To see the car move up the grid by developing it more quickly and, he stresses, faster than the others teams are developing their cars. This success lies in managing the working process efficiently: "The more efficient we are, the more ideas we can get through the cluster. This increases our hit-rate which translates directly to better performance on the track. Engineers like solving problems and the problem is trying to generate more

downforce within the rules that you're given. The ultimate gauge of our department's performance is the amount of downforce we put on the car, so it's a clear indicator of how good a job we're doing."

Bold Type

At $1 million, even the price gets the heart racing. Welcome to Lotus's Formula One-inspired single-seater: The Type 125.

As an experience – euphorically and financially – it ranks alongside Richard Branson's proposed Virgin Galactic space flights. The difference here is that you're behind the wheel, and you're all alone.

Well, not completely alone. Driving the Lotus Type 125 takes a bit of getting used to, and Lotus is there to help owners get the most out of themselves and the car. By placing an order for the Type 125 not only do you get a 560kg 640bhp state-of-the-art machine, you also get some very famous mentors: Formula One legends Jean Alesi and Nigel Mansell.

It's a bit like joining a golf club and your caddy turns out to be Nick Faldo. Or, if we're to compare it to a gentlemen's club – for this is one of the most elite members clubs imaginable – it's like walking into a drawing room to find Hugh Hefner and Noel Coward at the bar. Except here everyone's clad in Nomex, not dressing gowns.

Only around ten Type 125s are likely to be built by Lotus each year so, technically, there are fewer seats than in F1-proper. It's also – going by the average 'pay driver' rate this season – considerably cheaper.

The car needed to be designed to give a breathless and authentic Formula One experience while being forgiving, safe, reliable and possible for a mere mortal to drive. After all, few of the Type 125's millionaire owners will be professional racing drivers with torsos the shape of Toblerone.
Jean Alesi headed up the car's on-track development from the start.

"Every Formula One driver arrives in the sport with a lot of experience; they're very fit and thin. Most normal people couldn't even fit in an F1 car let alone drive it. It can be very difficult. The Type 125 gives you all the fun of an F1 car, but without the pain. It is still very physical, but it is easier to control and with a bigger cockpit. It is also easier to maintain, and you don't need a crew of a dozen people to start it up and keep it running like you do in a grand prix. Instead, the Type 125 is started at the touch of a button. All of this, I said from the very beginning, would be very important for our customers."

The project has been in development for a couple of years now, as Alesi and his team have honed the car's dynamic elements to fulfil their target attributes.

In September 2011 Group Lotus sent the car to Enstone, the headquarters of its F1 team, for its final phase of development. Newly-announced race driver Romain Grosjean put the Type 125 through its paces at Portugal's Portimão circuit in November as engineers honed the car's characteristics and performance envelope to replicate those of a current generation Formula One beast, while keeping it safe, approachable and reliable for Lotus's private customers.
"The idea was to bring the car as close as possible to F1 level," explains Romain. "We needed a car that was close to the lap time of a Formula One car, but that was also easy to drive. We achieved a strong level of performance and sensation, but it is not too hard or too on-the-limit to drive which is important. We did a lot of laps during our three-day test and we had no reliability issues at all. Everything worked perfectly."

Inside and out of the cockpit, the Type 125 is hard to differentiate from Romain Grosjean and Kimi Räikkönen's 2012 office. Enstone added a huge amount of downforce to the car – more than F1 rules allow – largely aided by a dustbin-sized rear diffuser and the removal of extra weight.

"Some things were quite funny," recalls Romain from the Portimão test, "like the auto clutch the car has for when you leave the garage and the option of auto up-shift, which seemed odd the first time I used it – a bit like a computer game – but it works well."

Enstone also worked on build quality, something an F1 team knows more about than any other industry. The Type 125's 640bhp 3.5 litre Cosworth V8 engine – much like the one used in IndyCar - is linked to a six-speed gearbox with paddle shift.

The car's featherweight 560kg results in a phenomenal power-to-weight of nearly 1000bhp per tonne. "That's more than enough," confirms Alesi. "It is much faster than the Formula One cars I drove in the 1990s."

For those with the means, the Type 125 is the chance to put themselves in the fireproof shoes of heroes like Mansell and Alesi, and to be coached by them. And with the practical aspects the car benefits from, they'll be able to enjoy it beyond even Michael Schumacher's retirement age. Whatever that will be.

Renault Sport F1

"This year we will deliver more driveability and flexibility than ever before"

The Renault V8 normally aspirated 2.4l RS27 engine will power the Enstone-based team again this year. Now entering its sixth season of competition since the engine freeze of 2007, the RS27 is a highly optimised power unit, with each engine capable of producing more than 750bhp and a straightline top speed of more than 340kph.

Thanks to strides in reliability and durability, each 95 kg unit is now capable of running an equivalent of over ten race distances. This reliability was one of the hallmarks of the RS27 in 2011 and, in comparison with other engine manufacturers, allowed a greater flexibility when it came to choosing race strategies and engine usage.

ENGINE PLAN

Head of track operations Rémi Taffin explains; 'At the beginning of the season we start with an ideal plan of how to use engines. With only eight engines allowed you need to use some units three times and be confident that each time of use it will deliver the same performance. We were confident in this respect as we used one engine on track to cover 3,000km with very little performance deficit.

"As an engine supplier, we don't want to compromise the ideal scenario. This is why behind the scenes we're always pushing for complete reliability from every part."

With over 5,000 parts in one engine, getting optimal reliability from each one from start of life to end of life is a massive task, and one of the main reasons why Renault Sport F1 continues to push at its base in Viry-Châtillon.

HAPPY NEW YEAR

Even in the short gap between 2011 and 2012 considerable progress has been made, as Renault Sport F1's design office director, Axel Plasse, explains, "Under the FIA technical regulations, modifications may be made to engines to optimise chassis installation to improve reliability, so between seasons we have worked hard to optimize parts to give consistency across their life, and therefore give consistency across all our engines, regardless of their mileage.

"One example of a minor, but significant change we've made this year is to the conrods. Due to their usage, the conrods are one of the most stressed of the engine parts. This year we have strengthened the bush to make it thicker and more resistant. Since the conrod is connected through the piston to the crankshaft, we've also reinforced these parts, as a small change on one side could affect reliability on the other side.

"Therefore we've also strengthened the pistons, which was one of the weakest links of our engine. This should allow us to deliver engines with a theoretically unlimited kilometre range within the tacit three race weekend per engine expectation, which will give us an advantage in terms of flexibility with 20 races on the calendar this year."

Rémi continues, "Twenty races, one more than last year, means that more engines will have to be used for three races. These small changes will allow us to deliver even more driveability and flexibility than ever before this year. It can be a massive help in the hunt for points."

DID YOU KNOW?

Blown floors and the use of exhaust gases are now banned so Enstone designers have taken considerable time redefining the exhaust outlets. This year the exhaust outlets have been reopened, which means a slower exhaust flow as the gas is not being condensed into a restricted space. The knock on effect of this is a greater engine power as the exhaust is not restricted; this could be in the region of 10 – 20bhp more than 2011. As a result top speed on the straight is likely to be higher, so with DRS open, at Monza you will see the highest speeds we've seen in some time; expect 345kph or more.

TOTAL in Formula 1
Christophe de Margerie, CEO, Total

We live in interesting times. The world around us is experiencing a sweeping transformation, as traditional balances of power shift and new stakeholders emerge, creating a new deal and a new order. We have a responsibility to innovate; to add value and vision to our processes and products to deliver enhanced energy efficiency that will enable our customers to use less energy, more efficiently.

As the pinnacle of motor sports, Formula One has to keep pace with these changes by taking a new approach to racing and component competitiveness. It has to be part of the search for clean technology and continuous improvement and reclaim its role as a recognized incubator for innovation. We're working on this with our partners.

Total's involvement in Formula One racing is much more than just a communication exercise. It is proof of our commitment to making our products even more efficient. Our fuel and lubricant R&D never stops.

For over 40 years, Total's demanding standards have driven our quest for technological excellence and performance. We are constantly challenging ourselves, promoting boldness and pushing the envelope to satisfy our customers.

Motor racing teaches our engineers to innovate, look at things differently, respond immediately and be more efficient. The time this saves is valuable and, when combined with their know-how, facilitates the transfer of technology and expertise to consumers.

Total is already a top-tier international oil and gas company. Now our ambition is to build an energy company capable of meeting the many challenges that lie ahead.

Because securing the energy future and addressing challenges related to climate change are critical, we are supporting the introduction of hybrid engines with uprated kinetic energy recovery systems in racing's premier discipline. We intend to help broaden the energy supply beyond conventional oil and gas, notably through developing biofuels. In other words, motor racing is only a small part of what we do.

"Total is delighted to give the young talented French driver, Romain Grosjean, the opportunity to fulfil his dream by becoming an F1 driver with the Lotus F1 Team. An overall mission of our company, as is Lotus F1 Team's, is to support young talented people and encourage them along the path to excellence and performance. The involvement of our Group in the highest category of motor sport alongside Romain Grosjean, with whom we've formed a relationship based on trust over more than six years, goes far beyond the purely communications aspect.
It shows our determination to develop the performance of our fuels and lubricants with the aim of achieving optimal energetic efficiency to help our clients reduce and improve consumption. Formula 1 must embrace the perspective of clean technology and permanent evolution, and go back to its roots by becoming a laboratory for innovation once again."
Jacques-Emmanuel Saulnier,
Senior Vice-President Corporate Communications, Total

iRace Experiences

Never before has a Formula One team offered such a comprehensive driver training package. iRace provides guests with an opportunity to experience the power, performance and technology of a real Formula One car.

The iRace experience allows guests to immerse themselves in a programme where they will experience the highest standards of race driver training. This high-paced day will require intense concentration, as it will guide guests through the key activities race drivers experience within the Lotus F1 team.

Guests are transferred from the hotel to the circuit, conduct a track recce with a driving instructor, are given safety equipment, and receive training in both physical preparation and driving techniques.

DRIVING TECHNIQUES
To get acquainted with the circuit, guests will first drive a Formula Renault 2.0 in two twenty minute sessions. This gives the drivers time to learn the track, teaches basic race driving techniques and allows drivers to get used to driving a single-seater racing car.

As well as being shown how and where to position the car on the track, guests are taught how to use the gearbox, get acquainted with the cockpit layout and understand the controls of the car.

Instructors leave nothing to chance and can fully answer any questions that guests may have. They are professionals and aim at to ensure safety and unparalleled enjoyment.

INFORMATION FIRST
Analysing telemetry readings enables drivers to dissect every action; braking, gear changes, engine speed, corner entry speed and sector times.

Just as a professional racing driver, the information gathered from the engineer's debriefing will help drivers understand a single-seater characteristics and measure progress. There is also the facility to compare times and telemetry data with the team's current F1 drivers. Then it's time for the real thing – two laps of driving a full 700bhp F1 car – the ultimate driving experience.

Finally, to give guests the full sensation of an F1 car at top speed, guests will be driven around the circuit in an F1 passenger car by a Lotus F1 Team (Reserve) Driver.

iRace Additional Packages

iRace Plus
For the more experienced driver, the iRace plus package offers a similar programme as iRace with more driving time in the F1 car. For those drivers who have already sampled driving a racing car and can therefore maximise their time at the track to best effect. There is no time allocated to the basics of race car driving as it is assumed that drivers already know the standard controls and techniques. With less people and more time dedicated to driving the Formula One car, each driver has up to 4 laps available per session.

iRace Formula Renault
A more economic alternative to iRace with guests able to experience full team integration and a day of driving Formula Renault single seaters. After being briefed by engineers and learning the track, guests will experience the Formula Renault 2.0. The experience includes 2 Formula Renault 2.0 sessions, one in the morning and one in the afternoon. The Formula Renault cars contain a 210bhp 4 cylinder engine reaching 7,500rpm with a 7 speed semi-automatic sequential gearbox, carbon-fibre monocoque, front and rear wings and diffuser weighing only 500kg.

iRace Pro
Become a Lotus F1 driver with a full four day test program, including a seat fitting and personal race engineer. This is the opportunity to become a Formula One driver in Robert Kubica's R30 race car, which competed in the 2010 FIA Formula One World Championship. The four day program will fully integrate the client into the Lotus F1 Team. The programme will start at the Lotus F1 Team factory in Enstone with a seat fitting and a chance to meet the team before travelling to the Paul Ricard circuit in France for a two day F1 test. The whole four days are focussed around one person only. A team of mechanics and engineers, as well as an LF1 reserve driver will ensure that the driver gets the absolute best out of their ability with the optimal advice and support available.

Lotus F1 Team and the Environment

Lotus F1 Team explores the contribution of Formula One to 'green' issues.

Although Formula 1 is not a sport naturally associated with greenness in the public consciousness, it actually has a strong track record of delivering environmentally relevant technology. Success in Formula 1 is all about efficiency; the teams attempt to wring every drop of performance from a fixed set of resources to allow them to gain a competitive advantage over their rivals. In doing so, they create and develop technology which allows wider society to enjoy improved performance from fewer resources.

Team Principal Eric Boullier, explains Lotus F1 Team's vision for a greener future
"Formula 1 has a long history of providing technological development that is much wider than simply making fast racing cars. The trickle down of useful technology has, however, been incidental to the aims of the sport. Contrastingly, in recent years the sport has taken a conscious decision to structure its regulations to ensure that the technology it delivers is both immediate and directly relevant to the future improvement of road car efficiency. Lotus F1 Team has played, and continues to play, a constructive role in the creation of these regulations

"Back at our factory, we have delivered many smaller scale initiatives to ensure that our direct activities have a reduced carbon footprint. So, whether on the small stage of our operations at Enstone, or on the wider stage of the strategic direction for Formula One, Lotus F1 Team is committed to promoting and supporting initiatives that ensure that our activities contribute to a greener future for society."

AERODYNAMICS

The importance of aerodynamic efficiency on the race track is obvious to see, and the areas of development for making cars more slippery to go faster on the track are relevant to make cars more slippery and therefore more fuel efficient for the road.

WIND TUNNELS

The aerodynamic importance of the region between the underside of the car and the ground has recently come to the fore, as it is clear that careful design in this region can yield substantial fuel consumption benefits through drag reduction. Major road car manufacturers are now using precisely the same wind tunnel technology pioneered and perfected by Formula One ten years earlier to allow them to exploit this benefit.

CFD

The development of Wind Tunnel technology, important though it has been, pales into insignificance alongside the rapid growth of Computational Fluid Dynamics (CFD). With a wind tunnel, experiments are made by blowing wind over a real object in a controlled environment and measuring the aerodynamic forces that arise. In CFD, the same experiment may be conducted in the form of a computer simulation.

A huge range of industries benefit from the mastery of aerodynamic design that a successful CFD programme enables. It is probably no surprise that the aerospace, road car and wind turbine industries use CFD in their design process. In fact, in any application where there is any sort of fluid (gas or liquid) flow, CFD can bring benefit. Climate modelling, the force of wind on a building, the way in which medicine is distributed in an inhaler, efficient air conditioning design, transport of gas or liquids in pipelines; the list of applications is truly enormous. All of these applications benefit, to a greater or lesser extent, from the investment that Formula One has made in the growing technology of CFD.

Teams have sponsored the development of improved CFD techniques at top universities and have also invested money directly with the providers of commercial CFD codes to ensure that the considerable challenge of accurately simulating the aerodynamic behaviour of a Formula One car has turned from an aspiration to a reality.

A case study was carried out at Enstone for Nissan to demonstrate the power of the optimisation technique for road car design. Nissan provided the team with a virtual model of an existing Nissan road car as a test case, and using this new CFD software we were able to optimise the external shape of the car and reduce drag by over 4%. This figure was then confirmed by Nissan using a different CFD code. This 4% drag reduction is a significant improvement and is achieved through geometry changes not easily identified using conventional CFD codes. In this example the wider benefit of this novel CFD technology is clearly contributing to the design of more fuel-efficient cars.

Fuel

MAKING FUEL EFFICIENT

A common misconception about Formula One is that on-track performance is a function solely of power. In fact, performance comes from a number of different sources, and one of those is fuel consumption. If you can lower fuel consumption while still generating the same performance, you improve the car's efficiency. Achieve this in Formula One and your car will possess a performance advantage in racing conditions since less fuel needs to be carried, which reduces overall weight and improves performance.

Fuel consumption and the efficient conversion of fuel into energy, are therefore major development priorities for engine and fuel manufacturers. It is for this reason that Lotus F1 Team's close working relationship with TOTAL is of such importance, especially with the ban on refuelling which was introduced in 2010, which means cars must carry enough fuel to last the entire race distance.

Total engineers also seek to minimise friction wherever it can occur in the car, not only in the engine, but also in the gear box, oil pumps, hydraulic pumps, transmissions and bearings by adapting and optimising lubricants and greases for the needs of each mechanical component.

However, the benefits don't just apply to the racetrack because what TOTAL learns from Formula One is transferred directly to its commercial products. One way to achieve maximum performance from the lowest quantity of fuel is to combine the fuel with certain additives to help reduce the level of friction on the pistons. Additives also help clean the engine and avoid deposits in the combustion chamber, and minimise friction which leads to reduced fuel consumption. It is the same additives developed for Formula One fuel that are used in TOTAL's commercial fuel in road cars.

The Factory Culture

Awareness of the environment runs through the backbone of Lotus F1 Team. Built on the site of a disused quarry, the team's UK base at Enstone prides itself on being energy-efficient and cost-effective in every respect. With intelligent lighting systems, recycling programmes and car-share schemes, respecting the environment has become an integral part of the team's culture.

The following examples demonstrate the team's desire to reduce its carbon footprint:

Since 2005 Enstone has been carbon neutral, with agreements in place for the site to be powered by renewable energy from large-scale hydro sources.

The team is committed to reducing operational waste by recycling. At present 97% of electrical waste is recycled, while the machine shop recycles over 40 tonnes of waste metal annually. The team also makes use of a waste disposal compactor, which has reduced HGV traffic to Enstone by 50%, with compacted waste being sorted and recycled rather than going to landfill.

Energy efficient lighting is utilised on all new projects and areas of refurbishment. Movement sensors switch off lights when rooms are not in use, while Trilux lighting systems can track levels of natural light during the day, adjusting artificial lighting accordingly to reduce energy wastage. Likewise, Building Management System controls have been installed to provide improved control over the factory's heating and ventilation systems to optimise efficiency.

The Kyoto Protocol has resulted in the UK committing to reduce CO_2 emissions by 12.5% by 2012 from a 1990 baseline. Lotus F1 Team achieved this objective for their operational facility at Enstone in 2005.

Ecological improvements are continually made at Enstone to encourage wildlife populations in an area which is registered as a 'Site of Special Scientific Interest'. Recently 1,600 indigenous young trees were planted on the site, and we conduct ecological and ornithological improvements to encourage wildlife populations on the site.

The new 'Driver in the Loop' simulator being constructed at Enstone will make use of Trina Solar power with a 30kW panel design providing sufficient electricity to power the building, and any redundant electricity when the simulator is not in use will be used for lighting and air conditioning requirements elsewhere on site.

Lotus F1 Team continually strives to implement green IT solutions. For example, both Enstone and engine partner Renault's Viry-Châtillon (Paris) base make use of video conferencing facilities to avoid unnecessary travel between the UK and France.

The team also looks for energy-related standards when making purchasing decisions and considers the recycling competency of the equipment as well as the packaging. In terms of software, the team operates a policy of removing underutilised equipment and our VCS cluster provided by Symantec has helped consolidate servers, thus saving energy.

The advancements made in computing have also allowed simulation to reduce the need for track testing, which leads to significant saving of resources. A good example is found in our Research and Development department where we make use of a chassis dynamics rig to simulate the forces experienced by the car on the racetrack. The rig is used primarily to develop new suspension settings and to assess new concepts using servo-hydraulic actuators. By doing this the team can test and optimise suspension solutions without ever leaving the factory.

CASESTUDY: CFD

When building the new CFD centre, Lotus F1 Team took the unusual decision to build a subterranean facility. This allowed a design that addressed planning and environmental concerns, resulting in a building that is entirely integrated with the surrounding area.

During the construction of the centre, the soil removed to make space for the building was retained on-site, avoiding the need for relocation of the 24,000m^3 of quarried material. This material was subsequently recycled and used to submerge the building into the ground, thus reducing the carbon footprint of the construction phase.

Building underground also opened up other advantages, such as the stable temperature. At a depth of just 1.5 metres the ground temperature rests at an almost constant 10°C all year round. This means the facility consumes less energy, as it will not be subject to the large external temperature variations of an exposed building and requires less energy to heat and cool.

Peace One Day: Global Truce 2012

Give Peace A Chance

Lotus F1 Team will continue to run with Peace One Day branding on both cars for the 2012 season. Peace One Day is a non-profit organization founded by filmmaker Jeremy Gilley working to institutionalise Peace Day 21 September around the world, making it self-sustaining.

The Peace One Day campaign was launched by filmmaker Jeremy Gilley in 1999 in his attempt to find a starting point for peace. He had a mission: to document his efforts to establish the first ever annual day of global ceasefire and non-violence with a fixed calendar date.

The UN International Day of Peace on 21 September every year is not only about creating peace between nations, it's about non-violence in our homes, communities and schools. Therefore Peace Day is relevant to every human being on the planet. With the day in place, POD is working to institutionalise Peace Day around the world, making it self-sustaining.

I FOUGHT THE LAW

In 2007, Jeremy Gilley, his film crew and Peace One Day Ambassador Jude Law travelled to Afghanistan to help develop and document preparations for life-saving activities across the country for Peace Day. As a result of this 4.5 million children in areas hitherto unreachable or hard to reach due to conflict were immunised against polio.

The UN Department for Safety and Security, which monitors security related incidents, recorded a 70% reduction in violent incidents on Peace Day 2008 in Afghanistan; it is this recorded reduction in violent incidents that has prompted Jeremy to launch the Global Truce 2012 campaign.

PEACE ONE DAY BACKGROUND

In 1999, filmmaker Jeremy Gilley launched the non-profit organisation Peace One Day (POD) to document his journey to create the first ever annual day of ceasefire and non-violence. As a result of these efforts, the day was unanimously adopted in 2001 by United Nations member states, fixed as September 21 – Peace Day.

With the day in place, POD's objective is to institutionalise Peace Day, making it a day that is self-sustaining. By 2007, 100 million people were actively involved on the day (source UNDPI) in every country of the world.

Peace Day has also been proved as a window of opportunity for humanitarian organisations to focus their ongoing life-saving activities within a global context, most notably in Afghanistan, where 4.5 million children have been immunized against polio due to Peace Day agreements since 2007.

GLOBAL TRUCE 2012 CAMPAIGN

For Peace Day 2012, POD is calling for and working towards a Global Truce, what is hoped will be the largest reduction in global violence in recorded history, both domestically and internationally, and the biggest ever gathering of individuals in the name of peace.

Peace One Day will deliver "Global Truce 2012" by leveraging existing and new relationships to undertake an extensive diplomatic and grassroots campaign, concentrating particularly on the youth of the world.

Peace One Day works principally through education and music to help support its work.

EDUCATION

Peace One Day Education aims to advance active learning in the areas of conflict resolution, global citizenship, human rights and the link between sustainability and peace, using Peace Day 21 September as a focus.

Our goal is to provide free resource materials to every school on earth, inspiring a generation to become the driving force behind the vision of a united and sustainable world.

There are currently over 11,500 educators registered and using Peace One Day education materials in 190 countries.

PEACE ONE DAY 2012
Music
Peace One Day's internationally broadcast concerts in 2012, as part of the London 2012 Festival, will be key drivers towards civil society participation in the Global Truce 2012 campaign:

21 June 2012
Derry-Londonderry Northern Ireland.
The opening event of the London 2012 Olympic Festival

21 September 2012
Wembley Arena, London.
Peace Day 2012 – the day of Global Truce

THANK YOU

F1 is truly international, with races in 20 countries and a massive global audience; there is no better 'vehicle' to help raise awareness of Peace Day. It provides an unrivalled opportunity to deliver our message on a global scale. We are delighted to be partnering with the Lotus F1 Team for another season. Their ambition, fantastic global network of partners and their genuine belief in the cause sets them apart. We have witnessed their desire and ability to push the limits in not just design but everything they do – a quality that is also necessary for Peace One Day to achieve its aims. We are incredibly grateful to the Lotus F1 Team for their continued support and wish them the best of luck for the 2012 season.

Lotus Renault GP Partners

GROUP LOTUS

Company HQ: Hethel, Norfolk, UK
Core activity: High performance sports cars and high technology engineering consultancy
Employees worldwide: 1,700
Active markets: 41

Group Lotus plc. is based in Norfolk, UK, and has three operating divisions: Lotus Cars, Lotus Engineering and Lotus Racing.

Lotus Cars builds world class, high performance sports cars including the award-winning Evora, the iconic Elise and the stunning Exige and the road / track orientated 2-Eleven. Lotus New Era, the future product line-up, was unveiled in Paris on 30th September 2010 featuring the new Esprit, Elan, Elite, Elise and Eterne.

Lotus Engineering provides comprehensive and versatile consultancy services to many of the world's OEMs and Tier 1 suppliers and is an internationally recognised automotive engineering consultancy. Global facilities include those in the US, Malaysia, China and offices in Germany and Japan. Lotus is a global high-tech company, committed to driving forward technology for both Lotus Cars and its Engineering clients, spearheading research into such areas as hybrids, electric vehicles and renewable fuels.

Lotus Racing (formerly Lotus Motorsport) operates the motorsports activities of Lotus and includes the strategy to return the Lotus name to a great number of series including endurance racing with GT2, GT4 and LMP2, single seater racing with GP2, GP3 and IndyCar. Lotus also returned to F1 with Lotus Renault GP from the start of the 2011 F1 racing season onwards.

www.lotusnewera.com
Username: media / password: lotus
www.lotuscars.com

RENAULT

Company HQ: Boulogne-Billancourt, France
Core activity: Road car manufacturer
Employees worldwide: 122,615
Active markets: 118

The Renault Group designs, develops, manufactures and sells passenger cars and light commercial vehicles under the Renault, Dacia and Renault Samsung Motors brands. Renault is also linked by cross-shareholdings to Nissan via the Renault-Nissan Alliance, established in March 1999.

Renault, France's number one car brand, relies on more than 110 years of innovation to bring customers high-quality, carbon-efficient vehicles, with ingenious, attractive, accessible and pioneering products and services.

Renault's new baseline, "Drive the Change", expresses the company's ambition to lead the way in sustainable mobility. Along with its partner Nissan, Renault is targeting world leadership in the mass marketing of zero-emission vehicles. Since 2011 Renault has launched a zero-emission range with three electric vehicles and plans to launch a fourth model by the end of 2012.

Throughout its history, Renault has incorporated motorsport into its global marketing strategy. With a powerful image and prestige value, motorsport, and especially Formula 1, has strengthened the brand in traditional markets while increasing visibility in emerging ones. The sport has also proven to be an effective testing ground for road car products, with innovative solutions to downsizing, reliability and electric technology all proven on track.

Renault Sport F1 is the sporting division created to supply engines to carefully selected partners by developing and testing high-performance F1 engines. Since 1977, Renault has won ten Constructors' World Titles and nine Drivers' World Titles.

www.renault.com

TOTAL

Company HQ: Paris, France
Core activity: Oil and gas production
Employees worldwide: 93,000
Active markets: 130

Total is a leading international oil and gas company.

Involved in Formula One racing for more than 40 years, Total, through its various brands, has been an established strategic partner of Renault since 1977. The two companies share core values that include demanding performance standards, technological excellence, a commitment to continuous innovation and the ultimate goal of winning.

More than anything, Formula One racing is a matchless testing ground for Total. We conduct ongoing fuel and lubricant R&D to continuously improve efficiency and reliability and reduce our environmental footprint under the extreme conditions of motor racing. Our R&D consistently leads to transfers of technology and expertise that benefit consumers, such as the performance-enhancing fuel economy lubricants and greases sold in more than 130 countries and the engine fuels sold through our network of 16,000 service stations in around 50 countries.

And because it's imperative to secure the future of energy and meet the challenges of sustainable development, we are committed to supporting the emergence of hybrid engines with kinetic energy recovery systems tailored to motor racing's premier discipline. We're also committed to taking an active part in developing an energy mix that encompasses solar energy and biomass derivatives, in addition to conventional oil and gas.

www.total.com
www.total-moon-race.com

REXONA

Company HQ: London, UK
Core activity: Deodorants, FMCG
Employees worldwide: 300+
Active markets: 60+

Rexona was originally created in Australia in 1908 by a pharmacist and his wife. Since then it has led the field by providing consumers with cutting-edge technology that's been proven to deliver outstanding results.

Now the world's largest deodorant brand (in both sales & market shares), Rexona now spans over 60 countries throughout the world. Whether it's called Sure, Degree, Shield, Rexena or more broadly Rexona, on every occasion our long-lasting protection gives men the confidence to be daring, adventurous and do more in their daily lives. Rexona for Men has a perfect fit with Formula 1: both stand for passion, ambition and excellence in performance.

www.rexona.com

CLEAR

Company HQ: Singapore
Core activity: Scalp and Hair Care
Active markets: 40

Clear Anti-Dandruff Shampoo is a world leader in the fight against dandruff and other scalp problems. Unlike other shampoos that only wash the flakes away, Clear nourishes deep inside the scalp, where dandruff and other scalp problems begin - so they never come back. With Clear Men and Clear Women, it offers both genders the best customized solutions against dandruff and other scalp problems - giving them the confidence to make a powerful impact anytime, anywhere.

PIRELLI

Company HQ: Milan, Italy
Core activity: Tyre production
Employees worldwide: 30,000
Active markets: 160+

Fifth largest operator in the world in the tyre sector for sales, Pirelli is leader in the high range segments with high technological content. Founded in 1872, there are now 20 Pirelli Tyre factories throughout the world, in four continents, operating in more than 160 countries. Pirelli, listed on Milan Stock Exchange, is distinguished for its long industrial tradition, which has always been combined with capacity for innovation, product quality and brand strength.

A strength which, since 2002, has also been based on the fashion and high-tech project of PZero, the value of which has been further recognised by the Formula 1, for which Pirelli Tyre is the exclusive supplier for the three-year term 2011-2013.

www.pirelli.com/f1

TW STEEL

Company HQ: The Netherlands
Core activity: Watch Brand
Employees worldwide: 65
Active markets: 80+ global

TW Steel has been a leader in the field of oversized watches since its inception in the Netherlands in 2005. Now a global lifestyle brand, represented in over 80 countries throughout Europe, North and South America, Asia and Australia, ‘The Watch in Steel’ prides itself in offering affordable luxury.

www.twsteel.com

TRINA SOLAR

Company HQ: Changzhou, China
Core activity: Solar PV solution provider
Employees worldwide: 15,000
Active markets: 20+

Founded in 1997, Trina Solar is one of the world leading PV companies. Fully vertically integrated from ingots to modules in both mono and multicrystalline technologies, Trina Solar offers high quality modules and solar solutions. With more than 12 offices around the world, Trina Solar is servicing leading installers, distributors, utilities and developers in all major PV markets. Listed on the NYSE, its mission is to make solar affordable for all.

www.trinasolar.com

JAPAN RAGS

Company HQ: Marseille, France
Core activity: Men's denim brand
Employees worldwide: 200
Active markets: 13 worldwide

A specialist in "authentic" jeans, Japan Rags brand has been expressing the cultural desire for the genuine article since 1998 and is perfectly positioned as the expert on vintage. Established in the south of France by Gil Richardiere, (the father) and Lylian (his son), Japan Rags is today a rapidly expanding denim brand.

Japan Rags refers to the second-hand clothes Japanese culture. Pioneers of vintage fashion, customizing, repurposing and recycling clothes.

A trend that continues to have a strong influence on current fashion! It is in this rich universe that the brand finds its inspiration each season. The basics of second-hand clothes are reworked, rethought and redesigned to meld into a more urban and sporty fashion.

Aware of environmental problems, Japan Rags expresses their will to encourage a more green view of the industry. After years of research, and numerous scientific tests, Japan Rags choses a revolutionary fading technique, the Ozone Treatment. This treatment consists of washing denim without water, reducing chemical treatments needed for fading the blue jeans, and abolishing the use of permanganate.

www.japan-rags.com

TECHNICAL PARTNERS

CD-adapco

Company HQ: New York and London
Core activity: Aerospace solutions
Employees worldwide: 500
Active markets: Worldwide

CD-adapco is the world's largest independent CFD focused CAE provider. Our core products are the technology-leading simulation packages, STAR-CCM+ and STAR-CD. The scope of our activities, however, extends well beyond CFD software development to encompass a wide range of CAE engineering services in CFD and structural mechanics, battery and motor design. STAR-CCM+ plays a critical role in Lotus F1 Team's aerodynamic development, while both STAR-CCM+ and STAR-CD are used extensively in engine design. CD-adapco's purpose is "Engineering Success." We aim to help our customers to succeed through the application of engineering simulation, driving innovation in their products AND reducing the engineering time and cost associated with bringing those products to market.

www.cd-adapco.com

ELYSIUM, INC.

Company HQ: Michigan, USA
Core activity: CAD Data Translation, Product Data Quality
Employees worldwide: 110
Active markets: Asia-Pacific, Americas and Europe

Elysium Inc. provides CAD Data Translation products that allow for a one-touch solution to address an entire world of complex Interoperability problems. We are the conduit for zero defect 3D digital model collaboration.

www.elysiuminc.com

GF AgieCharmilles

Company HQ: Geneva, Switzerland
Core activity: Machine tool technology
Employees worldwide: 2,542
Active markets: 50

GF AgieCharmilles, a pioneer of innovative machine tool technology, has established an enviable reputation for exceptional performance, outstanding value, ease-of-use, and lasting precision. The Electric Discharge and 5 axis Vertical Milling Machines of GF AgieCharmilles allow the team's designers to push the technological limits in Formula 1 by adopting radical approaches to the design, manufacture and materials of strategic car components.

www.gfac.com/uk

Magneti Marelli

Company HQ: Corbetta, Milano
Core activity: Automotive
Employees worldwide: 34,000
Active markets: 18

Magneti Marelli designs and produces advanced systems and components for the automotive industry. With its 77 production units, 11 R&D centres and 26 application centres in 18 countries, about 34,000 employees and a turnover of 5.4 billion Euros in 2010, the group supplies all leading carmakers in Europe, North and South America and the Far East. The Magneti Marelli Motorsport Business Line designs and produces HW and SW components for racing competitions. Portfolio includes electronic and electro-mechanical systems related to engine and vehicle control, data acquisition and transmission. Latest developments include solutions for energy efficient racing.

www.magnetimarelli.com

NetApp

Company HQ: Sunnyvale, California
Core activity: Storage and Data Management Solutions
Employees worldwide: 10,200
Active markets: 140

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Customers around the world choose us for our "go beyond" approach and broad portfolio of products and services. Our solutions provide nonstop availability of critical business data and simplify business processes so you can deploy new capabilities with confidence and get to revenue faster than ever before. Lotus F1 Team's data is stored on NetApp storage arrays, including back office, track and design data with the latest NetApp storage systems travelling the world with the race team. NetApp storage solutions have enabled Lotus F1 Team to reduce cost through increased utilisation, ease of management and reduction in power and cooling as well as delivering improved performance.

www.netapp.co.uk

OMP RACING

Company HQ: Ronco Scrivia, Italy
Core activity: Racing and Motorsport Equipment
Employees worldwide: 76
Active markets: Europe, Americas, Asia and Australia

OMP has been operating for over 39 years in the design and manufacture of accessories in the fields of Racing, Karting, Vintage, Off-Road and Sportswear. With a modern factory in Ronco Scrivia of approximately 30,000 sqm, 70 employees, and a branch in Miami, OMP is one of the few companies in

the world able to offer a complete range of articles devoted to racing cars and driver safety, with over 4,500 products in the catalogue.

www.ompracing.it

OZ RACING

Company HQ: San Martino di Lupari, Italy
Core activity: Alloy Wheels for cars and motorbikes
Employees worldwide: 200
Active markets: Worldwide

The philosophy and strength of OZ Racing wheels are founded on the results achieved in forty years in the market, and more than twenty five years of racing in the most prestigious worldwide competition series (in F1 since 1984). Their enthusiasm, experience, research and know-how have been transferred from the world of racing to the road, guaranteeing those who buy OZ wheels maximum quality, performance and safety.

www.ozracing.com

PROCESSIA SOLUTIONS

Company HQ: Laval, near Montreal, Quebec
Core activity: Product Lifecycle Management (PLM services)
Employees worldwide: 100+
Active markets: USA, Canada, France, Italy and UK

Processia Solutions is a leader in the field of Product Lifecycle Management (PLM) integration and optimization with offices in Canada, France and UK. Processia's expertise is used in Motorsport, Aerospace, Automotive and other industries with a suite of services that includes solution design, software development, application integration and implementation services. Processia Solutions is a Dassault Systèmes Global Services Partner.

www.processia.com

SYMANTEC

Company HQ: Mountain View, California
Core activity: Endpoint security, messaging security, web security, data protection, identity authentication and security management solutions
Employees worldwide: 17,500
Active markets: Worldwide

Symantec helps organizations secure and manage their information-driven world with endpoint security, messaging security, web security, data protection, identity authentication and security management solutions .Symantec is a global leader in providing security, storage and systems management solutions to help consumers and organizations secure and manage their information-driven world.

www.symantec.com

Vistagy

(A Siemens Business)
Company HQ: Waltham, MA USA
Core activity: Leading global provider of specialized engineering software and services
Employees worldwide: 100+
Active markets: Worldwide

Vistagy, now part of the Specialized Engineering Software business segment of Siemens Product Lifecycle Management Software Inc., is a leading global provider of specialized engineering software and services focused on the specific requirements of vertical industries, including the Fibersim® suite of

products for designing and manufacturing innovative, durable and lightweight composite structures. Vistagy was acquired by Siemens on 6th December 2011 and maintains its status as a technical partner to Lotus F1 Team. Engineers at the Enstone facility have used Fibersim extensively since 2002.

www.vistagy.com

3D Systems

Company HQ: South Carolina, USA
Core activity: 3D content-to-print solutions
Employees worldwide: 900+
Active markets: 80

3D Systems is a leading, global provider of 3D content-to-print solutions including personal, professional and production 3D printers, integrated print materials and on-demand custom parts services for professionals and consumers alike. In line with our commitment to democratize access and accelerate adoption of affordable 3D printing we also provide creative content development, design productivity tools, curation services and content downloads. Our expertly integrated solutions replace, displace and complement traditional development and manufacturing methods and reduce the time and cost of designing new products by printing real parts directly from digital input. 3D Systems solutions are used to rapidly design, communicate, prototype and produce functional parts and products, empowering our customers to create with confidence.

www.3dsystems.com

Our F1 History

Toleman (1981 – 1985)

Debut	1981 San Marino Grand Prix
Final race	1985 Australian Grand Prix
Race weekends	70 (57 starts)
Wins	0
Best finish	3rd Great Britain 1984, Portugal 1984 Ayrton Senna
Pole positions	1 Germany 1985 Teo Fabi
Fastest laps	2
Podiums	3
Front row	1
Points	26
Drivers' champ.	0
Constructors' champ.	0
Race drivers	9 Brian Henton, Derek Warwick, Teo Fabi, Bruno Giacomelli, Johnny Cecotto, Stefan Johansson, Pierluigi Martini, Ayrton Senna, Piercarlo Ghinzani

Benetton (1986 – 2001)

Debut	1986 Brazilian Grand Prix
Final race	2001 Japanese Grand Prix
Race weekends	260
Wins	27 Michael Schumacher 19, Nelson Piquet 3, Gerhard Berger 2, Johnny Herbert 2, Alessandro Nannini 1
Pole positions	15 Michael Schumacher 10, Teo Fabi 2, Jean Alesi 1, Gerhard Berger 1, Giancarlo Fisichella 1
Fastest laps	36
Podiums	102
Front row	33
Points	861.5
Drivers' champ.	2 1994, 1995 Michael Schumacher
Constructors' champ.	1 1995
Race drivers	17 Gerhard Berger, Teo Fabi, Thierry Boutsen, Alessandro Nannini, Johnny Herbert, Emanuele Pirro, Roberto Moreno, Nelson Piquet, Michael Schumacher, Martin Brundle, Riccardo Patrese, JJ Lehto, Jos Verstappen, Jean Alesi, Alexander Wurz, Giancarlo Fisichella, Jenson Button

Renault F1 Team (2002 – 2010)

Debut	2002 Australian Grand Prix
Final race	2010 Abu Dhabi Grand Prix
Race weekends	159
Wins	20 Fernando Alonso 17, Giancarlo Fisichella 2, Jarno Trulli 1
Pole positions	20 Fernando Alonso 16, Giancarlo Fisichella 2, Jarno Trulli 2
Fastest laps	13
Podiums	57
Front row	34
Points	933
Drivers' champ.	2 2005, 2006 Fernando Alonso
Constructors' champ.	2 2005, 2006
Race drivers	10 Jenson Button, Jarno Trulli, Fernando Alonso, Jacques Villeneuve, Giancarlo Fisichella, Heikki Kovalainen, Nelson Piquet Jr, Romain Grosjean, Robert Kubica, Vitaly Petrov

Lotus Renault GP (2011)

Debut	2011 Australian Grand Prix
Final race	2011 Brazilian Grand Prix
Race weekends	19
Wins	0
Best finish	3rd Australia 2011, Vitaly Petrov Malaysia 2011, Nick Heidfeld
Pole positions	0
Fastest laps	0
Podiums	2
Front row	0
Points	73
Drivers' champ.	0
Constructors' champ.	0
Race drivers	3 Vitaly Petrov, Nick Heidfeld, Bruno Senna