

F1 LAUNCH SPECIAL **ALL THE TEAMS ON TRACK**

AUTOSPORT

WHY FERRARI CAN BEAT MERC THIS YEAR

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DAYS
TO GO!**

F1 2016



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BETTER HANDLING
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RED BULL BEST TO COME

ACHIEVE GREATER





Will Ferrari test pace fire thrilling title fight?

WHO KNOWS WHAT WE CAN READ INTO FORMULA 1 testing? As *Autosport* closed for press, Sebastian Vettel and Ferrari had topped the first day of pre-season 2016 running at the Circuit de Catalunya, and the combination was again fastest on the new ultra-soft tyres on Tuesday morning.

That's all well and good, but Mercedes was looking pretty ominous, with Lewis Hamilton second fastest on Monday and racking up a gargantuan number of laps as the Three-Pointed Star sailed through its initial test programme before declaring that it was going to try some 'slightly unusual' parts. (The mind wanders here... All-enveloping streamliner bodywork a la 1955? Three-litre V12 supercharged engine 1930s-style?)

Joking aside, Formula 1 needs a proper battle between Mercedes and Ferrari — and, come to think of it, anyone else who steps up to the plate — in 2016. Nico Rosberg's end-of-season form last year bodes well for a spicy fight with Hamilton, and we've seen in the past that this can boil over and make things uncomfortable for the Merc management. But how much more appetising it is when the competition expands from intra-team to inter-team?

This week you can read all about the new F1 challengers, with Gary Anderson's expert take on all 10 cars to have been launched to date (we're still waiting for Sauber). Realistically, we're probably looking at Mercedes still being the team to beat, but we can dream of a Ligier '79 or Brawn '09 breakthrough from the rank-and-file.



MS

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FERRARI SF16-H



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HAAS VF-16



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TORO ROSSO STR11



MANOR MRT05



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RED BULL RB12



WILLIAMS FW38



STALEY/LAT

F1 NEW CAR SPECIAL


Here are the 10 new Formula 1 challengers, each profiled in this launch special issue, that broke cover at Barcelona this week



Ferrari SF16-H

Maranello needs its new car to be up to fighting for the championship, and early signs are that the 2016 machine is a good progression from last year's race-winner

By Gary Anderson, technical expert

 @Autosport



NOSE

The better the scavenging of the airflow underneath the chassis (see box, far right, on 'front suspension'), the more important the nose detail becomes. Ferrari has now followed everyone else's lead by going for a shorter, narrower nose with the now-common 'anteater' section to comply with the regulations that govern length.

A TITLE CHALLENGER?

I like what I see from Ferrari. Hopefully this car will be the step forward the Scuderia needs to be able to fight for the championship come the end of 2016.

**REAR END**

The Ferrari has received that little bit of a massage that is expected of any new car. The rear end is a little more detailed, which will help with overall efficiency. The layout of the power-unit components has been altered to help with packaging and to concentrate the centre of mass. Little things like this help with reducing the car's inertia, which in turn helps with tyre degradation – and to a much greater level than you would imagine.

FRONT SUSPENSION

Ferrari has finally gone back to a pushrod-operated front suspension for the first time since 2011. The same mechanical characteristics can be achieved by either a pullrod or a pushrod-operated torsion-bar-and-damper unit, but the pushrod is a much more mechanic-friendly layout with all of the mechanical components accessible through the top of the chassis. Little things like this count when you need to make a set-up change late in a session.

There is a lot of talk about how the pushrod puts more consistent load into the tyre, but this is all tosh. The tyre doesn't have a clue what is holding it up. At high speed it just cares about consistency of load from the aerodynamic platform. At low speed it cares about consistency of tyre contact patch, which comes from the suspension geometry.

How the front-suspension members affect the airflow coming off the front will be quite different. The pushrod location can actually have an influence on how the airflow gets scavenged from underneath the front of the chassis. This, in turn, helps with the airflow around the leading edge of the sidepods.

FRONT WING

The front wing, which is essentially a carryover from last year, has a fairly long-cord mainplane section at its outer extremity. This is also very low to the ground, which will be critical to aerodynamic stall at high speed, as well as under braking and, more importantly, when the car is in roll. If this stalls when the car is loaded up mid-corner then the front grip will disappear very quickly, and can spook the driver.

Ferrari: Time to deliver

The team exceeded all expectations by winning three races last year. Success this season is dependent on a title attack

By Ben Anderson, Grand Prix Editor

🐦 @BenAndersonAuto



Is this the car that will finally take on Mercedes for the Formula 1 World Championship? F1 followers around the globe will surely be hoping so. Whether you are a fan of the Prancing Horse or not, Mercedes has had it all too easy these past two seasons. It's high time someone put up a proper fight.

Ferrari is certainly in the best

position to do so, having produced a car in the SF15-T that was good enough to win three races and finish a clear second in the 2015 constructors' standings.

That was a fine achievement, following a disastrous 2014. And now that Ferrari has steadied its rocking ship it's time to get back to business – and that means gunning for world titles again.

“Last year the objective was

two victories; we got it, but this year we have to push a bit more, so it's going to be the championship,” declared team principal Maurizio Arrivabene at last Friday's launch of Ferrari's 2016 challenger, which was streamed to the world live on the internet.

“At least we would like to fight until the end of the championship. I know it's not going to be easy, because our competitors are

not sleeping, but we are all committed to do our best.”

Fighting for the title until the bitter end is something Ferrari hasn't done since 2012, when Fernando Alonso pushed Sebastian Vettel all the way to the final race before narrowly missing out.

Subsequent efforts to redress the balance have disappointed, particularly the car that resulted in a winless 2014, but last year's



Vettel: happy
with base for
2016 Ferrari



“This year’s car looks as though it has spent a long, hard winter at the gym”



Ferrari has a much more
aggressive aero design
to evaluate this year

SF15-T was a huge step in the right direction and the new SF16-H looks even better.

Most of the improvement for last season came from the engine, which was lighter, more powerful, more efficient and more driveable than Ferrari’s first attempt at a V6 hybrid turbo.

The 2015 chassis was certainly easier to drive than the ’14 car, but it seemed a fairly conservative

design compared to those of Ferrari’s major rivals. It persisted with a long nose, considered by others to compromise peak aerodynamic potential, while much of the bodywork seemed quite bulbous compared to that produced by Mercedes and Red Bull, suggesting that Ferrari had prioritised engine cooling over aerodynamics.

This year’s car looks as though

it has spent a long, hard winter at the gym. It looks slimmer, meaner, fitter and stronger than 2015’s effort and appears to follow some of the aerodynamic trends seen on last year’s best F1 chassis, suggesting the design team at Maranello has been imbued with some of the “humility” Arrivabene continually suggests Ferrari goes racing with these days.

Ferrari’s first interpretation of

the current regulations was disastrous; last year was about taking a long, hard look in the mirror and rebuilding after that culture shock; this year is about putting those lessons into practice and bolstering its reputation as the most successful team in F1 history.

As the wraps came off the SF16-H, chief designer Simone Resta revealed the lengths to which Ferrari has gone to >>



New car was launched online, with input from fans

“Ferrari focused on fuel and reliability last year. Now it’s gone all-out”

produce a car capable of threatening Mercedes’ hegemony.

“The project for this car started one year ago, and the direction and our goals were very ambitious, so we tried to revisit and review all the parts,” he said. “We tried to optimise the weight, aerodynamics and airflow. The airflow is quite different from last year.”

Ferrari has adopted a higher nose for 2016, featuring the ‘thumb-tip’ protrusion pioneered by Williams, and the rear bodywork has clearly been slimmed down to improve efficiency through the airstream.

The team has also abandoned pullrod suspension at the front of the car in favour of the more conventional pushrod system favoured by rivals, which Resta reckons will bring gains in terms of weight and kinematics.

The engine department at Maranello has also reworked the power unit to improve the packaging for aerodynamic gain. While not quite as extreme as McLaren-Honda’s ‘size-zero’ philosophy, we can safely say that Ferrari’s dress size has come

down over the winter.

“We worked on the architecture in order to have a positive impact on aerodynamics, so the car is tighter and narrower than last year,” explains Ferrari engine chief Matteo Binotto. “We tried to remove all the accessories, so the encumbrance is reduced.

“We not only improved on the architecture, but tried to improve combustion, the inlet aspiration, and also the turbo.”

There were rumours that Ferrari would introduce new engine architecture before the end of last season, but this development unit never materialised as the team preferred to focus on performance gains through fuel, and improving reliability.

Now it seems that Ferrari has gone all-out. Engines are likely to remain a big performance differentiator this season, thanks to the relative immaturity of the technology and the fact that the manufacturers have been permitted to continue developing at a faster rate than originally intended under these rules.



Ferrari is not making predictions, but the title is the target

With Mercedes pushing on apace, Ferrari probably feels it has no choice but to take risks in its efforts to catch up. But, as Renault and Honda found to their cost last year, there is a real danger of throwing the baby out with the bathwater if you try to do too much.

Ferrari had a very solid reliability record last season, but it wasn’t perfect, so there’s a risk that this tighter packaging could backfire.

“We hope it will be a winning car,” said Arrivabene. “This is the result of the commitment of many,

many people, starting from our president, who gave us all the tools and instruments and who allowed us to make a great car.”

Commitment was a theme running through the words of technical director James Allison, who returned to Ferrari at the end of 2013 and has played an integral role in building the team back up into a competitive force again.

“It’s probably fair to say in 2013 Ferrari was not at the right level – the championship level – in probably anything except maybe doing pitstops very quickly!” Allison explained.

“We didn’t have enough power in 2014, we didn’t have enough downforce, the kinematics on our suspension were not ideal, and our packaging left a lot to be desired.

“The whole team has worked hard on those areas. Last year was a decent step forward and we hope this car will be another step to making us properly competitive.

“But it isn’t true to say one area has done any better than any other; we’ve improved across the board – horsepower, downforce, handling, everywhere, and all our hopes are in this car.”

Equally integral to these hopes



Tighter packaging could be a reliability risk



is four-time world champion Vettel, who won three races in his first season with Ferrari and is undoubtedly seeking a fifth drivers' title to add to those he won with Red Bull between 2010 and '13.

While obviously not solely responsible for the upturn in fortunes, Vettel has had a galvanising effect on the team, and on current form looks the most likely of the two Ferrari drivers to upset the Mercedes appellation, if the car is good enough.

"There has been a lot of work going on and it's very exciting," says Vettel. "It should be a decent step up. The goals are growing. We had a fantastic year last year in my first season with the team. Naturally we all want more.

"Last year we finished second in the constructors', so there's only one more step, which is a difficult one to take, but hopefully this car helps us achieve it."

Mercedes' advantage will be difficult to overturn, but if Ferrari can at least take another significant step forward there is the chance for Arrivabene to put his best 'frenemy' Toto Wolff's team under some serious pressure.

With F1 poised for a new set

of technical regulations in 2017, Allison knows this year represents the last chance under the present technical framework for Ferrari to return to the top of Formula 1.

"It's very difficult to make predictions," Allison added. "We know Mercedes were very strong last year, very strong the year before, but we also know we have extremely talented people here at Maranello, and we've put nearly a thousand man years of work into this car.

"We've done our absolute best to try to make this one step up – to make this one a bold step forward to give it the competitiveness it will need to be a proper winning car.

"I hope we've done enough, but we'll only really know for sure once we start racing it. I can tell you with absolute confidence that the love and care and effort and skill that has gone into this car is beyond question."

Ferrari has just eight days of pre-season testing to whip the SF16-H into shape before battle starts in Melbourne. Only then will the world begin to see whether all those man years Allison mentions have been worth all the effort. ❧

FERRARI'S KEY CULTURE SHIFT

KIMI RAIKKONEN HAS NOT ENJOYED THE MOST productive of periods on track during the past couple of seasons. The 2007 world champion was well and truly thrashed by Fernando Alonso upon returning to Ferrari in 2014, and Raikkonen's record against Sebastian Vettel last season (though overall results improved) was not much better.

But whatever the nature of Raikkonen's present travails in the cockpit – and he is the first to admit he hasn't been at his best – one thing he is very positive about is the fresh atmosphere that has swept through Maranello over the past 14 months or so.

Maurizio Arrivabene has been passionate and enthusiastic since taking over the reins as team principal at the end of 2014. He is the third team principal Raikkonen has driven for during his two spells at Ferrari, and the Finn has said before that the present working environment is the best he's known at Maranello.

"Since Maurizio came there has been a change and it's been working very well," Raikkonen explains. "It changed the atmosphere in the team. We work as one unit now and with Sebastian we have a good relationship. Obviously we try to beat each other on the circuit, but it's been very pleasant to work with those two."

Raikkonen gets on extremely well with Vettel, and has suggested that working at Ferrari is more straightforward now than in the recent past.

Vettel is still relatively new to the party, and will probably make another step forward this year, now that he's had a full season and another winter to push his feet further under the table.

"When I came in at this time last year, with people in new positions, it was a difficult time to really voice expectations," says Vettel. "Now we've had a better winter to prepare, we'll be even stronger than last year."



STALEY/LAT

Mercedes F1 W07 Hybrid

The 2016 Silver Arrow is a natural progression from its championship-winning predecessor and is the car to beat

By Gary Anderson, technical expert

[@Autosport](#)



The big thing for Mercedes heading into this year has been for everyone in the team to keep their feet on the ground. After all, it has dominated the last two seasons, so there is no obvious need for it to stray off the beaten track as far as car design is concerned.

Or is there?

Ferrari was nipping at Mercedes' heels in 2015. The problem for Mercedes this year is that it won't have known what Ferrari has been up to until the car appeared a few days ago. So Mercedes will have had to approach this car on the basis that the competition will be even tougher, and work accordingly.

Looking around the car, it's clear that time has been spent dotting the 'i's and crossing the 't's, and this is no bad thing. As a season progresses you have two lists: one with developments that can be

carried out with immediate effect, and one with next year's car requirements. Both these lists are never-ending, but because of its success Mercedes probably has the best starting point of any team.

From what I can see, everything has been massaged in one way or another just to give it that little bit more performance. I would say that will go right through to the power unit and its cooling requirements.

Make the cooling more efficient and you have more airflow left to produce downforce.

The one area I would question is the rollover-bar intake. Over the years this inlet, which feeds air into the engine, has got smaller and the reason for this is that, when the engine just can't pump any more air through it, the airflow spills out around the sides and flows down the engine cover towards the rear

wing. Too big an inlet means that there is more airflow – which can be turbulent – towards the rear wing. Too small and the engine doesn't get the airflow it requires.

Most teams use the inlet to feed air to the turbo and to cool some of the engine systems. Mercedes seems to have taken this to the extreme by making the inlet larger. The engine can only use a certain amount of air, so the larger intake must be for more system cooling.

At high speed, sending some potentially turbulent airflow down the engine cover can cause serious wing-stall problems when you want consistency from rear-wing downforce and the wing working at its optimum. This can also be a problem when you reach the braking zone and close the DRS. The airflow on the rear wing needs to produce downforce immediately, or it will spook the driver as he enters the braking zone. *W*



Rollover intake has been enlarged on 2016 W07

“The car might look similar but there are lots of mini-revolutions underneath”



Q&A

PADDY LOWE MERCEDES TECHNICAL BOSS



Have you gone for evolution or revolution with the new car?

It's difficult to have a complete revolution when the rules have stayed pretty much the same.

But we aim to make minor revolutions wherever we can. So, while the car might look very similar to its predecessor from the outside, underneath there are quite a lot of mini-revolutions that make up an overall evolution.

How tough is it to find extra performance under stable regulations?

It's very tough and we were particularly pleased with how the car turned out in 2015 when we had the same situation. 2016 is another carryover year from a regulatory point of view, and potential gains inevitably become harder to find under these circumstances. This is what tests an engineering team the most and I must say that this team has been very good at that.

What are the major rule changes for 2016 that the team has been responding to?

On the mechanical side, the main rule change is around the separate ducting of exhaust tailpipe and wastegate. But in reality that's not had a major effect. The biggest structural change is on the chassis side, where we've raised the protection area around the driver by 20mm and increased the side-impact test load from 15 to 50kN. This is a substantial increase in the load that has to be taken by the chassis at that point and will give much greater protection to the driver.




Hamilton prepares to unveil the new W07 in the pitlane before testing at Barcelona

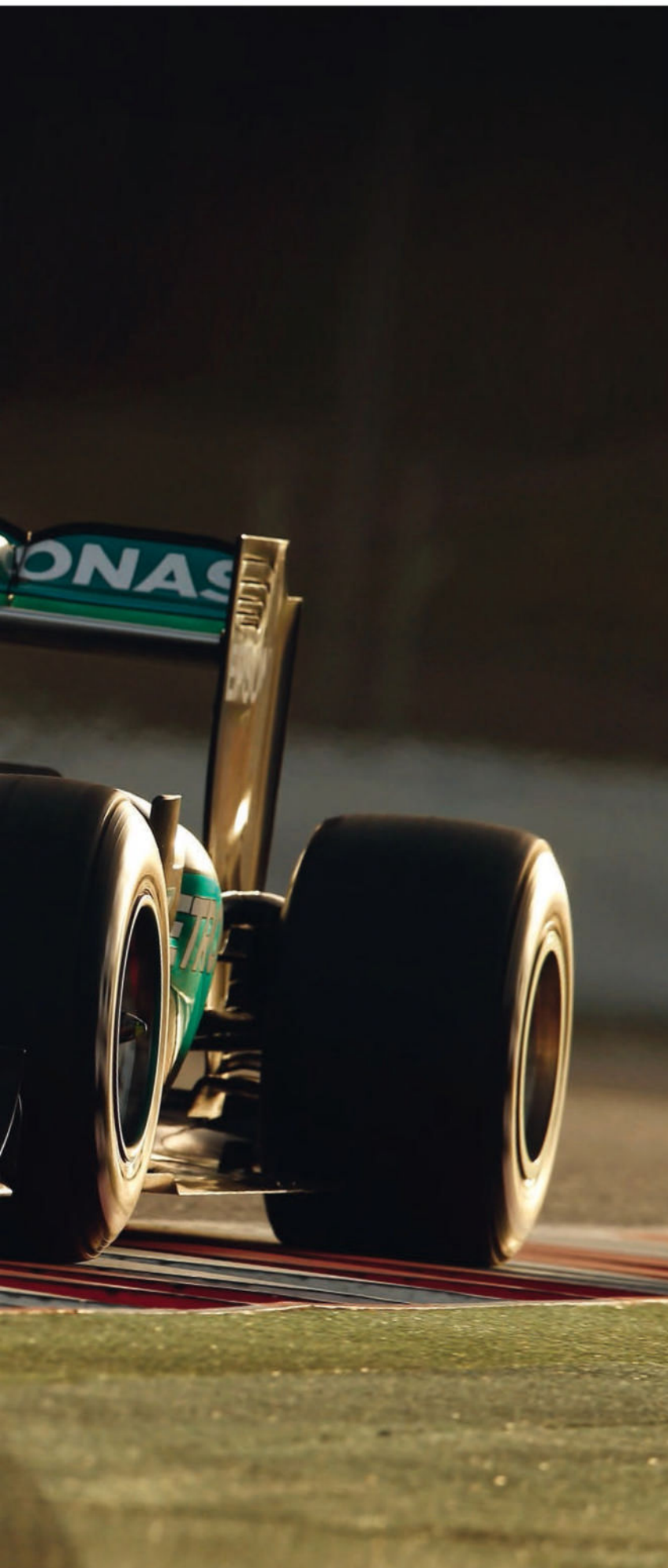
Trying to improve on perfection

The Mercedes F1 W07 Hybrid has to go some way to match its predecessors, but it's off to a fine start

By Ben Anderson, Grand Prix Editor

 @BenAndersonAuto





Hamilton gives his first-day thoughts on the new Merc

STALEY/LAT

“It’s been an amazing day. I’ve never had a day-one practice like it. To get in the new car and have no problems is just a remarkable job by the team.”

As world champion Lewis Hamilton addressed members of the media after the first day of testing for the new Formula 1 season drew to a close, there was an ominously familiar feeling.

Yes, Ferrari’s brand new SF16-H — with its Williams-like nose shape, aggressive aerodynamics and heavily revised power unit — topped the timesheet, just as its predecessor the SF15-T did at Jerez last year, but it was Mercedes that once again topped the lap count.

Hamilton fell one lap shy of Nico Rosberg’s 157-lap tally from the opening day of pre-season testing last year, but exceeded the total distance covered by dint of the Circuit de Catalunya being longer than Jerez.

Rosberg managed 148 laps of Barcelona on the final day of 2015’s pre-season; Hamilton smashed that mark by eight laps on his first day driving the new Mercedes F1 W07 Hybrid, surprising even his own team with how much work he was able to get through thanks to a totally trouble-free outing.

Hamilton is not someone who particularly enjoys testing, but he

could barely hide his enthusiasm after sampling Mercedes’ new car for the first time.

“It was just encouraging, so there was no need to find motivation,” he said. “The motivation was to get the car as far as possible in terms of distance, because that puts us in good stead for the season.”

“But I tell you, 150 laps is quite long here. I remember my first F1 test here in 2006, when you had the two fast last corners. There was no way I could have done 156 laps of that track!”

“But the training has paid off. The first day back in the car is always just brushing off the cobwebs and getting back into the swing of things.”

“Today was just a real showing of how amazing this team is and how focused every single individual is.”

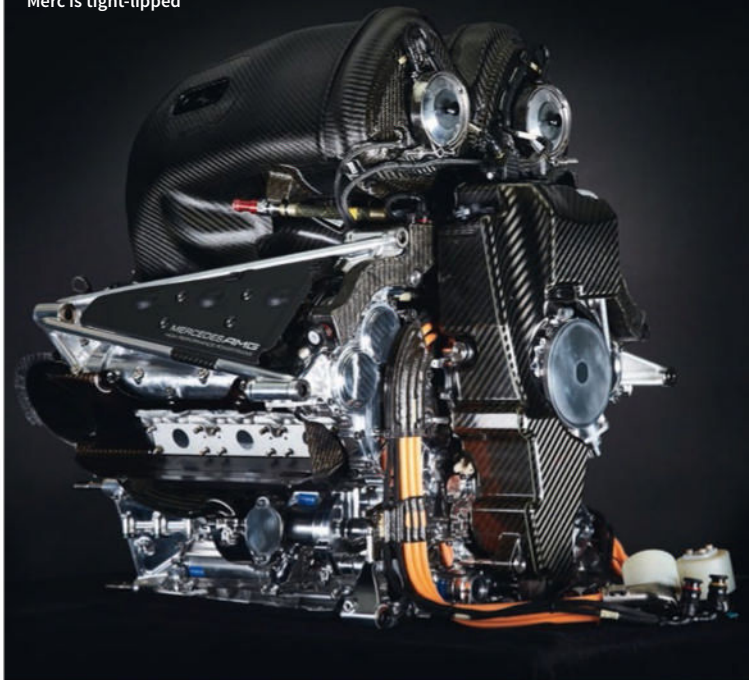
Ferrari’s Sebastian Vettel was quickest overall, by 0.470s, but clocked a paltry 69 laps by comparison. The SF16-H looked composed on track, and appears to turn in better than its predecessor, but the W07 also looked very strong in Hamilton’s hands.

The reigning world champion looked as though he was keeping plenty in reserve, suggesting there is more to come from the new Mercedes package.

“Perfection is that golden target you are always trying to get to, but it’s always shifting,” Hamilton >>

“Hamilton seemed to be keeping plenty in reserve, suggesting more to come”

New engine is an improvement, but Merc is tight-lipped



“Merc is getting ‘nice surprises’ from going over old ground on the engine”

added. “Whenever we feel like we are close, all of a sudden we are further away. It’s like someone is holding a piece of string and every time you get close enough it gets further away.

“That’s why the sport is so great because it’s always shifting, it’s never perfect. But a huge amount of work has had to go in to make the steps of this car, because it’s the third year of this evolution and those steps get harder and harder to find.

“That’s why I’m so encouraged to see that the car is better, and the performance we have had in terms of long runs. Certainly, this is the most impressive first day I’ve had, and the most distance we’ve probably done as well.

“If you look back at the first days I’ve had in 2013 [brake failure] and 2014 [front-wing failure], it’s nice to have a first day without any issues with the car and really just go above and beyond.”

Mercedes enjoys the enviable position of being the best team in Formula 1, but it also needs to strive for improvement amid the diminishing returns available under a stable set of regulations, now heading into a third straight season.

The surprising thing, no doubt demoralising for its rivals, is

that Mercedes feels that it is still progressing at an unabated rate under these rules. The manufacturer’s fuel-and-lubricants supplier Petronas says that it has delivered the same factor of improvement with each update it has introduced for the Mercedes power unit since V6 hybrids were introduced in 2014.

The new 2016-spec Mercedes engine features another new lubricant, which Petronas calculates has just as significant an impact as the fuel upgrade it introduced to last year’s Monza development engine at the Russian Grand Prix, and engine chief Andy Cowell said the R&D department at Brixworth was still getting some “nice surprises”, even from going over old ground again.

“Benefits come from hard work, hard graft, pushing the same things, and through innovative breakthroughs,” he explained. “Sometimes those innovative breakthroughs allow us to bits that were just where you thought you were fighting diminishing returns, and sometimes those bits take a leap forward as well.

“What’s been achieved on the lubricant, what we’ve been able to exploit further on the fuel that we introduced in Monza last year, has been very impressive.



Hamilton racked up considerably more mileage than anyone else on day one



The W07 looks as though it will start 2016 as the car to beat

XPB IMAGES

“We were surprised by the performance update we were allowed to do in the middle of last year. That left the cupboard a little bit bare, but the engineers have done a good job of coming together and genuinely brainstorming, never saying, ‘We’ve tried that so let’s not try it again.’”

As well as more performance from its new-spec engine (Cowell naturally remained tight-lipped on how much better this is), Mercedes has also made some important refinements on the chassis, including revisions to the cooling set-up.

“The formula is constructed to make laptime by being more efficient,” technical chief Paddy Lowe explained. “We’re pushing that number up year on year with the engines and the car is the same story.”

“If we make a wheelbearing with less friction, that’s laptime for the same efficiency reasons. We have 100kg per hour of fuel to flow into the engine so it’s about efficiency at all levels.”

In short, a more thermally efficient engine will gain performance in itself, but will also allow the chassis department to be more aggressive with cooling set-ups and aerodynamic packaging. Perhaps developments here have allowed Mercedes to do more cooling through an enlarged airbox while slimming down the W07’s sidepods for aerodynamic gain.

The hard work Mercedes has put in over the winter, to rigorously improve on what was already the best car on the grid, appears to have paid off already.

“It’s overall an improvement, the whole car,” added Hamilton. “On the mechanical side the car is better. The packaging, the aero performance is stronger than last year, so there is an overall performance gain.”

Barring any complete disasters over the remainder of pre-season, Mercedes is likely to head to the first race with the best car on the grid again. But that doesn’t mean it isn’t wary of the threat Ferrari could pose. After all, one of motorsport’s truisms is that it is easier to chase than be chased...

“James Allison [Ferrari technical boss] is no fool, they will know what the target is, they know what to achieve,” said Mercedes team boss Toto Wolff. “It is more difficult when you are actually the benchmark in terms of what developments you need to meet, and I still think they are going to be our strongest competitor.”

“Of course, starting like today, when we ran so many laps and got so much data, is a good start for us, but maybe that wasn’t on their programme. Today was not about looking at the stopwatch, and it was not for them either, so we must not interpret too much.”

But, as Lowe pointed out later, this is the first chance the teams have to see what the others have been up to over the winter, and still reveals important clues as to where the competitive order may stand heading to Melbourne.

Mercedes will have noted Vettel’s pace out of the box at Barcelona (both cars set their best times on Pirelli’s medium compound), just as Ferrari took a keen interest in the mileage Mercedes racked up.

“It looks like they had a decent day,” said Vettel. “For us, we didn’t do that many laps, but I think overall we have plenty of reason to be happy. We also have plenty of things we need to improve. Time is limited. It’s not a secret that in four weeks we will be in Australia, so we have a lot of work to do.”

An ominous start by the new Mercedes suggests that completing that work will be no easy task. ❄

Q&A

ANDY COWELL MERCEDES ENGINE CHIEF



What’s your assessment of the first day with the new engine?

Good. We had four cars running the latest-spec power unit, complete with Petronas fuels, fluids and cooling liquids. It’s the start you want – examples pounding around the track getting as many laps as possible and pushing as hard as possible to unearth issues. We put a lot of effort in the factory into mimicking the racetrack, but there’s no substitute for being at a grand prix track and going around and seeing how well we have done our homework through the winter.

With five engines allowed this season, were you tempted to plan to use four and hold one back?

It is tempting. Our plans were all based on there being 20 races, therefore four power units – that’s what all of our targets are based on, and depending on how the next two or three weeks go we will determine how aggressive we are with the running from Melbourne onwards. And that will then determine whether we plan just to use four, and therefore have that bonus power unit, which might help us out if we have a quality issue, or we want to have a performance special. But we will work all of that out in the days before Melbourne. There are long runs going on in the factory, and there are four examples being run here to see if the hardware with the fuel and lubricant is durable.

Will the customer teams have the same specification of engine throughout the season?

Plan A is that we go to Melbourne and everybody has the same hardware, the same fuel, lubricants, all of the cooling systems, the same codes, same numbers. Plan B, we haven’t written that one – that’s when we react to something bad that happens. What goes on downstream, we are better prepared for in-season development. None of us enjoyed not being able to supply the customers with phase-four hardware or fuel last year, but we feel it’s paid off now for this year. We will work hard now chasing performance and then work out the challenges of hardware, fuel, lubricant availability, and do the best we can for all eight cars.

S. BLOXHAM/LAT



Haas VF-16

It's all very well working quietly behind the scenes, but now F1 new boy Haas will find its every move under the glare of the media

By Gary Anderson, technical expert

[@Autosport](#)





Formula 1's bright new American team has finally arrived, and now everything changes...

From working in isolation either at car constructor Dallara, at its US base or at the old Marussia facility in Banbury, the team is now in the full view of the awaiting media. Put a foot wrong and the error will be spotted, and the column inches written about it will be mindblowing. Get it right and the outcome will be more or less the same. In other words, there's no hiding place.

Team owner Gene Haas has a lot of experience in motor racing, so he understands that what you get out of it is a product of what you put in – there are no miracles. It's just hard work and a lot of money. It all takes time to build a team that can withstand the pressures F1 puts on everyone – they will have good days and bad days, but they must treat them equally and learn from both.

Haas has put together a strong driver line-up in the form of Romain Grosjean and Esteban Gutierrez, and both of them are capable of bringing home points if the car has the speed. Behind them is a team of experienced F1 engineers, the expertise of Dallara with all its racing car design-and-build experience, and as much as could be bought from Ferrari within the regulations.

By doing what it has done with its association with Ferrari, Haas has been able to focus on the design and development of a much smaller percentage of the car than when the last new teams arrived. Both Caterham (as Lotus) and

Manor (as Virgin) tried to come in and do it all, and basically neither succeeded. I didn't mention HRT in that sentence because I'm still not sure what that team's intentions were...

As for the Haas itself, it looks tidy and all the parts are there. With Ferrari's help in setting the spec of the car it should be on the right path, but it isn't a Ferrari... As I found out when we built our first Jordan for 1991, it will become 10 times more difficult now that the car is up and running. Every little thing that goes wrong needs to be addressed yesterday, you still need to be putting together your development plans for the rest of the season – and, yes, 2017 is just around the corner. With such a major regulation change coming, it's not going to be easy for anyone.

All Haas can do is run the car and find out where it stands, and not set its expectations too high. ❧

WING FAILURE

Front and rear-wing failures are not uncommon with new cars, but they are certainly attention-grabbing. And if you have too many of them, they can definitely spook the driver.

The loads in these wings are at their highest when the car is at top speed. Because Barcelona is a high-speed and high-downforce track, it's a place where this sort of problem can occur. The front-wing load will also increase when the DRS is deployed because rear ride height increases and it lowers at the front, meaning there is more ground-effect on the front wing.

There are basically three reasons for a front-wing failure, as befell Romain Grosjean on Monday. Either the driver has hit the wing on a high kerb in the last chicane and damaged it, the team has underestimated the loads involved, or it has not been assembled to the design specification.

All of these should be traceable fairly quickly, and then the most significant decision is how you go about fixing it and giving the driver back the confidence. One failure a driver can put up with, twice and he will start to get a bit twitchy.



Wing failure on first day underlined challenges ahead

DUNBAR/LAT



A Formula 1 car from nothing

The Haas team joined the grand prix circus in Barcelona testing this week. But how do you build a car when you don't even have a team?

By Craig Scarborough,
special contributor

[@scarbsf1](#)

The race to get a new car ready for pre-season testing is a stressful challenge for any team. For a brand new operation like Haas, heading into its debut season in Formula 1, the task is almost incomprehensible in scale. But Haas's careful strategy and the experience of its personnel have eased its path.

The foundations of team principal Gunther Steiner's relationship with Gene Haas go back much further than the current form of the team. And the changes the team concept has gone through demonstrate how much F1's regulations have changed through this period, creating uncertainty that makes life difficult for any aspirant. Steiner felt that it was unfeasible for Haas to do everything itself, hence the decision to form a partnership with Ferrari.

"I know how difficult it is to start from nothing," says Steiner. "These machines are so complicated, so

I didn't want to do that. When we started speaking, it was with the customer car and the third car in the air, so that's where it started. At some stage, I said to Gene the third or customer car isn't

going to happen in the next five years. Then we discussed how

to do it differently. The only way was to go through the list of parts you can buy and make a list of the things you have to make. Then you see if you are happy with that."

While F1's regulations prevent customer cars and shared intellectual property (IP), the 'listed parts' regulation sets out the components a team must produce itself in order to be classified as a constructor. This list is surprisingly short, although its scope covers a lot of the car's basic underpinnings and key performance parts. Listed parts include the monocoque and roll structure, the front crash structure (nose) and all bodywork, the wings, floor and radiators, but not the engine's airbox or the exhaust.

Every other structural and mechanical part can be sourced from elsewhere — in Haas's case, another team. Unlike the teams that joined F1 in 2010 amid proposals for budget caps and a drive for cost reduction, Haas has not had to design and make all of the thousands of parts that go into a modern F1 car. So it has short-cut the huge research and development and manufacturing process, catching up on decades of design optimisation in a single bound.

Steiner felt this was the right route "at a time when the list of parts was bigger than it is now and it's reduced since then. We can cope with that because we >>





TRACKSIDE VIEW

TURN 3



AS FAR AS NEW-CAR DEBUTS GO, THE FIRST DAY OF pre-season testing at Barcelona has to be written into the ledger as a qualified success for Haas F1.

OK, Romain Grosjean only lapped 10th fastest (of 11 cars), was a tenth slower than Pascal Wehrlein's Manor-Mercedes, and completed the fewest number of laps of all drivers, but Grosjean set his time on medium tyres (Wehrlein set his on softs) and the Haas looked respectable on track.

From my vantage point on the outside of the long right-hander at Turn 3, the VF-16 looked very solid with no obvious vices. It didn't look particularly quick, but that's hardly surprising on the first day of testing for a brand new team. It looked fairly similar to Sauber's 2015 car (pounding around in Marcus Ericsson's hands), but Grosjean arguably had a greater variety of different lines available with which to attack the entry to Turn 3.

Grosjean wasn't able to get hard on the throttle exiting the left-hander of Turn 2, but the resulting slower approach to Turn 3 allowed him to attack that entry with greater ease. Until the front wing fell off the car shortly after midday...

"The car felt good, and it's important to get a good first impression," said Grosjean, who reckoned that Haas is already "not far" from being able to mix it with F1's midfield contingent. "I've had two good cars, one really good and one really bad [in my career], so I kind of know what it is! Generally, the car felt good."

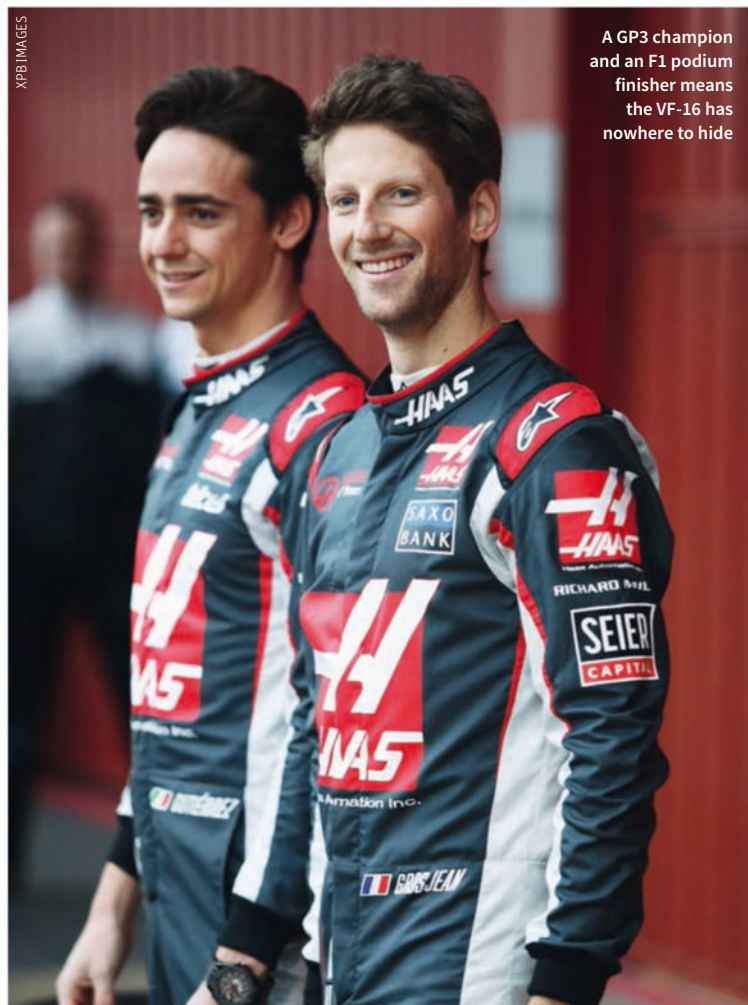
Haas arrives in F1 far better resourced, and prepared, than the raft of new teams that joined in 2010, but it's not clear yet whether this car really is good enough to underpin the team's ambition of becoming a points scorer in its debut season.

BEN ANDERSON



S. BLOXHAM/LAT

XPB IMAGES



A GP3 champion and an F1 podium finisher means the VF-16 has nowhere to hide

"An F1 car is a jigsaw puzzle and Haas is using two sets of Italian pieces"

don't need five partners to do it. The plan was never to make everything ourselves."

The plan was very much to decide on the strategy and then find the partner team, rather than selecting Ferrari and finding a way to work with it. There were conversations with other teams and Steiner admits there was another option. He won't say who they were, but he winks as he says "they are not far from here" – referring to the team's UK base in Banbury.

The result is that Ferrari has supplied not only the powertrain, but all the mechanical, electrical and hydraulic sub-systems.

The other key partnership is with Italian constructor Dallara. This keeps the Haas operation down to three locations in Europe: Dallara and Ferrari in Italy, plus the logistics base in Banbury, England.

So what of the much-quoted line from Gene Haas, who told

Sky Sports last year that "we think our chassis in some ways will be better than a Ferrari chassis"? This raises the question of whether he was referring just to the tub, or to the whole chassis.

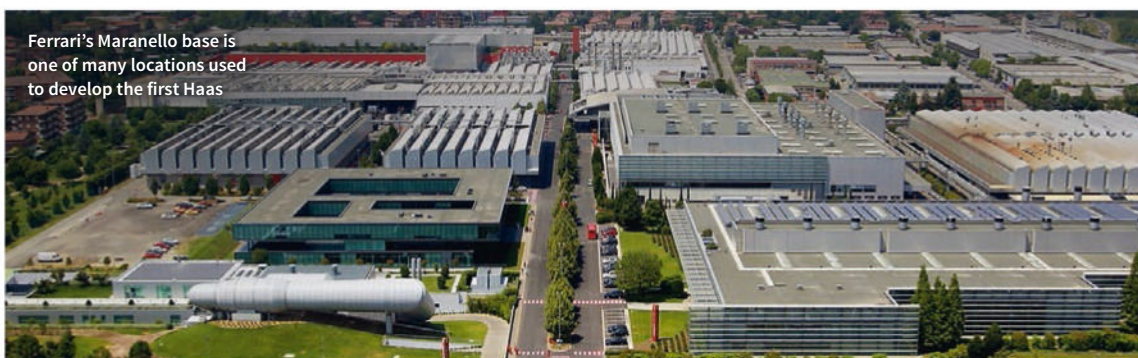
"Gene doesn't really know how the Ferrari chassis looks. Nobody knows except for Ferrari. I don't know if he really meant that," says Steiner, speaking before Maranello's latest car was revealed.

If it were the tub Haas was referring to, Steiner doesn't feel there is a real advantage to be had in that area because "they are all so developed, so sophisticated, I don't think anyone can make the weight, then keep the stiffness and pass the crash tests. I would say they are all very close."

Any F1 car is a jigsaw puzzle of parts packaged together into tiny spaces. Haas's puzzle uses two sets of pieces: the listed parts from Ferrari and those non-listed parts



Steiner (top right) has overseen new F1 car for owner Gene Haas (right)



Ferrari's Maranello base is one of many locations used to develop the first Haas

that Dallara designs. But there are hundreds of interfaces between Ferrari and Dallara parts – for example, the fuel tank, the suspension, the pedals and even the steering wheel. This crossover does not mean the Haas is simply a Ferrari clone. After all, Haas's aero work is being done by Dallara.

"People ask me if it's like a Ferrari," says Steiner. "I say I do not know because I haven't seen a Ferrari; they wouldn't show it to me! I don't know what the Ferrari looks like. If the Ferrari is good, I hope it's the same, if the Ferrari's not, I hope it's not the same!"

The aero programme has been the focus of much speculation, since it has been carried out at Ferrari's windtunnel. Many claim this is a full Ferrari operation, but Steiner insists there is clear separation between the two.

"We are at Ferrari's windtunnel and we've got a few seconded Ferrari people to run the tunnel," he says. "But our model makers are all based at Dallara. They just go to Ferrari when we run the car in the windtunnel – nothing different to a team using the Toyota tunnel. When the scale model is not running, it goes back to Dallara.

"Our people create the geometry by regulation. Everybody jumps to the same conclusion and you cannot blame them. We are all conspiracy theorists, that's what keeps it interesting, but there are regulations to be followed. The FIA is checking all the time."

With Ferrari supplying the CAD data for Haas to integrate into the rest of the car, there has to be a clear split between the design offices. So the CAD systems are not linked.

"We can get the information we need, but we are not linked to its system," says Steiner. "They don't want us in theirs and we don't want them in ours, because we are developing parallel cars, the demarcation is very clear."

The challenges of a four-campus approach to creating an F1 team should not be underestimated. Many believe a single factory is the best way to operate an F1 team, but managing communications and logistics of operations that are spread out is easier now than it was even a few years ago.

Modern collaboration and IT tools help, similar to those many use every day: text chat, video calls and shared applications. Staff meet regularly via video conferencing,

linking the UK office, Dallara and Haas central in North Carolina. There's still a huge amount of travel, but some of this is reduced by modern communications.

Since the car fired up for the first time last week, and ran this week, it has hit its schedule. But it was tough. The first car went straight from Dallara to Barcelona, and with two four-day tests running back-to-back it will stay there before heading to Banbury, where it will be joined by the second. The cars will then be shipped out of East Midlands Airport for the season-opening Australian GP.

While fans and media focus on the cars and drivers Esteban Gutierrez and Romain Grosjean, Haas still has a huge number of other preparations to complete to be ready for its first race. Running racetrack and engineering operations requires pre-planning and this is all completed through software. Ferrari isn't helping there.

"We have people in place, we have to do all our software ourselves – that's fine," says Steiner, who points out the databases also need information.

"We haven't got any historic data. What we have got is what

our people bring with them in their heads. There's a lot to be gained from it, but you need to fill the system and decide how far back you go."

There will be a lot of internet searches and race re-runs for the team to prepare its strategic and engineering applications.

As the season progresses, Haas will have to develop its car package. Steiner doesn't think updates on Ferrari-supplied parts will be a key factor, since performance steps will largely come from its own aero programme. The initial race package was signed off in advance of the first test and the team is now working on the first update package.

"We are still working on the strategy," says Steiner. "When we find something where we find we might make progress, we will do it. I think to say stubbornly we need to have an update kit for Barcelona and we only gain one or two points [of downforce], there's no point. We'd rather wait two races and find five to six points – that's the strategy. I will say it will be a session-by-session decision."

Decisions on how the team will progress in the long term with its non-listed parts strategy will be left until after its first season.

Thanks to its pragmatic route into F1, Haas has the opportunity to jump straight into the midfield by using Ferrari's already-mature technology, a strong windtunnel programme and producing its own state-of-the-art listed parts.

Many obstacles remain but the Haas team has not underestimated the challenge. The tests and early races will be a learning curve for F1's newest outfit, but it has already achieved a huge amount. ■



McLaren MP4-31

The fallen British giant is pinning its 2016 hopes on aggressive aero, an updated Honda engine – and keeping its vision

By Gary Anderson, technical expert

[@Autosport](#)

For all the talk about the 'size-zero' concept of last year, the McLaren always looks like a 'big' car and I'm not sure why. It still looks like it's 10 per cent bigger than the Mercedes!

This is probably just an optical illusion, emphasised by the colour scheme not doing the McLaren any

favours. That also makes it more difficult to see some of the detail, which is probably the intention.

In 2015 the car was better than Honda's power unit, but if it had been fitted with an equal-performance Mercedes engine could it have taken the fight to Mercedes? My answer to that is no. It would have been a lot better, but it still

lacked in grip and consistency relative to the frontrunners.

This is the first complete McLaren from chief engineer Peter Prodromou and I am sure his Red Bull experience will have altered how the McLaren design group set the specification for a new car.

McLaren seems to have committed itself to running with

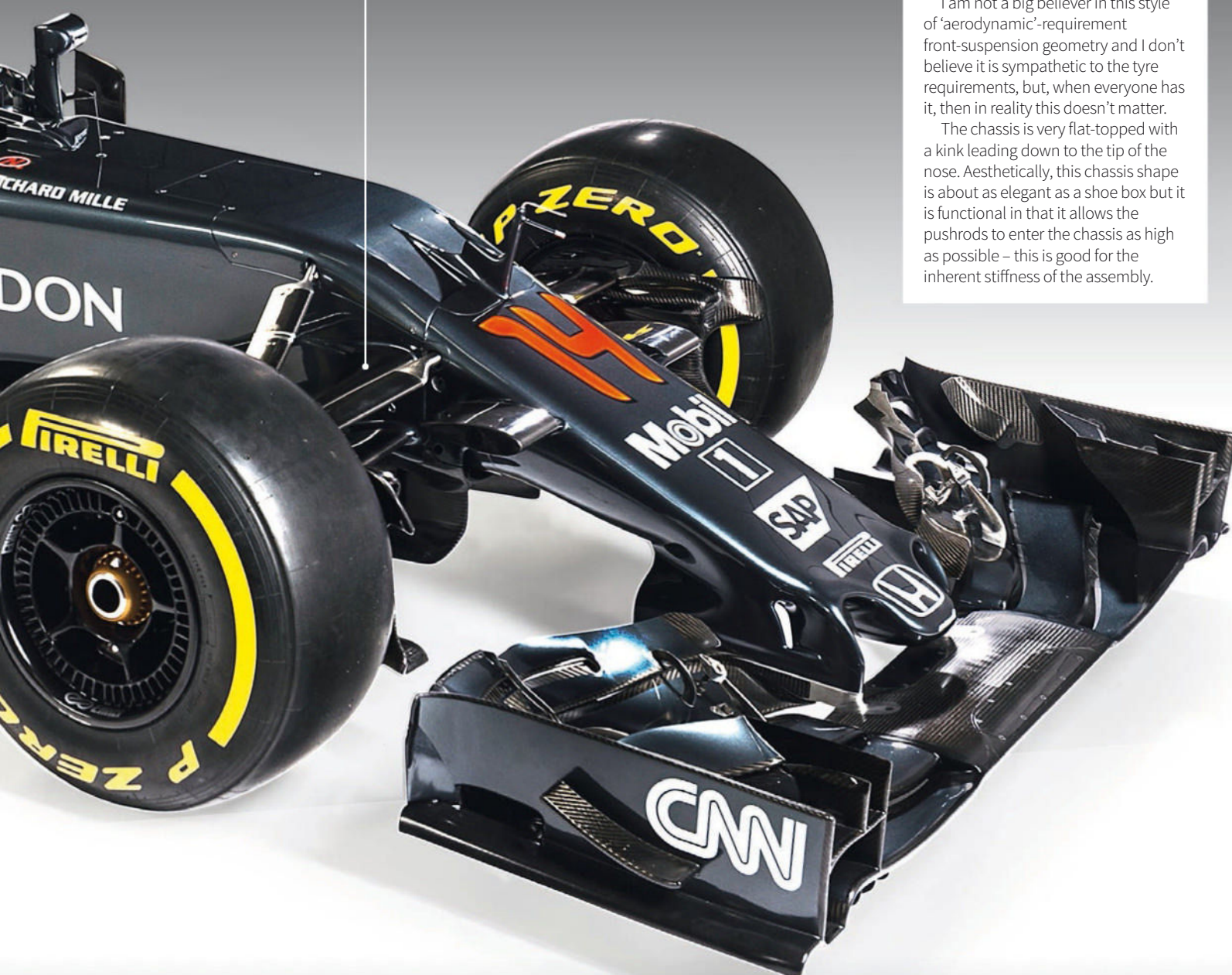
a higher rear ride height. This in turn allows the rear of the car to be run softer so the car has more rake at low speed, giving more front-end grip in slow corners. When the speed and the aerodynamic forces build up, the rear will compress and get nearer the ground, moving the downforce rearward and making the back end feel more stable.

FRONT SUSPENSION

The one thing that stands out on the McLaren is the chassis location of the inboard end of the pushrod relative to the inboard end of the wishbones.

I am not a big believer in this style of 'aerodynamic'-requirement front-suspension geometry and I don't believe it is sympathetic to the tyre requirements, but, when everyone has it, then in reality this doesn't matter.

The chassis is very flat-topped with a kink leading down to the tip of the nose. Aesthetically, this chassis shape is about as elegant as a shoe box but it is functional in that it allows the pushrods to enter the chassis as high as possible – this is good for the inherent stiffness of the assembly.



If this type of aerodynamic characteristic is achieved then it is a benefit at all circuits, but miss it by a little bit and you are always fighting that very fine balance between understeer and oversteer.

McLaren's task for 2016 is probably the most difficult of all the teams'. Everyone else had a fair idea of where they were, but

McLaren never made the progress over the season it thought it might, and when that happens it undermines the basic things that you believe in.

Designing and building an F1 car is about vision, and sometimes that vision cannot be instantly rewarded with numbers. But if you have commitment then that vision

is something you must follow otherwise the development direction will be difficult.

The main area that McLaren needed to focus on was making sure that Honda had the open-design opportunity for its installation requirements. You can't expect a power-unit manufacturer to get the best from

its product if its hands are tied.

This is the reason why works teams exist. Everyone at Mercedes and Ferrari work together for one goal and in reality it's where the Red Bull team and Renault tripped up. Red Bull got too big for its boots and blatantly criticised Renault to the extent that the relationship fell on stony ground. ❄



A five-point plan to save McLaren-Honda

All eyes are on whether the MP4-31 can move the once-dominant alliance closer to the old glory days than its dismal position at the back of the grid in 2015

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

One of the beauties of motorsport is that each new season offers a fresh start, a chance to forget the travails of the previous year and begin again — driven by new ideas, inspired by new developments, and imbued with the giddy optimism only a winter of hard graft and soul-searching can provide.

McLaren-Honda will have been doing more soul-searching than

most over the winter and, as the wraps came off its 2016 challenger last Sunday, the mood around the MP4-31 appeared to be one of modest optimism. Perhaps McLaren has learned its lesson. Last year's unveiling of the first McLaren-Honda Formula 1 car since 1992 was full of talk about 'extreme' and 'innovative' developments, designed to challenge Mercedes' undisputed F1 dominance.

That challenge was never

expected to be immediate — everyone knows Rome wasn't built in a day — but McLaren expected to be at least competitive enough to match its fifth-place finish in the 2014 constructors' championship.

The much-trumpeted 'size-zero' MP4-30 came nowhere close, beset by a litany of reliability problems and a severe lack of performance at pretty much every race. McLaren-Honda scored fewer than 20 per cent of the points needed to achieve

its bare-minimum ambition in 2015 and took a big financial hit.

It was undoubtedly a poor season, perhaps the poorest in McLaren's illustrious history. This year simply must be better. McLaren cannot afford to carry on languishing in the winless wilderness it has occupied for three straight seasons now. The longer this goes on, the less likely it is McLaren will ever return to winning ways.



Button takes MP4-31 out on first day of testing



Yasuhisa Arai will face plenty of questions if Honda's new engine does not yield big gains

But the dawn of this new season, the launch of its new car, and the hatching of new plans bring fresh hope the team can get back on track.

McLaren is one of only four teams using full-factory engines in Formula 1 now, so a top-four finish in the championship should be the minimum target for the McLaren-Honda alliance.

Once it has learned to walk, perhaps it can begin to think about running at the front once again.

1 POWER PLAY

Honda took most of the heat for last year's struggles, having failed to produce an engine reliable or powerful enough to challenge Mercedes, Ferrari and Renault.

There was improvement through the season, to the point where Honda felt its V6 combustion engine was at least a match for Renault's, but severe unsolved weaknesses with the Energy Recovery Systems meant much of that progress remained masked.

It is a complex process to improve these hybrid engines, because of the interdependent loop of energy that envelops the combustion engine (and the limited amount of fuel used to power it),

the MGU-K (for recovering kinetic energy under braking), the MGU-H (for recovering energy from the exhaust gases), the battery (used to store and deploy this recovered energy) and all the other associated components that link it all together. Change one element, such as the turbocharger, and you create a knock-on effect with the rest.

Honda identified the compressor, turbo and MGU-H as the main offenders in compromising its ERS last year, but said it could not find an adequate solution within the confines of the tight aerodynamic packaging on the MP4-30. Inefficiency in this area leads to excess heat, which leads to failures when chassis packaging is tight and leaves little room for cooling.

Honda believes it is still possible to fix this problem without compromising the aggressive aerodynamic philosophy of the car, and the fact that the MP4-31 has retained the tight aerodynamic packaging of its predecessor supports this presumption. Honda motorsport chief Yasuhisa Arai confirmed winter modifications to the power-unit hardware – and specifically the compressor – upon the launch of the new car.

“Honda confirmed changes to power-unit hardware at the launch of the MP4-31”

Honda will surely take encouragement from the massive step Ferrari took with its ERS performance last winter. Indeed, star driver Fernando Alonso suggested McLaren-Honda suffered the same problems in its first year under these rules that Ferrari and Renault struggled with in 2014.

If Honda can find a similar size of improvement to Ferrari's 2015 effort, the alliance will vault up the grid instantly. McLaren has publicly stated it has no Plan B, so simply has to maintain faith that Honda can get things right.

2 SUSPENDED ANIMATION

For all the obvious flak directed at Honda last season, it's also fair to say that McLaren did not produce the best chassis on the grid. In fact, racing director Eric Boullier ranked it “sixth or seventh” (of 10) at the start of last year. That clearly isn't good enough for a team with a

history of building winning cars.

But there were some encouraging signs as the season progressed. Aerodynamic development was fast and fruitful, benefiting from Red Bull-inspired philosophies introduced since Peter Prodromou returned to Woking to head up McLaren's engineering team. By season's end, Boullier reckoned the MP4-30 was inferior only to the Mercedes W06 and the Red Bull RB11 aerodynamically, and felt the aerodynamics under development for 2016 were worth another two to three tenths of a second even before the end of last season.

Alongside this constant incremental aerodynamic improvement, the next big step looks likely to come through vehicle dynamics. This has been an area of weakness for McLaren throughout its current barren spell, which stretches all the way back to the 2012 Brazilian Grand Prix. »



Being rooted
in the midfield
will not please
two champions



“There’s no point spending millions on top drivers if you car is at the back”

Both Alonso and team-mate Jenson Button complained about poor ride over kerbs and instability under braking last year, areas in which even midfield squads such as Toro Rosso and Force India were outperforming McLaren.

The team experimented with different suspension configurations during free practice for the final race of last season in Abu Dhabi, with mixed results. Solving these problems with improved suspension will give the drivers more confidence in the car underneath them, and the result will undoubtedly be faster lap times.

3 MOTIVATING THE MOTIVATORS

In Alonso and Button, McLaren has a driver line-up of world champion quality, which has started more grands prix collectively than any other pairing on the grid. Like all world champions, these two are driven to win and will be restless if starved of success for too long.

Alonso was recruited from Ferrari on a three-year contract at great expense to Honda, while

Button is entering the final season of his current deal.

Both have spoken repeatedly about enjoying the challenge of trying to haul McLaren-Honda up the grid, and stunts such as sneaking onto the podium during the Brazilian Grand Prix weekend have injected a welcome dose of humour to a tense situation. But both have also vented their frustration at times.

Alonso’s derisory comments about Honda’s ‘GP2 engine’ during last year’s Japanese Grand Prix have been well publicised, while Button admitted at the end of last season that he hadn’t enjoyed mostly watching rivals disappear into the distance – hardly surprising when you’ve won 15 races, visited the podium 50 times in your F1 career, and been champion of the world...

Alonso admitted he was below par last year, and McLaren agrees there is more to come from its star driver. Button also performs better when pushed hard by the other side of the garage. These two are both in their mid-thirties, so are short of time, and McLaren-Honda

More reliability and more performance will help keep the team motivated



is currently wasting their talents with sub-standard equipment. The MP4-31 needs to be good enough to encourage Alonso to access his best stuff, which in turn will force Button to raise his game to keep up.

There is really no point in spending millions of pounds to employ top drivers if your car is only good enough to drone around at the back of the grid.

4 THE CAPITO EFFECT

McLaren does not expect to get its hands on Volkswagen's exiting motorsport chief until late spring, but it will be interesting to see what the man who has led VW's utter dominance of the World Rally Championship can bring to F1.

Jost Capito's previous F1 experience (at Sauber and Ford) is all well and good, but he hasn't been involved in top-level single-seater racing since Ford supplied Jordan with engines in the early 2000s, so McLaren clearly hasn't signed him for any particular F1 expertise.

What he does bring is a record of sustained recent domination in the WRC with VW and, perhaps more

importantly, a track record of working successfully within several of the world's largest automotive manufacturers.

McLaren's relationship with Honda remains a work in progress, and the feeling within McLaren is that Capito possesses a skillset and strength of personality that will accelerate that progress.

His skill is in managing strong personalities and unifying the organisations he works for. He can relate just as well to the highest-level board members of a major manufacturer as he can to the mechanics whose work helps to deliver the success that keeps those board members engaged. Whether Capito can translate his talent to an organisation of McLaren-Honda's thousands (rather than the VW rally squad's hundreds) of people remains to be seen.

With chief operating officer Jonathan Neale moving into a new role, supporting chairman Ron Dennis's work within McLaren's wider operations, the team needs a motorsport-literate manager to fill the void.

Racing director Eric Boullier has his hands full getting McLaren-Honda working on-track competitively and representing McLaren's interests in the paddock; Capito will be able to draw on his political nous and board-level experience at VW to provide a welcome bridge between the racing operation, factory and senior figures at McLaren and Honda, bolstering the leadership that is crucial to success for any F1 operation.

For an organisation that has often seemed cold and calculating, perhaps Capito's human touch is just what is needed to steer the ship through troubled waters.

5 KEEPING THE FAITH

McLaren only has to glance a few garages up the pitlane, at Williams, to see what becomes of a champion team that spends too long in the doldrums.

A dark near-decade of underachievement transformed a squad of world champion stock from regular frontrunner to perennial midfielder. Williams is much improved under the current

regulations, as two consecutive top-three finishes in the constructors' world championship attest, but in reality it is punching above its weight against better-funded rivals, and is fighting to take what remains a giant leap back to the very front of the grid.

McLaren has mighty facilities, a works engine deal and a big budget, but extending its longest winless run since 1994-96 will only increase the chances of more sponsors leaving, finances squeezing further, and staff feeling more demoralised. Success breeds a culture of success and a winning mentality; sustained failure does precisely the opposite.

Even after producing two consecutively competitive cars, Williams has wrestled with the ghosts of a small-team mentality, trying to rediscover the tactical nous, operational sharpness and sheer self-belief needed to win.

McLaren needs to beware of following its fellow British team, because the road to recovery is long and arduous if great teams are starved of success for too long. *W*



Williams FW38

Williams has risen from the doldrums over the past two seasons. Now the challenge is on to improve form in the wet and on slow tracks

By Gary Anderson, technical expert

[@Autosport](#)

Williams knew exactly where its problems were in 2015. In slow-speed corners and low-grip conditions, such as in the wet at Silverstone, it was like a light switch – off went the car's performance. So, setting objectives for 2016 would have been very easy for Williams. Achieving them is very difficult.

When your problems lie in basic overall grip and you can just focus on aerodynamic development, you have the tools around you to get instant results from your tests. The windtunnel and CFD are great pieces of kit and even now, with the FIA instigating more control over the amount of time you can spend running these tools, there is still a big benefit when it comes to signing off design research. You

still have to get to the circuit to make sure that the transient characteristics are driver-friendly, but at least you are halfway there.

When it comes to looking for low-speed or low-grip performance then I'm afraid it's a bit more finger-stuck-in-the-air stuff. Changing the low-speed grip characteristics of a car has always been very difficult. At low speed the biggest thing that can alter your

grip level is the tyre temperature. If the car's balance doesn't allow the driver to work the tyre hard enough when the track-grip level is low, then the tyre temperature will disappear very quickly. That multiplies the problem tenfold. So instead of addressing the car's inherent balance problem you set off trying to fix the secondary problem, in this instance a lack of tyre temperature.



Aerodynamically the Williams has always been a very efficient car. It's been fast on the straights but at some circuits it's a bit like the Force India – it just can't develop the higher levels of downforce the frontrunning cars are capable of.

In general you need these levels of downforce to generate tyre temperature, and if you don't have it you can head down the wrong avenue by trying to put together

a set-up that will generate tyre temperature, instead of just bolting on an extra bit of downforce, which would sort out your problems.

The new car should have addressed this problem. Although it doesn't look vastly different from its predecessor, the devil is in the detail. The radiator inlets and their surroundings have changed, and this area helps both the front and rear work more efficiently. *W*



Q&A

PAT SYMONDS CHIEF TECHNICAL OFFICER



What was the conceptual thinking behind the FW38?

The FW37 was a pretty effective car and so we concentrated on understanding the areas where we could improve it without losing the attributes that made it effective. It is no secret that the low-speed performance of the FW37 didn't match its high-speed performance, so a lot of time was spent looking into why this was and subsequently making changes, which we hope will improve the situation. On top of this we looked at the normal physical obstacles to development that one always meets during the life of a car, and tried to push those barriers back.

When did the design process start?

In mid-January 2015, before the FW37 had even run, we held a meeting to try and work our way through a concept 'shopping list' and to narrow down the areas in which we hoped the FW38 would outperform its pre-nascent forerunner. As we started running the FW37, we could see more clearly the design directions we wanted to take with the next car, and at the same time started laying out the basic architecture such that critical path items would hit their design-release targets. The monocoque and gearbox, for example, fall into this category because both need considerable time, not just in design but also in structural analysis.

What are your predictions for 2016?

I've been in the sport far too long to fall into the trap of making predictions. Over the past couple of years Williams has regained the competitive spirit it was so long famous for. I want to harness and augment that spirit and use it to drive us forward in a progressive manner, while always keeping a strategic eye on the future – and in particular the big changes due for 2017.



Red Bull RB12

Last year was a big disappointment for Red Bull. The pressure is on to turn the team's fortunes around in 2016

By Gary Anderson, technical expert

[@Autosport](#)

Red Bull is probably the team with most to prove this year. After four seasons – 2010 to 2013 – of domination, the past two seasons have been disappointing and those involved haven't taken it well.

In 2014, Red Bull won three races

and was arguably the second best team to Mercedes, but last season it took another step backwards and allowed Ferrari to get ahead. Red Bull will not want that trend to continue or questions will be asked.

Yes, a lot of the problems were with the Renault power unit, but, measured against sister team Toro

Rosso, its chassis performance was also lacking and I think the drivers lost a bit of motivation when they discovered that winning was more or less out of the question.

The politics involved in getting a power unit supply for 2016 also caught Red Bull a bit by surprise – I reckon the team thought that

all the other engine manufacturers would be queuing up at the door offering mega deals. But it wasn't like that and it took a lot of effort and eating of humble pie before it got sorted. I think Red Bull found out very quickly that the 'Piranha Club', as it has been called on many occasions, still exists.

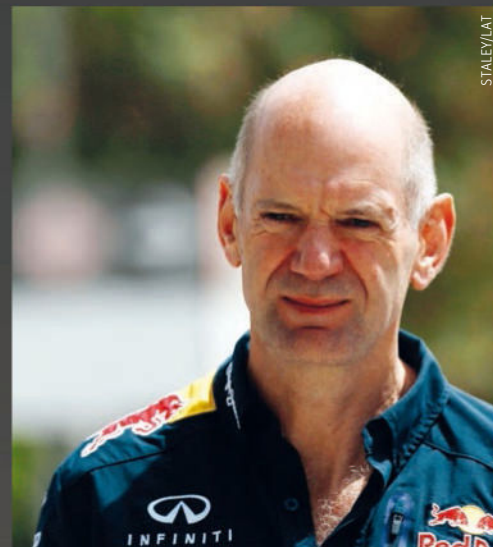
“Last winter we made mistakes in the direction we took the car”



Since Adrian Newey has stepped back, the team seems to have lost its innovative technical brilliance, and I can't really see anything that gives Red Bull that step on the new car. With the regulations staying fairly stable, it's down to the small detail changes, and they all add up, but it's always nice to see enough

of a change to allow a team to alter its development path in the hope that the new direction will bring greater rewards in the long term.

Red Bull has led the way in running a car with a low front and a high rear ride height, so the team should be best placed to make the best out of that style of set-up. ❧



STALEY/LAT

ADRIAN NEWEY ON THE RED BULL RB12

IT'S A THIRD-YEAR CAR UNDER A FAIRLY RESTRICTIVE set of regulations, so there's no big step forwards, but I think the guys have done a very good job of tidying things up. We learned some lessons in the start of last year, where I would admit we made mistakes in the direction we took on the car over the winter, in terms of how it affected the drivers' perception of the handling of the car.

It was a good learning curve for us, we adapted and learned from that through the first half of last season, and since Silverstone we had the development of the car and went further down that route over the winter.

The option was closed to us, in terms of running the out-of-date Ferrari engine. Secondly, you are kind of dooming yourself to be some way behind.

Our power-unit manufacturer is on a good course now, they've had a good winter. Obviously there is a big deficit to make up, but I think with the new procedures, the new budget that has gone into it, the work, then they are on a good path. I think we will slowly close the gap.



XPB IMAGES



Red Bull: Back in the midfield

Even during a difficult 2014 Red Bull won races, but it couldn't last year. This season it looks as though things could be even worse, at least for the early races

By Lawrence Barretto, F1 Reporter

[@lawrobarretto](https://twitter.com/lawrobarretto)

Red Bull and the word 'midfield' have rarely been bedfellows over the course of the past seven seasons. But that is set to be a more common occurrence over the next few months, with the four-time world champion team resigned to the fact that the 2016 Formula 1 campaign is going to a tough one. And it's

clearly not a position team principal Christian Horner is enjoying.

"Red Bull got used to winning — we won 50 grands prix and eight world championships in four years," says Horner. "2014 was a disappointing year for us but we won three races, so in 2015 not to win any races, even though we were on the podium a few times, was a difficult year for the team."

'Difficult' is an understatement. Red Bull built a strong chassis but was undone by a woeful Renault engine. A very public slanging match with the French manufacturer made things worse.

The result was fourth in the constructors' championship, more than 500 points adrift of Mercedes. Last year's form was a surprise, after winning three races in 2014,

but the team expects a similar struggle this year.

Red Bull is, at least for the short term, no longer a frontrunning team. Mercedes and Ferrari will likely be out of sight this year, even if Renault does meet its ambitious target of halving the deficit. Daniel Ricciardo believes Red Bull should be beating Williams by the time the pack gets to Europe, but

Ricciardo's all smiles
but the start of 2016
will be tough



Renault has a long way
to go to turn its engine
troubles around

Below: Ferrari-powered
Toro Rosso is tipped to
challenge senior team

at least up until the summer break. It is telling that Horner says getting into Q3 for the opening round in Melbourne will be a good achievement.

The TAG Heuer-branded Renault power unit remains the weakness, with Red Bull and Renault signing up to a marriage of convenience for at least one more year. Horner speaks about this year being a “a new beginning for the team as we head down into the next cycle of the evolution of Red Bull”, but it’s hard to see this season as anything but a holding year.

Presumably Red Bull will look to entice a new manufacturer for 2017, but you get the impression that even those at the top aren’t sure what will happen.

There is new optimism that this year will be better than the last, which yielded just three podiums, and that the experience will only make the team stronger.

“Last year was a tough year, but we have emerged from that,” says Horner. “It feels like we are building up momentum. There is confidence in the factory and determination to get into a competitive situation. I think it would be foolhardy to write a team off with the calibre of people that Red Bull has in it.”



that feels optimistic, even if Williams has a budget roughly half that of Red Bull’s.

Horner even suggests that junior team Toro Rosso will be quicker for the first half of the season.

“Toro Rosso have bolted 0.8 seconds into their car through a different [Ferrari] power unit,” he says. “That is a significant amount of performance. We are hoping to make similar gains throughout the year but obviously the chassis is going to have to prop that up.”

When asked if that means he expects Toro Rosso to be ahead of Red Bull, Horner replies: “To start the year, yes. But I think that will, hopefully, change throughout the course of the year.”

It is believed that the 2015-spec Ferrari engine was around 0.8s up on the Renault at the end of last year, so Horner isn’t exaggerating with that figure. If that gap does translate this year, and Toro Rosso has managed to produce a chassis as impressive as last season’s, there’s every chance that Max Verstappen and Carlos Sainz Jr will cause a few shocks early on. Red Bull, though, will have to be content with a spot in the midfield,

With the engine regulations still so immature and the power units the dominant factor, if your engine isn’t up to scratch there’s little hope of challenging at the sharp end. But Renault is convinced it has made progress. How much progress relative to its rivals remains unknown, but there does seem to be a feeling coming from the French firm’s Viry HQ that, while it may take time to get back to the front, it is now at least confident that it knows what has to be done to get there. And Horner is hopeful that, while the first half of the season may be challenging, the second half will be better.

“I get the feeling Renault have a much better idea of where the performance deficiency has been, and what they need to do to

address that,” says Horner. “There seems to be a lot more confidence and focus, and I think, with a bit of restructuring they have done there, they have got some quality consultants in there now with plenty of experience. They have got Bob Bell back involved, who obviously brings a lot of experience from Mercedes-Benz, and obviously from a previous successful stint at Renault. So I think they are addressing the right areas now.”

With little that it can do about the engine, Red Bull has pushed the limits with what it can control – the chassis. The team hadn’t done any crash testing until last Monday, one week before the first test, and did not complete the last until Wednesday.

“We have taken risks,” said Horner. “Other teams perhaps wouldn’t have dreamed of completing crash tests one week before the first test. But that’s how we roll. That’s what our DNA is and the competitive drive there is within the team.”

It’s that kind of drive that hints that, while Red Bull knows it is facing an uphill task, it certainly has the stomach for a fight. ❄

“Other teams wouldn’t dream of crash tests one week before the first test, but that’s how we roll”

XPBIMAGES



Force India VJM09

Evolution bred success over the 2015 season for this team. That philosophy has been retained for this year

By Gary Anderson, technical expert

[@Autosport](#)



Force India ended the 2015 season strongly, and keeping its car concept as an evolution for 2016 is a wise thing to do. Having finished last year in a way that left the team with the correct base, it knows lap times can be brought to the car with each and every development stage.

To achieve this, Force India has built the 2016 car around a new chassis. As a new chassis is one of the most expensive parts of a new car, there must have been something in the chassis geometry that was felt to be holding it back development-wise.

Force India is now working in Toyota's state-of-the-art windtunnel facility in Germany. As with any windtunnel you need time to understand it and its drawbacks. No simulation tool or specialised piece of equipment will be 100 per cent like the track, and the sooner you understand that and the areas to question the sooner you move forward. Force India appears to be there now.

It has retained the exclusive long nose with characteristic 'nostrils'. As can be seen with the exit duct on top of the nose, the team has also retained the 'S' duct.

This duct works in conjunction with the underside of the nose. The low-pressure area on top of the nose scavenges airflow between the front-wing pillars and makes this area work more efficiently.

It will also reduce the lift created by the airflow speeding up over the top of the nose and chassis.

Most of the aero surfaces we see are bolt-on components. The nose, front wing, sidepods, engine cover, underfloor and rear-wing assembly are all replaceable and take time to optimise. I am sure many of these components will change before we are too far into the season.

F1 has always had its top four and currently that consists of Mercedes, Ferrari, Red Bull and Williams. Force India is competing for the position of best of the midfield, with an outside chance of a shot at Williams. And when you consider that battle also includes Toro Rosso, McLaren and Renault, with a watchful eye on Sauber, Force India will have to be committed and have a well-structured development plan that is funded correctly.

Too often, lack of finances has put the brakes on the team, but with this car it definitely has a good foundation to work from. *W*





Can Force India break into the top four?

Last year, the Silverstone-based squad had its best season since its late-20th-century pomp as Jordan. It will be gunning for another step forward this year

By Gary Anderson, technical expert

[@Autosport](#)

Force India is a team very close to my heart. It was born out of Jordan, of which I was the founding technical director, and many of my old staff are still there, fighting for the success that they have deserved for many years.

Andrew Green has been Force India's technical director since late 2010, when Mark Smith, who is now technical director at Sauber, joined the team that became known as Caterham. Together, we were the three designers who created the Jordan 191.

After Eddie Jordan sold the team

at the end of 2004 (it competed as Jordan in 2005, but under new ownership before becoming Midland), it seems to have had more owners than any F1 team has ever had! All of them promised greatness, but the promises – and bank accounts – proved empty.

That changed when Vijay Mallya

took over and renamed the team Force India for the 2008 season. It seemed the same thing was happening again, but despite the bumps in the road he has kept his word, investing in the right staff and equipment for success, and the results are clear to see.

In 2008 Force India was 10th and



Sergio Perez gave the 2016 machine its first run at Barcelona

his other much-publicised business dealings. Force India doesn't have the biggest budget in the pitlane, but to have any chance of climbing higher than fifth it does need financial stability. That said, there have been a lot of rumours about Mallya's investment in the team over the years and it's done OK, so we just have to see what happens.

The B-spec car that was introduced at last year's British Grand Prix was a good step forward and provides a strong base to develop the 2016 car. After all, the regulations are fairly stable, so it's about ongoing development rather than a complete redesign.

And the switch to using the Toyota windtunnel in Cologne was an important step. Previously, the team used the windtunnel in Brackley, but the progress made last year indicates that the aero programme is on firm footing.

The points Force India scored during the first half of 2015 with the old-spec car were important last year. That shows the team recognises the importance of a good start to the season, so that's why they should avoid getting too dramatic with winter redesigns.

The key to getting the best out of a package is to understand as much of it as you possibly can, and be sure it will be around at the chequered flag. While Force India still scored enough points to finish fifth last year even without those it scored with the old-spec car, it was a very good effort to score so heavily when others should have taken a bigger step ahead.

But even holding on to fifth will be a big challenge. McLaren-Honda was a lot worse than anyone expected in 2015 and surely can't be that bad again. McLaren is one of the four works teams that, realistically, Force India has no real business being ahead of.

If you look at the teams that beat Force India in 2015, Mercedes, Ferrari and Red Bull have probably three times the budget. Williams, too, has greater resource. So the big question is why should we expect Force India to beat any of those? The only strategy open to it is to hope they have problems and be there to pick up the points.

But Force India can realistically



“Mallya has invested in the right staff and equipment and the results are clear”



effectively last in the constructors' championship, as you can't really count Super Aguri after the team folded four races in. In the years since it has been on a positive trajectory, finishing ninth, seventh, sixth, seventh, sixth, sixth and, in 2015, fifth.

Don't get me wrong, there is still a lot more investment the team could make use of, but it does have what is critically necessary to be competitive and those results show that the team knows how to use it. But having climbed to fifth, behind only Mercedes, Ferrari, Williams and Red Bull, how does it break back into the top four?

The big question is how long Mallya can keep it up amid all of

aspire to target Williams, although there is a threat from behind as the revived Renault team and Toro Rosso won't hang around.

On the positive side, the driver line-up is as impressive as any in the pitlane. There is no doubting Nico Hulkenberg's ability, but he does need to learn from a few silly errors in 2015 and get back to the level expected of him.

As for Sergio Perez, he showed last year that he is just about over the big confidence knock that his season with McLaren inflicted on him. The treatment that McLaren gave him could very easily have destroyed him; instead, he now realises that driving for a top team is not all it is made out to be and

beating them in a car from a smaller team can be much more satisfying.

And McLaren keeps doing the same thing over and over — just ask Kevin Magnussen about that.

So, for Force India you would argue that a repeat of fifth place would be a good achievement. To go further than that depends on others falling over, and that's something the team cannot control.


But if it continues to receive the investment, and can steadily improve its facilities, it has the fundamental qualities needed to emerge as a top team in the long term. Remember, Force India is a team that has won races in the past, so fifth should not be the limit of its ambitions. ✎



Toro Rosso STR11

With a new Ferrari power unit in the back, there are big expectations for the Faenza creation

By Gary Anderson, technical expert

 @Autosport





“There are aero compromises but if the Ferrari engine performs those will be overcome”

Toro Rosso is a team now standing on its own two feet. For too many years it has been branded with the Red Bull junior team tag in a patronising sense, but it showed in 2015 that with the same equipment it is now a match for the parent operation. And the change to the Ferrari power unit for 2016 allows Toro Rosso to crack on.

Under Franz Tost the team has clear objectives, and with James Key at the technical helm a clear direction on that front. James is one of my old Jordan boys and a very clever individual. He gets involved in everything, something so many technical directors just don't do.

The car last year suited some circuits more than others. I am sure some of that can be put down to the lack of out-and-out performance of the Renault engine, but it's something that when you are setting the specification for a new car you must take into consideration. The late change to the Ferrari power unit will have pushed the engineers to the limit and I am sure we will see a few updates before the first race.

The first thing that strikes me is that Toro Rosso hasn't gone as extreme on the angled front-suspension geometry as others I have seen. This type of geometry leads to a relatively unstable tyre contact patch. The area of tyre on the ground rocks around a lot when the suspension moves, and greater stability of tyre contact patch means you are kinder to the rubber and able to get more grip from it.

Shoehorning in what Ferrari required for cooling has meant there are a few aerodynamic compromises. But if the power-unit performance is there then all those compromises will be overcome.

Like Mercedes, Toro Rosso has gone for a bigger rollover-bar inlet than most others. I can only assume part of this is being used for some of those cooling requirements.


Aerodynamic development of this area is quite difficult. Very few teams actually simulate transient airbox-intake airflow. It will all work fine in a straight line on full throttle and full airflow, but it's when the driver lifts that a change can take place that can disrupt the performance of the rear wing – and this is just when you need the rear wing to work at its best.

The driver line-up carries youth and enthusiasm but, with a year's experience behind them, there will be high expectations on both Max Verstappen and Carlos Sainz Jr. ✎

Renault RS16

The French manufacturer returns as a fully fledged works team, but the car is a compromise after a difficult 2015

By Gary Anderson, technical expert

 @Autosport



After all the ups and downs that 'Team Enstone' has had over the past few years, it's great to see the ex-Lotus squad up and running as Renault. With the financial stability a factory team brings, the future is bright.

Equally, as Renault joins Mercedes and Ferrari as a third true works team, there will be no hiding place anymore. The chassis and engine manufacturer must work as one for the good of the project and you can't turn around and blame the other half.

It's not easy or quick to get

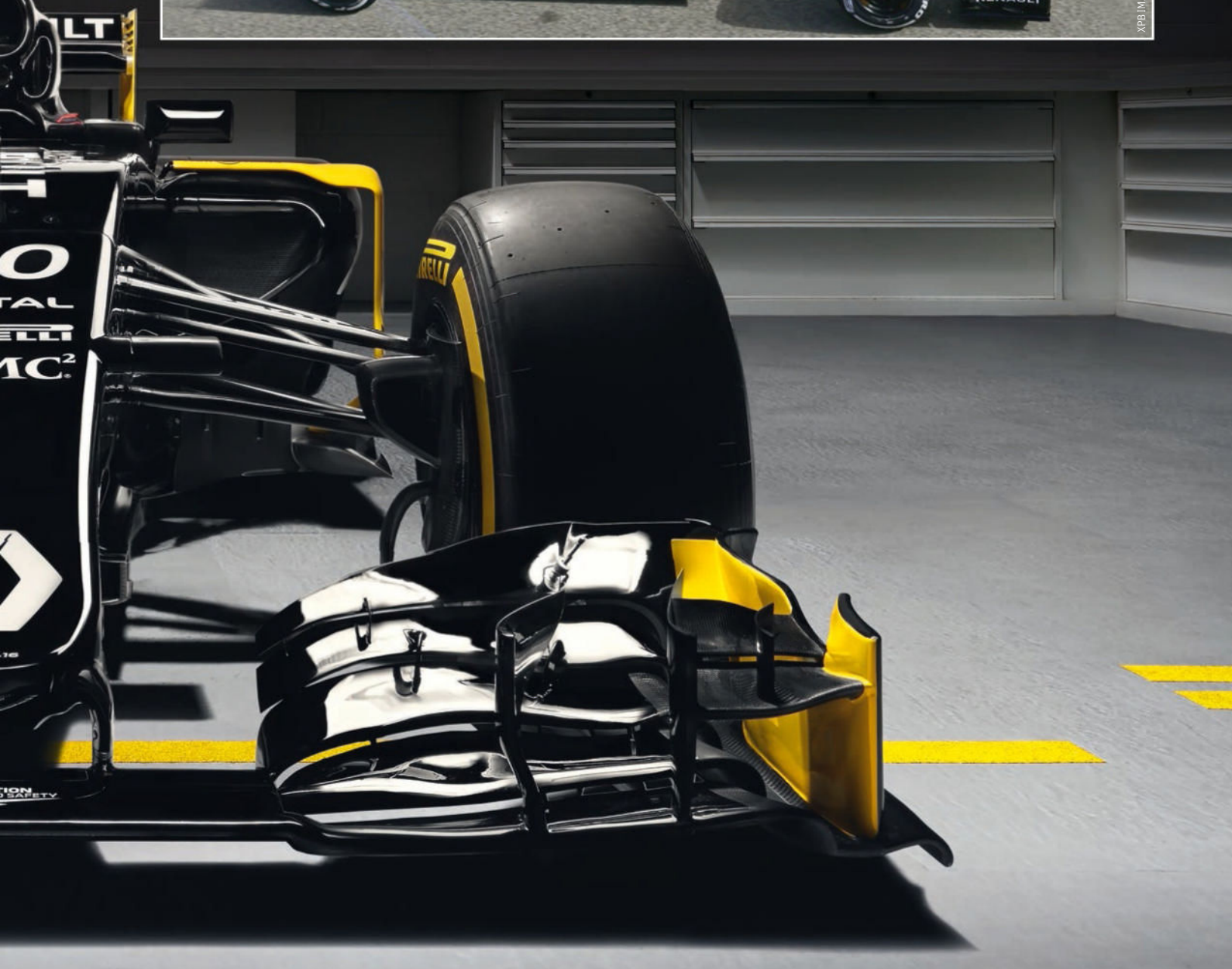
this all working, but it appears that Renault understands this and will give it time. It's not about having the biggest budget; instead it's about having a consistent budget that allows the team to plan its long-term direction.

Bob Bell has rejoined the team as its technical director, the

position he held the last time it was called Renault.

Since then, he has had a spell at Mercedes and so brings with him a wealth of experience of how the German manufacturer went through those painful set-up years before reaching its current level.

Setting up a working relationship



with Mario Illien at Ilmor can only be positive as well. These current power units are very complicated beasts and require massive commitment. Mario is a very experienced engineer and can bring a lot to the table.

Stepping backwards from the Mercedes engine used in 2015

to the Renault used in '14 must have been a little painful, but sometimes it is necessary to take one step backwards in order to take a couple of steps forward.

That said, the new car has not gone out on a limb anywhere. It is a conventional package with what you would probably call

a longer-than-average nose.

The front suspension is a little confusing in that the pushrods angle is very shallow. The angle between the lower wishbone and the pushrods is critical to the amount of load going through both of these components and their attachments. All these

loads can be resolved but at the expense of weight and stiffness.


On the rollover-bar inlet area, the RS16 also has 'limpet'-style cooling ducts. Separated ducts will allow them to cool whatever components the ducts go to without the cooling being affected by the power-unit intake requirement. ❧



Manor MRT05

Last year the team rose from insolvency. Now, under new ownership, Manor is bullish about making its mark with an all-new contender

By Gary Anderson, technical expert

 @Autosport

The fact that Manor is still in existence is a testament to the team's dedication. Now, having forged a relationship with Mercedes, it should have a positive future.

The addition of Dave Ryan as sporting director is a strong one. Dave got hung out to dry by McLaren over the episode with

the stewards in Australia in 2009. He has a wealth of experience of running a team and knowing what a team requires to be successful, and I think that if you look closely at McLaren since he was moved on they still miss him.

Mercedes has been fairly clever in what it has done, in that Manor is a small team on which it can exert influence. If the Ferrari-Haas

relationship develops into something that allows Ferrari to benefit, then Mercedes has its toe in the door with Manor.

Manor now must take as much from this as it can get. It's the smallest team in the pitlane in both manpower and budget, and can only do so much, so tapping into Mercedes and its development direction can only be positive.

I am surprised the car it has released is still fairly primitive. I have never been a copier but, when you are that small and the other teams you are competing against have gone off in a direction, then you have to take stock.

Manor is the only team to go for the long, low-nose option, I know this is just a bolt-on component but it's the one area you need to

“Manor is the only team to go for the long, low-nose option”



XPBIMAGES

get right first. If this area is not up to scratch then the rest of the car downstream will suffer and lack response to development.

Taking a gamble on this area, even if you are not immediately able to prove that it's a benefit with numbers, will open doors later. This is an area that I would have pushed to get right as part of my initial concept.

The Mercedes power-unit package will only be of benefit to the team. Manor was using a year-old Ferrari package in 2015. That, combined with signing up Mercedes protege Pascal Wehrlein (who is being readied as a potential replacement for Lewis Hamilton or Nico Rosberg), is another benefit as I'm sure Mercedes will help with how to run the engine optimally. ✎



Q&A

JOHN McQUILLIAM
MANOR TECHNICAL DIRECTOR



Is this your dream racer?

Absolutely. Even at this early stage of the game, we can easily say this is the best car we've ever launched. Certainly the most developed, the most ambitious and the most aggressive. The overall package is a very significant step forward, not just from last year, but from any of the cars from our stable. So yes, we have a long way to go from here in terms of developing the MRT05, but it's already a dream package for the 154 Manor Racing people who've worked so hard to design and build it. In a small team like ours, every single individual has played their part.

What's so special?

It's all new. As it should be of course, but we had to 'make do' last year, and that's not what we're here for. We build fast race cars for a living and it's great to get back to doing what we love. We're also pretty good at it, when we have the right tools for the job. So that in itself is quite special. Better still, the MRT05 is a contender. We really believe that. The design team have focused almost exclusively on it since the middle of last season and it's just a whole different ballgame to any of its predecessors. We haven't left any performance on the table, and right now I can say there's not a single part of the car we'd have designed differently.

So what has it got on it?

We've carried over the 2015 fire extinguisher! The rest is brand new. Some 3393 different parts in fact, and that's just our in-house components. We delayed the monocoque programme to wait for the new power unit, which was well worth waiting for of course. It's a magnificent feat of engineering and we're proud and excited to be powered by championship-winning technology. We also have a very competitive transmission package thanks to our technical partner Williams Advanced Engineering, which supplies our gearbox and other rear-end components.

DUNBAR/LAT



WORLD RALLY CHAMPIONSHIP

How rallying is tackling

ANDREAS MIKKELSEN'S RALLY-ENDING shunt was clearly audible to all those stood on the startline of the El Condor stage in Argentina last season. Drivers stopped pulling crash helmets on, HANS devices weren't fitted with the same haste. Surely the stage would be stopped.

It wasn't. Already on the line, helmeted up and oblivious to the Norwegian's downfall, Dani Sordo sat and waited. Sixty seconds after Mikkelsen's Volkswagen cannoned off the scenery, the Spaniard was sent in.

FIA rally director Jarmo Mahonen remembers the moment well: "When I watched this on TV last year, I was saying, 'What is going on?'"

Ten minutes later, Thierry Neuville crashed at the same place as Mikkelsen. And still the cars were sent in. Those incidents, along with a serious crash in which spectators were trapped beneath Hayden Paddon's Hyundai i20 WRC, earned Rally Argentina a yellow card last year. Speaking candidly in his new role as WRC manager, Mahonen tells *Autosport* that things will change this season.

"We have had a few cases, and I'm being open and honest here, like last year in Argentina when they let Sordo start the stage after there had

been an accident, because the TV guys were there," he says. "This will never happen again, this is number one: if an accident takes place, it will be stopped. The TV guys don't have any authority. The TV people are talking live with the people at the stage, but you don't leave them to decide [on safety decisions]."

Mahonen is ready to make an example of Argentina, if lessons haven't been learned from last year. The same goes for Rally Poland, which is also on a final warning following spectator safety being called into question last season.

"If we have the same issues in Argentina, then it's a red card and they are not in the calendar in the future," says Mahonen.

WRC safety delegate Michele Mouton has already met Rally Argentina officials and will travel to Cordoba for further discussions with them later this week.

"For us," Mahonen continues, "Argentina is a very important event in the calendar — it's the showcase for all of South America. It seems they are very keen to work with us and our safety department, so we have to implement it. The problem is that we can look at the safety plan and everybody can make really good



STALEV/LAT

WRC

WURZ KEEN TO HELP DRIVERS' GROUP

World Rally Championship crews have been offered help from Grand Prix Drivers' Association chairman Alex Wurz in establishing a WRC drivers' equivalent.

A row blew up at the last WRC round in Sweden, when the drivers felt their voice wasn't being heard. The drivers will meet before round three in Mexico next week to discuss their plans.

Wurz said: "Such a body is very beneficial to the entire system. Some people can think of this as a union that makes problems and stops things happening, but this is not the case. If you want the sport to be optimised in any shape or form then having the drivers speaking with one voice is so important."

"We would definitely welcome discussions with the drivers from the WRC to look at some sort of cooperation between the two bodies. I think this can be really helpful for all stakeholders."

Wurz recommended 2001 WRC champion co-driver and former FIA Rallies Commission vice-president Robert Reid as his opposite number in the WRC.

Wurz said: "Robert is a world champion and he's been enough involved to know what's going on. When you are competing, you think of everything in terms of the immediacy of damper settings being changed, but it can take months to get these changes and you need somebody who understands that."

DAVID EVANS

its greatest challenge

paperwork, but when the rally is running, if they are not implementing it, then what's the point? They have to now come with enough marshals and police to put everything together."

Mahonen candidly admits safety is the biggest issue the WRC is facing, saying: "The biggest challenge for us in the future is how we offer affordable rallying to the people without jeopardising safety."

Part of the FIA's efforts to do that include personnel changes in the FIA's rally department.

Mouton replaced Jacek Bartos as WRC safety delegate at the start of this season and is working closer than ever with event organisers to ensure that the safety of the crews and spectators remains at the forefront. FIA rally director Mahonen stepped in to replace Mouton as WRC manager.

"Michele has the experience, she has driven these stages from behind the windscreen," he says. "When we got the applications for that [safety delegate] job, they were good people, but to teach them how to work it would have been

another year and we have been already late enough with this change. It's true.

"I lift my hat to Jacek, but now we want to introduce a new way to work. It doesn't help that we have the role of policing [the organisers] on events — by the time we get to the rally it's almost too late to change. Eighty or 90 per cent of the work has to be done before that."

As well as working to improve safety, Mahonen's own role is to enhance cooperation between WRC stakeholders.

"We need to be more transparent," he says. "There have been contradictions. I don't want a community where nobody complains,

but we have to do the best for the WRC.

"My role is to look at the sporting side: we stepped in in Sweden to help them make the decisions — how we could run Sweden without jeopardising the safety. It's like in the army, when you propose something — in the end you have to do it by yourself."

DAVID EVANS

"It's a red card if we have the same issues in Argentina"



BTCC Former British Touring Car champion Andrew Jordan's familiarisation with his new Motorbase Ford Focus continued last week during the annual Thruxton test. Several BTCC drivers, including new WSR BMW signing Jack Goff, tested at the Hampshire circuit on Wednesday and Thursday in wet conditions. Jordan praised the work his team was able to get through, including testing the new RML-fabricated parts introduced for the coming campaign. "It's the first time we've run the new suspension kit in these conditions, actually," he revealed. "We've done enough running and got somewhere near with the baseline set-up for the wet." **Photograph by Jakob Ebrey Photography**



FORMULA 1

Are F1 cars noisier now?

NOISE HAS BECOME A REAL issue in Formula 1 since the high-pitched screams of normally aspirated V8s gave way to the whooshing of hybrid V6 turbos.

Many people have been turned off by the current engine formula. Sound has a particularly emotive impact on human beings, and it is just a simple fact that smaller, lower-revving, fuel-efficient turbo engines with hybrid systems attached will make less noise than high-revving V8s with no fuel-flow limits.

But the FIA has made a concerted effort to improve the audio experience for fans this year, by mandating a modified profile to the exhausts on all cars. McLaren racing director Eric Boullier and Mercedes technical chief Paddy Lowe both reckon the engines sound louder this year.

From trackside on the opening day of the first pre-season test at Barcelona it was difficult to be

certain that the engines sound louder in themselves, though it was apparent that the individual notes produced by the respective engine manufacturers are naturally converging.

The Ferrari sounded much closer to the Mercedes, which last year was arguably the cleanest and loudest of the different V6 configurations, while Renault – which last year emitted a very muted engine note – sounded closer to the other two than ever.

Ditto the Honda, which retained its distinctive guttural roughness off-throttle and under full load through the long right-hander of Turn 3, but otherwise sounds more conventional this season.

This may well develop further as the team discovers how to properly map the new power unit during the remainder of pre-season testing.

BEN ANDERSON

Team boss
Angelo Rosin
(left) welcomed
Schumacher aboard



FORMULA 4

Schuey Jr to Prema

MICK SCHUMACHER HAS PUT HIMSELF in the best possible position to find out if he has what it takes to succeed in motorsport after joining Prema Powerteam for his second season in Formula 4.

The son of seven-time Formula 1 world champion Michael Schumacher will attempt to follow in the footsteps of Lance Stroll and Ralf Aron, who respectively won the 2014 and '15 Italian F4 titles with Prema, making the squad the most successful to date in the short history of the FIA's F4 initiative.

Schumacher, who is 17 next month, contested the German F4 Championship last

year — his rookie season of car racing — with Van Amersfoort Racing. He took a single reversed-grid race win on his way to 10th in the points and third in the rookie standings.

This time around he will be the experienced member of Prema, which has yet to decide whether to focus on the German or Italian championship, so will be expected in some quarters to lead the team's challenge. But there can be little doubt that Estonian Juri Vips and American-Ecuadorean Juan Manuel Correa, both of whom are top karters, will be pushing him within Prema from the start.

MARCUS SIMMONS

TOP 3

'Sons of' in the limelight

As Mick Schumacher seeks to make his own mark, here are three other next-generation drivers in junior single-seaters



#1 PEDRO PIQUET

Son of Nelson will be with Van Amersfoort Racing for his first season in European Formula 3 after two Brazilian F3 titles. One of his team-mates is Adrian Newey's lad Harrison.



#2 GIULIANO ALESI

Progeny of Jean makes an ambitious step up from French Formula 4, in which he finished fourth in his rookie season, to compete in the GP3 Series with Italian squad Trident.



#3 LOUIS DELETRAZ

Dad Jean-Denis was an F1 backmarker but Louis looks the real deal after starring in Formula Renault 2.0. Steps up to Formula V8 3.5 with Fortec, with Emerson Fittipaldi's grandson Pietro.

IN THE HEADLINES



RUFF TIME FOR BARBOSA

Reigning IMSA SportsCar champion Joao Barbosa will be able to contest the Sebring 12 Hours despite breaking his wrist in a hoverboard crash at home last week. Barbosa shunted in avoidance of the family dog while demonstrating the hoverboard to his two sons. Last year's race winner was unable to join Action Express team-mates Christian Fittipaldi and Filipe Albuquerque in the pre-event test, but will have his cast removed before the race itself. Speed, the Barbosa family's Yorkshire terrier, was not harmed.

GHIOTTO MAKES GP2 STEP WITH TRIDENT

GP3 runner-up Luca Ghiotto, who was narrowly beaten to the title by new Renault Formula 1 reserve Esteban Ocon, has secured a step up to GP2 and will remain with the Trident team. He will be partnered by Indonesian Formula Renault 3.5 graduate Philo Paz Armand.

CARROLL KEEN ON FORMULA E SEAT

Ex-A1GP king Adam Carroll is keen on earning a Formula E drive for season three. "I've spoken to teams right from the start, but I need to be paid," said Carroll, who was on standby to fill in for Nick Heidfeld at Mahindra in the Buenos Aires round earlier this month.

GET WELL SOON, NIGEL

Autosport sends its best wishes to Nigel Roebuck as our former Formula 1 correspondent of 30 years recovers from a sudden illness. We hope he has a quick and comfortable convalescence.

NEWSHAM QUITS BTCC FOR RX

British Touring Car Championship race winner Dave Newsam has quit the tin-top category and will tackle a season in the British Rallycross Championship in 2016. The 48-year-old will remain with the Power Maxed Racing team, which ran him in the BTCC last season in a Chevrolet Cruze, for his assault on the supercar division of the UK's main rallycross series in a Ford Fiesta.

TARGET SWITCHES TO OPEL

Inaugural TCR International Series drivers' and teams' championship-winning squad Target Competition has confirmed its switch from SEAT (pictured below) to Opel for 2016. Target will run a total of seven Astras in the International and German championships.





Q&A

MAX CHILTON
CHIP GANASSI RACING
INDYCAR DRIVER

The ex-F1 driver has now completed his first two tests in IndyCar and is settling in well ahead of his rookie campaign with Ganassi

What are your impressions of an Indycar?

Sonoma was where I drove the car for the first time. It went well and I got up to speed pretty quickly. In the afternoon we concentrated not on a full race distance, but fuel stints – 25 laps at a time. It was good to see how the tyres wore down. It's very much what I'm used to in F1; the tyre deg is high.

How was your first oval test?

The Fontana test was a faultless day. Tony Kanaan got in the car and did an eight-lap run. I stood up in the stands with Dario Franchitti and a spotter. Fontana has got five different lanes so I was just keeping an eye on what lane he was staying on throughout the lap. Then I got in the car. I got comfortable quite quickly, but I'm sure that changes with other cars around you. It was a good way for me to learn without other cars around and just build up. It was a fantastic test. Phoenix in a couple of weeks is going to be a completely different experience because it's a short oval.

Are you able to give good technical feedback, or is it about getting used to IndyCar?

In my experience, an engineer spends all day every day understanding a car – who am I to say, 'Right, I want these springs'? I should say, 'I've got this problem' and he'll come up with the right thing.

BRUCE MARTIN

IMS

Left to right: Thiim, Sorensen and Turner to share #95 Aston



WORLD ENDURANCE CHAMPIONSHIP

Aston Dunlop move

ASTON MARTIN RACING'S SWITCH to Dunlop tyres for this year's World Endurance Championship is a significant milestone in the short history of the reborn sportscar series.

It represents the first time a manufacturer team has run on anything other than Michelin tyres since the championship restarted in 2012. Dunlop and Michelin probably wouldn't like the term, but it does constitute what the world likes to call a tyre war.

The battle between the tyre manufacturers that will take place in GTE Pro this year should be viewed in stark contrast to the ongoing skirmish in LMP2. Michelin has been only a reluctant player in the secondary prototype class for one simple reason: the rules for the category dictate that

its tyres are made available to its rivals and Michelin has been clearly unwilling to divulge the secrets that have made it the dominant supplier in LMP1 and its predecessors over a period of nearly 20 years. That offers at least a partial explanation of Dunlop's domination in P2, which stretches back to before the reinauguration of the WEC.

There is no such rule in GTE, and Dunlop is re-entering the division with a clear intent to win.

"We are here to demonstrate our performance, just as we have done in the Nurburgring 24 Hours and in the VLN [long-distance championship] against Michelin," says Xavier Fraipont, managing director of Dunlop Motorsport, whose company claimed 24 Hours victory at the 'Ring in 2013



Porsche's bespoke tyres were a big plus last year, says Aston

STALEY/LAT



sparks GTE 'tyre war'

with the Black Falcon Mercedes team.

"We have a strong willingness to succeed."

Aston Martin, which will field a pair of new-rules Vantage GTEs in the Pro class, in addition to an old car in the Am ranks, has made the switch from Michelin with much the same intent.

"In a category governed by the Balance of Performance, you aren't going to win every race," says AMR boss John Gaw. "You need something that differentiates you from the opposition. This gives us that, and the chance to have a tyre developed specifically for our car."

The last point was brought into stark focus in last season's WEC when Porsche embarked on an intensive development programme with Michelin in advance of the second half of the season. The tyres that resulted proved decisive in Porsche's successful bids for the manufacturers' and drivers' crowns.

The unique rear-engined architecture of the Porsche means the 911 RSRs run on different tyres to rivals Aston, Ferrari and – when it comes to Le Mans – Chevrolet. The attraction of the Dunlop deal for Aston is that the Vantage will now be racing on a tyre designed specifically for a front-engined car.

"We're excited because last year we ended up further and further away from something that was suited to our car," says AMR technical director Dan Sayers. "Now we are going to be running on a tyre designed specifically for our package."

Time is at a premium for AMR. The company first made contact with Dunlop after last November's WEC finale in Bahrain. A Vantage ran on the supplier's European Le Mans Series-spec GTE tyre in advance of AMR's assault on that series in 2016. The first bespoke Vantage tyres from Dunlop hit the track at Paul Ricard earlier this month, after which the deal for the coming season was signed. Only two more tests are now planned, at Valencia and then Motorland Aragon, before the official WEC 'prologue' event at Ricard at the end of March.

Dunlop does have form in GTE and its predecessor, GT2. It was a frontrunner in the ELMS with the Virgo and JMW teams, which took three GT2/GTE titles between 2007 and '12. Over in the US, the Rahal BMW squad was a class frontrunner on Dunlops in the American Le Mans Series in 2009-12, winning the drivers' and manufacturers' titles in 2011.

Dunlop is also returning to the LMP1 ranks in 2016 with the privateer Rebellion and ByKolles teams. Both are seeking the same advantage as Aston by running on tyres developed specifically for their non-hybrid machinery. And there is no attempt by Dunlop to dodge questions about its desires to supply a factory in P1.

"Hopefully a manufacturer will see what we can do in GTE," says Fraipont, "and knock on our door and ask to test our tyres."

GARY WATKINS

IN THE HEADLINES

BUTTON TO USE ORIGINAL HELMET

Jenson Button has reverted to his original Formula 1 helmet colours following the results of a fan poll. He last used the selected design early in 2014.

SILVERSTONE TEST OPEN TO PUBLIC

Silverstone's two-day Formula 1 test following the British Grand Prix in July will be open to the public. The test will take place on July 12-13.

SCHUMACHER'S MANAGER'S HOPE

Michael Schumacher's manager Sabine Kehm says she hopes "with continued support and patience" that the seven-time Formula 1 world champion will "one day be back with us". Schumacher sustained severe head injuries in a skiing accident in the French Alps in December 2013.

ALLMENDINGER RULES OUT INDYCAR...

AJ Allmendinger has revealed he will never race an open-cockpit IndyCar again following the death of former team-mate Justin Wilson at Pocono last year. "The only way I would do it is if they put a closed cockpit over the car," said Allmendinger, who last raced in IndyCar in 2013.

...BUT KURT BUSCH DOESN'T

NASCAR star Kurt Busch is still considering entering this year's Indianapolis 500, two years after finishing sixth on his debut there. "We put our deal in 2014 together in late March of that year so there is still time," he said.

HERTA JOINS FORCES WITH ANDRETTI

Bryan Herta's IndyCar team has merged with Andretti Autosport. Andretti will run a fourth car alongside its existing entries for Carlos Munoz, Marco Andretti and Ryan Hunter-Reay, with crew from Bryan Herta Autosport joining Michael Andretti's squad. The driver is yet to be confirmed.

OCON STAYS WITH ART FOR DTM

GP3 champion and Renault Formula 1 reserve Esteban Ocon will continue his association with ART Grand Prix for his step up to the DTM with Mercedes.

MOSTERT RETURNS FROM INJURY...

Chaz Mostert says he held up well on his return to V8 Supercars from injuries sustained at last year's Bathurst 1000. The Prodrive Ford driver crashed heavily during qualifying for the race last October, breaking his left leg and wrist. He returned to action in a test day at Winton on Monday, driving a brand-new Falcon.

...AS LOWNDES DOES THE SAME

V8 Supercars ace Craig Lowndes returned from injury to test his new Holden Commodore (below) at Queensland Raceway last week. He broke his collarbone in a motorcycle accident last month, missing the Bathurst 12 Hour.



HORSBURGH/EDGE

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FEEDBACK

Toyota needs a splash of colour

One of the great things about prototype racers is that they actually look different. Fans can tell them apart by their aerodynamic designs, unlike cookie-cutter F1 cars. But now Toyota is joining Audi and Porsche with the same (boring!) paint jobs – white with black and red lines.

Rebellion and even Manor in P2 have the same design. From a distance, at speed, and on a TV screen, they are all going to look identical.

Has Europe run out of blue and yellow and green? Or is it because all the teams are German? Thank goodness for IMSA – in the USA we can tell the cars apart by colour.

Bruce Merchant
Carmel, California

It's not all about you, Seb

So Sebastian Vettel is saying that Formula 1 should be about the drivers and that Mercedes' dominance is a turn-off.

He wasn't saying that when he



was winning championships in the hugely dominant Red Bull! I think he's trying to say it's all about me!

I don't think Merc's dominance is a turn-off because at least they have been allowed to race and there is a sniff of controversy.

F1 does need to be careful with the 2017 rules – there are a lot of things that are not broken that don't need fixing. It's Bernie's moaning that is a turn-off.

Richard Hargrave
Hitchin

Thanks for Minardi memories

Grazie mille for the Minardi story (Feb 11), brought back many fond memories. GCM – great man, great character! Auguri!

Arnold Napp
Neuss, Germany

Yes, there's eight days' testing

Many thanks for the complete guide to the F1 2016 testing (Feb 18). I see from the three main headings that there are

Does Toyota's new colour scheme point to a paint shortage, or a lack of imagination?

only eight days of testing. Am I the only reader that can't locate the actual dates in the 'complete guide'?

I admit to wearing reading glasses, but unless the dates are in the light grey shapes on the white page around Karun Chandhok's opening page (of which I can't see a word), then I don't see any dates anywhere.

B Williams
By email

For the record, the dates are Monday-Thursday this week, then March 1-4 – ed

Hope Haas meets its target

I've heard too many pre-season promises from new Formula 1 teams to be completely unscptical about Haas's prediction of scoring points in its debut season.

That doesn't mean I don't wish them well, though (and I reckon that most F1 fans will feel the same). Anything, or anyone, that can shake up the status quo in the sport has to be a good thing.

D Smith
By email

No fire without Smoke?

I'll miss Tony Stewart (no relation!) when he retires (NASCAR preview, Feb 18), although I can't help but feel that his type of larger-than-life persona has had its time, even in NASCAR.

Frances Stewart
By email

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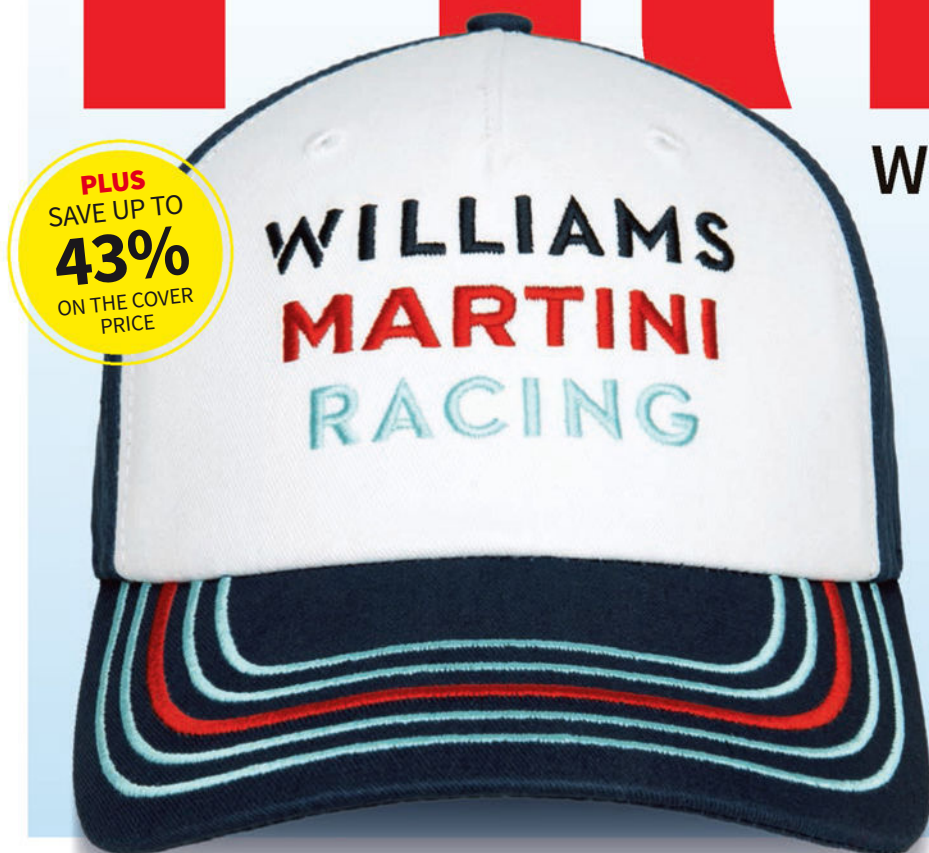
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Sound foundations

Haas F1 has hit every target on its way to making its Formula 1 debut, demonstrating the power of intelligent preparation

By Dieter Rencken, Special Contributor

[@RacingLines](#)

SEEING THE HAAS F1 TEAM TRUCKS LINED UP, AS I ventured into the Circuit de Catalunya's paddock on a furtive visit late on Sunday afternoon, provided an apt reminder of the oft-tortuous path that had led the American project to Spain almost three years after it was first formulated.

Haas F1 is not, of course, the first US team to enter F1 this millennium, nor even F1's first newcomer since Toyota (which failed to win a grand prix in almost 140 starts despite its eye-watering budgets) in 2002. In 2010 four "newbies" were listed, including the (ultimately stillborn) USF1 project, whose \$40 million business model sparked the then FIA president's ill-fated drive to attract low-spending teams.

Of the three chosen new teams to line up at the 2010 season opener in Bahrain — albeit with final assembly taking place in Sakhir's pitlane in HRT's case — two (HRT and Caterham) plunged into liquidation within five years, while Manor is under its third ownership. Such statistics prove just how difficult it is to make F1's grid, let alone make a fist of it. Thus, to unveil a car plus all kit on the opening day of pre-season testing is in itself a massive achievement.

This writer first heard rumours about machine-tool magnate (and NASCAR team co-owner with Tony Stewart) Gene Haas's plans to enter motorsport's upper echelon in October 2013, and set about investigating their veracity.

Gunther Steiner, the ex-Jaguar Racing technical director who had moved to Charlotte, North Carolina as technical head of Red Bull's Toyota NASCAR team, was said to be the prime 'doer' in the project.

The link to Haas made perfect sense, for Steiner had subsequently founded a composites company mainly supplying NASCAR teams. During this writer's visit to USF1's Charlotte base in 2009, Steiner had been touted as (would-be) supplier to the team. During an off-record chat at his shop he implied his intention of returning to F1 — as team principal...

Over the years he had attended various grands prix, and thus his presence at the 2013 US Grand Prix was no surprise. But he proved predictably evasive when approached about the nascent project in Austin's paddock, indirectly cementing his credentials as an F1 team boss!

Shortly before Christmas that year the Haas rumours had sufficient 'legs' to justify a call to Steiner. At the time of the call he was travelling across the USA on vacation with his family, and he later admitted to almost veering off the road, such was his surprise at the directness of the questions.

He was understandably anxious to keep the project under wraps until the FIA opened its entry process, and thus a deal — similar to one agreed with USF1 when this author first got wind of that outfit's intentions — was struck: in exchange for exclusivity, not a word would be published about Haas F1 until its principals gave the green light, thus providing *Autosport* with its second US team scoop in five years.

By January 2014 Gene Haas was ready to go public. He applied for an entry, but, crucially, on his terms: Haas F1 would not be pushed into making the 2015 grid, and would enter into a component-sharing deal (with Ferrari) where permitted. It later transpired that three prospective teams had applied for two entry slots, and only Haas received the nod. That speaks volumes for the strength of the team's application.

Steiner had clearly done his homework, and the concept of sourcing parts (save those, termed 'listed parts', for which teams are required to own the intellectual property) from Ferrari sent shockwaves through the paddock — resulting in a last-ditch 'Request for Settlement' in Abu Dhabi from Mercedes over the legality of Haas's venture with Ferrari. Although pronounced legal, certain definitions were amended for future teams.

In the three-odd years since Steiner first approached Gene Haas with his F1 concept, enormous strides have been made. A new

14,000-square-yard double-deck building has gone up at 4001 Haas Way (Stewart Haas Racing is situated next door, at 6001) in Kannapolis, North Carolina, and the team acquired the former Manor base in Banbury as a European hub.

In the interim, manning has spiralled from one (Steiner) to 185 — split 115 on firm contracts (65 of whom are on the UK payroll, the balance in Kannapolis) and 70 on "soft" contracts to Haas, but based at Dallara in Italy. That is where car build and component sourcing is undertaken on a contract basis. Haas's expected grid peers, too, outsource major components, but here Haas has pushed the philosophy to the limit.

It is premature to make predictions, but — technically, commercially and operationally — Steiner's squad blazed new trails while hitting every milestone, albeit without appearing political. That is, in itself, a vital skillset, the absence of which arguably contributed to the downfalls of previous newcomers.

It was not without a sense of admiration that I surveyed the white/red trucks, complete with discreet star-spangled flags, while reflecting on my call to Steiner on that wintry December day in 2013. An aeon ago in F1 terms, yet like yesterday. ❄

“Manning has spiralled from one person to 185”



Hamlin at the eleventh hour

On his 11th attempt at the Daytona 500, Denny Hamlin's #11 Toyota pipped Martin Truex Jr to break Joe Gibbs Racing's drought in the race's closest-ever finish

By Bruce Martin, American Editor

🐦 @BruceMartin_500



A long way back in 1992, when Joe Gibbs was still coaching the Washington Redskins, he decided to start a NASCAR team — a rather odd

and curious investment for a man who was a National Football League legend, with three Super Bowl victories. But Gibbs's true love was race cars, especially drag racing when he was growing up in North Carolina and later in Southern California in the 1950s and '60s.

In 1993, Gibbs's NASCAR team won the Daytona 500 — the 'Super Bowl' of stock car racing — as Dale Jarrett defeated the late Dale Earnhardt to the checkered flag. Afterwards, Gibbs would leave the NFL and focus strictly on NASCAR. Bobby Labonte gave Gibbs his first NASCAR Cup championship in 2000, while tempestuous Tony Stewart would drive Gibbs's cars to Cup titles in '02 and '05. Last year Kyle Busch delivered with a championship for the ages after missing the first 11 races because of injuries suffered in the Xfinity Series race at Daytona.

In short, Joe Gibbs Racing has grown into one of the great teams in NASCAR, with countless victories and big-name drivers such as Matt Kenseth, Denny Hamlin, Carl Edwards and Kyle Busch. It's a team that has found the secret to winning championships, but had not won the Daytona 500 since Jarrett's victory in 1993...

When Hamlin won the first preliminary race of SpeedWeeks 2016 — the all-star Sprint Unlimited — Gibbs reminded him that wasn't the race that he really wanted to win. "I was joking with Denny in the winner's circle," said Gibbs. "I said, 'It's the Daytona 500, OK? Not the Shootout. Try and get us a 500, will you?' It's been 23 years since we were able to win one."

Last Sunday afternoon at Daytona International Speedway, Hamlin delivered in the most stunning way. The driver with the best car won the 58th Daytona 500. But it's the manner in which he won it that will be remembered in the glorious history of this race.

It was the closest Daytona 500 winning margin of all time, with Hamlin — thanks to a push from the Chevrolet of Kevin Harvick — going to the outside in Turn 3 on the final lap to pass team-mate Matt Kenseth. Kenseth went up for the block but got into a slide in front of Hamlin, and that allowed Martin Truex Jr to slip into the lead. After a drag race to the finish — Hamlin in the outside lane, Truex to the inside — Hamlin edged it by 0.010 seconds, less than one foot.

"This was a team victory," said an emotional Hamlin of the win on his 11th Daytona 500 attempt. "I can't even figure out what I did — it just came together >>

at the end. I didn't know we had won – I saw the pylon change and blink at the last second for the #11. I heard on the radio people were all crazy, excited. I assumed we won when that happened. If not, I was going to be pissed. You cannot pump fake someone for a Daytona 500 victory. That would have been bad.”

Truex now has the distinction of being the driver who lost the Daytona 500 by the least amount of time and distance. It's not an honour the Furniture Row Racing driver wants to reflect on but it's something he will be thinking about for a long time.

To many who jammed the new 'Daytona Rising' – the massive modernisation project that has turned Daytona International Speedway into a modern sports stadium – it looked like Truex had won Sunday's 58th Daytona 500. But the camera at the start-finish line that NASCAR uses for photo finishes showed Hamlin's Toyota was mere inches ahead of Truex's Toyota.

“You'd rather get beat by a few feet than four inches, absolutely,” Truex said afterwards. “At the same time, with where we were in position on the racetrack, I felt like Matt Kenseth moving up to block that run, it gave us an opportunity to win. Without that, we weren't going to have that opportunity. I was really planning on trying to push Matt 'til off of Turn 4. That was, I thought, the best opportunity we had.

“The #11 [Hamlin] came with a big run. Matt tried to block him. If he had blocked him, and Denny didn't turn back inside him, without a doubt in my mind we would have won that race. The #11 had a lot of speed on the #20 [Kenseth] when he went to make that block. That's why he made it three-wide and passed him. He's like, 'If I hit him, we're done.'

“Circumstances didn't work out quite as well as they should have – I felt like I should have run Denny up the track a little bit, but I didn't. It is what it is. I'm just going to have to watch that on the highlight reel for the rest of my life, I suppose!”



Hamlin led four times for 95 laps and most of those laps Truex was tucked behind in second place after starting at the back of the field because he'd crashed his primary car at the end of Thursday night's Duel qualification race. But Kenseth led with 41 laps to go, and his Toyota would stay in front for the next 40 and three-quarter laps.

But as Kenseth squirmed down the pack to 14th place, three of his Gibbs Toyota team-mates would finish in the top five – reigning Sprint Cup champion Kyle Busch in third place and Carl Edwards fifth, behind the Stewart Haas Racing Chevy of Harvick – to back up the ecstatic Hamlin.

“It's the pinnacle of my career, for sure,” Hamlin admitted. “JD Gibbs [son of team boss Joe] found me about 12, 13 years ago – it's his birthday today, and he's been so pivotal to myself and my team and supporting me. So to win it for

Hamlin (11) and Truex Jr (78) lead the field, while Kenseth (20) drifts high and wide

the boss after 23 years, there is no better feeling than what I have right now.”

Can he go on to claim a maiden Cup title? Daytona's brand of 'restrictor-plate' racing means this race is an anomaly, and the real season begins this weekend at the 1.5-mile Atlanta Motor Speedway, which is representative of so many of the tracks on the schedule.

A victory in the Daytona 500 won't predict how good a race team will be on those types of tracks, but it does provide a berth in NASCAR's end-of-season Chase for the Championship and the momentum that comes with a huge win. “We can go to work on some different things, go outside the box when we need to,” said Hamlin. “Ultimately you need to run well in September and October when it really, really counts. The championship is the big one for us. I've never won it but I've knocked and knocked on the door. Some day you have to kick the door in.”



Pre-race favourite Earnhardt crashes out in Turn 4 with 31 laps to go



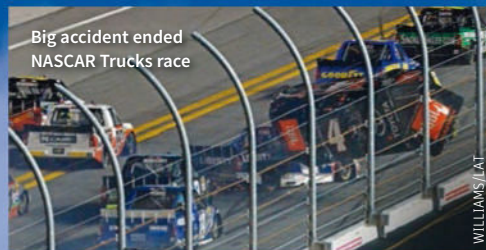
RESULTS DAYTONA 500 NASCAR SPRINT CUP ROUND 1/36, DAYTONA (USA), FEBRUARY 21

POS	DRIVER	TEAM	TIME	GRID
1	Denny Hamlin	Joe Gibbs Racing Toyota Camry	3h10m25s	11
2	Martin Truex Jr	Furniture Row Racing Toyota Camry	+0.010s	28
3	Kyle Busch	Joe Gibbs Racing Toyota Camry	+0.102s	4
4	Kevin Harvick	Stewart-Haas Racing Chevrolet SS	+0.147s	9
5	Carl Edwards	Joe Gibbs Racing Toyota Camry	+0.199s	10
6	Joey Logano	Team Penske Ford Fusion	+0.235s	5
7	Kyle Larson	Chip Ganassi Racing Chevrolet SS	+0.352s	14
8	Regan Smith	Tommy Baldwin Racing Chevrolet SS	+0.358s	27
9	Austin Dillon	Richard Childress Racing Chevrolet SS	+0.469s	21
10	Kurt Busch	Stewart-Haas Racing Chevrolet SS	+0.551s	8
11	Ryan Newman	Richard Childress Racing Chevrolet SS	+0.575s	38
12	Aric Almirola	Richard Petty Motorsports Ford Fusion	+0.615s	34
13	Kasey Kahne	Hendrick Motorsports Chevrolet SS	+0.650s	13
14	Matt Kenseth	Joe Gibbs Racing Toyota Camry	+0.652s	2
15	Michael McDowell	Circle Sport/Leavine Family Racing Chevrolet SS	+0.761s	39
16	Jimmie Johnson	Hendrick Motorsports Chevrolet SS	+0.773s	26
17	Jamie McMurray	Chip Ganassi Racing Chevrolet SS	+0.776s	6
18	Paul Menard	Richard Childress Racing Chevrolet SS	+0.856s	37
19	Ryan Blaney	Wood Brothers Racing Ford Fusion	+0.910s	7
20	Brad Keselowski	Team Penske Ford Fusion	+0.929s	25
21	AJ Allmendinger	JTG Daugherty Racing Chevrolet SS	+1.038s	30
22	Ricky Stenhouse Jr	Roush Fenway Racing Ford Fusion	+1.150s	19
23	Landon Cassill	Front Row Motorsports Ford Fusion	+1.158s	24
24	Brian Scott	Richard Petty Motorsports Ford Fusion	+1.244s	35
25	Ty Dillon	Circle Sport/Leavine Family Racing Chevrolet SS	+1.268s	12
26	Brian Vickers	Stewart-Haas Racing Chevrolet SS	+1.295s	18
27	Michael Annett	HScott Motorsports Chevrolet SS	+1.332s	22
28	Trevor Bayne	Roush Fenway Racing Ford Fusion	+1.389s	23
29	David Ragan	BK Racing Toyota Camry	+1.849s	29
30	Michael Waltrip	BK Racing Toyota Camry	+3.190s	36
31	Bobby Labonte	Go FAS Racing Ford Fusion	+23.323s	33
32	Casey Mears	Germain Racing Chevrolet SS	-1 lap	32
33	Clint Bowyer	HScott Motorsports Chevrolet SS	-1 lap	31
34	Greg Biffle	Roush Fenway Racing Ford Fusion	-2 laps	15
35	Danica Patrick	Stewart-Haas Racing Chevrolet SS	184 laps - accident	16
36	Dale Earnhardt Jr	Hendrick Motorsports Chevrolet SS	169 laps - accident	3
37	Chase Elliott	Hendrick Motorsports Chevrolet SS	-40 laps	1
38	Robert Richardson Jr	BK Racing Toyota Camry	135 laps - engine	40
39	Chris Buescher	Front Row Motorsports Ford Fusion	91 laps - accident	17
40	Matt DiBenedetto	BK Racing Toyota Camry	91 laps - accident	20

Winner's average speed 157.549mph

Championship **1** Hamlin, **45**; **2** Truex, **40**; **3** Kyle Busch, **39**; **4** Harvick, **37**; **5** Edwards, **36**; **6** Logano, **35**; **7** Larson, **34**; **8** Smith, **33**; **9** A Dillon, **33**; **10** Kurt Busch, **31**.

Big accident ended NASCAR Trucks race



IN THE HEADLINES

FAVOURITE EARNHARDT CRASHES

Dale Earnhardt Jr entered the Daytona 500 as favourite to win the race after his decisive victory in the first Duel on Thursday night. He led the main event twice for 15 laps before the handling on his Chevrolet started to fade after the first pitstop. With 30 laps remaining his Chevrolet shot to the inside wall out of Turn 4 and slammed it hard. "I just busted my butt there," he said. "Driver mistake." It was one of three cautions caused by incidents at Turn 4, often referred to as 'Calamity Corner'.

BUSCH CLAIMS SECOND DUEL

Kyle Busch was the winner of the other Can-Am Duel on Thursday night. A big Turn 1 crash, triggered when Jimmie Johnson got turned trying to pass Jamie McMurray, ended with Johnson, Matt Kenseth and Martin Truex Jr all having to switch to back-up cars for the 500.

ELLIOTT STEALS XFINITY OPENER

After becoming the youngest polewinner in Daytona 500 history, 20-year-old Chase Elliott (below) led the first three laps of the race before crashing the #24 Chevrolet on lap 20 to bring out the first yellow flag of the race. That came a day after he held off a fierce charge from Joey Logano on the final lap to win the Xfinity Series opener. Elliott drove Logano high coming out of Turn 4 and was able to repeatedly tap the front fender of Logano's car with the rear-quarter panel of his JR Motorsports Chevrolet to disrupt his momentum.

SAUTER TAKES TRUCKS PRIZE

Johnny Sauter and his GMS Racing Chevrolet won the NASCAR Truck Series opening round on Friday night when he passed leader Ryan Truex after the white flag was displayed. A massive wreck behind them on the front stretch forced the race to end under caution, Christopher Bell's truck rolling 13 times before coming to a stop. He was taken to a local hospital for further evaluation and released early Saturday morning.



START AS YOU MEAN TO CONTINUE

With pre-season testing already well under way and only a month to go until the opening race of the year in Australia, you will hear plenty of comments from teams about it being a long season and there being lots of time to improve. But is that true?

History would suggest that a strong start, while not everything, is massively important. Since the world championship's inception in 1950, the driver winning the opening race of the season has gone on to win the title on 33 occasions – that's 50 per cent of the time. After all, a good car at the start of the season usually translates to a good car throughout the season – certainly during the sport's most recent history. Look at the constructors'

championship and that success rate goes up to 60 per cent! And those figures become more compelling when you look at more recent years.

It stands to reason when you think about it. While in ages past, teams might have started the year using older machinery with new-spec cars turning up as the year went on, today teams generally start the year with well-sorted machines. If you have a quick car out of the box, you can spend more time optimising it and be confident in your upgrades bearing fruit. If you are struggling, it's a big ask to claw your way back.

Last year, Ferrari started the season in good shape but behind Mercedes. Over the course of the year it improved, but still didn't make any significant inroads. That's why the cars running in pre-season testing in Spain will be powerful predictors of who could be lifting the drivers' and constructors' trophies come the end of the year.

In many ways, the die has already been cast.

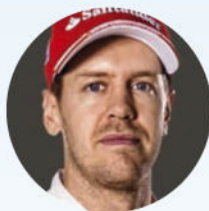
WHO WILL WIN THE FIRST RACE OF THE YEAR? *Autosport's* journalists pick their winners for the Australian GP



LEWIS HAMILTON

BEN ANDERSON
Autosport Grand Prix Editor

Lewis Hamilton is the reigning world champion, the most successful driver on the grid, driving for undoubtedly the best team. So the odds are stacked overwhelmingly in favour of him winning the Australian Grand Prix. He won last year's edition comfortably after dominating qualifying, and would probably have done so in 2014 too had a small rubber tube not caused his Mercedes engine to lapse onto five cylinders. He didn't end last season particularly well, but Hamilton's had all winter to get his act back together. Reliability notwithstanding, he has to be the clear favourite.



SEBASTIAN VETTEL

LAWRENCE BARRETTO
Autosport F1 Reporter

You might think Sebastian Vettel is an odd choice for my tip to win the Australian Grand Prix. Mercedes was utterly dominant last year, while Vettel has won once in eight attempts at Albert Park and Ferrari has just one win from the past 11.

But this is a track that often throws up strange results and freak failures. Vettel has been on the podium in four of the past five Australian GPs and was the only non-Mercedes driver capable of winning a race in 2015. Throw in the introduction of new tyre-choice rules and suddenly it doesn't seem so strange after all.



NICO ROSBERG

EDD STRAW
Autosport Magazine Editor

Almost four months will have passed since the end of the 2015 season, but Nico Rosberg has to be considered the form man going into the Australian Grand Prix. He won the final three races of last year in Mexico, Brazil and Abu Dhabi, and found himself far more at home with the car's development direction, so there's a good chance he will be able to carry that form into the new season. The Mercedes should still be the best car and Rosberg will be determined to start his season like he finished the last to show he can challenge team-mate Lewis Hamilton for the title.



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B VETTEL

C ROSBERG

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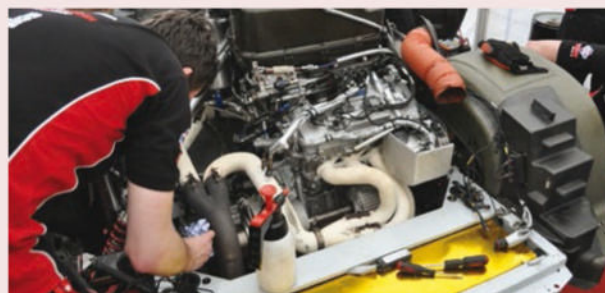
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Hakkinen will drive the car that took Fangio to back-to-back titles



LAWRENCE

Hakkinen in Silver Arrow at Goodwood

DOUBLE FORMULA 1 WORLD champion Mika Hakkinen will make his Goodwood Members' Meeting debut next month.

The former McLaren racer will demonstrate the Mercedes W196, the car that Juan Manuel Fangio drove to back-to-back world titles in 1954 and '55, on the Saturday of the March 19-20 event alongside Jochen Mass.

The open-wheeled W196 will line up alongside its 'streamliner' variant, which was designed for high-speed circuits such as Monza, and which Fangio drove to a commanding victory in the French

Grand Prix at Reims when Mercedes made its return to F1 in 1954. One of the open-wheeled W196s was sold for £17.5 million in 2013. Both W196 variants will run on track.

BTCC aces for Marshall field

British Touring Car Championship race winners Adam Morgan and Andrew Jordan will go head to head in the Gerry Marshall Trophy race for 1970s saloon cars at Goodwood.

Morgan will share a three-litre Ford Capri with owner Ric Wood. Their partnership dates back to last year, when Morgan sampled Wood's ex-BTCC Mazda 323 at the popular Silverstone Classic event.

The Ciceley Racing driver recently tested the Capri at Donington Park.

Morgan said that he revelled in the handling: "The car has plenty of grip – more than you would expect – but that didn't stop me doing a few drifts.

"I know that isn't the quickest way and I won't be showboating in the race, because it won't be the fastest way.

"I'm hoping that I can do more events

with Ric, and I would really love to do the Goodwood Festival of Speed."

Jordan will share the Mini 1275 GT of Nick Swift in the Gerry Marshall race. His father Mike Jordan – also a BTCC race winner – will be on the grid too, driving an ex-Gordon Spice three-litre Ford Capri with Mike Whitaker.

In addition, the two Jordans will team up to contest the Alan Mann Trophy race, which is a one-make thrash for Ford GT40 sports-racers.

Jordan Sr has raced Philip Walker's GT40 several times before, but this will be the first time that his son – the 2013 BTCC champion – has raced the car.

"I've wanted to race the GT40 for some time and for us to share the car at Goodwood is really cool," said Jordan Jr. "I'm very lucky to get the chance to drive a car like that.

"There will be some quick guys there but I'm sure that we'll be one of the stronger pairings."

Jordan Sr, who set pole position for the last all-GT40 race at Goodwood back in 2013, added: "It will fantastic to share that sort of car with Andrew." ❦

Adam Morgan has tested the Ford Capri at Donington Park



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BRDC F4

Collard replaces Herta in F4

MSA FORMULA RUNNER-UP AND McLaren Autosport BRDC Award finalist Ricky Collard is a surprise replacement for Colton Herta (above) in Carlin's BRDC Formula 4 Championship squad for this season.

The 19-year-old, who had been angling over a move to the Formula Renault Eurocup for this season, has taken a seat that became available because American Herta will be ineligible for the opening round at Snetterton in late March because it falls a few days before his 16th birthday.

Herta has instead taken a place in Carlin's Euroformula Open line-up – the first round of the Formula 3-based series is not until late April at Estoril.

"It's a pretty surreal situation really," said Collard. "This deal came together pretty quickly, and as a local lad with my local team it all fits together really well. I always dreamed of driving for a team like Carlin when I was younger, so thanks to everyone who helped put this deal together, particularly my manager Harry Soden."

Collard joins Lando Norris – who beat him to the MSA title in 2015 – and Indian Ameya Vaidyanathan in the Carlin F4 line-up. He had his first test with the team at Snetterton earlier this week. "Fighting with Lando in different teams was great in 2015 and now we will be able to push each other hard in the same car, which will also help the team internally," said Collard. "The BRDC car is great to drive – there's a lot of instant power and the change of direction is impressive. Pushing hard at circuits like Oulton Park certainly won't be for the faint-hearted."

Herta, meanwhile, is part of a three-car line-up in Carlin's inaugural Euroformula season. He was reportedly highly impressive in his maiden test in F3 machinery, and makes the move after finishing third with the squad in MSA Formula last season. He will be joined by Vaidyanathan, undertaking a second programme, and German Keyvan Soori, who switches from the US and has raced against Herta in the F2000 IndyCar ladder series.

GT CUP

McLAREN BACKS CUSTOMER EFFORTS

McLAREN WILL FIELD factory cars in this year's GT Cup after nominating the series as part of its Garage 59 customer programme.

Garage 59, which trains amateur drivers, expects to field one 650S GT3 car in the MSV-run series' opening round, before expanding the number of entries later in the season.

McLaren GT's Mark Wootton said: "The GT Cup suits the Garage 59 programme perfectly as it's a very accessible championship and is the perfect atmosphere for amateur drivers looking to learn motorsport."

"The race format of mixing endurance races with sprint events is also very helpful for us, as it allows our customers the chance to share a car with some of our pro drivers during the longer races and get extra coaching time."

GT Cup events consist of three races per round, with one endurance race (catering for two-driver entries) and two sprints, with the two drivers able to split these between them.

The Garage 59 name derives from the garage number assigned to the 1995 Le Mans 24 Hours-winning McLaren F1 GTR.

McLaren has a history of works backing in GT Cup, and the 650S model first appeared in the series back in 2014.

BRITISH GT

Barrable switches to British GT with Ginetta G55

INTERNATIONAL RALLY STAR Robert Barrable is to make his British GT Championship debut with a Team Hard Ginetta G55 in the GT4 class.

Barrable, who contested some Volkswagen Cup rounds with Hard last

season, will partner fellow Irishman Wilson Thompson.

"I'm really looking forward to working with Tony [Gilham, Team Hard boss] again," said Barrable. "I'm hoping we can get straight into the thick of it

and perform consistently.

"Sharing a car is a new challenge for me and the race length will take some getting used to as well, but I can't wait."

Team-mate Thompson, 17, planned to race in Formula

Ford last year, but a big crash at Kirkistown ended those hopes. "He went over the bank and broke his back in six places," said his father Robert. "It's just six weeks since he's been allowed to go back to the gym."

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Wylie switches to Motorbase Aston

MOTORBASE PERFORMANCE WILL RUN McLaren Young Driver refugee Ross Wylie alongside Phil Dryburgh in its British GT Aston Martin Vantage GT3 campaign.

It represents a return to Aston for 24-year-old Scotsman Wylie, who won the GT4 title with the marque in 2014. "I'm really excited about joining Motorbase and going back to Aston Martin," he said.

"Last year was a difficult one for me as there was a lot of expectation and pressure

racing with McLaren. I learned a lot from the McLaren Young Driver Programme about how to work with a manufacturer and what's expected of you, but I couldn't say no to this deal with Phil. He's a great character and is always smiling. It should be an enjoyable year."

Motorbase head David Bartrum added:

"Ross is a star in the making and Phil is a big backer of Scottish motorsport, so it's about getting Ross into a comfortable environment to show what he can do."



MSA FORMULA

Monger in MSA Formula with JHR

GINETTA JUNIOR RACE winner Billy Monger will switch to MSA Formula this year with JHR Developments.

The 16-year-old, fifth in the Junior standings last year, makes the switch after testing at the end of the 2015 season.

JHR boss Steven Hunter said: "I'm delighted to sign Billy to our MSA Formula team. We had him racing with us last year and he certainly

showed some serious promise. He tested in an MSA Formula car at the end of last season and his pace was at the level of a very experienced single-seater driver."

Monger joins Sennan Fielding and Jack Butel in JHR's MSA Formula line-up. "It's a very good team," added Hunter.

JHR will focus on the single-seater category and Juniors

this year and will not be involved in the Clio Cup, after its intended driver Senna Proctor opted instead to move to the tin-top class with Team Pyro and BMR.

● Another Ginetta Junior graduate, Frank Bird, will race in MSA Formula this year. The 16-year-old will drive for Fortec Motorsports, completing the squad's four-car line-up.



CARRERA CUP

Redline Porsche for Plato

BRITISH GT CHAMPIONSHIP RACER Lewis Plato has switched to the Porsche Carrera Cup GB with Redline Racing.

The 22-year old, who raced a Mercedes SLS AMG GT3 last season, now lines up alongside reigning champion Dan Cammish

at the multiple title-winning squad for the BTCC-supporting series.

"I had quite a mixed season in British GT last year," said Plato. "I'm in the early stages of my career and thought it would be best to move back into a one-make championship."

IN BRIEF



FLOERSCH OPTS FOR SINGLE-SEATERS

Sophia Floersch will contest the German Formula 4 Championship with Motopark in 2016. The 15-year-old (above), who won races in a part-season in Ginetta Juniors last year, spent the second half of 2015 preparing a budget and testing ahead of her switch.

HAYEK MOVES TO ENGLAND WITH JAMUN

Australian Harry Hayek will race in MSA Formula this season with Jamun Racing. The 17-year-old finished fourth in the Australian Formula 4 Championship last season, and will now partner Ginetta Junior champion Jamie Caroline.

AUSSIE F4 STAR JOINS DOUGLAS

Another Aussie, Tom Randle, is to contest the BRDC Formula 4 Championship with Douglas Motorsport. Randle, 19, was runner-up in his domestic F4 series in 2015 and has also shone in the Toyota Racing Series in New Zealand. He has previously raced in Britain, when he competed in the British Super One karting series.

BRANDS TO HOST FESTIVAL ITALIA

Motorsport Vision Racing will run a race meeting to celebrate Italy's motorsport heritage at Brands Hatch this summer. The new Festival Italia event will be run on August 14 and will feature a mixture of races and sprint events, along with Formula 1 demonstrations and iconic road and race machines.

DOMINANT DAILY CHOOSES BMWs

Reigning Scottish BMW Compact Cup champion Steven Dailly will contest the English series this year, continuing with the KC Motorsport team. He dominated in Scotland in 2015, winning all 16 races, but decided against a move to the Ginetta GT5 Challenge because of budget issues.

FIRST FOR DUTCH SUPERCARS

The Dutch Supercar Challenge (below) will be the first internationally sanctioned series to compete on the Snetterton 300 layout after a deal to headline on September 3/4, the 'Dutch on Tour' meeting.



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Widen your horizons and experience more

By Marcus Pye, the voice of club racing

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MOTOR RACING OF ALL TYPES CAN MAKE AMAZING viewing but it comes in more flavours than the traditional 'roundy-roundy' competition enjoyed by generations of enthusiasts, 109 years after Hugh Locke King opened the world's first purpose-built hard-surface circuit in Brooklands.

Ironically, Weybridge's landmark did not reopen after World War 2, when the sporting genre 'took off' on defunct aerodromes dotted around the British Isles. Their availability for peacetime pursuits fuelled the aspirations of the well-heeled, eager special builders and hungry returnees who had lost a decade of opportunity through the hostilities and their aftermath. They also spawned the production racing car industry as we know it.

Having witnessed my first event at Silverstone in 1958 – the new "home of British motor racing" had been operational for a decade – I've attended more than 1000 race meetings, plus dozens of speed hillclimbs, sprints (including numerous at Goodwood since the '70s) and drag racing, autocross, rallycross, karting and short-oval fixtures. Fortuitously, covering the best part of 30 per season is a passion.

My first dilemma in planning each successive term surrounds the sheer choice of options on the calendar, set against a finite supply of weekends. The second is the increasing propensity of organisers to book multi-day events, whereas the 'clubbies' of my youth were done and dusted in one. It's down to making supply meet demand, of course, and the necessity of clubs to make their promotions economically viable, despite being handcuffed by increasing circuit-hire fees.

Outside the BTCC and British GT Championship strata, the balance of power among the clubs has altered markedly since the frontline packages were formalised in the early 1990s.

Who in the mid-'60s would have thought that the 750 Motor Club (championship promoters since 1950) and fledgling Historic Sports Car Club would overhaul the BARC and BRSCC to become major players, regularly attracting 400-plus entries for packed programmes?

Much as I have always adored club racing, and made a speciality out of the expanding historic arena, there are other areas of the sport that I'd love to revisit given the chance. Run annually since 1947, the British Hillclimb Championship pitches drivers of super-fast high-downforce single-seaters against the clock. From Devon to Scotland, Jersey and Guernsey to Northern Ireland via its Midlands heartland (Shelsley Walsh, Prescott and Loton Park), it's a true spectacle.

If you crave faster action, add drag racing to your repertoire. Santa Pod Raceway – the former Podington bomber base in Bedfordshire – celebrates its 50th anniversary in style. The Main Event, the opening round of the FIA (car) and FIM (motorcycle) European championships over the May 27-30 Bank Holiday weekend is the one to attend. Seeing a pair of 8000bhp Top Fuel dragsters unleashed on the strip will take your breath away.

The same weekend – the Saturday and Sunday, so you could do both! – Lydden hosts the World Rallycross Championship, which has transformed this sensational multi-surface branch of the sport over the past two seasons. Always fantastic on television, for which the short, sharp race format was devised, I want to see the latest breed of WRX cars and star drivers.

Want something a little more left-field? Look to NASA. The National Autograss Sport Association's national championships are to be fought out at Javelin Park, near Gloucester, on August 6-7 (Open) and September 3-4 (Ladies and Juniors). 🏁



FF2000 DOUBLES UP WITH HSCC

The HSCC is a one-stop Formula Ford 2000 shop after the URS Classic championship joined. The Pre-1983 cars will share grids with Historic FF2000 (1975-81) at Silverstone and Brands Hatch GP, Classic F3 four times and Classic Racing Cars twice. Both series will race at the Silverstone Finals for the first time.



BMW M3s TO STRENGTHEN HTCC

Motor Racing Legends has extended Historic Touring Car Challenge series eligibility from 1985 to late '90, targeting Group A machinery. BMW M3s and other models can race the likes of the Ford Capri at the Donington Historic Festival, Silverstone Classic, Spa Six Hours and Algarve Classic Festival.



HILL STARS AT RACE RETRO

Damon Hill will be reunited with four of his most significant Williams Formula 1 cars, including the title-winning FW18, at RaceRetro at Stoneleigh Park, Kenilworth, this Sunday. Highlights of the show, which opens tomorrow (Friday), includes the Silverstone Auctions competition car sale.

WHAT'S ON

XPBIMAGES

MODERN F1

Too much information?

IN AN AGE WHEN FORMULA 1 FANS are saturated with information – from sector-by-sector live timing and car trackers to minute-by-minute Twitter commentary and instant breaking news – pre-season testing presents something of an anomaly.

It's almost archaic that there's still no rolling TV footage, even in an era when a broadcaster will climb a fence and present from a roundabout in an effort to take a sneak peek at new cars during a shakedown.

F1 testing is the last part of the fan experience that harks back to the 'old' days, even if the coverage itself is much better than anything we'd have got back in the late 1990s – take the rolling updates from *Autosport.com* as an example.

You've only got to look on *Reddit* to see the hunger that hardcore fans have for information. But isn't it the very lack of details that adds to the romance of testing, a task that in itself can be incredibly tiresome and dull to watch?

The excitement of seeing the new cars and driver changes is only made more frantic because the information is that bit scarcer.

That's especially in contrast to a normal race weekend. Fans in the UK currently have Sky's in-depth coverage to enjoy, with the F1 channel offering hours of pre-race build-up and post-race breakdown. That's already intense, even before you add in the various content that will end up on YouTube,

Pit screens and a lack of information make testing an anomaly



TEE/LAT

Twitter and various websites and blogs, bombarding fans with breaking news.

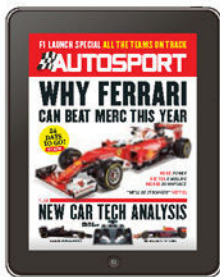
Has this wealth of information spoilt us as fans? Have we reached the point where we simply have too much access to F1 information? Do we need to know what Lewis Hamilton is up to on his holidays, or how fast Rio Haryanto lapped in the third sector on his practice lap? F1 is now easier to follow than ever before, but has that saturation of information diminished the romance and spectacle of the sport itself?

Look, for example, at the situation young fans in the 1990s grew up with. Back then, viewers got a brief qualifying show on a Saturday, 40 minutes of pre-race build-up, and then the race called by Murray Walker. On-screen timing was minimal in contrast to today. If you wanted more post-race, then you would have to wait to spend your hard-earned pocket money on a copy of this very magazine on a Thursday morning.

Go further back to the late 1980s and early '90s, when fans could enjoy –

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Nico Rosberg takes the new F1 W07 Hybrid for its first run at Silverstone, and adds his own commentary to boot. It's an installation lap, so he's not breaking any records, but the use of a helmet-cam at least gives some sense of drama. His verdict? "Can't wait to drive this car in anger."

Sky Sports F1's output means there's more information than ever for F1 fans



TV PICK OF THE WEEK

TALES FROM THE VAULT: UNDERDOGS

SKY SPORTS F1
Tuesday 1900

The Haas F1 team joining the field, along with Manor's revival and subsequent Mercedes engine deal, could help Formula 1 discover a new underdog. Sky Sports F1's *Tales From The Vault* highlights some of the stories of those who've done it before.



if they were lucky — the race itself on BBC *Grandstand*. There was no pre-race build-up, no live timing, and often no onboard footage. Away from the racetrack, fans would have to make do with a few words in the sporting section of the Fleet Street newspapers.

Fans these days can jump on Twitter, bombard each other in discussion and even tweet the teams and drivers themselves, all in an effort to bring fans closer to the sport itself. It's easy to drown in social commentary.

Ultimately, how much information you want from F1 is up to you, and that's something that should be celebrated. For the superfans, all the tricks and digital toys of the social-media age are there to play with.

For those who don't like to be inundated, turn off those gadgets and switch on your telly a minute before Ben Edwards cries, 'Lights out and away we go.' The choice is yours.

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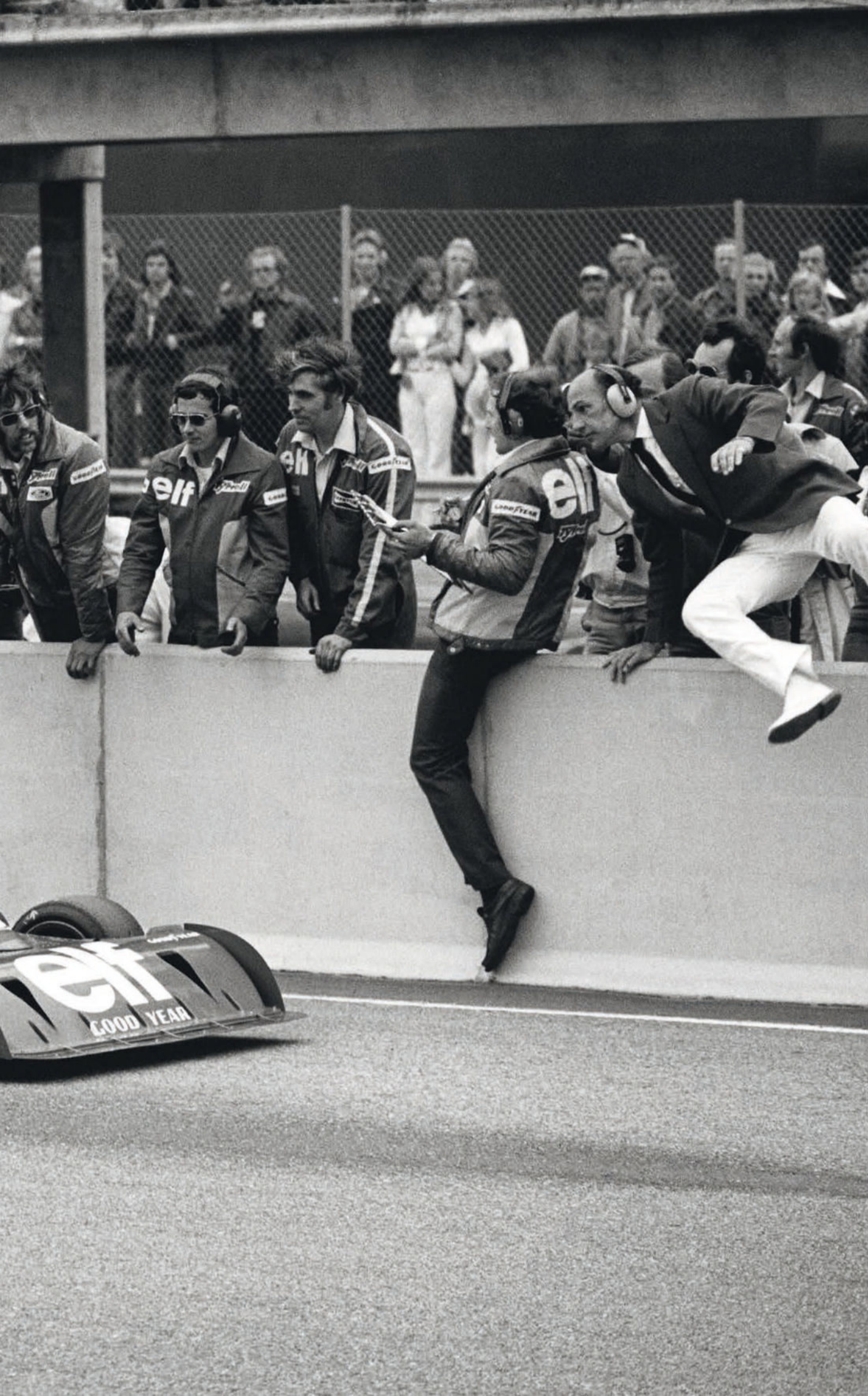
The Sprint Cup returned in style as it opened last weekend with the closest finish in Daytona 500 history (see report, page 56). Now the NASCAR boys make the relatively short trip over the stateline from Florida to the Atlanta Motor Speedway. Jimmie Johnson won in Georgia last year after recovering from 37th on the grid following early weekend woes that prevented him from recording a qualifying time. Johnson's recovery drive pushed Kevin Harvick into second.

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Jimmie Johnson was victorious at Atlanta last year





THE ARCHIVE

Jody Scheckter stops in front of the Tyrrell team after taking one of the most famous wins in grand prix history in the six-wheel P34 at Anderstorp in 1976 – its sole victory.

LAT Photographic

HAVE-A-GO HERO

WHEN DRIVERS
CROP UP IN
UNEXPECTED
PLACES

JOHN WATSON

Returning McLaren to winning ways with victory at the 1981 British Grand Prix and narrowly missing out on the 1982 world title are John Watson's greatest racing successes. Less well known is his experience of the alien concept of ovals, an opportunity that arose when he was invited to contest the International Race of Champions in 1985.

First up: Daytona. His rivals? The likes of Darrell Waltrip, AJ Foyt and Bobby Rahal.

"We all had fundamentally the same car in the Chevrolet Camaro, but the trick with ovals is entirely different to driving on a road track," Watson says. "In practice, in terms of driving the circuit, it was easy as you just had your foot down all the way around. It was a question of learning the car. The big thing that got you was the tyre degradation as it would just drop off like it does now in NASCAR. The grip is amazing on new tyres but after 10 laps, it was all slipping and sliding."

Watson was then thrown properly into the deep end. "The first race was drawn by lots and I got pole position! Everyone sticks behind you for the tow, they then sweep around you or below you. It was a rolling start, the flag dropped and by the time I got to Turn 1 someone was above, behind and below me. Then at the end of the lap I was last, I was petrified! 'F*ck me, what am I doing?'

"The reality was that, in that style of racing, pole for an inexperienced oval driver was a poisoned chalice."

A close battle with Rahal on the Mid-Ohio road course and a second-place finish gave Watson a lift, before the Talladega race was rained off. His luck with ovals continued at the next round at Michigan.

"George Follmer was tutoring us and one of the things he was doing was towing us around, and there's a slightly funny rise and dip," remembers Watson, who ended IROC IX sixth (winning \$29,000 for his achievement). "I lost the back end and spun into the wall and hit the barrier at the top and the one at the bottom. I did a lot of damage."

"The road circuits were easy and I loved them. But I was hesitant on the ovals. I didn't know them, and I was reticent."

JACK NICHOLLS AND TOM ERRINGTON



Watson was drawn on pole but found oval racing a scary experience



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