

# AUTOSPORT

# NEW CHALLENGERS STEP FORWARD

NEW-LOOK  
**40**  
PAGES  
FORMULA 1

The cars that  
could stop  
Mercedes

FERRARI  
GOES RADICAL



+



RED BULL IS GAINING



McLAREN TROUBLED REVIVAL



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# Mercedes ahead but Ferrari looks strong

WE ALWAYS HAVE TO BE CAREFUL ABOUT DRAWING TOO many conclusions from testing, but it's impossible not to try. So what have the opening salvos told us so far about the 2017 season?

First, unsurprisingly, Mercedes once again looks like the team to beat. To have completed the equivalent of three grand prix distances before the second day of the first test is truly remarkable. The F1 W08 has been quick too, and it's highly unlikely that either Lewis Hamilton or Valtteri Bottas has even tried to stretch the car's legs yet. Ominous.

It's also clear that Ferrari's programme has started well. The radical sidepod approach shows it's trying to push forward after a disappointing 2016, and a decent car would probably help Sebastian Vettel recapture the form that brought three wins in '15.

Red Bull has so far been underwhelming but, as design guru Adrian Newey indicates to Edd Straw on page 22, there are plenty more developments to come before the teams arrive in Melbourne for the start of the championship campaign.

McLaren-Honda appears in disarray, which is sad for anyone wanting a close fight at the front, or fans of Fernando Alonso. Surely he'll get one more decent car before he retires?

The early days of testing also gave us a few hints about the impact of the new cars for spectators. On the plus side they look, and are, faster. On the down side they are more planted and don't like running in dirty air. Not encouraging if you like overtaking.



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Mauger/LAT; Charniaux/XPB Images; Batchelor/XPB Images

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# NIGEL ROEBUCK

## When F1 played hunger games

**IT WASN'T ALWAYS FORMULA 1, YOU** know – and nor, for that matter, was it always the FIA. Close on a century ago, in 1922, the AIACR – Association Internationale des Automobile Clubs Reconnus – formed an international commission to look after motor racing, and it came up with something called ‘The Grand Prix Formula’. Not until 1947 was the AIACR reconstituted and renamed the FIA, at which point ‘Formula 1’ came into existence.

This Grand Prix Formula required only a slender rulebook, the stuff of dreams for people like Colin Chapman and Gordon Murray and Adrian Newey. Fundamentally teams competing at racing’s highest level could build pretty much what they liked, but in 1934 a new rule called for a *maximum* weight limit of 750kg – indeed, this period, which lasted until the end of ’37, became known as ‘the 750kg formula’.

Going into the 1937 season Mercedes, in its ongoing fight with Auto Union, introduced the W125, whose supercharged 5.6-litre straight-eight engine produced around 600bhp, a startling figure for the time. Look at photographs of the car, of Rudolf Caracciola and Manfred von Brauchitsch scrapping at Monaco, and a big heavy beast it appears. When Tony Brooks and Peter Collins sampled a W125, in a tribute to Richard Seaman at Oulton Park in 1958, they were shaken by it,

as was even Juan Manuel Fangio, when he drove one at the Gunnar Nilsson Memorial meeting at Donington in 1979. A monster of a racing car.

Last week, as I watched the unveiling of the McLaren-Honda MCL32, two thoughts occurred. First, if it pleased me to see orange on a McLaren again – something Ron always refused to countenance, given that it was from the team’s pre-Dennis days – quite why it is a sludgy orange, rather than the original vibrant colour, remains a mystery.

Second, 80 years on, in effect we are back to the days of the ‘750kg formula’, albeit now with a phone directory of rules. The McLaren, like other cars making their entrance in the rash of pre-season launches, may have looked all very svelte, but undeniably it’s a big car – and it weighs about the same as a Mercedes W125. Quite a thought.

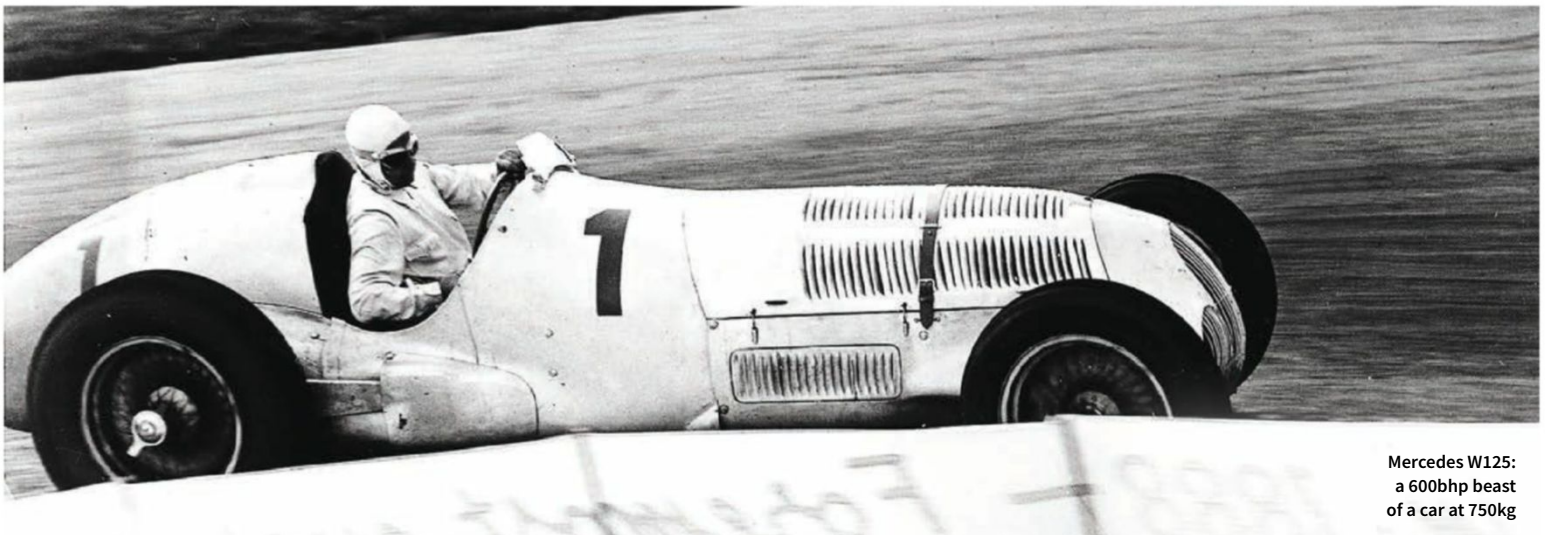
When last year I mentioned in passing to an F1 driver that tyre-warmers were banned in IndyCar racing, he was shocked – and even more so when I added that so also was power steering. How did the drivers cope, he wondered, and I said, well, they just do: dem’s de rules, so get on with it.

Three years ago, when the ‘hybrid engine’ came to Formula 1, and the weight of the cars lurched upwards by 50kg and more, the fad of the moment was that drivers had to be



New F1 cars weigh the same as a W125 and need driver muscle

absolutely as light as possible. In the recent past F1 cars had routinely been well below the minimum weight limit, and ballast – to get them up to that mark – could be moved around to aid the car’s handling. Designers still wished to enjoy that benefit, but now they didn’t have



Mercedes W125: a 600bhp beast of a car at 750kg





the same ‘free weight’ to play with, so anything the driver could contribute was strongly encouraged.

One thought of Herr Altbauer, manager of the Schnorcedes team in Peter Ustinov’s sublime *Grand Prix of Gibraltar*: ‘We believe that the car is the main thing to consider, and that man must be a slave of his machine...’

Mark Webber, then taking his leave of F1, told me he couldn’t have picked a better time: ‘I’m taller than most drivers, and I’ve been as skinny as a rake 11 months of the year, because of Adrian saying, ‘We still need you lighter...’ I’ve had years of being four or five kilos under my natural weight, so now it’ll be nice not to live on rabbit food the whole time. If it was bad enough before, it’s going to be worse now – and for the bigger guys it’s going to be a real problem. Given that we live in an era obsessed with safety, it seems a strange way to carry on...’

It did indeed. When the drivers turned up for Melbourne in 2014, most were plainly thinner than before, and showing less muscle, so it was perhaps as well that conservation of the cursed high-degradation Pirellis precluded their driving flat-out for the whole of a grand prix.

‘It’s a sacrifice I have to make if I want to

## “I smiled when Hulkenberg admitted – as if it were a sin – that he’d visited a McDonald’s: ‘It was an emergency’”

balance the car perfectly,” said Nico Rosberg that weekend. “I’ve eaten no sugar since early December – for my dream I’m living like a monk. The diet alone is one thing, but training with little food is hell.”

It seemed to me insane that drivers should be required to live on close to a jockey’s starvation diet. During a team PR event in Sepang, one driver passed out.

Because of his height and size, one who suffered more than most was Nico Hulkenberg, whom McLaren had declined to sign for just that reason. “As I’m taller than most drivers,” he said, “all my career I’ve worked hard on being as light as possible, so I’m not especially obsessed about it now – in the winter I couldn’t lose any more weight than I did.”

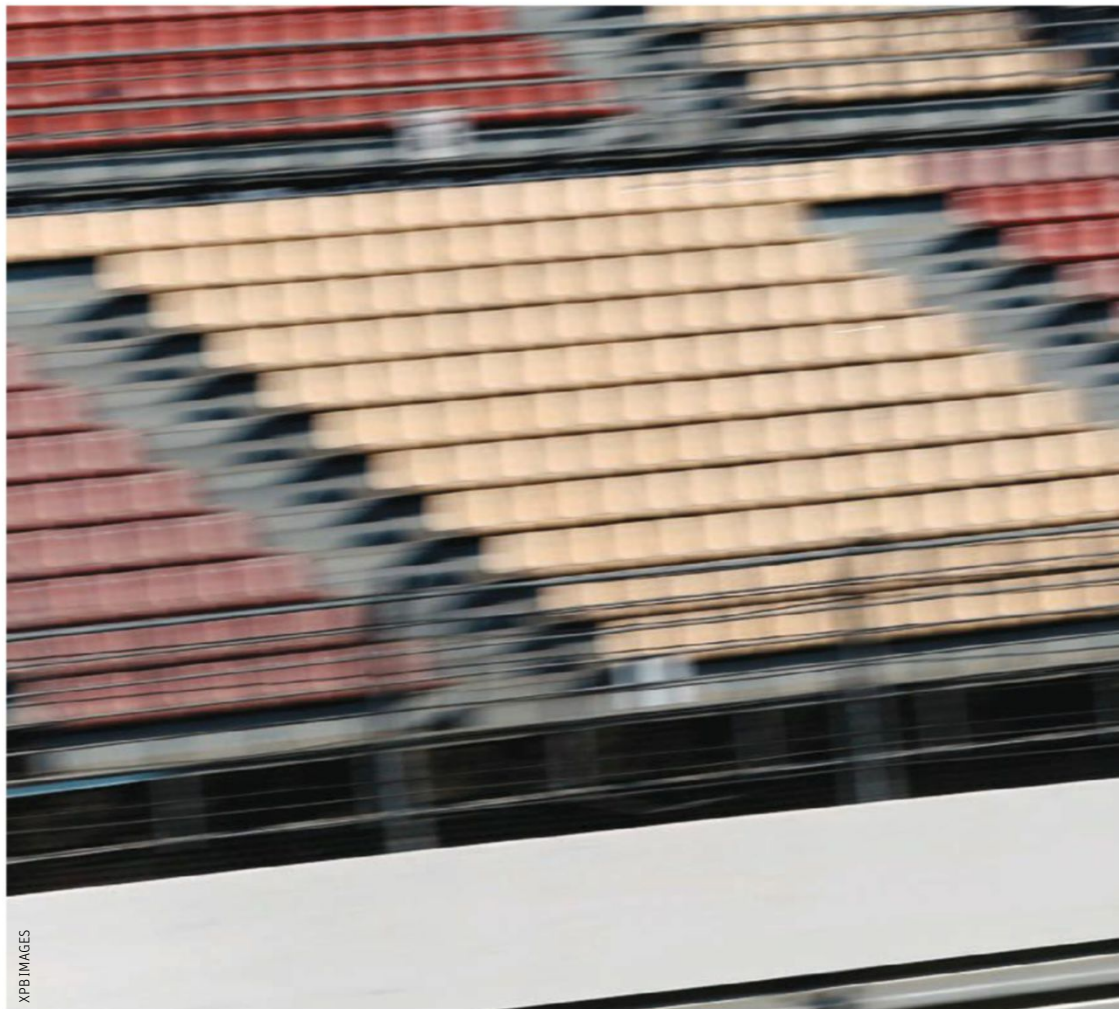
That said, I smiled when Nico admitted – as if it were a mortal sin – that he had visited

a McDonald’s in Kuala Lumpur: “This was the exception rather than the rule, but it was an emergency – I was really hungry and *needed* to have something.”

It was all a bit cranky, but if it has long seemed to me unjust that a driver should be penalised simply for being taller – and inevitably heavier – than most of his colleagues, those like Hulkenberg are now in a happier place, for the new generation of F1 cars – bigger, heavier, with greatly increased downforce and hopefully longer-life tyres – are going to tax the drivers physically way more than those of the recent past, and to that end they have been instructed to ‘bulk up’, to develop muscles like Garth, as needed in the era of the W125.

For Alfred Neubauer read Toto Wolff, but in its fundamentals racing never changes. 🍷





XPB IMAGES

## FORMULA 1

# Hamilton and Mercedes

THE FIRST STAGES OF FORMULA 1 PRE-season testing had a familiar look, with Lewis Hamilton and Mercedes setting the pace as Autosport closed for press at Tuesday lunchtime.

Despite significant aerodynamic rule changes, the Mercedes W08 appears to have picked up at Barcelona where its predecessor left off, with Hamilton happy to talk up the team's chances and embracing its status as the team to beat at the end of the first day of running.

"First, people always want to big you up at the beginning of the season," said Hamilton. "Two, we are world champions, and three, our car looks a thousand times better than everyone else's, so that would be expected.

"We are still the team to beat – we are the champions still. But we have a lot of work ahead of us, as does every other team."

Hamilton's fastest time of 1m21.765s on Monday was set having removed the shark fin that he used at the start of the afternoon's running – a part that Valtteri Bottas did not run in the morning. Mercedes ran on Tuesday with a double-decker version of the T-wing that sits ahead of the rear wing, indicating that the team is, like many, still evaluating a part that can both generate downforce and better channel the air to the rear wing. Hamilton then improved 20 minutes before lunch on Tuesday with a run on super-soft Pirellis during which he posted a 1m20.983s lap.

With Red Bull struggling on the first day with

sensor problems and battery troubles, Ferrari had a strong start to testing. Sebastian Vettel, using the medium-compound Pirellis rather than the softs Hamilton set his time on, was 0.113s slower.

The car looked well-balanced on track, and in the long, fast right-hander of Turn 3 was able to take a consistent line without running out of grip – a trait it had in common with the Mercedes. So the Ferrari, with its aggressive bargeboard/sidepod aerodynamic design, appears to have hit the ground running.

With Red Bull expected to join Mercedes and Ferrari in the top three, the battle behind was a close one. Williams was third fastest on day one with Felipe Massa before rookie Lance Stroll took over on Tuesday, suffering a high-speed spin after rattling the kerb at the exit of the fast Campsa right-hander. But the Williams looked to be running a little lighter on fuel than some of its rivals.

Toro Rosso and Force India both had difficulties early in testing, but when the cars were running well both looked to be in the midfield spread. Force India driver Esteban Ocon was third fastest on Tuesday morning, but brought out the red flag shortly before lunch when he stopped on track, having earlier in the day suffered from exhaust problems.

Haas had a solid two days of running, despite Kevin Magnussen having a light impact with the barrier on Monday after locking the rears under braking, while Sauber struggled for pace with





# how ominous form

Marcus Ericsson on day one before suffering engine problems on Tuesday.

The big disappointment of the start of testing was McLaren. On Monday morning the car managed only one lap after an oil-system problem was detected, which led to a change of engine. “Based on initial investigations, we think the issue is related to the shape of the 2017 oil tank, but it requires further investigation before we can confirm this,” said Honda F1 boss Yusuke Hasegawa.

The oil-tank problem came as a surprise to the outside world. The oil tank shape has a big impact on the way the oil is picked up and, although it did not manifest itself during McLaren’s filming day at the circuit the day before testing started, for the team

to discover this on its first installation lap suggests a problem. Teams usually have a good understanding of the oil system, as well as opportunities to test the relevant forces and flows on rigs before running.

A later engine shutdown further restricted McLaren’s running, with Fernando Alonso managing just 29 laps on the opening day. Stoffel Vandoorne took over, completing 29 laps before another engine change was needed because of a “loss of power”.

Alonso dismissed criticism as “easy headlines”, although the high expectations of McLaren’s launch and interest in its new livery were quickly tempered by what happened in testing.

While the new F1 cars were faster – at the time of going to press the best time was 1.7s quicker than anything seen pre-season last year – there are concerns about whether the higher-downforce cars and lower-degradation Pirelli tyres will be good for overtaking.

“I was behind a couple of cars out there and it was harder to follow, as we expected,” said Hamilton. “Also, the tyres are so hard that they don’t drop off – they just keep going and going and going. So likely, we’re going to be doing a lot more one-stoppers

**“There’ll be more one-stoppers, less overtaking”**

and, since there’s not degradation, fewer mistakes, less overtaking.”

From trackside, the cars do look a little quicker than last year, particularly on turn-in, although the overall visual impact is not as strong as some had hoped.

The first test is due to finish today (Thursday), with the final four-day test starting next Monday ahead of the Australian Grand Prix on March 26.

**EDD STRAW AND GARY ANDERSON**

## IN THE HEADLINES

### VERGNE NO LONGER AT FERRARI

Ex-Formula 1 racer Jean-Eric Vergne has ended his relationship with Ferrari after being the team’s reserve in 2016. Vergne, who has been replaced by Antonio Giovinazzi at Ferrari, will focus on his racing with the Techeetah Formula E team, in which he is understood to have a stake. The Frenchman has also stated his interest in making his Le Mans 24 Hours debut this year.

### DI GRASSI LIKELY FOR LE MANS DEAL

Audi star Lucas di Grassi has said that he is “highly likely” to compete in the Le Mans 24 Hours this year despite the marque’s withdrawal from LMP1. The Brazilian’s two leading options are believed to be the third Toyota or in GTE with Porsche, although either would need the approval of Audi. Di Grassi could also return to Macau, where he won the 2005 Grand Prix, with Audi in the GT World Cup.

### DERANI GETS INDYCAR TEST CHANCE

Leading sports-prototype up-and-comer Pipo Derani and DTM Mercedes star Robert Wickens were both set to get IndyCar tests at Sebring this week. Brazilian Derani could be in line for a limited programme of races with Schmidt Peterson Motorsports, the team he was testing with, while Wickens’s run – also with SPM – is part of a swap with fellow Canadian James Hinchcliffe, who will get a run-out in a DTM machine at Vallelunga. Meanwhile, recent Daytona 24 Hours winner Ricky Taylor got to drive a Team Penske IndyCar at Homestead last week.

### JUNCOS STEPS UP FOR INDY 500

Top American junior single-seater team Juncos Racing is to enter the Indianapolis 500 this year after acquiring two chassis from KV Racing, which has closed its doors. Juncos is yet to announce whether it will align with Chevrolet or Honda, or who its driver could be.

### MECACHROME POWER FOR GINETTA

GP2 engine supplier Mecachrome is to provide the powerplants for the new Ginetta LMP1 programme. The Yorkshire constructor has said that initial CFD testing will take place in the near future, and will hold an LMP1 ‘preview’ event next month.

### ALBON STEPS UP TO GP2 WITH ART

GP3 Series runner-up Alexander Albon’s long-anticipated deal to step up to GP2 has been confirmed. The Anglo-Thai will remain with ART for his move up, where he partners McLaren-Honda protege Nobuharu Matsushita.

### ROBOT RACER IS UNVEILED

The car for the world’s first driverless racing series, Roborace, has been revealed. The Robocar weighs 975kg, has four 300kW motors and Roborace claims it will be capable of speeds of almost 200mph. It will run as part of the Formula E package and the target is for two Robocars to appear on track together later this year.



## Q&A

### JOSH COOK BTCC UP-AND-COMER HAS LANDED MAXIMUM DEAL



**Josh Cook had a strong BTCC rookie season in 2016 with MG. Ousted from there, he has a new deal to race a Maximum Motorsport Ford.**

#### **Were you sad to leave the Triple Eight Racing MG team after a strong 2016?**

I was, and it was a bit of a shock because it was very last minute. I got on really well with the guys from MG, and I know that to win championships at this level you need consistency. I was hoping it would become a multi-year deal, but it all fell apart at the last minute. I had indications that I would be staying with the team, and it was a surprise when they told me they had signed other drivers. I have nothing against the guys who are there [Dan Lloyd and Aron Taylor-Smith], but it left me short of options at short notice.

#### **Did you think you would be out of a BTCC deal?**

We had a look around and there weren't many seats left. I had chances to race in other championships, but all my sponsors were sold on the BTCC so I had to try and stay there.

#### **How did the contact come about with Stewart Lines [Maximum boss and 2016 racer]?**

I'd known Stewart through doing some coaching for drivers in his team in the VW Cup, so it wasn't exactly cold calling. But as soon as I spoke to him, it was clear we could do a deal because he had hurt himself in a biking accident. I went to look at the car and it was clear that it's had lots of money spent on it.

#### **What are the hopes for the year?**

I think we can surprise people. The car is being looked after by Team Parker Racing, and it is well developed. I am excited about it, and I think people will have to notice us. I am not just out there to beat the MG boys, I want to beat everyone. This will give me a great platform.

**MATT JAMES**



## FORMULA 1

# Is Norris McLaren's latest Hamilton?

McLAREN AUTOSPORT BRDC AWARD winner Lando Norris has arguably become British motor racing's most celebrated young talent since Lewis Hamilton rose through the junior ranks in the mid-2000s.

And the parallels have become even stronger, with the 17-year-old reigning Formula Renault Eurocup champion being selected as a member of the McLaren-Honda Young Driver Development programme – just as Hamilton was nurtured by the Woking team since his karting days.

Norris joins the incumbent Nyck de Vries on the programme, with Honda's GP2 protege Nobuharu Matsushita also being co-opted across to McLaren's junior ranks. But is it fair to think of Norris, who will race this season in the Formula 3 European Championship with Carlin, as someone who will follow in Hamilton's footsteps and become a Formula 1 world champion?

One man uniquely placed to compare them is Fraser Shearer, who along with Mark Berryman has looked after Norris under their ADD Motorsports management umbrella for the past six years. As a top karter, Shearer was one of Hamilton's main rivals during their teenaged years. "They're both outrageously fast," observes Shearer. "There are some similarities, but I think they're quite different drivers. The thing that stands out is that whatever you put them in, they're always super-fast and pull a bit more out than the people around them. When they need a couple of tenths they can find them."

Of Hamilton's karting days, Shearer remembers: "You could never write him off. You always knew he was coming, and that come the end of the final he'd be knocking on the door. I was more experienced and always had to draw on that to beat him. You could push him out, but he'd always come back!"

Shearer says that a major difference to Hamilton is that Norris's family allowed ADD to focus on his improvement as a driver over karting results. "One of the most significant things is we had the freedom to make him a better driver rather than chasing pots," he says. "The training wasn't focused on win-win-win, but on making him as good as he could possibly be. We were able to hold him back, to go down non-traditional routes to make him a better car racer – it was all about getting him ready for that."

"Karting's very guilty of chasing results, and not many parents give you that freedom. We were determined to get him toughened up, and it seems to have paid dividends now..."

Norris's deal – and the subsequent announcement of GP3 racer Tatiana Calderon as a Sauber protege – means that F1 teams now have a combined total of 25 up-and-comers on their books, acting in a capacity of official reserve, junior or development drivers.

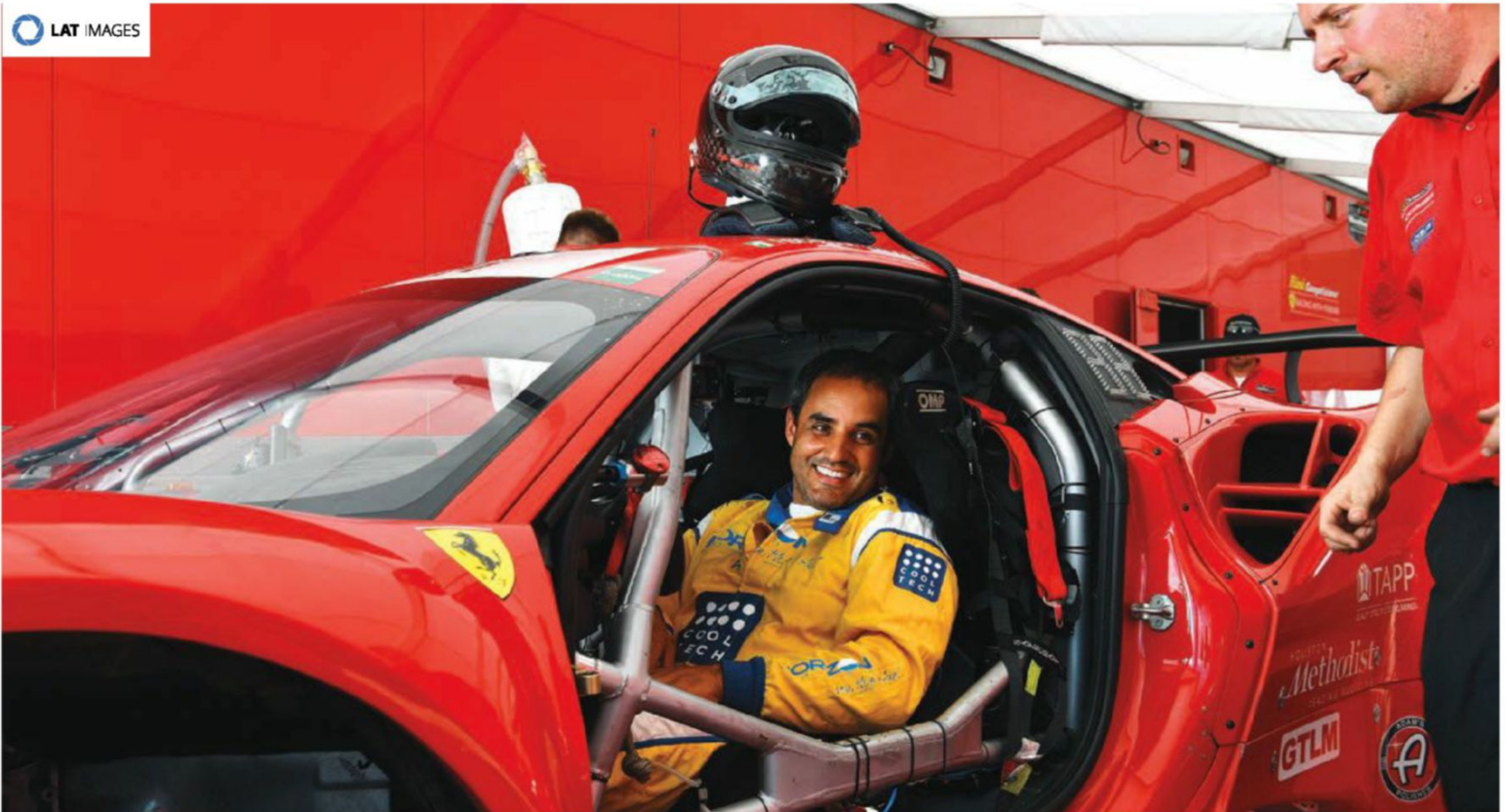
These are the youngsters currently with F1 connections, not including those brought in on the quiet for simulator work:

<b>Mercedes</b>	George Russell
<b>Red Bull/</b>	Pierre Gasly (reserve), Niko Kari,
<b>Toro Rosso</b>	Dan Ticktum, Neil Verhagen, Richard Verschoor
<b>Ferrari</b>	Antonio Giovinazzi (reserve), Giuliano Alesi, Marcus Armstrong, Enzo Fittipaldi, Antonio Fuoco, Charles Leclerc, Guan Yu Zhou
<b>Force India</b>	Alfonso Celis, Jehan Daruvala
<b>Williams</b>	none
<b>McLaren</b>	Nobuharu Matsushita, Lando Norris, Nyck de Vries
<b>Haas</b>	Santino Ferrucci
<b>Renault</b>	Sergey Sirotkin (reserve), Jack Aitken, Max Fewtrell, Jarno Opmeer, Sun Yue Yang
<b>Sauber</b>	Tatiana Calderon

**MARCUS SIMMONS**







**IMSA** Formula 1 and IndyCar folk hero Juan Pablo Montoya joined the Sebring 12 Hours test last week in a GTLM-class Risi Competizione Ferrari, and the Colombian says he'd be keen to race the car at some point this season. Jordan Taylor topped the test overall in the Daytona-winning Wayne Taylor Racing Cadillac, 0.051 seconds clear of the similar Action Express car of Filipe Albuquerque, while Taylor's new co-driver Alex Lynn was quickest in the last of the four sessions. GTLM honours went to the Corvette of Jan Magnussen, with Dirk Werner just 0.006s away for Porsche and fastest Ford driver Ryan Briscoe a mere 0.111s off the pace. The race takes place on March 18. **Photograph by Dole/LAT**

## FORMULA 1

# Silverstone shelves plans for circuit sale

SILVERSTONE'S OWNER, THE British Racing Drivers' Club, has stopped its search for a partner to help it fund the British Grand Prix contract and has decided to retain the race "on a go-it-alone basis".

In a statement to members last week, club chairman John Grant explained that protracted talks since last year with investors were now over. The Jaguar Land Rover Group and Jonathan Palmer's MotorSport Vision had both expressed interest, and there was also an approach from BRDC member and Ginetta chairman Lawrence Tomlinson. All discussions have now been shelved.

Grant told members: "[At Christmas], we expected to pick up discussions with our 'unnamed substantial overseas investor' again in the New Year.

"After further reflection and, in particular, completion of the sale of Formula 1 to Liberty Media, [the] board has now decided to shelve discussions about a sale and continue on a go-it-

alone basis. While this is not without risk, we feel sufficient confidence in the improved prospects for our business to justify this change of direction."

Grant also said that the decision not to sell the circuit means that several background changes, on hold while the talks were ongoing, would now be put in place. They include the removal of the club secretary role and the introduction of a voluntary club ambassador.

**MATT JAMES**



## GP3 SERIES



## F1 JUNIORS LINE UP WITH DAMS IN GP3

FORMULA 1 DEVELOPMENT DRIVERS SANTINO FERRUCCI and Tatiana Calderon will remain in the GP3 Series this year as team-mates with the French DAMS squad.

American Ferrucci, who is the junior driver for Haas, stays on for a second year with DAMS, while Colombian Calderon, who was named as Sauber's new protegee on Tuesday, switches over from the Arden team. She drove with DAMS in last year's post-season Abu Dhabi test (above). Also joining the team is Brazilian Formula Renault Eurocup midfielder Bruno Baptista.

GP3's other French single-seater powerhouse, ART Grand Prix, has also completed its line-up. It has confirmed Formula 3 European Championship race winner Anthoine Hubert, meaning that ART once again has GP3's most-potent line-up, Hubert joining George Russell, Jack Aitken and Nirei Fukuzumi.

**MARCUS SIMMONS**



## TOYOTA: THIRD LE MANS CAR IS FINANCIAL RISK

TOYOTA HAS REVEALED that it is taking a big financial risk by expanding its Le Mans 24 Hours assault to three cars this season.

The budget for the third TS050 HYBRID, which will also race at the Spa round of the World Endurance Championship in May, was described by Toyota Motorsport GmbH technical director Pascal Vasselon as “very optimistic”. He explained that the team’s financial resources for 2017 had not been increased to incorporate the expanded attack.

“If we have a couple of accidents, for example, we will be in financial trouble,” he said. “We would have to make a drastic saving at some point.”

Vasselon revealed that the savings necessary to accommodate the extra entry had been made in the development of the 2017-spec TS050.

“We have had to manage within our budget frame,” he explained. “We have reduced some development items without hurting our performance-target achievements and, at the same time, taking some financial risks.”

### Speeds hold up

Porsche’s and Toyota’s 2017 WEC contenders are already lapping close to the times of their predecessors, according to Porsche

LMP1 team principal Andreas Seidl.

He made the claim after the two P1 manufacturers tested together at Motorland Aragon last week, suggesting that they have both gone a long way to overcoming aerodynamic restrictions put in place for 2017.

“We ran together for two days and we can say that we were not far from 2016 lap times,” he said. “It looks like we are not far apart, but it is testing and everyone is doing their own programmes, so it’s difficult to judge.”

The front-splitter rules have changed for this season, along with a decrease in the height of the rear diffuser.

### Porsche coy on Silverstone aero

Porsche is not revealing which configuration of 919 Hybrid it will take to the WEC opener at Silverstone. New rules limit manufacturers to two aero packages, meaning they have just one homologated kit in addition to Le Mans-spec bodywork.

Toyota has stated that anything other than the high-downforce bodywork at Silverstone would be a major compromise. But Seidl has raised the prospect of Porsche opting to continue development of the high-downforce car until after Le Mans by refusing to state its Silverstone intentions.

GARY WATKINS

# Massa held Jaguar talks

Williams return scotched possible Formula E deal, as Rowland and Lynn line up for standby duties

# F

elipe Massa held talks with the Jaguar Formula E team over a switch to the electric single-seater series before recommitting to the Williams Formula 1 squad.

Massa announced his intention to retire from F1 at the end of the 2016 season after Williams signed Lance Stroll to partner Valtteri Bottas for '17. But Nico Rosberg’s shock retirement in December then led to Mercedes recruiting Bottas as his replacement, with Massa reversing his retirement and returning to Williams in his place.

It was reported earlier this year that Massa had to go back on a preliminary agreement to join Jaguar’s 2017-18 Formula E line-up to facilitate his F1 U-turn. The Brazilian said that was not true but admitted there had been conversations with the British manufacturer.

“It was something I was thinking for my future,” he said. “I read I had a contract – I didn’t have anything to be honest. For sure [I had] some talks.”

Last month, after being confirmed at Williams for 2017, Massa completed a test in Jaguar’s Formula E car. He said he wanted to honour that commitment because it was arranged before he committed to F1.

While Massa, 35, has had the door to Formula E temporarily closed, two British rising stars are set to be handed new opportunities in the series: Oliver Rowland and Alex Lynn are set to be on standby for Sebastien Buemi and Jose Maria Lopez respectively for Mexico City on April 1.

Toyota LMP1 drivers Buemi and Lopez will not arrive in Mexico until race day morning as they are due to fly from the Japanese manufacturer’s World Endurance Championship programme launch in Italy the day before.

Renault e.dams wants to get Rowland, who will drive for the sister DAMS GP2 team this season, to take part in Friday’s shakedown session in Buemi’s absence. Former Renault Driver Academy member Rowland has already raced in FE after substituting for Nick Heidfeld at Mahindra in Punta del Este in 2015.

DS Virgin Racing signed Lynn as its reserve driver last month and the Briton is due to drive Lopez’s car in the shakedown session in Mexico. He has already completed a day’s testing in FE, with Jaguar in the first Donington Park pre-season test, and will sample the DS Virgin 2017-18 development car before travelling to Mexico.

Lynn was also in the frame for the vacant Super Formula Team Le Mans seat, which is poised to go to a European driver. Le Mans, one of six Toyota entries in Japan’s premier single-seater series, has an empty space alongside Kazuya Oshima.

Mercedes-backed Mahindra Formula E man Felix Rosenqvist now looks favourite for that drive. “I would be up for doing it, but Formula E is the priority for me,” he said. “It’s something I’m working on.”

SCOTT MITCHELL







BRITISH TOURING CAR CHAMPIONSHIP

# BMW back in the BTCC

BMW WILL RETURN TO THE BRITISH Touring Car Championship as a fully fledged manufacturer team this season, supporting the three-car WSR attack.

The Munich marque's UK arm will provide financial and technical support to the 125i M Sports of double champion Colin Turkington, 2013 title winner Andrew Jordan and Rob Collard under the Team BMW banner.

WSR was upgraded by series officials from a privateer to a constructor, within the manufacturers/constructors championship, in 2015 to reflect technical input from BMW. Now the team will be rated as a manufacturer.

Team boss Dick Bennetts said: "I reckon that working together successfully as motorsport partners for 10 years is the

equivalent of a lifelong marriage.

"It's a tribute to BMW's product and commitment, and we are delighted to once again represent the marque as they return with increased commitment as a manufacturer in the BTCC."

BMW last raced in the BTCC as a manufacturer team in 1996, and Team Schnitzer took the overall championship with German Jo Winkelhock in 1993.

All three of the team's cars will be fitted with BMW's new B48 two-litre turbocharged powerplant, developed by Neil Brown Engineering. Previously, they have used a normally aspirated motor upgraded to include a turbocharger.

MATT JAMES

## TOP 3

# Bimmers in British tin-tops

Taking a look back at some of our favourites from BMW's previous factory efforts in the British Touring Car Championship



### #1 635CSi

James Weaver (above) was a race winner in the 1984 BTCC as Dave Cook's CC Motorsport ran a couple of howling BMW GB-entered six-cylinder machines. Vince Woodman raced the other.



### #2 M3

Prodrive ran the archetypal late-1980s tin-top in Class B. Backed up by rapid TV-radio celeb Mike Smith, it was enough for Frank Sytner (above) to beat the RS500s to the overall '88 title.



### #3 318i

After early Super Touring titles for Will Hoy and Tim Harvey, BMW brought German powerhouse Schnitzer over for 1993. 'Smokin' Jo' Winkelhock won the crown, and the affections of the crowds.

## IN THE HEADLINES



### CATSBURG AND GIROLAMI AT VOLVO

Lada refugee Nicky Catsburg has secured a deal with the Polestar Volvo team to keep himself in the World Touring Car Championship. The Dutchman (second right, above) believes he has a decent chance of fighting for the title in 2017. Polestar has also recruited Argentinian Nestor Girolami (second left) - who had a one-off with the team last year - while Thed Bjork (right) remains at the squad.

### UNITED RETURNING TO DAYTONA

European Le Mans Series LMP3 champion team United Autosports is to return to the Daytona 24 Hours for the first time in seven years next January. The squad will run the same Ligier JSP217 that it is fielding this year in the ELMS and Le Mans 24 Hours. Texan Will Owen has already been confirmed as one of the drivers.

### GUNTHER AND NEWHEY REMAIN IN F3

Mercedes DTM junior Maximilian Gunther will return to the Formula 3 European Championship for a third season. The German, runner-up in the F3 points last year with Prema Powerteam, remains with the Italian team. Briton Harrison Newey, meanwhile, will get his second F3 season this year, and will stay at Van Amersfoort Racing.

### MAINI SET FOR FULL GP3 CAMPAIGN

Indian Arjun Maini will get his first full season in the GP3 Series this year after rejoining Jenzer Motorsport. Maini contested seven rounds last year with the Swiss team after switching from European F3, taking one podium on his way to 10th in the points. The 19-year-old's younger brother Kush will also race for Jenzer, in Italian Formula 4.

### WALKINSHAW AND IDE FOR SUPER GT

British racer Sean Walkinshaw, who has driven Nissans in the Blancpain GT Series recently, is to contest the secondary GT300 class of Japan's Super GT Championship. Walkinshaw will line up in a BMW M6 GT3 run by Aguri Suzuki's ARTA team, alongside 1995 British Formula Vauxhall Lotus racer Shinichi Takagi. Much-lampooned ex-Super Aguri F1 driver Yuji Ide is also in the GT300 class, representing Bentley on its series entry.

### WILKS TO ATTACK WRX IN POLO

Rally ace-turned-rallycrosser Guy Wilks has put together a full-season programme in the World Rallycross ranks this year. The Briton will campaign the Volkswagen Polo taken to the runner-up spot last year by Johan Kristoffersson, run by his own team.





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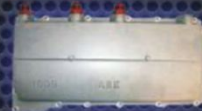
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## 2017 CALENDAR

April 8/9 <sup>th</sup>	Silverstone International
May 6/7 <sup>th</sup>	Cadwell Park
May 27 <sup>th</sup>	Oulton Park International
June 23/25 <sup>th</sup>	Spa
July 15/16 <sup>th</sup>	Castle Combe
Aug 26/27 <sup>th</sup>	Snetterton 300
Sep 9/10 <sup>th</sup>	Brands Hatch GP
Oct 21/22 <sup>nd</sup>	Brands Formula Ford Festival

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# Quicker looks slower

F1's new cars look aggressive in the pits, but they may just be too good at going around corners to appear as fast on track

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

**WHEN YOU GLANCE AT FORMULA 1'S NEW BREED OF** super-fast, big-tyred cars in repose, the visual impression is overwhelmingly positive. The tyres look like a throwback to the 1970s or '80s – big and fat, and more befitting of cars that are stylistically more aggressive. In short, they look *fast*.

We are told that these cars are meant to achieve lap times five seconds quicker than those managed in 2015 around Barcelona's Catalunya circuit. They're not just meant to look faster; the enhanced aerodynamics and new low-degradation Pirellis are meant to make them lap much faster too.

Heading trackside to watch the cars on the first morning of pre-season testing, I was expecting them to look significantly more rapid than they used to. But the overriding impression was slightly underwhelming.

All the cars look inherently more stable – under braking, and accelerating up the hill from the Turn 1-2 complex through the fearsome Turn 3 right-hander, which now looks easily full throttle for everyone.

There are some subtle variations in line for the lesser cars – Kevin Magnussen takes a more expansive approach in the Haas than that required of Valtteri Bottas in the Mercedes – but generally there's little to choose between the cars.

I guess the extra mechanical grip produced by the wider tyres is masking a lot of the variable handling traits we used to see. And the tyres don't seem to be degrading nearly as quickly as they used to, which is perhaps giving the drivers less inconsistency to think about.

It takes Marcus Ericsson an age before his Sauber suffers a wobble through Turn 2 as he tries to accelerate up the hill on full throttle, after a long run on mediums. The Williams and Force India pound around for lap after lap during the morning, almost with impunity.

The drivers may be under greater strain from g-forces inside the cockpits, and their sensation of speed will be markedly different (Bottas said as much), but they don't *look* as though they are having to work particularly hard. Visually, the cars are certainly not a 1970s oversteer throwback.

This is the deception of F1's new regulations – faster cars with more grip that are supposed to be more challenging to control actually look like they are on a Sunday drive. Cars that lack grip, for whatever reason, will generally look more spectacular, even though they are slower. The initial lap times were also slightly disappointing: on soft Pirellis, Lewis

Hamilton was 3.246 seconds quicker than Pastor Maldonado managed for Lotus on day one of Barcelona's pre-season test. Second fastest Sebastian Vettel was 3.061s faster than his day-one benchmark last season, on mediums.

So, the best like-for-like comparison we have is barely more than three seconds (so far) on a circuit where the cars are meant to be at least another two seconds quicker.

So what's going on? Perhaps the Pirelli tyres are not quite right at the moment. Pirelli admitted it was making an educated guess with the compounds it would bring to Barcelona, not knowing for sure the exact loads the new cars would produce. The wider tyres look to be providing more stability and lower degradation, but perhaps peak grip is still lacking, so the drivers are not yet able to lean on them.

"There is still a lot more to come from the cars, and it's cold," reckoned Red Bull's Daniel Ricciardo after day one. "The tyres are still not in their optimum temperature [range], but already you see the times – Lewis's was already quicker than the qualifying here last year, so it will be faster. I think

we will get a lot quicker from where we are now."

It's a fair point. Pre-season testing has barely started – the drivers are still focused on reliability and understanding the initial behaviour of the tyres; and the cars may be running

fat with fuel, with engines massively turned down.

When what Haas's Kevin Magnussen calls "problem testing" is over, and proper 'race-spec' aero packages are bolted on, engines are turned up, softer tyres fitted, and excess fuel dumped out, these cars may suddenly blow us away with what they can do.

Or perhaps they never really will – perhaps the extra grip and stability afforded by bigger tyres and enhanced aero will always make the cars look as though they are running on rails. The visual sensation of speed, too, is compromised by the lack of noise produced by the V6 hybrid-turbo engines.

Cars that sound fast tend to look fast, and these F1 cars certainly don't sound fast, as Lewis Hamilton keeps reminding us. And they don't yet look particularly fast on track either. It's still early days, but F1 2017 already has some work to do to find the necessary speed to match its new style.

"The cars have potential," added Ricciardo. "We still have a lot to learn from them. Will they be six to seven seconds quicker as some people are saying? I don't know. I think that is pretty optimistic." ❄

**“F1 2017 already has some work to do to find speed to match style”**



## PROFILE

**AGE** 20  
**FROM** Cheshire  
**OCCUPATION** Student

**FAVOURITE CIRCUIT** Spa, every lap is a pleasure to drive, the whole experience of racing there is an adventure every time

## RESULTS

- 2017** IMSA SportsCar Challenge  
Daytona, 11th
- 2016** Mini Challenge Cooper Class,  
**CHAMPION**
- 2015** Mini Challenge Cooper Class, 6th



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# Max Bladon

THE 2016 SEASON WAS A BREAKTHROUGH for rising tin-top talent Max Bladon.

His dominance in the Mini Challenge's Cooper Class division showed his coming of age as a racing driver. He's already made his mark on the international stage too, having started just his third season of circuit racing with a debut at Daytona after winning last year's Sunoco Challenge contest. That secured him a funded drive at the wheel of an Aston Martin Vantage GT4 in the four-hour IMSA Continental Tire SportsCar Challenge event that ran in support to the Daytona 24 Hours.

Bladon's success since moving to cars has been swift. He began his racing career in karting at the age of 11. He was inspired to start by his father, Nigel Bladon, who himself sporadically raced a Crossle in Formula Ford 1600 races at Oulton Park in the early 1980s.

Bladon took his first steps in MiniMax at his local track, Hooton Park, initially running his own kart with his father before progressing through the Rotax ranks, first with the Griffin Racing team and latterly with Sam Pollitt Racing.

Bladon achieved multiple successes in Mini, Junior and then Senior Max, where as a 16-year-

old he fought with much older drivers for honours. After finishing second in the Manchester and Buxton Kart Club Championship in 2014, Bladon and his father decided to make the move to cars in the Mini Coopers.

His first season was a learning year, but Bladon showed flashes of his potential, scoring six podium places on his way to sixth in the championship points. That laid the foundations for his dominant run in 2016 when, running with the Excelr8 Motorsport team, Bladon took a crushing 14 wins from 17 Mini Challenge outings.

That success gave him the initiative in the Sunoco Challenge contest, which scores drivers across 12 different UK club series for race wins, pole positions and fastest laps achieved over their respective seasons. Bladon beat competition from 166 other registered drivers to claim the prize of a dream debut at Daytona, beating British GT frontrunner Rick Parfitt Jr and Radical Challenge champion Steve Burgess in the final points.

Bladon has always mixed his racing with his education and is currently studying for a degree in mechanical engineering at the University of Central Lancashire.

## CONTACT DETAILS



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# FEEDBACK

## Isn't it time to stream F1 testing?



Shark fins are back – and Autosport readers aren't happy

With Liberty Media now at the helm of Formula 1, and their apparent eagerness to promote the sport on social media, why on earth haven't they come up with some sort of free streaming service for testing?

I'm not suggesting this should be continual, but rather highlights or reviews to excite fans for the forthcoming season. This season in particular, with its new regulations, is already creating a lot of anticipation.

One would have thought this would not conflict with their live-race contracts and would surely help promote the likes of Sky to attract more subscribers.

Again, MotoGP is leading the way with lots of clips and news relating to their first test.

**Roger Gollicker**  
**Ettington, Warks**

See [autosport.com](http://autosport.com) for live coverage of Formula 1 testing – ed

### And the award goes to...

It's Oscar time and I couldn't resist making an instant judgement on 2017's newcomers. Based on how they look pre-testing, the awards are as follows... most improved: Sauber; boldest rebranding: Renault; ugliest

update: Force India; best resolved: Mercedes; tired and dull: Ferrari; most exciting makeover: McLaren; best 'repeat' livery: Red Bull; most refreshing: Toro Rosso; best shark fin: Williams; least adventurous: Haas.

**David Windsor**  
**Goudhurst, Kent**

### A better use of ugly fins

I am not a fan of the shark fin – I don't like them in LMP and I hate them in F1. However, if the FIA will not ban them, why not align the fin with the design of the driver's helmet, making the cars identifiable in the absence of big numbers and giving them a character that the fans can relate to – as we used to do when drivers' helmets were visible.

**James Quatermass**  
**Leicester**

### No fin would make me happier

At first glance the latest crop of F1 cars look reasonably attractive – until you look at the rear. It is indeed sad to see the return of those dreaded fins, which look more like glorified anvils. They destroy the look of the car.

**Roberto Velez**  
**By email**

### Andretti: greatest all-rounder

I am with Edd Straw that Mario Andretti is the greatest all-rounder (February 9), I think by far. Mario put a Lotus on pole at his first ever grand prix, at Watkins Glen in 1968. Mario also said his scariest race and win was at Pikes Peak. Mario took second at Le Mans as well.

Stirling Moss is a clear number two. The fact that he never won the world championship and was clearly outdriven by Fangio in the same team means he is not in the same league as Andretti.

**John Iso**  
**Southampton, New York**

*We suggest a look at the 1955 sportscar season for more on the Fangio-Moss comparison, and Andretti didn't always dominate his team-mates anyway! – ed*

### F1 will still be boring

F1 will continue to be boring even with the new cars until designers are allowed a freer hand and they stop building 'Mickey Mouse' circuits without long straights. Too much regulation does not allow drivers to race, either.

**Peter Jillings**  
**By email**

### Weekend at the Bernies

Liberty Media/FIA to-do list, item one: after the championships are decided, convene for a multi-day meeting called the 'Bernies', with gold, silver and bronze statuettes of the great man as prizes in 15-lap sprint races, with all drivers rotating through each constructor's cars.

F1 would head into the winter break with a real party for the watching world.

**Gary Sinclair**  
**By email**

## HAVE YOUR SAY, GET IN TOUCH

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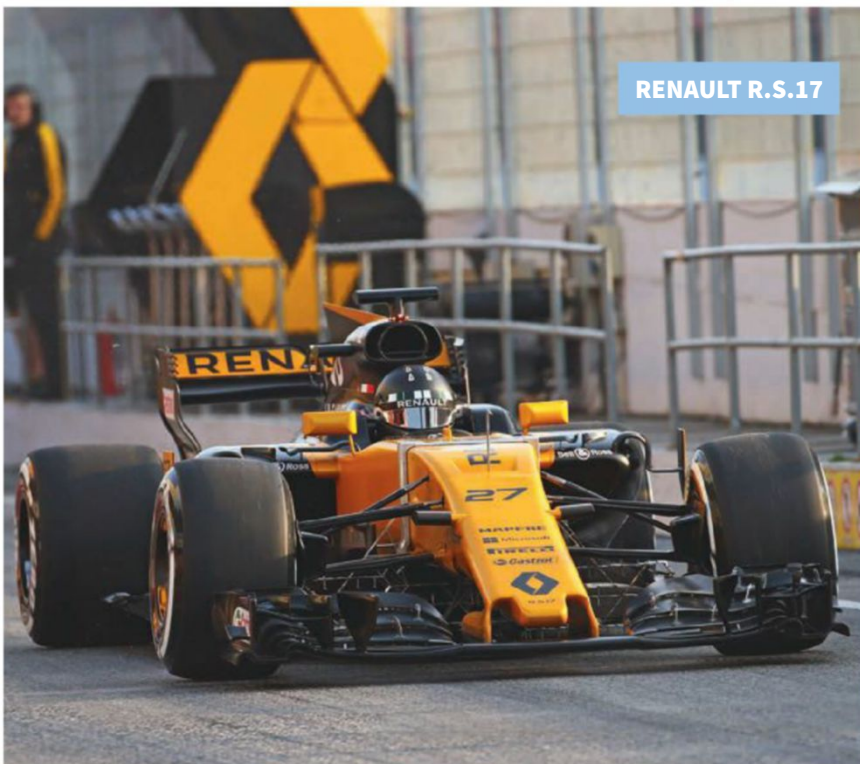
  
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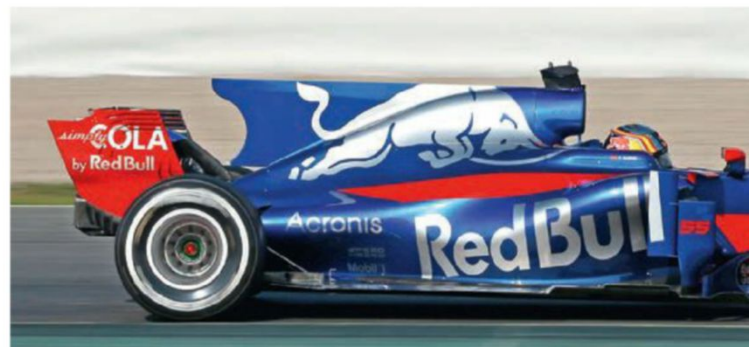


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# F1 2017 NEW



RENAULT R.S.17



HAAS VF-17







FERRARI SF70H



RED BULL RB13



FORCE INDIA VJM10



SAUBER C36

# CAR SPECIAL

The wraps are off and the fins are out. F1's class of 2017 hit the track this week



TORO ROSSO STR12

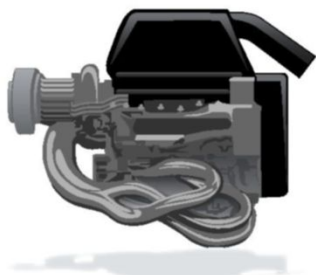


McLAREN MCL32



WILLIAMS FW40





# Formula 1's new rules

With all of 2017's cars now having run on track, it's a good time to review the changes – both technical and sporting – that have helped forge grand prix racing's new generation

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

# F

ormula 1 is too slow. The cars are not spectacular enough. They lap too close to GP2 to be considered worthy of the pinnacle of motorsport. The drivers find them too easy to drive. Everyone is lapping way under the limit to protect their tyres. This is not what Formula 1 is about.

Broadly speaking, this is the rationale behind Formula 1's latest major rules overhaul. The aim is to try to rediscover F1's animal appeal, what

could be dubbed its 'DNA', by creating cars with enhanced aerodynamics and better tyres that can smash through the sort of lap times achieved in the mid-2000s – a period that Fernando Alonso describes as F1's peak.

Only time will tell whether these regulation changes will achieve their aim, and the knock-on effects this will have on the nature of grand prix racing.

Beyond the headlines, there are many other, more subtle, alterations to F1's 2017 framework. Here is Autosport's guide to this year's changes.

## BEEFIER AERODYNAMICS

After many years of trying to innovate within an ever-decreasing envelope, F1's aerodynamicists now have more space in which to flex their creative muscles.

### FRONT WINGS

150mm wider

### REAR WINGS

200mm wider, 150mm lower, swept endplates

### DIFFUSER

50mm higher, 50mm wider, 175mm longer

### CAR WIDTH

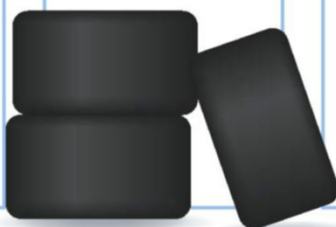
Increased by 200mm to a 2000mm limit

## WIDER TYRES

Pirelli's control tyres are 60mm wider at the front and 80mm wider at the rear. As well as making the cars look more aggressive, the new tyres are expected to provide more mechanical grip. After years of high-degradation compounds, designed to promote strategic variation and lots of pitstops, Pirelli has been asked to provide tyres that perform better for longer, encouraging the drivers to push without fear of destroying the rubber.

## EXTRA INTERMEDIATES

Drivers will no longer have to bank on a wet Friday to receive an extra set of intermediate tyres. Should the FIA expect a "high" chance of rain in final practice on Saturday, all drivers will be given an extra set of inters even if Friday practice is bone dry.



## WEIGHT LIMIT

This has been increased by 26kg for 2017, to allow for bigger cars and tyres. The cars must now weigh a minimum 728kg without fuel. Weight-distribution limits remain in force.

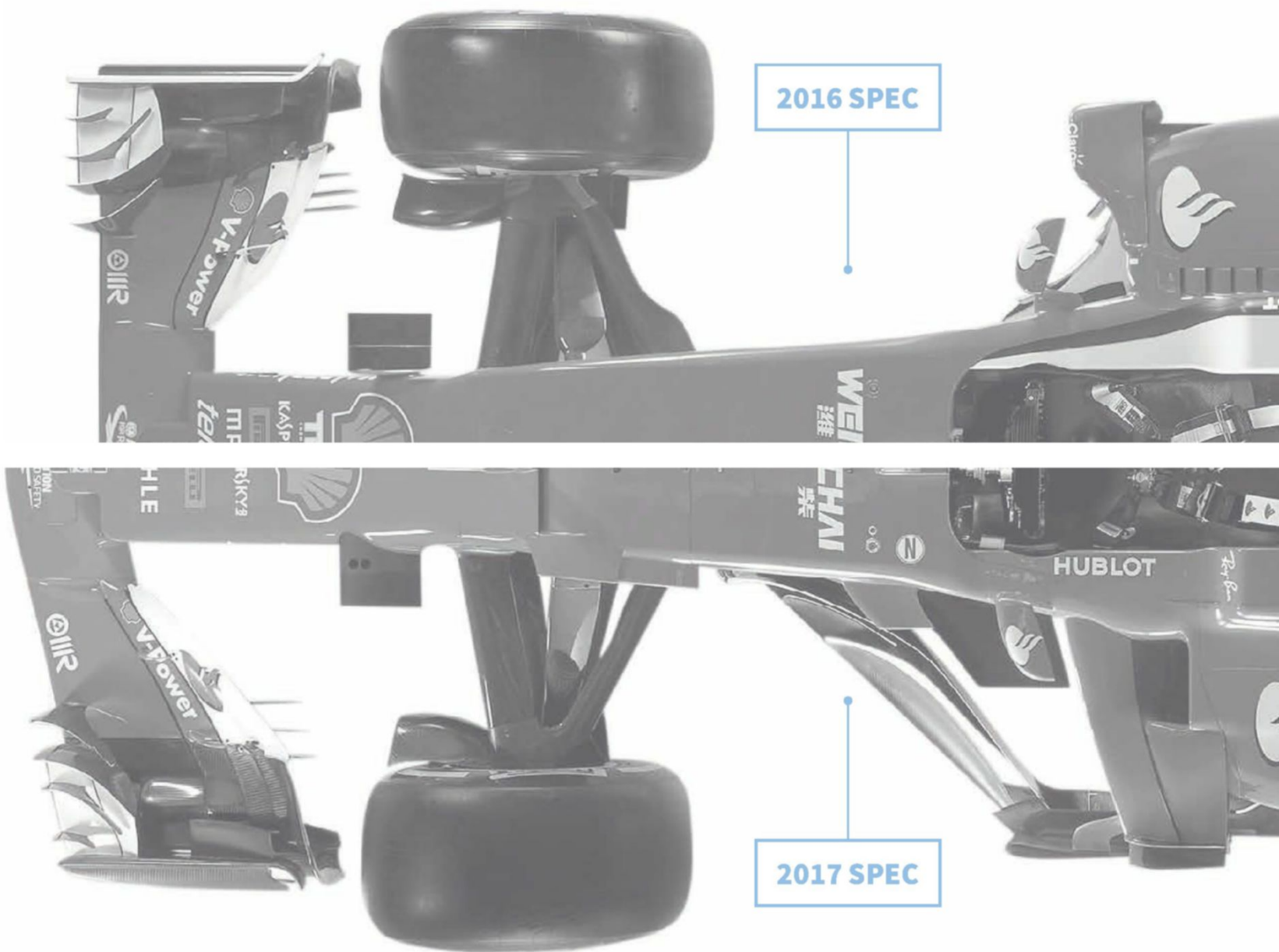
## TYRE-CHOICE FREEZE

The five dry compounds (ultra-soft, super-soft, soft, medium, hard) remain, but adjusted to cope with the increased g-forces. Pirelli conducted tests with 'mule cars', but can't be sure how its compounds will work on the actual '17 cars, so choices will be mandated and frozen for the first five races. After the Spanish GP, free tyre choice (within the three compounds picked by Pirelli) will return.

## NON-LISTED PARTS

The regulations concerning parts of a car that may be outsourced by a constructor have been tightened, as have rules regarding aerodynamic testing of those parts. This is to prevent teams gaining extra CFD and windtunnel time by using third parties to conduct testing on their behalf, swapping staff, or sharing information.



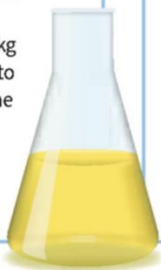


2016 SPEC

2017 SPEC

### FUEL

Only five different fuel formulations (a major area of development previously) per competitor are now allowed across the year, with only two permitted for use at any single race. The fuel limit has also been increased – from 100kg to 105kg – to allow for the extra drag created by this year's new cars.



### ENGINE-TOKEN SYSTEM ABOLISHED

The token system by which the FIA sought to limit engine development is now abolished, following pressure from the less-competitive manufacturers to gain more freedom in their efforts to catch Mercedes.

### NEW ENGINE-DEVELOPMENT LIMITS

The FIA has set new limits on the weight, dimensions and material make-up of certain engine components. Minimum weights for the internal-combustion-engine crank assembly, plus MGU-H and MGU-K ancillaries, now apply, as does a total weight for the energy-recovery systems, which cannot be reduced in volume in-season for packaging reasons. There is also a maximum compression ratio for each cylinder head.

### ENGINE USE

Drivers remain limited to using up to four power units without incurring grid penalties, but can no longer stockpile fresh engines by making several changes at one event, knowing the maximum penalty is a back-of-the-grid start. Only the last engine used in this scenario may be carried forward to the next race.

### ENGINE SUPPLY

The FIA is keen on parity of engine specifications, mandating that manufacturers must supply customers with the same spec that they use themselves. The cost of supply must also be €1 million cheaper than in 2016. But it's relented on outlawing older engines, after granting Manor (2015) and Toro Rosso ('16) dispensation to run them previously, provided it feels those engines are competitive. Sauber will use '16 Ferrari power units this season.

### STANDING WET RESTARTS

Wet races will no longer restart behind the safety car. The pack will still circulate to clear the track (these laps count towards the race distance), but will then restart from a standing position on the grid, rather than performing a single-file rolling restart. If a race is stopped, it will restart behind the safety car without a standing start.





# RED BULL RB13

The most eagerly anticipated car of Formula 1 2017 has emerged in a slightly underwhelming fashion

By Gary Anderson, Technical Expert

[@autosport](#)



1

## DIFFUSER

The diffuser is nowhere near as sophisticated as the one on the Mercedes. But, again, it's a bolt-on component and there will surely be developments in this area.

Overall, I feel sure that there must be an aggressive development package coming for test two or for the Australian Grand Prix, because I'm not seeing a Mercedes challenger in the Red Bull RB13 as yet.

## ENGINE

Renault claims to be pretty happy with the progress made on engine development. But we've yet to see the evidence of that.

If Red Bull is to take the fight to Mercedes then the chassis can't do all the work. It requires a major contribution from Renault.

## SIDEPODS

As you'd expect of a Red Bull, the sidepods are compact and drop off and tuck in very early. The Coke-bottle area is probably as big as on any car.

The sidepods have what might be called P-shaped radiator exits low down at the rear to direct the airflow onto the top surface of the diffuser. Then, by tripping over the leading edge of the diffuser, it makes both the diffuser and rear wing work more effectively.

The philosophy behind enlarging the Coke bottle is to minimise the impact of having the big rear tyres – you create space to direct the airflow inwards. The last thing you want to do is disperse the airflow outwards and create lots of drag, since this would in effect make the car wider.

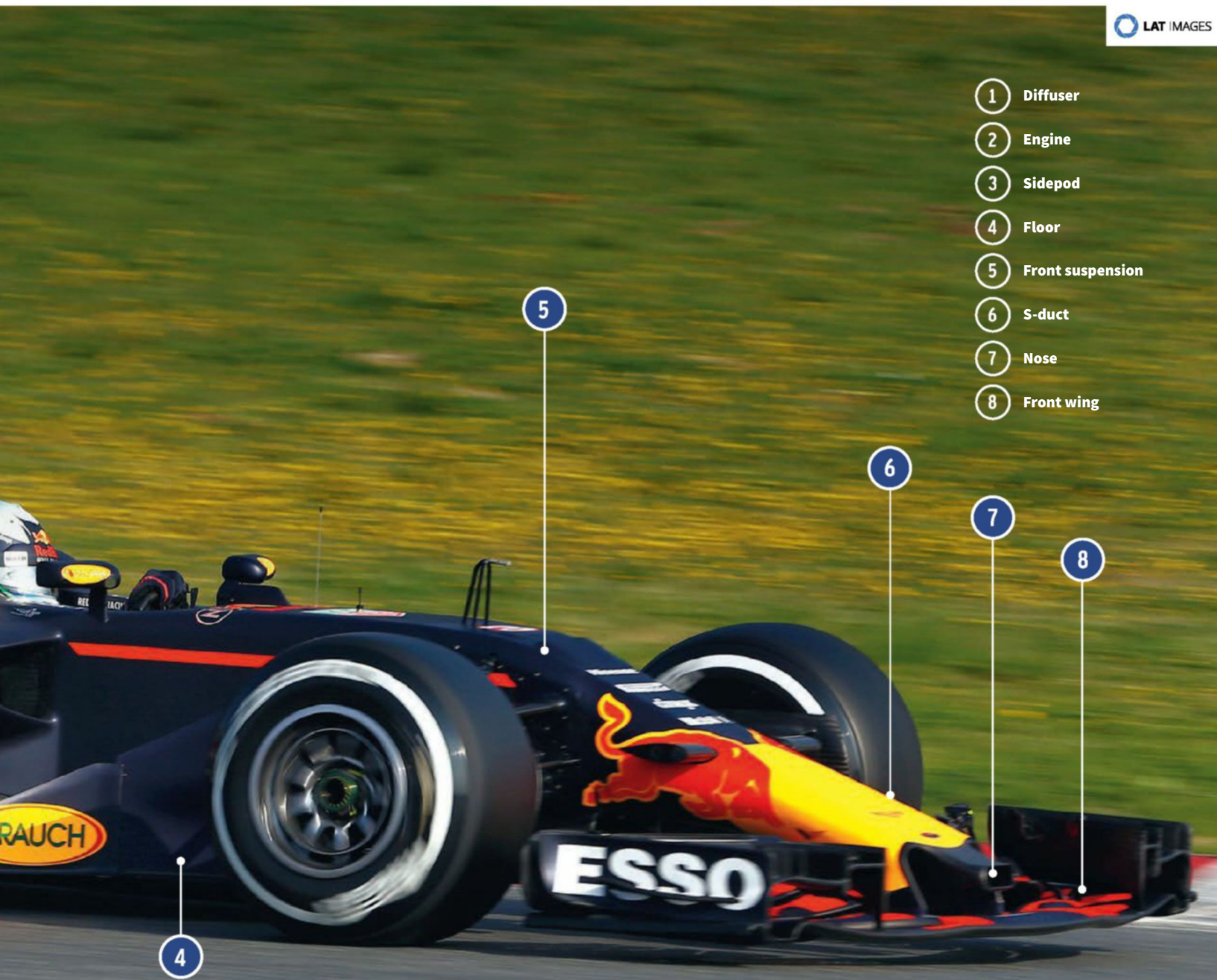
Every team has a Coke bottle, but Red Bull has always been very good at being compact with its packaging in this area. Sometimes, it has gone too far here and incurred cooling problems.

**T**he one thing you can be sure of with Red Bull is that it never properly shows its wares until late in pre-season testing. It always has confidence in the package, but the key is to get the car running reliably.

Red Bull has focused on reducing its manufacturing times over the years, so that allows it to print the design drawing at the last possible moment and make it ready to go on the car. That means it's the most up-to-date part possible that is used; some other teams can't do that.

Still, what the team ran in Spain lacked the wow factor present in some others' launch-spec cars.





- 1 Diffuser
- 2 Engine
- 3 Sidepod
- 4 Floor
- 5 Front suspension
- 6 S-duct
- 7 Nose
- 8 Front wing

**FLOOR**

The other area of the Red Bull that catches the eye, aside from the nose, is what the designers have done to the floor. There is a triangular cutout where the sidepods are at their widest point.

Most teams have a shaped section there, aiming to create an exit duct for the airflow that has passed over the leading edge of the floor. Red Bull has taken this further by cutting into the floor and sacrificing surface area to make a more-effective exit duct.

Effectively, these two cutouts act as mini diffusers. Then it allows the actual diffuser to work the central part and rear of the underfloor. This is a nice idea.

**FRONT SUSPENSION**

This is a very simple and standard design, with double wishbones and pushrod-operated inboard spring-and-damper units. Red Bull has always been aerodynamically driven, so it's no surprise to see it not making the aero compromises other teams are exploring to achieve better suspension geometry.

With the wider Pirelli tyres, perhaps it's time for Red Bull to change its emphasis. The larger contact patch means you must try to keep the tyre on the ground better by ensuring it's relatively stable across all the load variations.

**S-DUCT**

There is an S-duct on the top of the nose, but the rules state that this cannot connect to the nose duct because that has to be for driver cooling.

It's doing the conventional S-duct job, pulling air in from under the nose and sending it out to reduce the lift over the top of the intersection between nose and chassis.

There are also two limpet-style ducts on the lower corner of the nose-to-chassis interface. These ducts are likely to be for cooling some of the electronics or other components that require a bit of airflow.

**NOSE**

The nose of the Red Bull has drawn attention because of the big duct at the tip.

By the letter of the law this has to be for driver cooling. But there's an aero advantage: when the air hits the front of the nose, it won't have to find its way around. It can go straight through the duct. This makes for more consistent airflow here and downstream.

**FRONT WING**

The front wing is, as far as functionality goes, the same as in 2016 but with a delta shape.

What it does is more or less the same: produce as much downforce as possible with a trailing-edge wake that is sympathetic to what the rest of the car requires. There will surely be more-detailed developments coming here.









# NEWWEY

## F1's aero artist on its new aero era

The Red Bull design guru can see some interesting elements in the new rulebook

By Edd Straw, Editor-in-Chief

 @eddstrawF1

**A**erodynamic regulation changes? More downforce? Increased design freedom? The 2017 season is surely custom-made for Adrian Newey and Red Bull. Last time there was a major aerodynamic rule change, in 2009, Red Bull transformed itself from a PR-fuelled team of great potential and patchy results into a winning operation.

It's no surprise that conventional wisdom confidently predicts, provided the Renault engine doesn't let down the RB13, that it should be right up there with (if not ahead of) Mercedes' Wo8. But, of course, things are never that straightforward and it's simplistic to say that the regulations represent a cast-iron guarantee of anything.

The early stages of testing weren't easy for Red Bull: the RB13 ground to a halt with a crankshaft trigger-sensor problem early on, then suffered a battery failure when Daniel Ricciardo returned to the track in the afternoon of day one. It still managed 50 laps, setting a reasonable but unspectacular pace. As the Australian put it, "today is a little bit of a tease", with more to come. That applies not just to performance, but also to aerodynamic components on a car that is noticeably less elaborate in that area than the Mercedes or Ferrari. Expect the car to look a little different come the season-opening Australian Grand Prix later this month.

But don't expect miracles. While the regulations are different – wider cars, lower rear wings, more freedom in the bargeboard area – the cars aren't revolutionary.

"It's fair to say that the rule changes are actually much smaller than we had in 2009 aerodynamically," says Newey, speaking on the first afternoon of testing. "So the flow structures around the car are similar to previous generations, »

## NEWHEY'S RECORD WHEN THE RULES CHANGE

ADRIAN NEWHEY HAS SEEN PLENTY OF NEW regulation sets come and go during his time in Formula 1. And although he has often done very well out them, it's not right to say that he has enjoyed universal success during such regulatory transitions.

The last major rule change, in 2014, was primarily about engines, even though there were also significant alterations to the cars. Renault was undeniably the biggest single contributor to Red Bull being knocked off its perch after four years of dominance. During that period, the fact that the team managed to win five races is testament to the qualities of the chassis and the effectiveness of a team that had established itself as the best in the business from 2010-2013.

The 2009 'skinny' aerodynamic regulations were the moment Red Bull arrived as a winning team in F1. But for the double-diffuser loophole, which the Brawn team harnessed to such good effect in the opening races, Red Bull might have started its era of dominance earlier.

The rule change that is most often cited as proof of Newhey's brilliance was 1998, when McLaren won both the drivers' and the constructors' championship with the Mercedes-powered MP4-13 (below). This was when the cars went to so-called 'narrow track' – a rule only reversed for this year – with the introduction of grooved tyres. But it's worth noting that the rule change was only one part of McLaren's rise, since it had re-emerged as a winning force under Newhey the year before.

A few years earlier, in 1994, Newhey came off badly at Williams during a regulation change, when the banning of active suspension, among other driver aids, forced a period of readjustment. A problem with aerodynamic stalling was solved with a major upgrade at that year's French Grand Prix and Williams was strong enough still to win the constructors' championship. But overall, the switch to passive ride wasn't a smooth one.

Even so, Newhey has shaped the thinking of F1's aerodynamic development more than any other individual over the past three decades. Going all the way back to the March 881 of 1988, which set him on the path to the all-conquering Williams FW14B, he has been the prime mover in this area.



but obviously different to them. Particularly the 250 vortex, as we call the part of the front wing that is the junction between the FIA [mandated central section] and the [outboard] elements. How that interacts with the car is quite a challenge.”

But it's still right up Newhey's street. And not just Newhey, because Red Bull is a team very much built in his image and well-suited to the challenge of a regulation set that does place increased emphasis on aerodynamics. The perceived lack of importance of aero over the past three years after the arrival of the 1.6-litre V6-turbo engines was always exaggerated, but the dial has moved a little this year. And after several years of being publicly less engaged in the F1 project than he was previously, this has enthused Newhey. After all, in the near-four decades since he started working in F1 as aerodynamicist at the Fittipaldi team, Newhey has only previously witnessed regulations encroaching on his creative impulses.

“It makes it a more interesting approach, having a little bit more freedom,” he says. “It's the first time we have a relaxation in the bodywork regulations. The most obvious thing is a wider car with wider bodywork. I think, more interestingly, the relaxation of the exclusion boxes around the bargeboard area is an area that gives you lots of opportunities. You can see it from the cars that have been released that probably the main development area has been in that precise location.”

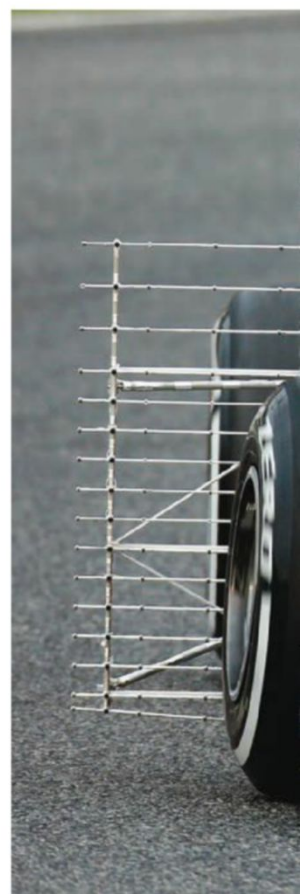
And that is a big red flag for the rest, for Red Bull's bargeboard area lacks, in the words of Gary Anderson in his technical analysis on page 20, the 'wow factor'. And the suspicion is that something rather clever to occupy that space is being worked on at Red Bull right now, ready for deployment. Not that it's necessarily the case that the right aero concept must be overly elaborate and complex.

“There are a few different interpretations in the new regulations, which is what one might hope for,” says Newhey. “In particular, the Mercedes looks a reasonably complicated car. It has got lots of components on it that will be all about trying to manipulate the vortices to position the flow structures around the car.”

“The Ferrari has a very complicated looking sidepod, which I haven't quite managed to work out yet from the pictures I've seen. Mercedes and Toro Rosso have gone for a high top wishbone, which kind of looks like a Lotus 49 with its inboard high kingpin. It is, I imagine, aimed to get the bottom wishbone higher and also to get the top wishbone higher to kind of quarantine the brake-duct areas. Those are probably the main areas I would say that are a little bit different.”

“Obviously, when you have a new set of regulations like this, you do get different solutions. What works on other people's cars wouldn't necessarily work on ours. It's probably fair to say that we will, over the coming weeks, have a good look at other people's cars and decide which bits we think are interesting and we want to investigate for ourselves.”

None of this is to say that the Red Bull design is rudimentary. The inlet duct on the nose is eye-catching, although the



Early testing of the RB13 focused on shaking it down and evaluating aero correlation



Two technical problems curtailed running on the opening day of the Barcelona test





pronounced cutaways in the floor at the point where the sidepods are at their widest is perhaps more interesting. That's an example of the kind of detail work to be expected of a car produced by a Newey-led technical team. Most likely, by the time the car gets to Melbourne it will, at worst, not be giving much away to what are currently the more-elaborate aerodynamic concepts of others.

But the key question is the Renault engine. The French manufacturer is optimistic about the steps made from last year to this, with MD Cyril Abiteboul claiming at the launch of the car last week that a 0.3-second lap-time gain has been made since last season. He said a similar progression, if not even more, is expected during the season. Renault has certainly closed up on Mercedes as the engine regulations have matured, but most expect there still to be a deficit. And with the sheer complexity of the power-unit packages, that doesn't just translate to a pure power deficit.

Much as the balance of power has shifted slightly back in the direction of aerodynamics, Newey still believes the balance is incorrect: "There is still a difference in the power-unit output, but it's less than it has been recently since the hybrid era began. And there's more regulation freedom.

"But, for instance, here at Red Bull we were able to do small things like using exhausts to make up for, or to work with, our power-unit manufacturer on things other than just to get more power out of the engine. That's all been taken away by the rule changes to the point that the power unit's importance is out of proportion to the chassis importance."

While things may have changed just enough for Red Bull to get back in the fight for world championships, the question of whether the rules have changed enough to re-enthuse Newey for the long term is unclear, since he has been a prime critic of the rules in recent years. But it's fair to say that these regulations are a long way from the ones the man himself would advocate.

"The question is the styling of the cars," says Newey. "It's a very subjective thing. If I'm brutally honest, I think they are

## **"I think they are trying to introduce the illusion of speed. It's just a bit *Wacky Races*"**

trying to introduce the illusion of speed by having the swept front wing, swept sidepod fronts, swept rear-wing endplates... it's just a bit *Wacky Races*. But no doubt that's a bit purist.

"Whether the races will be better is wholly dependent on whether we're lucky enough to have two teams that have very similar performance through the championship. In my view, memorable years are not simply when you have two drivers from within a team battling for the championship, as we obviously had last year, but when you have two drivers in two different teams battling. Whether we get that or not is, in some ways, down to luck. It's impossible to know at the moment."

In a nutshell, Newey has encapsulated what all F1 fans want from Red Bull this season — to be just good enough to fight Mercedes, but not so good that it recaptures the dominance of seasons such as 2011 and '13, when, spearheaded by Sebastian Vettel, the title was a walkover for the team. It's often said that F1 needs Ferrari to do well, and there is some truth in that, given the prestige of the manufacturer. Based on the early indications from testing, Ferrari looks in better shape than might have been expected. But to a lesser extent, F1 also needs Red Bull to do well to make a clear fight of it at the front.

As the standard testing cliché has it, it's too early to tell. But the conventional wisdom that aero changes are good news for a Newey team is valid. So come the Australian Grand Prix, expect Red Bull to be strongly thereabouts, even if it's not there. ❧

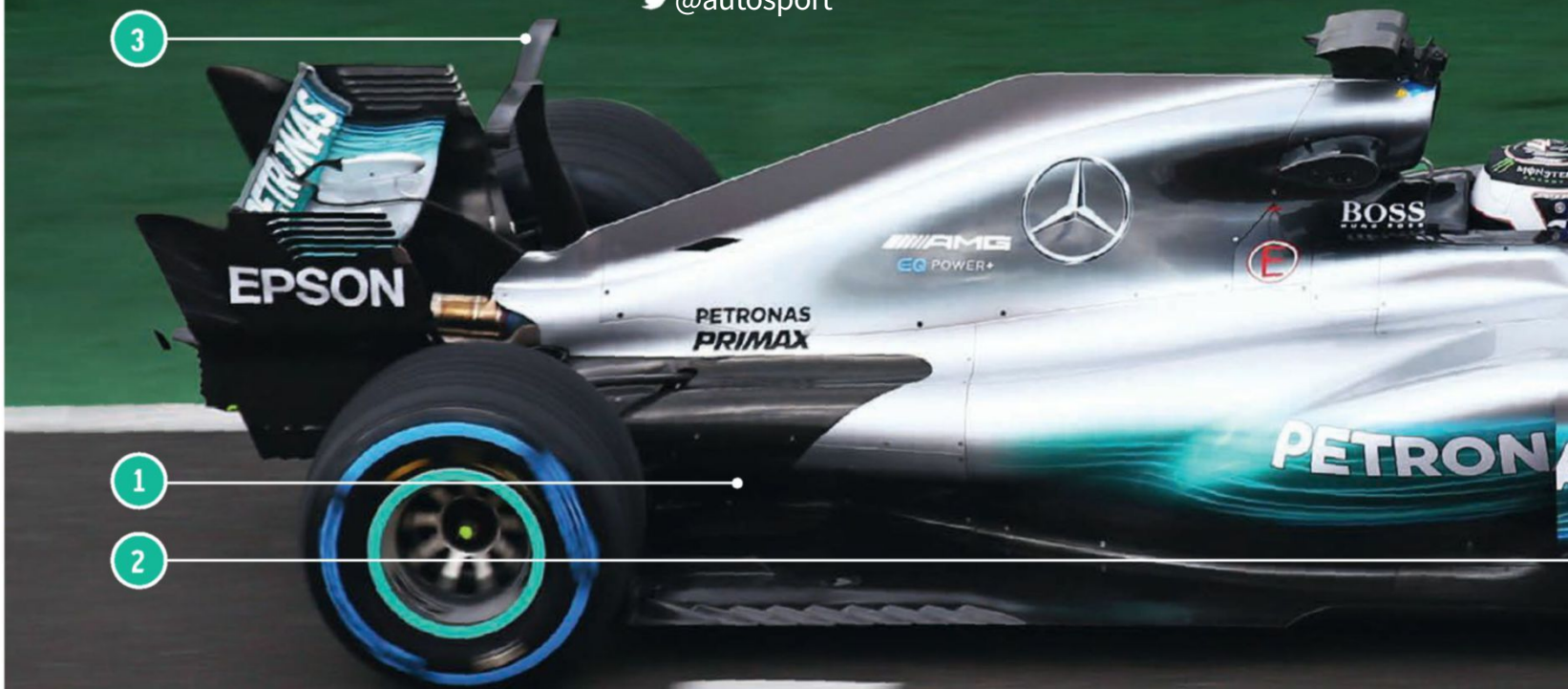


# MERCEDES F1 W08

The all-conquering Brackley mega-squad shows no sign of relinquishing its advantage, despite the new technical regulations

By Gary Anderson, Technical Expert

[@autosport](#)



**T**he temptation is to conclude that Mercedes is going to walk it again, but we really need to see how Red Bull, Ferrari and the rest stack up in testing. Even so, this car looks like it has been born with the very successful DNA of the 2016 championship-winning racer. There's no trick stuff; just good, solid engineering with everything done for a reason.

Yes, there are some key differences, but the design approach is all about optimising the changes that can be made under the new regulations.

## SIDEPOD REAR, ENGINE COVER

The sidepods are mainly there to contain the radiator cooling package, after which they sweep in and down as early as possible to the Coke-bottle area.

Again, getting the maximum airflow possible here helps the performance of the diffuser and rear wing.

The detailed work on the louvres at the extremity of the floor in front of the rear tyre acts like a skirt, reducing airflow spilling under the car. This allows the diffuser to work much more effectively, producing more downforce from the underfloor.

As far as the engine cover is concerned, doesn't it look good without that huge billboard that we have seen on most of the other cars released?

Of course, that may come later, but hopefully the governing body will realise that the aesthetics are an important part of what spectators and viewers want to see.

## SIDEPOD LEADING EDGE

This is where the W08 gets very interesting. The 2017 regulations allow for more detail in this area and Mercedes has gone to town here.

In 2016, Mercedes led the field in this area with its small, multi-element bargeboard. So, history has shown those at Brackley have a very good handle on what the airflow needs to do here.

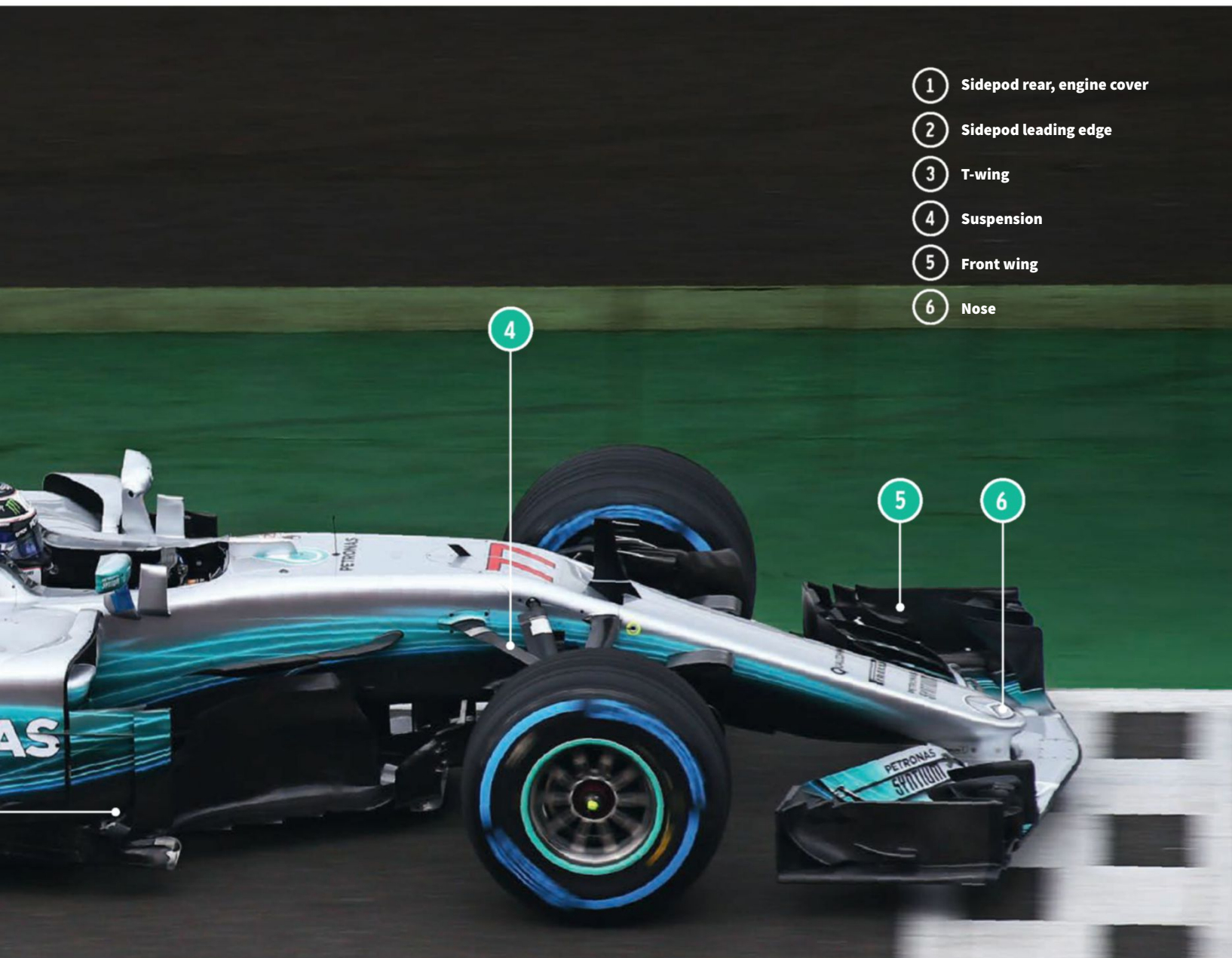
The Mercedes has a vertical bargeboard with some extra horizontal vanes low to the ground. On top of that, it has a three-divisional, horizontally-mounted turning vane. On the outer corner of the sidepod's leading edge, there is a three-element vertical turning vane.

All these work in conjunction with each other. They help to scavenge the airflow out from underneath the front of the chassis and introduce it to the leading edge of the underfloor. This arrangement also controls the turbulent airflow coming off the trailing edge of the now-wider Pirelli front tyre, allowing the sidepod undercut to work efficiently.

Get these all working correctly – and, as I say, in conjunction with each other – and you improve the downforce produced by the front wing and underfloor.

Not only that, but the design helps the rear of the car to work efficiently as the airflow arriving through the Coke-bottle area will be a lot less turbulent.





- 1 Sidepod rear, engine cover
- 2 Sidepod leading edge
- 3 T-wing
- 4 Suspension
- 5 Front wing
- 6 Nose

### T-WING

Instead of an engine-cover fin, Mercedes has mounted a T-wing at the rear of the engine cover, using the wider section in this area for the single strut.

This wing won't really create any downforce in its own right, but it will help redirect the airflow down onto the rear wing, effectively giving the rear wing a greater angle of attack.

The rear wing is also wider and lower, with the twisted endplates leaning backwards as they go upwards.

### SUSPENSION

The front suspension is a conventional twin wishbone with a pushrod-operated inboard torsion bar and damper unit.

It is how this system all works in conjunction with the aerodynamic platform control that matters. It will be interesting to see who gets on top of it and who complies with however the FIA wants to interpret its own regulations.

Mercedes was on top of it last year, but a slight change in what's allowed could have dramatic consequences.

The rear suspension is quite difficult to see in detail, but it looks like it has been optimised to suit the new-for-2017 improved diffuser design.

Getting the airflow through the Coke-bottle area and rear suspension with as much energy left in it as possible will help the diffuser performance. This is vitally important to the complete car's overall downforce-production potential.

Overall, it looks like Mercedes has focused on how to use the new regulations to improve performance while building on last year's design – and has done a very good job.

The team knew that what it had in the other areas was already pretty good, so there was no need to waste time and effort reinventing the wheel.

### FRONT WING

The front wing is the customary, very detailed multi-element component and the trailing edge of the endplates turn and ramp the airflow around the now-wider front tyre.

The intersection between the nose and chassis is nicely blended. You can just see an exit for some kind of S-duct in this area on the top surface. This duct has an opening on the underside of the nose and an exit on the top surface.

Extracting air from under the nose improves the performance of the front wing and reduces the lift that would be created by the airflow accelerating over the upper surface of the nose-to-chassis intersection.

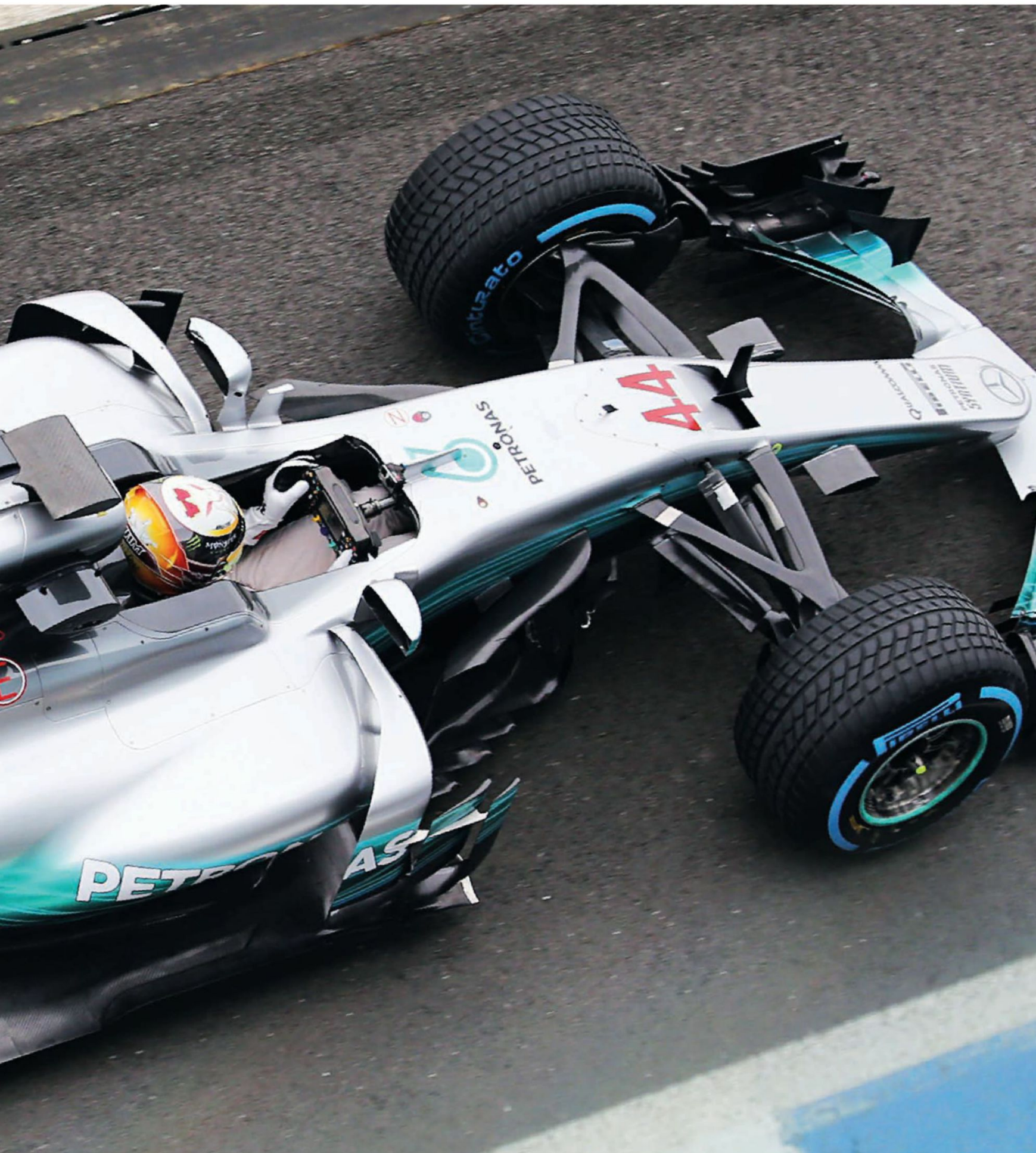
### NOSE

There is nothing 'trick' about the nose design. It has the minimum cross-section area practical to comply with the crash-testing requirements and is a simple surface.

Putting trick features on the nose may result in separation of the airflow from the body surfaces, which will, in turn, cause problems further along.

The front-wing mountings are as small as possible, so that the wing can do its job without adding extra surfaces of long and large turning-vane wing mounts. These bolt-on components may be added later in the development programme.







# How Mercedes plans to conquer F1 all over again

Changes to F1's regulations offer Mercedes' rivals a great opportunity, but the dominant title-winning team isn't resting on its laurels

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

**“I**t's important that after winning three championships you're not losing the plot. Winning races shouldn't be taken for granted. We're not taking it for granted. It could well be someone else has a quick car. We just need to do a better job and rely on our strengths.” Mercedes team boss Toto Wolff sounded this quiet note of caution as Formula 1's dominant force unveiled the car it hopes

will resolutely maintain the status quo in 2017.

Mercedes has developed a habit of sounding overcautious heading into a fresh F1 campaign, despite a growing and overwhelming body of evidence to suggest it could afford to be bullish. Such proclamations risk sounding arrogant, so public caution is understandable. But no sooner had the Wo8 broken cover, with Lewis Hamilton turning blustery laps of Silverstone's Grand Prix circuit ahead of its official launch, before F1 experts – Autosport Technical Expert Gary Anderson included – were marvelling at the wonders of its aerodynamic detailing.

Throw in the fact that Mercedes will mate this marvellous chassis to a class-leading V6 hybrid engine that is expected to be another “unprecedented” step forward, according to its leading customer Force India, and the rest of the grid should be well and truly quaking in their boots.

Mercedes' utter domination of the world championship since 2014 has raised the game in F1, inspiring awe and vitriol in

roughly equal measure. Mercedes has won 86% of the grands prix held since 2014, scored 84% of the maximum championship points on offer, and enjoyed an average pace advantage of 0.809% over its rivals during that time. Other teams have been more successful in terms of titles won, or longer sustained periods on top, but no team has enjoyed such a vast performance advantage over its competitors in F1's modern era. It's the emphatic and unprecedented nature of Mercedes' dominance that causes rivals and fans so much unease.

During its quadruple run of double title successes between 2010 and '13, Red Bull won 'only' 53% of the races held, scored 67% of the maximum points available, and was only 0.218% faster than its rivals during that run, which lends credence to Christian Horner's contention that his oft-criticised team never dominated F1 to the extent that Mercedes has.

Michael Schumacher-era Ferrari – the most successful team in F1 post-millennium in terms of championship success – won 67% of the races held during its quintuple run of title doubles between 2000 and '04, scored 69% of the points on offer, and was 0.208% quicker than its rivals during that time.

But Mercedes still hasn't yet matched either of those squads in consecutive championship successes. It could equal Red Bull by winning this year, but needs a further two to overcome Schumacher-era Ferrari. The Mercedes mission is still far from over, even if the rest of F1 is crying out for it to be.

Standing in the way is what some F1 insiders are calling its biggest set of rule changes in decades. Major regulatory overhauls usually herald a shake-up to F1's competitive order, and there is a correlation between such moves and the end of a particular team's time on top of the pile. The arrival of V6-hybrid turbos in 2014 ended Red Bull-Renault's dominant run; McLaren and Ferrari were caught out by major rule changes in '09; and Williams has arguably never recovered after being dethroned by Renault's withdrawal and Adrian Newey's departure ahead of the arrival of grooved slicks and narrow-track cars in 1998. Can Mercedes avoid falling into the same trap?

“If there is something like momentum, that is something that is disturbed by a change of regulation,” says Wolff. “It provides opportunity but it also provides risk. Maybe somebody has found a silver bullet that proves to be the factor that changes everything, like 2009 with Ross Brawn. We'll see. Hopefully we have found the silver bullet.”

Many would argue that Mercedes doesn't need to find the silver bullet, because it already has. Its engine has been >>



Wolff is not taking 2017 title for granted



## “Mercedes’ rivals will hope they can overhaul it in development”

comfortably F1’s best over the past three seasons, and there’s no reason to expect that to change in 2017. The FIA’s token system is gone, but Mercedes never felt that hindered development anyway. Honda is expected to introduce an all-new engine architecture this season, in its bid to get McLaren back to the front, while Renault has completely redesigned its engine and ERS for ’17, which it anticipates will give Red Bull a 0.3s improvement initially, and a further three tenths when it’s upgraded. Ferrari is said to be working on a new ignition system and evaluating an innovative piston design, as the team seeks to bounce back from a disappointing ’16 campaign.

But Mercedes hasn’t sat still either, redesigning its internal combustion engine, MGU-K and MGU-H. Having the best power unit will be as crucial as ever this season to push through the extra drag created by the enhanced aerodynamics on the cars.

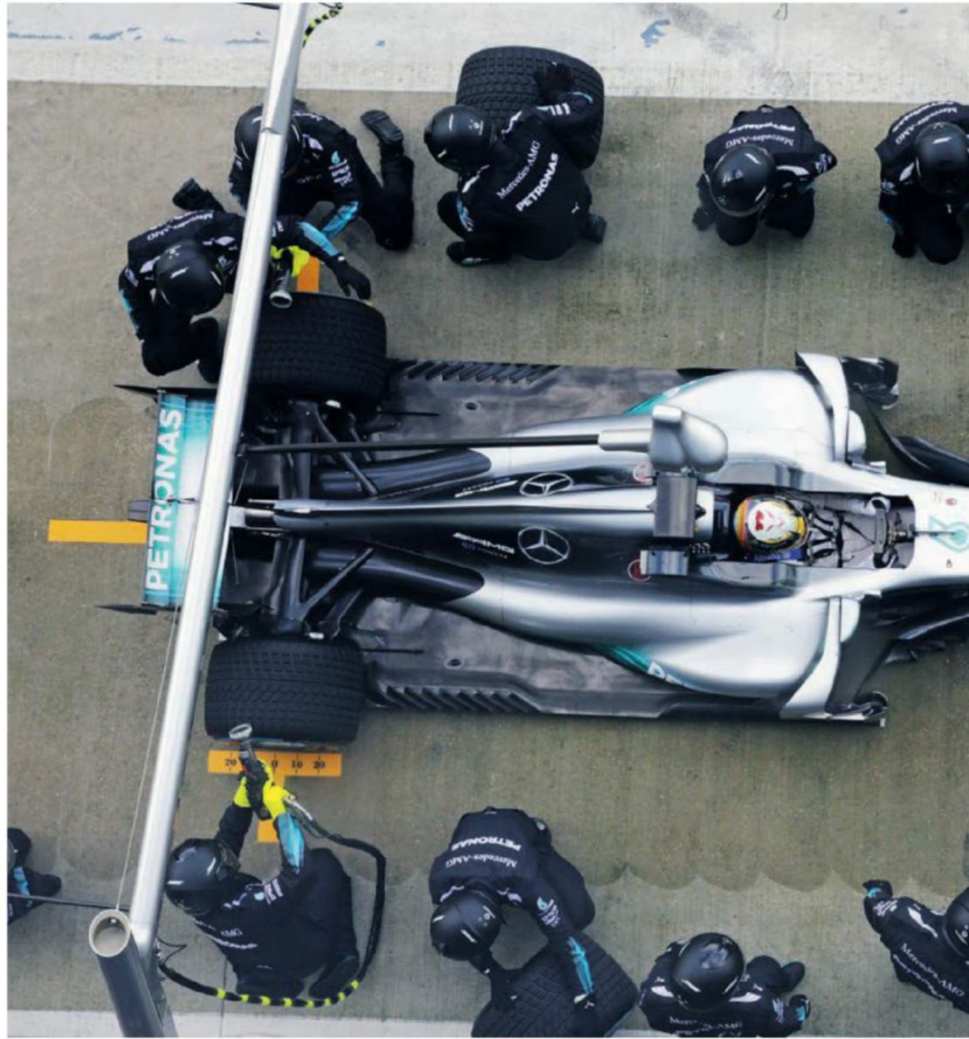
“The base architecture of our ERS system is similar to what we started with in 2014,” says engine chief Andy Cowell, who confirmed Mercedes has also made six changes to the design of the big-end-bearing assembly that scuppered Lewis Hamilton’s ’16 title challenge by failing in Malaysia. “Is it the same for this year? No it is not. There is improvement in the high-power switches – they are more efficient. There are several improvements in reliability within the box, which means we can run it harder for longer. We are not as vulnerable to having to derate the system for cooling reasons, because of heating effects within the module. The MGU-H is completely new, as a consequence of the drive-cycle change, and the MGU-K is new as well. We’ve made improvements in the thermal efficiency, improvements in every single area of the power unit. It’s a big evolution.”

Yikes!

Mercedes’ established pace advantage will be very difficult for rivals to overcome unless it has made major mistakes in conceiving the Wo8, on which work began last March, according to engineering chief Aldo Costa.

Pirelli’s all-new, low-degradation tyres are the big unknown heading into 2017, but Mercedes reacted well to its wobble with the control rubber at the ’15 Singapore Grand Prix, and is now considered among the best teams on the grid in terms of understanding the black arts of tyre science – certainly a long way from the squad that chewed the Pirelli tyres to death in ’13.

The hope among Mercedes’ biggest rivals – Red Bull, Ferrari, McLaren – will be that they can overhaul Mercedes by outmuscling it in the fierce development race that is expected under 2017’s new aerodynamic regulations. Mercedes hasn’t been found wanting in the development stakes until now, but the potential to add downforce to the cars has greatly and suddenly increased this year, while restrictions concerning



the time a team can spend in a windtunnel or on computers developing their cars remain in force.

Perhaps there is some hope for the rest in what has been a turbulent winter for the champions. Mercedes has broken up its championship-winning management structure heading into 2017. Toto Wolff and Niki Lauda have signed new contracts until ’20, which maintains a deal of stability, but the team will now do without key technical leader Paddy Lowe, who is expected to join Williams imminently, while Mercedes must also cope with the loss of retired world champion Nico Rosberg, who’d raced with Mercedes since its return to F1 in ’10.

“Disruption can be a very positive factor in a company’s development,” counters Wolff. “When Nico decided to call it a day, the initial information came as a surprise, but we quickly realised it provided opportunity. Having Valtteri [Bottas] in the car is an exciting opportunity for us.

“In terms of Paddy, it’s a bit the same. You can either follow the philosophy of never changing a winning team, or try to emphasise what is important for the future. He’s a great guy, he was an important part of Mercedes, and we have decided all together, including Paddy, that maybe there is another opportunity that is exciting for him, and at the same time for us provides opportunity.”

That “opportunity” refers to ex-Ferrari technical director James Allison, who joined Mercedes on March 1 following his ignominious exit from Maranello last summer. “James is one of the exciting engineers in F1, somebody who we rate a lot,” enthuses Wolff. “We rated him a lot as a competitor at Ferrari, and at Renault [sic]. When we discussed it within the team, there was not one single voice sceptical about him joining the great group of people around Aldo, Geoff [Willis], Andy. It’s

Will Mercedes’ slick race-winning machine be affected by changes including departure of Paddy Lowe (below left with Rosberg)?







an exciting opportunity to add a new pillar into the team. Sometimes you need to recalibrate in order to stay successful.”

Ferrari appears to be trying to hobble Mercedes with its own efforts to ‘recalibrate’ the regulations concerning hydraulic elements in F1 suspension, something that could also hurt Red Bull. Mercedes has played down the potential impact of this, despite suggestions that there could be protests at the opening race in Melbourne depending on what the FIA decides to do.

Red Bull looks to be Mercedes’ nearest challenger coming into 2017, referring to Renault’s “big winter”, and last year’s RB12 was already a real threat on the slower-speed circuits, suggesting that Mercedes is not infallible. But Red Bull also spent a lot of time and energy developing its ’16 car in a successful effort to beat Ferrari, which may leave it vulnerable heading into ’17. Mercedes turned the development taps off much earlier on the W07, allowing it extra space to focus on its new machine.

It looks as though that has already started to pay off handsomely. Hamilton called this Mercedes “undoubtedly the most detailed car we’ve built as a team”, which should arguably be the biggest warning of all to Mercedes’ rivals. The devil always lies in the detail in F1, and Mercedes seems to have maintained full focus on those details, despite the potential disruption of major rule changes and internal staff shuffling.

Mercedes retains one of F1’s most successful drivers in triple world champion Hamilton, it possesses one of F1’s biggest budgets, awesome infrastructure, top-quality personnel, and that all-important winning mentality.

It can draw supreme inner confidence from the fact that it has gradually grown into an F1 juggernaut that is well and truly built to win. If any team can survive a major rule change on top of F1’s competitive pile, it is surely this one. ❄

## HAMILTON LEAVES THE PAST BEHIND

LEWIS HAMILTON ENDURED A difficult 2016 season at Mercedes. OK, winning 10 grands prix, scoring 17 podiums and claiming 12 pole positions doesn’t sound much like a difficult season, but Hamilton lost his world title to Nico Rosberg, while relations with the team became strained amid changes made to his crew of mechanics, further on-track clashes with Rosberg, unreliability on his Mercedes engines, and radio interference during the title-battle finale in Abu Dhabi.

But Hamilton looked at ease after resisting the forces of storm Doris to turn his first laps in the new W08 at Silverstone last week. He has good reason to be cheerful – his arch nemesis Rosberg has retired, Mercedes has made specific revisions to its engine to prevent a repeat of 2016’s reliability woes, the team is planning to introduce new rules of engagement for any on-track battles with new team-mate Valtteri Bottas, and F1’s new high-speed cars and low-degradation tyres should placate

some of the criticism Hamilton has levelled at F1 in recent years.

“Right now my feelings from last year are not lingering,” Hamilton says. “I start with a new slate and move on. All those experiences have helped me strengthen. I feel this year I am stronger, I feel more complete as a driver, and whatever it is I’m going to face this year I feel like I’m the best prepared I have ever been. Of course, I didn’t win the world championship last year. I want to change that.”

Hamilton met Mercedes team boss Toto Wolff for clear-the-air talks at Wolff’s Oxford home in December, and Wolff reckons the team is in a “good place” with its triple-world-champion driver heading into the new campaign. “Lewis has been with the team for four years, and the longer you work with each other, the better you get to know each other,” Wolff says. “The way I have seen him in the last few weeks, he’s in a great mood, in great spirits. He has closed the chapter of last year, it seems to me, and his work with the team has been exceptional.”

Hamilton feels ready for 2017



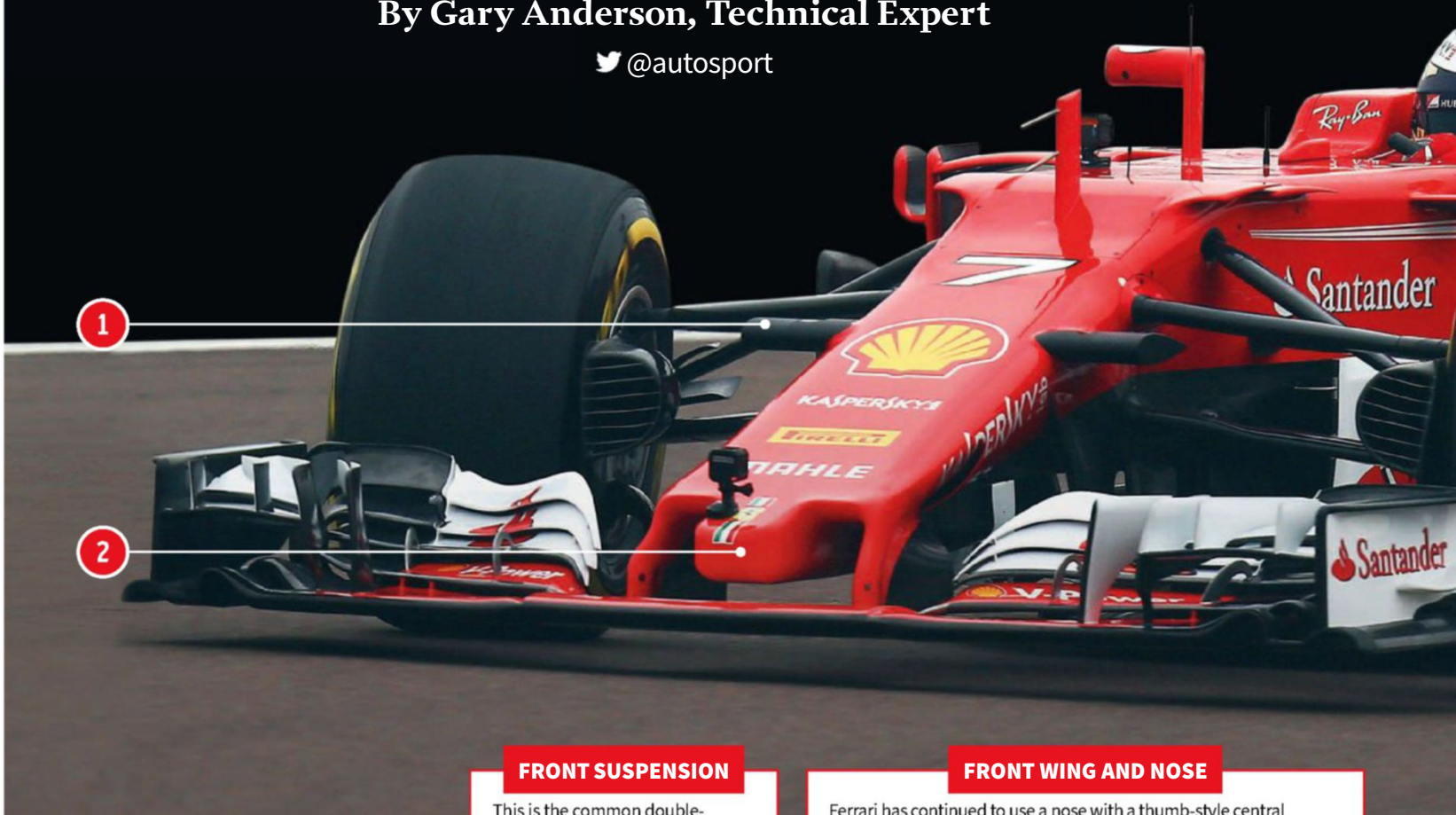


# FERRARI SF70H

The machinations at Maranello have been more notable than the machinery of late. It's going out on a limb for 2017, but does this mean it's stolen a march?

By Gary Anderson, Technical Expert

🐦 @autosport



## FRONT SUSPENSION

This is the common double-wishbone and steering-trackrod concept. The inboard torsion bar, damper unit, third spring and any trick suspension components are all driven by a pushrod.

Ferrari was the team that drew the FIA's attention to what it believed to be suspension elements that were controlling the aerodynamic platform of some other teams' cars, so it wanted a clarification on what was acceptable within the regulations.

It is still waiting for a proper answer, but obviously all teams believe their own designs are squeaky clean. If they're not, there's not much time to fix things before the first race.

## FRONT WING AND NOSE

Ferrari has continued to use a nose with a thumb-style central section, more or less as in 2016. The trailing edges of the front-wing mounts develop into a turning vane to help direct the airflow more to the centre of the car and then turn it outwards slightly.

This is to maximise airflow between the front wheels, although, interestingly, Mercedes doesn't bother with this style of turning vane.

The front wing is the common multi-element device, with the outboard ends designed to deflect the airflow around the front tyre.

As far as I can see, the main plane, which is the forward element of the front wing, has quite a large chord section. This is OK for out-and-out downforce, but the airflow on the wing inevitably stalls when it gets low to the ground, or mid-corner when the car rolls.

And with such a large section, the instant loss of downforce can be huge. Then, when that reattaches, the sudden increase in front downforce can play havoc with the car balance. This usually means the driver is forced to use a balance that is inherently understeery to cope with the inconsistency that this style of wing will produce.

On the top corner of the nose-to-chassis interface there are a couple of small horizontal fins. These will help with realigning the airflow as it tries to spill over the corner of this intersection.

**F**or Ferrari, 2017 is a very important year and there are some interesting designs on the new car, even in launch spec, which reflect that.

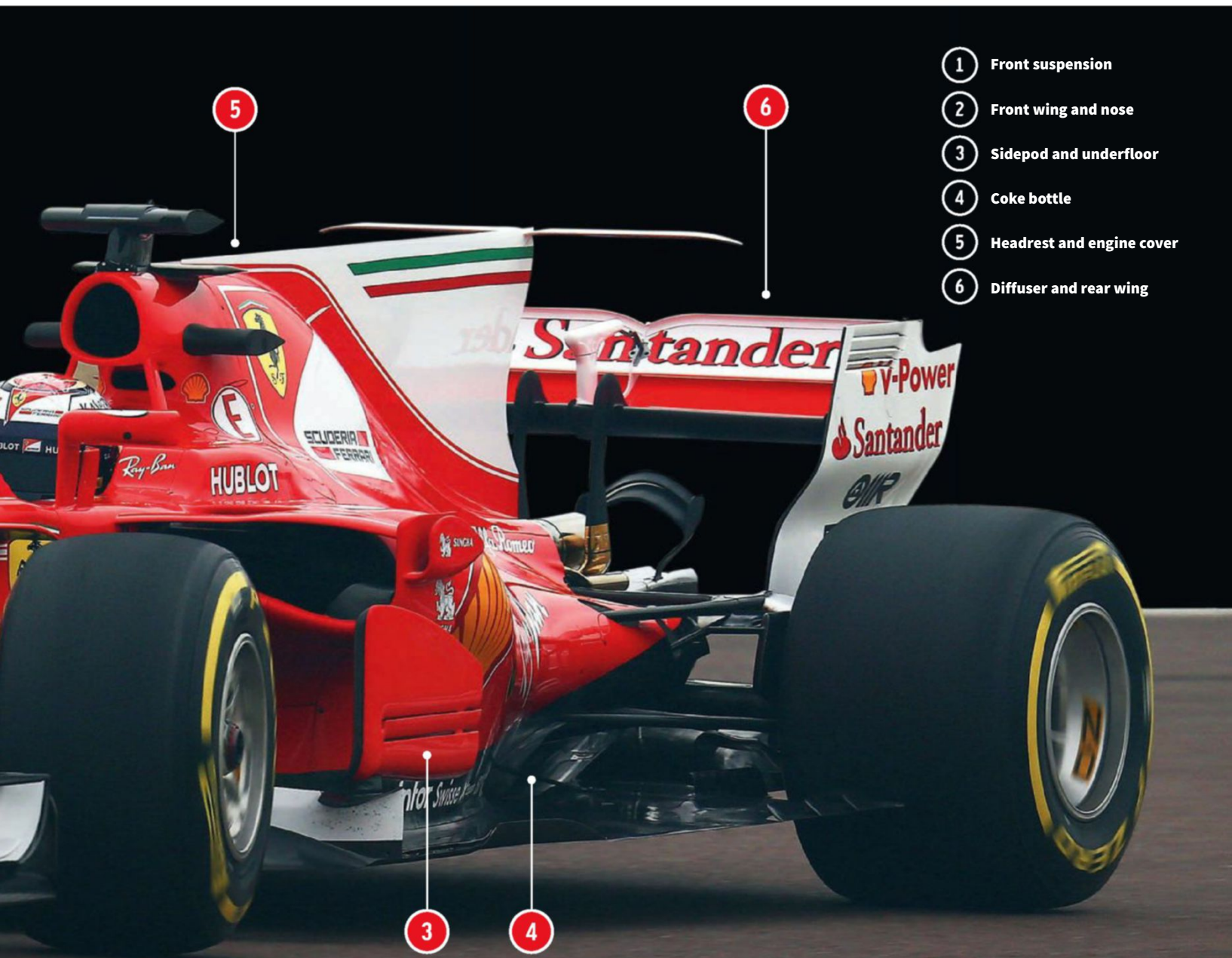
When Ferrari signed Sebastian Vettel, a four-time champion, for 2015 and he won three races against

Mercedes, it wasn't a bad result. So we expected 2016 to be another step forward.

Instead, it was the opposite. Ferrari didn't win a race and it lost technical director James Allison, who starts at Mercedes next week.

Ferrari certainly hasn't followed the blueprint it has done for the past few years. There are a few interesting ideas, but as always, interesting is one thing, making them work is another.





- 1 Front suspension
- 2 Front wing and nose
- 3 Sidepod and underfloor
- 4 Coke bottle
- 5 Headrest and engine cover
- 6 Diffuser and rear wing

**SIDEPOD AND UNDERFLOOR**

This is the area Ferrari seems to have got most excited about. The 2017 regulations allow a lot more scope for clever details. With the leading edge of the sidepod as far back as possible, Ferrari has been able to fit a large bargeboard. At the bottom of it is a delta-wing section going from the front of the bargeboard all the way to the outer corner of the sidepod vertical turning vane. Behind that is also a smaller, horizontal delta-shaped turning vane. These components are to optimise and realign the airflow going into the underfloor and, in Ferrari's case, the hugely undercut sidepod leading edge. The undercut connects to the Coke-bottle area and the low-pressure zone at the back of the car. If it all works together and you can get the low-pressure area behind the car to pull airflow through the Coke bottle via the undercut sidepods – around the bargeboards and from underneath the raised front of the chassis – it means the front wing will work better. The bargeboards and this delta wing will work better and the undercut in the sidepods will produce downforce. So, it's a plus-plus-plus on downforce. In the end, there's also a drag-reduction effect achieved by filling up that void behind the car that it is usually pulling along. If this area works on the Ferrari, then the others could be in trouble. If not, then a lot of time and effort will have been spent achieving nothing.

**COKE BOTTLE**

In line with the hugely undercut sidepods, the Coke-bottle area is as open as any. This will be necessary if it is going to get the sidepod undercut working, and to achieve maximum airflow through this area to help the rear wing and diffuser performance.

**HEADREST AND ENGINE COVER**

The headrest area is fairly conventional for Ferrari. It hasn't gone way out with it like Sauber and some other teams. The engine cover has the ugly shark-fin treatment, plus the T-wing on its upper trailing edge. Mercedes tested a similar design last Thursday, but the world champion team mounted the extra wing on its own strut.

**DIFFUSER AND REAR WING**

We must wait before I can voice an opinion on diffuser design, since everyone is keeping their solutions under wraps until the last minute. The rear wing has what is now the standard angled trailing edge to the endplates. Also, since it's a bolt-on device, it will be changed to suit different circuit requirements. Barcelona will allow us to compare who is heading in what direction. It's a reasonably high-downforce circuit, so everyone will be trying to achieve the same sort of downforce, which will allow us to assess top speeds. Will the SF70H be enough to take the competition to Mercedes? If not, heads will roll at Maranello... again. But I believe with this design the team has got a chance.



# Can Ferrari return to winning ways?

After a disappointing 2016 Ferrari has not made any bold predictions, although the weight of expectation for the team is higher than ever

By Lawrence Barretto, F1 Reporter

🐦 @lawrobarretto

**T**he launch of the Ferrari SF70H was a low-key affair, taking the form of an online video presentation lasting just four minutes and 46 seconds. Team principal Maurizio Arrivabene, engine chief Mattia Binotto and drivers Sebastian Vettel and Kimi Raikkonen were present, but did not speak. It felt like Ferrari wanted to let the car do

the talking. This year, it needs to have plenty to say.

The 2016 Formula 1 campaign was a failure for the team, Ferrari president Sergio Marchionne declaring that it had missed its targets. Three wins in '15 and second in the constructors' championship had given Ferrari hope that it could challenge Mercedes. On lap one in Australia last year that appeared possible, with Vettel and Raikkonen leading the way. But poor strategy lost Ferrari the win in Melbourne – and that was as good as it got. It gradually fell back from Mercedes, was overtaken on performance by Red Bull and ended the year winless and third in the constructors' championship.

Senior Ferrari figures have demanded better this year. A third winless season out of four will not be tolerated. But it's the leadership, largely unchanged in 2017, that presents one of the biggest areas of concern.

Marchionne may feel, when he tells his charges that he will not increase the budget to help the team move forward, that he is challenging them to be better. He may feel that by being more hard-line, setting ambitions targets, that he is inspiring them. But it is likely having the opposite effect, putting too much pressure on staff, which is leading to mistakes.

The approach Marchionne takes this year will be crucial. Sticking with that tough-talking mantra could have devastating consequences for a team that's in danger of dropping further back, and even returning to its early-1990s doldrums, when the '91 season started a run of three years without a win.

The lack of team reaction during the launch was perhaps a pointer to the fact that Ferrari has learned from its mistake last year, when it made bold claims over the challenge it could present to Mercedes.

## Has Ferrari done enough with the aero?

Ferrari took a radical approach with the concept of last year's SF16-H, and it represented a step forward. But it was not as fast as expected, reliability was poor, and a failure to understand the package meant the team could not keep up in the development race.

Tyres were also a headache, with Vettel admitting all too often that the team couldn't get the rubber into the right operating window. Hot conditions exacerbated the problems.

This year, with the SF70H (a reference to 2017 being the 70th anniversary of the company), Ferrari has been bold again, which is arguably its best course of action. Yes, its gamble last year didn't pay off, but it has to try something to close the gap that grew in '16.

Vettel has been at pains to stress that the departure last summer of technical director James Allison will not hurt progress. Allison, considered to be the second best in his field behind Adrian Newey, left Ferrari after falling out with the management. But it says a lot about his abilities that he was immediately picked up by world champion squad Mercedes, >>

Bold design approach has to pay off



ALL PICS XPB IMAGES



Arrivabene  
stressed pride  
in team effort







officially joining the organisation yesterday (Wednesday).

F1 is about to embark upon a season with the biggest changes to the regulations since 2009, so shaking up your technical team midway through the preceding year, when preparations for the new era would be at a critical stage, was hardly ideal.

As Gary Anderson explains on page 32, Ferrari has moved away from its blueprint of the past few years. The lengthened nose and arrow-shaped wing are a consequence of the new regulations, as is the shark fin on the engine cover. Ferrari says that, while the suspension layout has been updated, it retains a pushrod design at the front, with pullrods at the rear.

But there are more-complex aero appendages ahead of the aggressive air intakes on the sidepods. It appears their “unusual shape was designed in harmony with the front crash structure”. The result is a car that leans towards the unconventional and, should it work, could leave the rest of the field catching up.

The early signs, according to Vettel, are positive. “You can see it’s a step forward and you can feel it’s a step forward,” says the four-time world champion, who completed a series of laps in the new car during Ferrari’s filming day at Fiorano last week, though the conditions were wet.

“It’s fun to drive, the car is quite big, and looks strong from the outside. The first impression is right. You can see the conditions are not how they are going to be in Australia. We didn’t have any problems, so it was a good day.”

### Will the engine be a match for Mercedes?

Ferrari says its 2017 F1 engine is “a definite step forward” in performance compared to its predecessor. That is a positive given the struggles of last year.

The power unit had been a real strength of 2015’s SF15-T, helping the team close the gap to Mercedes. But after going aggressive with development over the course of the winter, things didn’t go so well last year.

Raikkonen suffered a turbo problem in the opening race, then Vettel failed to start in Bahrain because of an electronics

issue at low revs during the formation lap that broke a valve and wrecked his engine. It is believed that Ferrari then turned down the power unit, and subsequently failed to get the most out of it at any point during the season.

The team used all of its development tokens, but improvements were uninspiring. In contrast, Renault made progress, with its chief technical officer Bob Bell and Red Bull’s Daniel Ricciardo suggesting that the French manufacturer was there or thereabouts with the Ferrari engine at the end of the season.

This year, Ferrari’s rivals say they have made sweeping changes. Renault has an engine that is “95% different” from its predecessor, with an all-new architecture for the internal-combustion engine and a second-generation energy-recovery system.

Mercedes has redesigned its internal combustion engine, MGU-H and MGU-K, and has also improved its ERS. Engine boss Andy Cowell described it as “a big evolution” and added that a sharper focus had been placed on reliability, with six design changes alone being made to avoid a repeat of the big-end-bearing failure in the crankshaft that Lewis Hamilton suffered during last year’s Malaysian Grand Prix.

Ferrari has been less forthcoming with its changes, but did say that “the layout of some of the mechanical components on the hybrid power unit has been revised, while other areas maintain a similar layout to the 2016 car”.

### Can Ferrari hold on to Vettel?

Vettel did not have a vintage year in 2016. With three wins under his belt from the previous campaign, he had expected to kick on; instead, he suffered his second winless season in three. He also accumulated 66 fewer points than in ’15.

What also hurt his cause was Raikkonen’s upturn in form. The Finn ended the season only 26 points adrift of Vettel. In 2015, the gap was 128.

Vettel kept his counsel for much of the season, despite

Will Marchionne continue tough-talk approach to team motivation? It’s unlikely to please Vettel. Meanwhile, Raikkonen should revel in new car’s greater speed and downforce



## “Third in the constructors’ championship again will not be acceptable”



XPB IMAGES

Singapore success in 2015 now seems a long time ago

the struggles, but the cracks started to appear in the closing races. In Mexico he turned the air blue with an expletive-laden outburst, first slating Max Verstappen, then switching his ire to FIA F1 race director Charlie Whiting.

Arrivabene also took the unusual step of criticising Vettel during the grand prix weekend, saying he had to “earn” his place at the team beyond next year and should stay focused on driving rather than wider team matters. Then, just before Christmas, Marchionne said Vettel must “drive with composure, be more calm, less agitated”.

It’s a strange tactic and raises questions over whether this marriage will last much longer. Vettel’s contract expires at the end of this season, and there are openings available at Mercedes and McLaren next term.

If their public comments continue in that vein, and the performances do not improve, it may well leave the decision as to whether or not Vettel stays at Ferrari out of the team’s hands.

### Will the SF70H suit Raikkonen?

Raikkonen found a new lease of life last summer when Ferrari renewed its faith in him with a one-year contract extension. That coincided with the 2007 champion feeling more comfortable within the team, partly inspired by a change in personnel in his immediate crew.

One of the reasons Ferrari kept Raikkonen was that he provides stability at a time when the technical regulations are being overhauled. His experience will be crucial.

It is believed that his sensitivity for the tyres and detailed feedback on car behaviour mark him out among the best on the grid. Getting the tyres to work this year will be crucial, making Raikkonen’s experience a useful tool, particularly in an era where testing is limited.

The 37-year-old will also likely be enthused by the direction in which F1 has headed with the new cars. Faster machines, with higher cornering speeds and

more downforce, could well favour his minimalist driving style and his desire to let the car do the work.

### What will be acceptable in 2017?

Arrivabene preferred to talk about the amount of work that has gone into the new car over the winter rather than set targets.

“Looking at the car, I was thinking about the effort, dedication, professionalism and passion of all the people in Ferrari that they put together to build up this car,” he says. “The car is the result of a team effort and I’m very proud of this. Having said so, we’ll follow our programme [at Barcelona], and in Melbourne we will see where we are.”

Third place in the constructors’ championship for the second successive year will not be acceptable. Nor will a season that fails to yield a single win. Ferrari wants to be a contender for championships again – it’s not claimed a title since 2008 – so it must show it is capable of that and prove that last season was no more than a blip.

The step forward has to be sizeable. Ferrari will need to understand the package fully and develop it quickly, particularly as this is a season when the development race is likely to be relentless. The engine will need to become a strength once more, while the strategy calls that let the team down must be eliminated.

The drivers must step up too. By Vettel’s own admission, last year was a disappointment. Raikkonen must deliver from the first race, rather than waiting until he gets a contract renewal to rediscover his form.

That’s a long list of requirements, with only one winter to have addressed them.

Ultimately, even if Ferrari has made good progress across all areas but fails to be a regular race winner, it will not be enough. Victory is all that matters to the management at Ferrari. That creates even more pressure this year. Failure is unacceptable and will almost certainly lead to heads rolling. ❄



# McLAREN MCL32

The McLaren-Honda partnership has failed to deliver so far, but there are some details here that suggest the third product of the collaboration could be a big step forwards

By Gary Anderson, Technical Expert

[@autosport](#)



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**B**ack in the mid-1980s, Tommy Byrne drove for me in Formula 3 with Anson and had a belief that white cars were quicker than black cars. Needless to say, he was driving a black car and his main rival, Ivan Capelli, was driving a white car. Says it all, doesn't it?

It's all very nice that McLaren has a new orange-and-black livery, but the key question is whether the car will be quicker than last year's less brightly coloured model. I imagine even Mercedes will be keeping a close eye on it during testing.

Like Ferrari, this is a huge year for the underachieving McLaren-Honda partnership. It's time to stand up and be counted, for chassis and engine manufacturer alike.

## REAR WING AND DIFFUSER

This is the first car where in overhead view we can actually see the dimensions of the diffuser under the new rules, even if McLaren certainly wasn't giving away any true secrets in this area of the car at the launch. It's a bigger device than we have had for quite a few years, and of the many aerodynamic-regulation changes this year it's the one that will potentially bring us better racing.

Downforce produced by the underfloor is more robust and can endure a lot more turbulence before losing overall performance, so in theory the cars should be better in traffic.

The rear wing is what can only be called standard now for F1 2017. As I have said before, this is a bolt-on component that changes from circuit to circuit, so we will see during the course of the Barcelona test where everyone ends up.

## SUSPENSION

The front suspension is by double wishbones and trackrod, with a pushrod-operated inboard torsion bar.

It looks like McLaren has focused on getting the suspension geometry right, as opposed to compromising it in search of aerodynamic gain. Having bigger and better tyres is a waste of time if you don't create a sensible suspension layout that allows you to get the best from them.

Teams can blame Pirelli as much as they want, but if you don't help yourself then don't expect miracles from the tyres.



- 1 Rear wing and diffuser
- 2 Suspension
- 3 Sidepods
- 4 Front wing and nose



3

4

### SIDEPODS

This is the area that most of the teams have been attempting to exploit because it's the part of the car that has been opened the most in the 2017 regulations.

What McLaren has done in concept is not dissimilar to Ferrari's massive sidepod undercut, though it's not quite as exaggerated. If you're trying to do something with the airflow then you need to give it room to work.

Like most other teams, the sidepod doesn't quite go to the maximum width. This means that the Coke-bottle area towards the rear of the car will function that little bit better. It doesn't have to pull the airflow around from a wider sidepod, so there is less risk of airflow separation.

The Coke bottle is compact. McLaren says it has gone away from the 'size-zero' aero-cooling philosophy, but to me this still looks like a 'size one'. It's probably OK for Barcelona, where temperatures will be cool in testing, but for Bahrain or some other hot-weather races cooling compromises may still have to be made.

### FRONT WING AND NOSE

So far, other than Mercedes, every team has gone for what might be called the 'thumb-tip' nose design. This seems an obvious route to take, but only provided all the extra surfaces you are including don't cause any airflow problems further down the car.

The wing-mounting pillars are about as dramatic as we have seen. They have four elements, all with their leading and trailing edges positioned to maximise the airflow into the centre of the car. This is to pull as much flow as possible in between the front wheels.

If it works, it presents a much higher mass flow to the leading edge of the sidepods. Compared with Mercedes, it shows there is more than one way to approach this area.

The front wing is again the multi-element

device that is now de rigueur. In some areas it has six slot gaps, which means seven elements. It took quite a few years and a few staff changes for McLaren to join the multi-element front-wing club properly.

Back in 2013-14 it was still a three or at best a four-element team when it came to front wings. Although that kind of philosophy can create more downforce, it is just too sensitive to airflow separation.

On the nose-to-chassis interface, the exit duct from what is presumably an S-duct can be seen. Again, this is to help to keep the airflow attached underneath the droopy nose and to reduce the lift created on the top of the chassis, since the airflow would normally accelerate over the crowned area.



# F1's sleeping giant must wake up

The McLaren-Honda alliance has endured two difficult seasons, and must start delivering in 2017. But is it up to it?

By Ben Anderson,  
Grand Prix Editor

[@BenAndersonAuto](#)

**T**his surely cannot be allowed to go on much longer. McLaren is meant to be a top Formula 1 team, a perpetual championship challenger, a winning force – not a mediocre midfielder operating on a big team's budget. For an outfit that is statistically ranked as F1's second most successful ever, behind only Enzo Ferrari's great

Maranello empire, McLaren's recent record is utterly abysmal.

Its current winless run stretches back four seasons and 78 races. That is worse than its post-Ayrton Senna malaise of 1994-96, and comfortably outstrips the barren spell of 1978-1981 (53 races) that marked McLaren's pre-Ron Dennis nadir.

How long can the lands of its Woking headquarters endure such drought before they become scorched forever? Formula 1 expects better than this from McLaren. McLaren expects better than this from itself. Something has got to give – and soon.

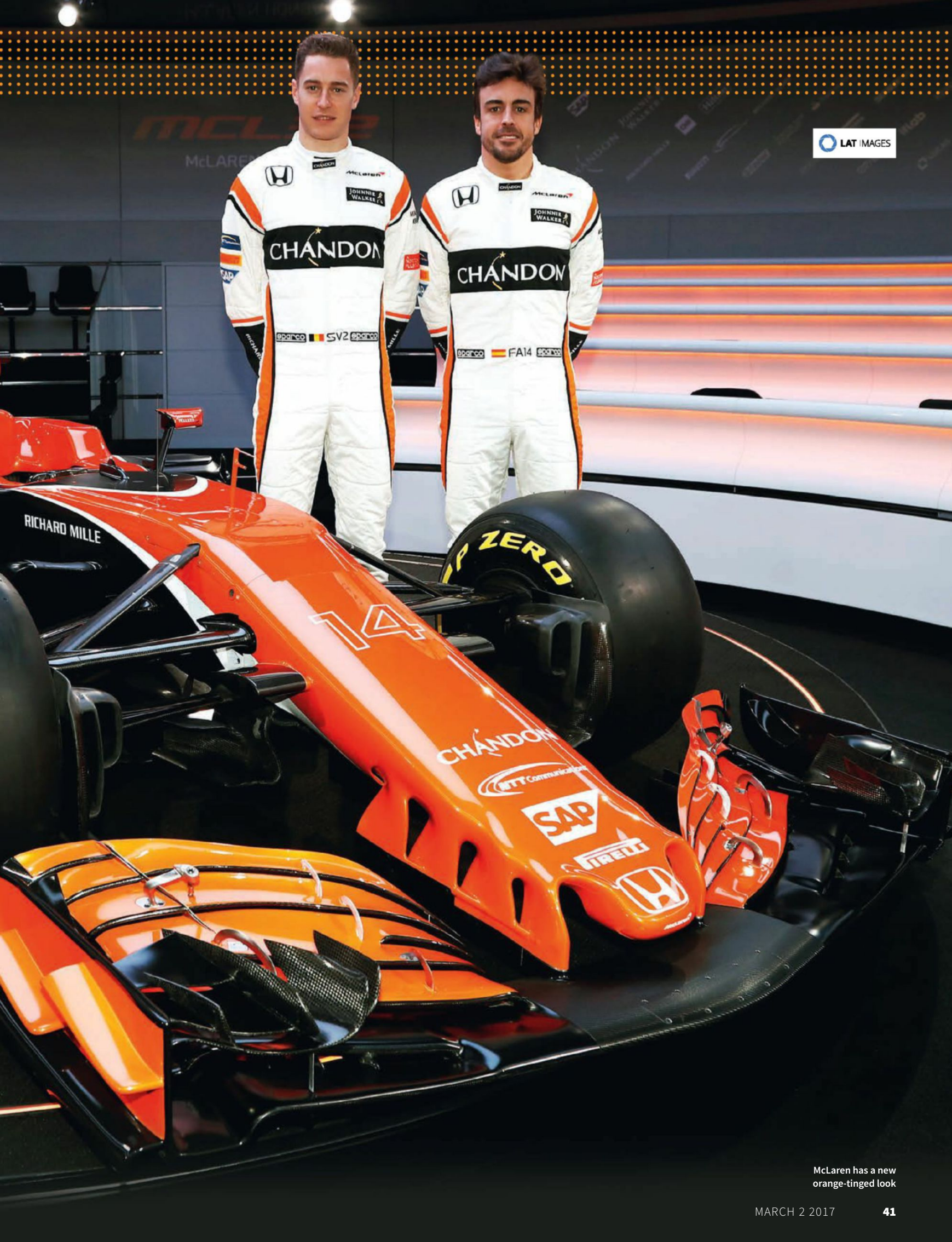
McLaren has already taken several steps to address this slump: making significant changes to its technical personnel and working culture, swapping customer Mercedes engines for a works Honda partnership, signing a double world champion driver in Fernando Alonso, and more recently pushing through its boardroom a new broom that has swept power away from Dennis's hands.

McLaren has changed a lot during the past four years, but so far that change has not added up to success on track.

Honda is McLaren's big gamble that is yet to pay off. There was much fanfare when this great alliance reformed ahead of the 2015 season, with talk of its proud winning history and daring 'size zero' innovations – tiny components that were meant to deliver big performance. »









## UNDER NEW MANAGEMENT

THE LONG-RUNNING POWER STRUGGLE IN McLaren's boardroom eventually sidelined Ron Dennis, the man who deserves so much credit for transforming the team into the colossus it became in the modern era of Formula 1.

But Dennis failed to deliver on commercial promises he made after ousting Martin Whitmarsh at the end of 2013, so he has lost his position as Group chairman (though he remains a board member and shareholder). Jost Capito, the ex-Volkswagen World Rally chief recruited by Dennis to be the F1 team's new CEO, has also departed, barely four months into his tenure.

Also out is marketing CEO Ekrem Sami (a long-time Dennis ally) while in comes Zak Brown, the company's new executive director. His JMI concern has secured many sponsorship deals for F1, and Brown is now charged with turning McLaren's sliding commercial fortunes around – signing a new title sponsor for 2018 is among his top priorities.

That's just as well, because (not for the first time in recent seasons) McLaren's new car looks a little short on sponsor decals...

"To get a sponsor takes about a year," explains Brown. "No miracles were going to happen in 2017. I've been focusing on restructuring our commercial department, to get some good buzz back in this place, which I think we are accomplishing.

"2018 is when we need to deliver a title partner. I already feel that pressure. But I haven't seen any new sponsor announcements on any car, including those that have won the championship for the past three years.

"I think that's an indication of the headwinds we've been facing in F1."

McLaren is a diverse company, made up of much more than just the race team, and Brown says the F1 team can lean more heavily on existing partners while he works to secure new ones. But there is no doubt a sustained lack of success in F1 is creating financial pressures.

"Shaikh Mohamed and Mansour Ojeh have increased our budget, so we have everything we need," argues Brown, who anticipates no further changes to senior management in the short term. "Now we just need a little bit of time for it to come together."



Brown is aiming to "get some buzz back"

Except they didn't. Honda's first V6 hybrid turbo engine was woeful, and the Japanese manufacturer later admitted it had underestimated the challenge posed by the regulations, and had arrived underprepared. The result was McLaren's worst constructors' championship finish since 1980.

Last season was much better, as Honda redesigned its Energy Recovery Systems to make its power unit more efficient. The result was a marked improvement on 2015, but still only enough for McLaren to climb to sixth in the standings, with not even a sniff of a podium finish.

Honda now recognises the incredible difficulty of extracting more horsepower from the V6 combustion engines in this formula, without reducing the effectiveness of the ERS. At the end of last season, Honda's F1 chief Yusuke Hasegawa spoke of the need to understand and develop complex lean-combustion ignition technology so Honda could take the next step.

Honda has redesigned its engine for 2017, and is thought to have followed the layout favoured by Mercedes – splitting the turbine and compressor and placing them at opposite ends of the V-bank of the engine. Previously Honda ran a split system

## “There are rumblings that Honda has yet to find additional power”

within the V-bank, an arrangement in which the components were too small and thus ineffectual. Increasing the size of these elements within the V-bank in 2016 made them too heavy and raised the car's centre of gravity.

Two years into its F1 return, an alliance that reformed based on innovating to beat its competition looks as though it is retreating into conformity – if you can't beat 'em, join 'em?

"Regarding the MGU-H and turbine layout, I don't know how every team's engine was made precisely, but I think it [the Honda] is very similar [to the Mercedes concept], because it is a reasonable layout of packaging," says Hasegawa, who estimates Honda has revamped "90%" of its power unit for 2017.

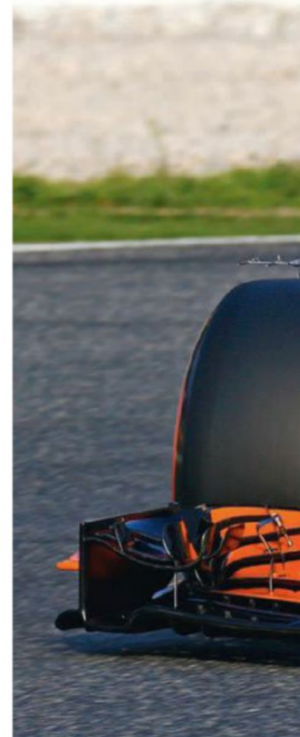
"For [the] turbo ignition system – I cannot disclose information about technology of course – but we learned about that, and I heard some other teams are doing that. I think we are finding a very good solution to extract the power."

Honda will need to, because Autosport understands it was trailing Mercedes by around 60kw (around 80bhp) in the latter part of the 2016 season. There are rumblings within McLaren that Honda has yet to find any additional power as it battles to get its new engine concept clicking into gear, but at the launch of the new MCL32 Hasegawa said he expects Honda to reach Mercedes' 2016 levels of power come the start of the season in Australia – which is just weeks away.

To reach Mercedes' 2016 level would be an impressive achievement for Honda given its late start under these rules compared with rival manufacturers, but Mercedes is likely to remain out of Honda's reach if it has indeed made the "unprecedented" step with its own new design predicted by customer squad Force India.

This begs the question: why did McLaren not persist with Mercedes customer power in the hope of beating the works team by developing a better chassis, rather than suffering such sustained growing pains with Honda, which may never catch Mercedes under these rules?

"Sometimes it is better to take a step backwards to move forward," argues McLaren-Honda racing director Eric Boullier. "Integration is key when you are a works team, because you can design your engine and your chassis and take into consideration both needs. If you want to move a wastegate, if you want to



Senior staff claim that correlation between simulation and track is now much closer





move your turbo, they [Honda] will do it. If you are a customer team you have a box that is delivered on a Thursday night, and you have to deal with that. If your idea is to design the car differently you can't. Being a customer of Mercedes would never allow us to win the championship, but Honda we believe is right partner to go there. Ninth in 2015, sixth in 2016; if we keep doing the same progress we will be back where we should be sooner rather than later."

Honda tends to take the brunt of blame for McLaren's plight, but McLaren has also been guilty of creating its own problems as it battles to overcome the power and weight deficit imposed by the engine. Last year's MP4-31 was strong on the brakes and at low-speed, but lacked grip in medium and high-speed corners, and required all the driving talent of two proven world champions to keep it pointing in the right direction.

This exposed McLaren brutally at Honda's home race in Japan. The team undertook a special body of work to correct this weakness for 2017, and expects no repeat. That aside, McLaren is encouraged by general progress made in conceiving and developing its three most recent Formula 1 cars. With ex-Red Bull aero wizard Peter Prodromou making himself heard as McLaren's engineering chief, development correlation between factory and circuit is now pushing 95% according to Boullier, having been down in the 60s previously.

The focus has shifted towards finding consistent and usable downforce, rather than peak figures, fostering a culture of honesty and accountability, and an emphasis on real-world track data rather than an over-reliance on simulation. "We are much more agile, leaner, flexible," says Boullier. "We go straight to the point – I'm used to saying 'no bullshit'"

Boullier says enhanced accuracy in McLaren's development tools will be crucial in 2017, given the greater potential for aerodynamic progress presented by the new regulations, and the need to react to what he calls the "moving target" of the developing Honda power unit. "That's the way we will make our way through the field and back to the front."

This year offers the chance for the emperor to sport new clothes, and McLaren's car certainly does, featuring a new nomenclature and orange-flecked livery that appears to mark a clean break with its recent Ron Dennis past. The major

shareholders have signed off on an increased budget for this season (still some way short of Mercedes, Ferrari, and Red Bull's financial clout) and McLaren is also relishing the prospect of trying to exploit regulations that it helped draft.

"I expect we will close the gap to the top teams," is Boullier's confident prediction.

McLaren needs to hit the ground running in testing. The team won't publicly set targets, for fear they will become millstones, but COO Jonathan Neale previously stated the team would feel "disappointed with fourth" in the constructors' championship, which must be the minimum target for a team with McLaren's works engine status and budget – given Renault is still at least a year away from getting its own works revival properly into gear.

At the very least, McLaren needs to deliver significant improvement. Privately, the expectation is to challenge for podiums again, before mounting a proper title assault in 2018. What we don't know is if star driver Fernando Alonso will stick around to see that plan come to fruition.

His deal runs out at the end of this season, and ahead of the last campaign Boullier said the Spaniard would be "foolish" to not extend the original three-year contract he signed after leaving Ferrari in 2014.

Alonso will likely have to if he wants to be the driver who makes McLaren-Honda a winner again. Alonso re-affirmed his commitment to the "best team of my career" when Mercedes' new world champion Nico Rosberg vacated F1's best seat in December, but that loyalty may be stretched to its limits if McLaren-Honda fails to make significant progress in 2017 – notwithstanding Alonso's own desire to see Formula 1 become challenging enough for drivers again to maintain his interest.

As F1 remakes itself anew this year, there is a real feeling of renewal about McLaren – a new driver in Stoffel Vandoorne, a new livery, a new chassis name, a new engine, all under new management, as the team embarks on its post-Dennis era.

Ron Dennis was responsible for transforming McLaren into a mighty winning force after a period of decline in the late 1970s. It will be down to those who remain to perform a similar trick this time around, and ensure that a new-look McLaren doesn't end up delivering the same old results. This drought has already gone on for far too long. ❄



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# FORCE INDIA VJM10

The British team will be hoping to build on fourth place in 2016, but does the new car have what it takes to compete with the top three?

By Gary Anderson, Technical Expert

■ @autosport

**A**s Williams has learned over the past few seasons, it's a lot easier to slip backwards in the constructors' championship than it is to move forwards. Force India had a great 2016 and the paycheck for finishing fourth in the championship will be a big bonus and will help with the cost of developments that '17 will require. The car has a couple of interesting solutions and a couple of less-than-aesthetically-pleasing components!

## REAR WING

This is mounted lower and is wider than in 2016. The rear-wing endplates are like those on the Sauber and Renault in that the trailing edge angles rearwards as they go upwards.

This lower area allows the low-pressure area behind the rear tyre to affect the performance of the underfloor and diffuser.

## ENGINE COVER

The headrest area and engine air intake are like those on the Renault. At Jordan, we used this style of intake in 1997 to help separate the airflow coming off the driver's helmet and the airflow going into the airbox intake. The undercut area underneath the intake is sculptured to allow the airflow through this section with the minimum of blockage.

The bulk of the engine cover itself sweeps down to the rear of the car nicely, allowing the maximum airflow to get through to the underside of the rear wing.

As for the large and rectangular airbox fin, it wasn't designed with aesthetics in mind – the others we have seen so far have at least some shape to them. This looks more like a billboard, basically.

It has been used in the past so, obviously, it has a function, but the regulations were changed to outlaw it and perhaps it wouldn't be a bad idea to go down that route again, and very soon...

## DIFFUSER

Most teams will be keeping this area under wraps until the last possible moment. Not only that, but the black floor and black lower half to the paintwork make it doubly difficult to see anything.

But with Barcelona testing kicking off as we went to press there'll be few hiding places; stay tuned for more details!





- 1 Rear wing
- 2 Engine cover
- 3 Diffuser
- 4 Sidepods
- 5 Front and rear suspension
- 6 Nose/front wing

### SIDEPODS

The bargeboard sits in front of the sidepod leading edge. This vertically mounted turning vane is a very powerful component and helps scavenge the airflow out from underneath the front of the chassis.

This helps the front wing and underfloor performance. In the long and distant past, when I was a boy, it used to be worth about 10% of the overall car's downforce. So if it's still as powerful as that, this will also be an area of consistent development.

The second vertical turning vane on the outer leading-edge corner of the sidepod is there to control the turbulent airflow coming off the low-pressure area behind the front tyre. With the wider front tyres this will be very important to the performance of the sidepod undercut and underfloor.

### FRONT AND REAR SUSPENSION

The front suspension is the conventional double-wishbone, pushrod-driven concept. But as I said about the diffuser, it's what we can't see that will make the big difference, and whether or not that system will be allowed by the FIA.

The rear is again the conventional double-wishbone pullrod design that has been in use for quite a few seasons.

With wider front and rear tyres, the suspension geometry will now be more important. This has been set aside in recent years because aerodynamics have been more influential.

But with a grip increase from the tyres, looking after them will now be more important than ever.

### NOSE AND FRONT WING

The nose retains the 2016 snorkel-style design, with its two eyelets. It uses the outer parts of this to mount the front wing, allowing airflow between the wing mountings and the central crash section of the nose. Most teams do the same, but this is just a little bit exaggerated.

The airflow that goes through here was used to feed an S-duct last year. I didn't spot that on this year's car, but I'm sure we'll see it.

The front wing is again a multi-element device. I'm pretty sure it is a derivative of what they ended up with last season, adapted to the 2017 regulations. But this area is a bolt-on goodie and it's where a substantial amount of that development budget I spoke of earlier will end up being spent.

The nose-to-chassis intersection is a bit dramatic, and the flat top on the chassis is about as aesthetically pleasing as a shoebox, but in the end if whatever the high-mounted pushrod inner end is driving works in their favour, all will be forgiven.

Inner suspension systems that may just control the aerodynamic platform are still up for interpretation by the FIA, so allowing yourself some room for manoeuvre in this area might just be a wise move.



VJM10 smartly evolves existing design concept  
 Right: Drivers Sergio Perez (l) and Esteban Ocon (r) with Mallya



XPB IMAGES

# Can Force India break the glass ceiling?

Force India enjoyed a great season in 2016, but making another step forward is going to be a major challenge

By Gary Anderson, Technical Expert

[@autosport](#)

**A**ll of the talk surrounding Force India this year is of whether it can break into the top three in the constructors' championship after finishing fourth last year. Realistically, you have to say that the big three teams – Mercedes, Red Bull and Ferrari – have budgets that are way out of reach for this small but determined operation. But, having said that, it's a well-run team – and, given progress in recent years, it's reasonable to ask what is possible.

During the launch of the car last week, team owner Vijay Mallya made it very clear that he isn't limiting the team's

horizons, talking about the fact that it's not about the amount of arms, it's about the quality of weaponry.

So what weaponry does Force India have? Well, the most important thing for any team with limited resources is good leadership, and in Andy Green it has a very accomplished technical director. I worked with him right back at the start of Jordan in 1991 and he's someone who doesn't do anything without there being a good reason for it.

That sounds simple, but it's incredibly important for a team of this size, which has to choose its development path wisely and commit to it. It cannot choose its design concepts by trial and error because it doesn't have the resources to try too many things. Red Bull, say, can try three or four routes and then





pursue the best, but Force India can only choose one. Making the right decision is crucial to what Force India has achieved.

But there are inevitably limits to what is possible. For Force India to finish fourth, it still had to rely on big teams such as McLaren and Renault underachieving. To finish third this season, realistically it needs this to happen again and for Ferrari to have a disaster. The gap between the two was 225 points last year, which is more points than Force India scored in total, so there is a long way to go. Reducing the points deficit is step one, and if it can finish fourth again that gap should be less. If that happens, Force India is not finishing there by luck, it's on merit.

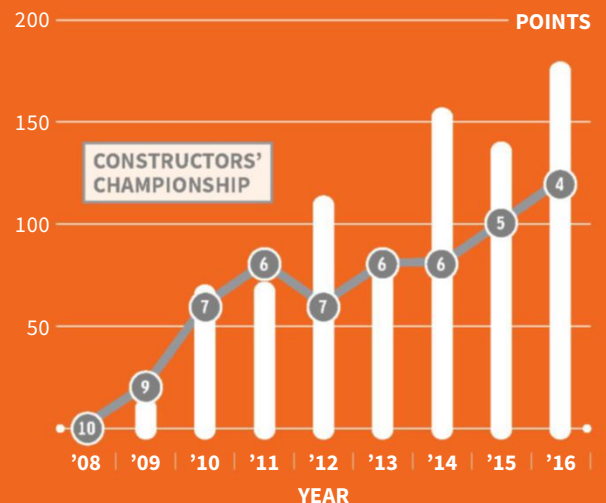
Force India has a very talented group of engineers. It's a team I have a lot of affection for given it retains some of the DNA of Jordan, but realistically the objective should be to hold on to a place in the top four. That would still be a great achievement for the team and it would still be punching above its weight.

To move on to a level alongside the top three without relying on one of them having a big problem would require a huge amount of investment. And that would not just be a one-off spend, because you'd have to keep putting the money in year after year. That could also change the fundamental character of the team, because its strength has always been its efficiency

**“The best teams maximise their results week in, week out. That’s one area Force India can improve”**

## FORCE INDIA'S PROGRESSION

WHEN VIJAY MALLYA ACQUIRED THE STRUGGLING Spyker team in September 2007 and rebranded it as Force India for the following season, many expected him to be just another here today, gone tomorrow wealthy team owner. But nine seasons of progress has carried the team from the back of the grid to fourth in the constructors' championship.



and ingrained ability not to waste money on futile pursuits.

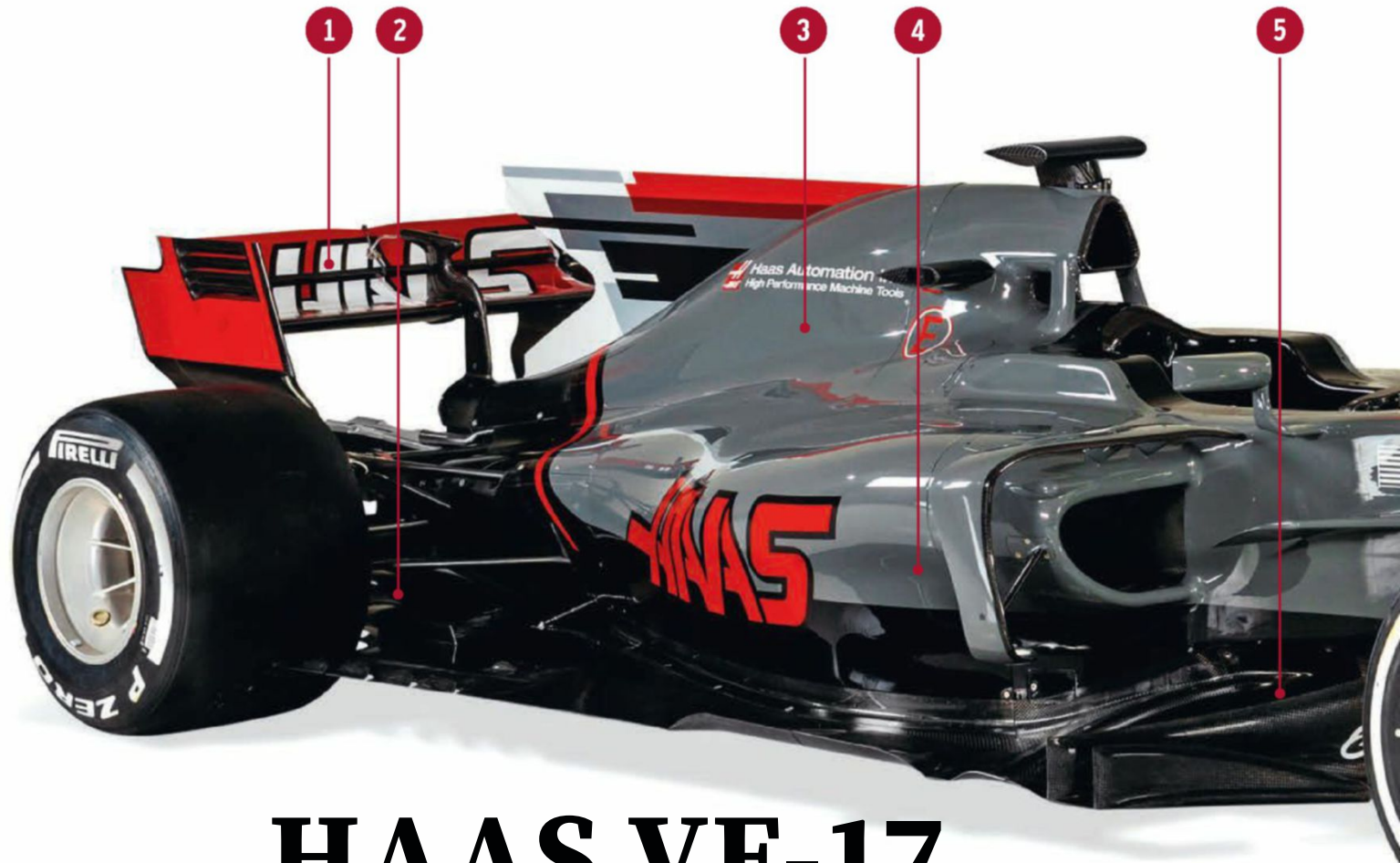
There is also a difference in the character and the way a smaller team works. Force India is no minnow – it employs around 400 people – but even so, everybody is able to contribute a little more rather than being too narrowly specialised. In a big team, it's easy to get one person whose job it is to draw the hydraulic connector union, but they will have no involvement in the mounting of the ERS system. Everyone still has their job and decisions have to be made, but it's easier to be able to contribute because of that culture.

But if we turn our gaze towards that yawning gap to the top three, we have to face the fact that closing that chasm isn't just a factor of how good your design and development is. If I had one criticism of Force India in recent times, it's that its consistency has not been good enough. It certainly gets some good big results and scores well, but the fourth best team in the championship needs to be qualifying at least in the top 10 for every race, and ideally locking out the fourth row.

It's a bit like Mo Farah, who is brilliant at the 5000 metres and 10,000m but not quite as effective in the marathon. The F1 season is a marathon, and the best teams maximise their results week in, week out, and keep pulling in the points. So that's one area where Force India can still improve without having to spend huge sums of money on aerodynamic development. Overall, it just has to keep getting as much as it can out of its resources and getting better each year.

The Mercedes engine and technical partnership (a model that Force India effectively created when it teamed up with McLaren for 2009) is a positive, and should help it to be a strong contender in the battle for fourth – one that pretty much every team except the big three should be in. And while it is probably asking too much to get into the top three, it's very possible Force India can have a stronger season than last year points-wise and close the gap. Sometimes progress isn't only measured in championship position. ✨





# HAAS VF-17

Can the American team build on an impressive first F1 season with its Ferrari-influenced 2017 contender?

By Gary Anderson, Technical Expert

[@autosport](#)

**U**nlike 12 months ago, Haas is now very much up and running. But it's harder to design and develop a new car when you are racing one at the same time, especially given that Haas

remains a relatively small F1 squad.

Haas is in a very tight part of the grid. Realistically, there is a big three and then everyone else, so how good a job you do there can make a very big difference.

## REAR WING

The rear-wing endplates follow the same trend as most teams. The louvres and cutouts are all about trying to get the low-pressure area behind the rear tyre to help the rear wing and diffuser performance.

This is more important in 2017 than before because of the wider tyres, and it also helps to reduce drag. Last year, tyres were responsible for about 35% of the total drag, but with the wider tyres that figure will be over 40%, so anything you can do to reduce that is an advantage.

## DIFFUSER

These are bigger in 2017, and on the Haas there's a small wing section around the trailing edge to help its efficiency.

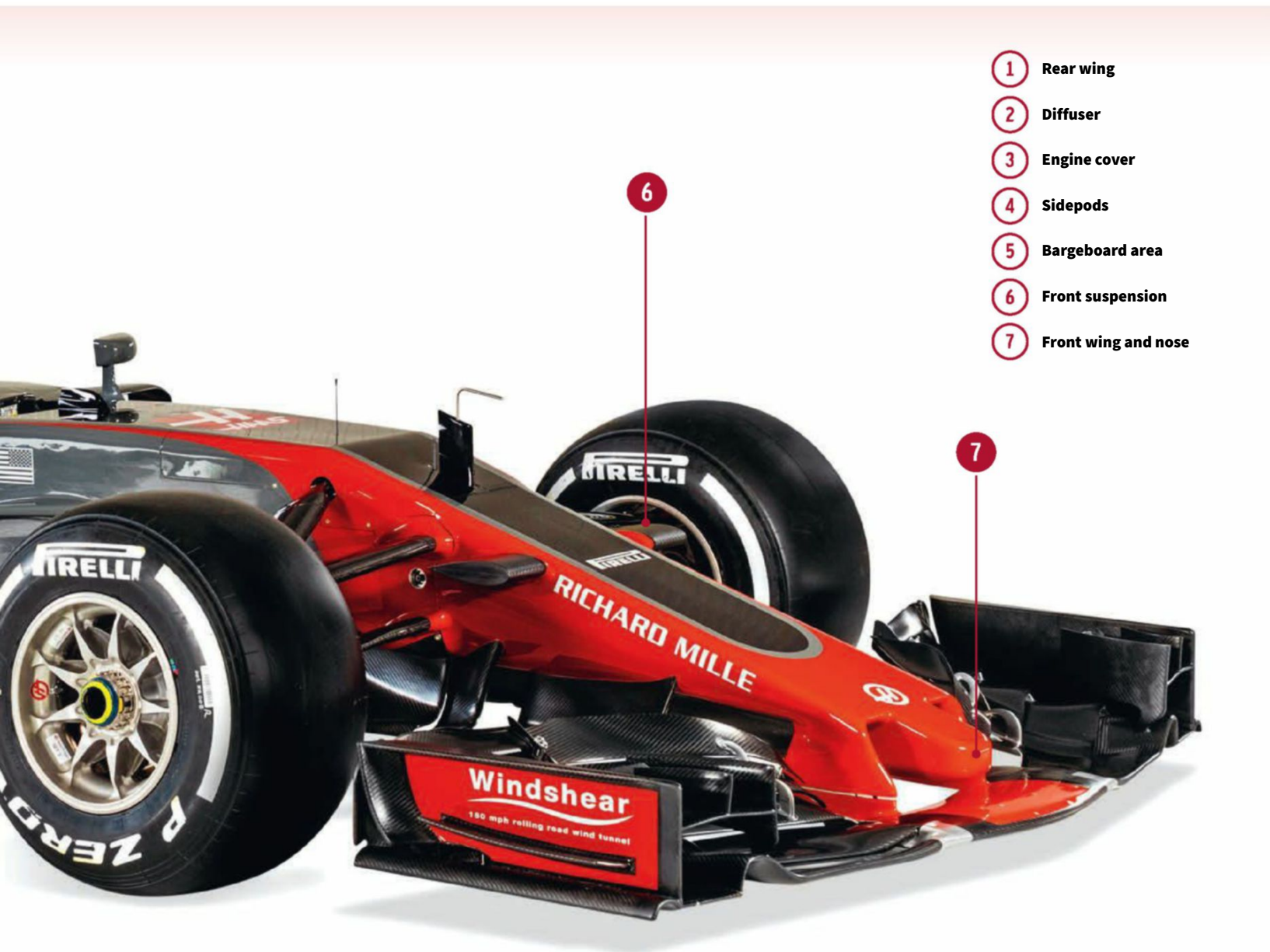
Interestingly, in the overhead views I can see what appear to be two holes through the diffuser. This may be nothing, such as an access hatch or a space for a component that hasn't been fitted yet. But could it also be evidence of an interesting rules interpretation...

## ENGINE COVER

The engine cover is a simple profile, as tight as possible to the componentry underneath. And, like most, it has a shark fin.

You can see that the trailing edge of the fin is undercut. In mid-corner this acts like a vane, helping the airflow's angle of attack to the rear wing to be more uniform. Normally, the airflow would accelerate over the engine cover's trailing edge and create turbulence. This fin stops that, and the undercut is a compromise to ensure that the rear wing can still do its work.





- 1 Rear wing
- 2 Diffuser
- 3 Engine cover
- 4 Sidepods
- 5 Bargeboard area
- 6 Front suspension
- 7 Front wing and nose

#### SIDEPODS

As the sidepods sweep back into the Coke-bottle area, you can see the cutouts on the extremities of the floor just in front of the rear tyres. These are there to reduce the leakage of the airflow, underneath the car in front of the tyre.

The diffuser creates a low-pressure area under the car and wants to pull air in from the top surface of the floor. These cutouts reduce that, so you get lower pressure over a larger area of floor, hence more downforce.

#### BARGEBOARD AREA

This is where the Haas looks a lot like the Ferrari concept, which is a surprise because no other cars have taken this approach. Even though most cars have the same componentry, Haas and Ferrari have done things in a very different way, with heavily undercut sidepods and delta-shaped turning vanes.

Since it's an area that the 2017 regulations have opened up, there is a lot of scope to find ways to improve the airflow to the underfloor and it's up to every team to exploit it. But this seems too close to the Ferrari concept to be an accident. I'm sure others will be questioning how the detail in this area was defined. Haas does have a technical relationship with Ferrari, but this seems to go beyond that.

#### FRONT SUSPENSION

The concept of the double-wishbone, pushrod-operated set-up's geometry is similar to last year's car. I'd have expected more than that from teams as they try to get a more consistent contact patch from the wider tyres.

If you could do that without compromising the aerodynamics too much, that would be a big asset.

#### FRONT WING AND NOSE

After having a front wing that seemed to be inspired by the 2015 Ferrari's, Haas has gone to the popular thumb style for this year. If you compare it with the Red Bull, you can see how much more bulbous the centre section is. That will make a big difference in how the airflow behaves between the wing mounts.

Otherwise, it is a normal multi-element front wing. There are six main elements, so five slot gaps, and most of the detail work is based on the design DNA of the 2016 wing. While the regulations mean the front wing is now delta-shaped, the same functioning principles apply.



# Is Haas Magnussen's last chance in F1?

Heading into his third full season with a third different team, the Dane needs to make the US squad his long-term home

By Lawrence Barretto, F1 Report

[@LawroBarretto](#)

**W**hen Kevin Magnussen lines up on the grid in Melbourne for the 2017 Australian Grand Prix, he will be driving for his third team in what will be his third full season racing in Formula 1.

Magnussen got his F1 debut with McLaren in 2014, was demoted to reserve driver in '15 – with a one-off appearance for the injured Fernando Alonso in Australia – and then spent last year with Renault.

The French manufacturer offered him a one-year contract extension, but Magnussen felt it was “not good enough”. He was disappointed that the team did not offer him the security of a longer-term deal, thereby creating the impression that it did not back him.

So when Haas came calling with the offer of a multi-year contract, it was what Magnussen needed and he signed on the dotted line. It was a big decision to leave a manufacturer team, albeit one that's at the start of a rebuilding programme. But for Magnussen the decision was simple.

“I had a better offer from Haas, so I went with them,” he tells Autosport at the team's factory in Banbury. “I'm happy with the way it has turned out.”

Three different teams in three years is unusual, though. Sources at Renault and McLaren have questioned his work ethic, with Renault managing director Cyril Abiteboul telling French media recently that Magnussen lacked discipline and commitment.

But when asked to respond, Magnussen seems nonplussed.

“I've heard things before, but never from the team,” he says. “Sometimes you're unlucky that one guy says something to the press and that becomes the official opinion of the whole team. But it's just one guy, so I don't take that seriously.”

So why does he think he was unable to forge a long-term relationship with either Renault or McLaren? “I've been unlucky. With Renault, it just didn't work out and we parted ways. I'm in a better place now so I'm looking forward.

“With McLaren, I wanted to continue with the team and the team wanted to continue with me, but for political reasons at the top it didn't happen. That's a different situation to what happened [at Renault]. It's more I wanted to join Haas and Haas wanted me – so it happened.”

Unlucky might be stretching it slightly. On paper, choosing Jenson Button over Magnussen for 2015 was a no-brainer. The Briton had edged Magnussen in qualifying 10-9 during '14 and dominated him in the races, scoring more than double his team-mate's number of points.

At Renault, he may have scored more points than team-mate Jolyon Palmer and been the stronger driver in the first

**“It's different coming to a team that wants you because they think you can deliver”**



half of the season, but he failed to respond to Palmer's resurgence midway through the season and sources inside the team felt he was the weaker of the two after the summer break.

At Haas, Magnussen finds a team at the other end of the scale from McLaren and Renault, but one that may well suit him much better. Haas is still only at the start of its life in F1, a small, close-knit team with lofty ambitions after an impressive debut season that yielded 29 points and eighth in the constructors' championship.

“It's still a very small team,” he says, “but it's really cool to be part of it growing. It's a bit easier to find your way around and know who's doing what when there are fewer people. You have a closer relationship to a bigger percentage of the team as there aren't so many staff. At McLaren, there's no way you can have a close relationship with everyone. Here, it's a bit more pure. It's clear how the team wants to work – they want to be open





and honest about everything, which is the way I like to work.”

Magnussen was critical of Renault’s management structure last season, and it appears that’s one element he’s now expecting to be less complicated. “Haas have a very clear structure, it’s a smaller team and responsibilities are spread out in a very clear way,” he says. “It’s pretty straightforward the way it works.”

It’s early days, of course. Magnussen has only spent a handful of days with his new team, but already he feels at home, and it’s clear that the backing Gene Haas and team boss Gunther Steiner have given him – arguably for the first time in his F1 career – has done wonders for his confidence.

“It’s a different feeling coming to a team that wants you and signed you because they think you can deliver,” he says. “It’s motivating – I can’t wait for the season to start.”

Haas is entering only its second season in F1, one that is traditionally harder for new teams. But Magnussen is

impressed by what he has seen so far and, while he admits that success may take time, he feels this could be the project that halts his career musical chairs.

“We should be able to build on what the team learned last year,” he says. “If we look at what it achieved in the first season, there is nothing to say we can’t do better in the second season.

“I’m also realistic enough to say it’s a big challenge to improve because they did have a very good season. We’re positive about our possibilities. We’re growing as a team. A lot of people in F1, as well as outside, were impressed by Haas last year.

“My belief in the team is very strong. I see this as a long-term project. It’s an exciting programme that can grow a lot. There is a lot of potential. I’ve only just turned 24, so I have time on my side. As a young driver, it’s good to grow with the team.

“Hopefully I have found a team that I can stay with for longer than one year and grow together.” ❄️

**Magnussen feels that smaller-scale Haas is a better fit for him – and less political – than Renault or McLaren**

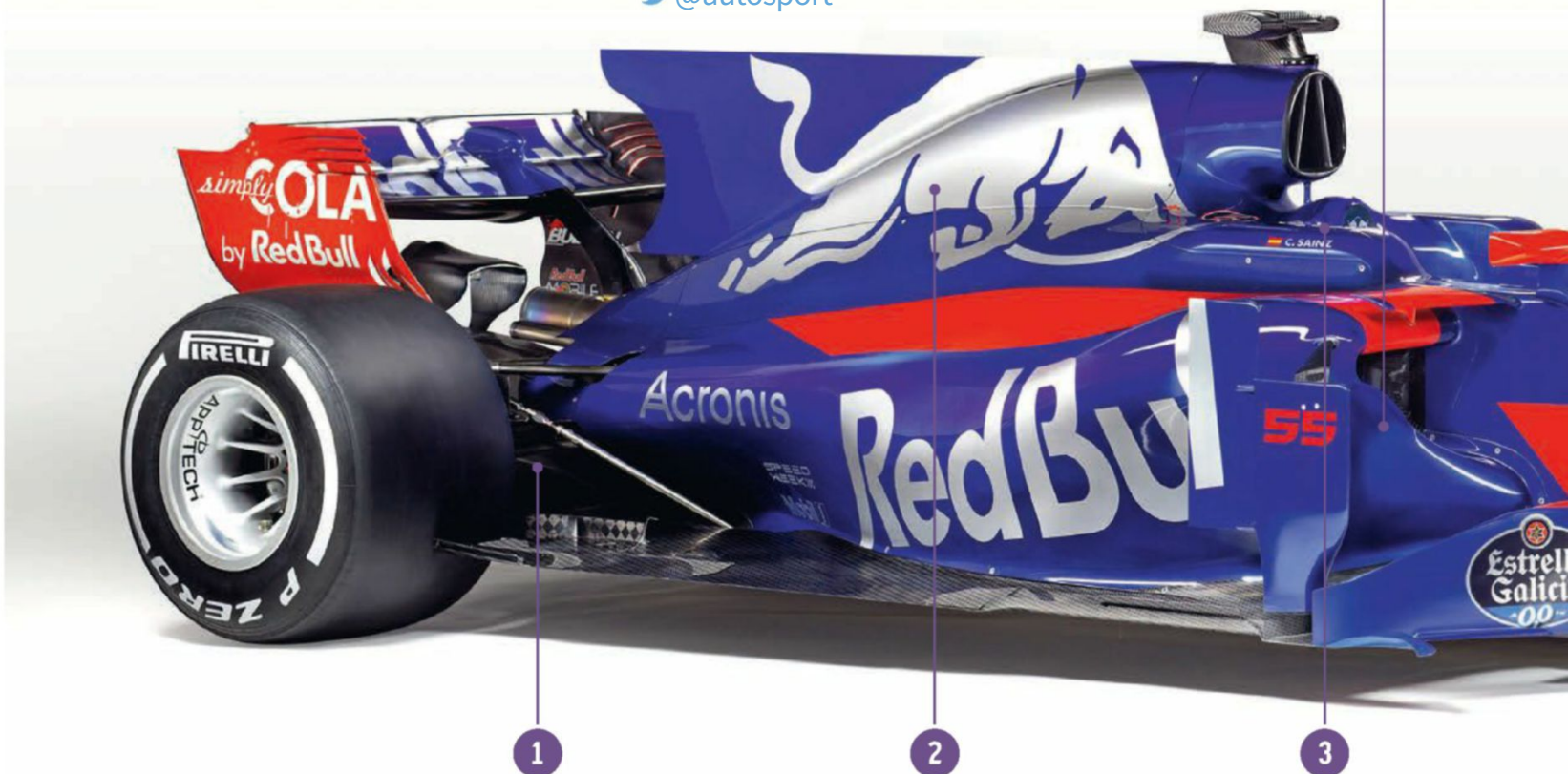


# TORO ROSSO STR12

Some Mercedes-like features suggest that Toro Rosso might have produced a very tidy contender for the new regulations

By Gary Anderson, Technical Expert

[@autosport](#)



## REAR SUSPENSION

This is a pullrod design. The dampers are mounted right at the front of the gearbox, or even on the back of the engine. The reason they are mounted there is to take advantage of this being a structurally strong and stiff area.

The actuation of the inboard rocker system will be at the same angle and on the same plane as the pullrod. So you get the stiffness free of charge, with no detrimental effects.

## ENGINE COVER

The engine cover is the minimum cross-section needed to contain all the components underneath. It then merges into the 'shark-fin' design I have bemoaned elsewhere.

At least there's a place for the tail of the Red Bull in the livery, so that's the only good thing I can say about that. Maybe the trailing edge should have matched the shape of the bull...

The sooner these bits get cut off with a jigsaw, the better. But that's unlikely to happen because of a lack of clear direction and decision-making at the very top of the sport.

## HEADREST AREA

The headrest is designed to calm the turbulence coming off the driver's helmet. Looking at the airbox intake, it's divided into three – the central part to feed the engine and the other two for cooling.

This area is not as critical as it was in the days of normally aspirated engines, since the turbo takes what air it needs.

The undercut is to separate the driver's helmet from the airflow that spills onto the engine-cover surface and back to the rear wing.

**O**ut of the cars in the big battle from fourth onwards, the Toro Rosso looks like a good candidate to be in the thick of the fight.

Of course, that depends partly on what's under the engine cover; although Renault is delighted with its

own progress, the issue is whether it has achieved enough compared with Mercedes and Ferrari.

Toro Rosso is a small operation but, judging by the team's enthusiasm at its launch, everyone there is confident they are going somewhere. A look at the car, and knowing that Toro Rosso has a good technical director in James Key, justifies that confidence.



- 1 Rear suspension
- 2 Engine cover
- 3 Headrest area
- 4 Sidepods
- 5 Front suspension
- 6 Nose and front wing



### SIDEPODS

The sidepods have a pronounced undercut and quite a big bargeboard. There's nothing quite as exciting as we've seen from Ferrari here, but all of the fundamentals are there.

The bargeboard itself, if working correctly, accommodates a huge amount of airflow change to turn it around the sidepod. That can make a massive difference to overall downforce.

The outboard vertical turning vane is a two-element component. It's there to tidy up the wake behind the front tyre, and is separate from the horizontal turning vane on the top of the sidepod. The vertical ones are there to tidy up the airflow and send it to the Coke-bottle area. But the other one is there to counteract the lift created at the leading edge of the sidepod.

Toro Rosso has the maximum open airflow to get the sidepods and the bargeboards working well by keeping things relatively simple at the front of the car. If something isn't working as well on the circuit as the wind-tunnel tells the team, there's a chance that Toro Rosso could work out why and find a solution quite quickly. The more-complicated Ferrari could be a different matter.

### FRONT SUSPENSION

Toro Rosso has raised the front suspension, and also raised the outboard end of the top wishbone, similar to what we've seen from Mercedes. This gives more-efficient suspension geometry and makes better use of the tyre contact patch.

The detrimental side is that the loads in the wishbones are increased, so the parts have to be stronger and therefore heavier.

So many compromises are made for aero. It's good to see a team thinking more about the suspension geometry.

Although the nose and suspension detail is similar to the Mercedes W08, the resemblance doesn't go much further back than that.

### NOSE AND FRONT WING

It's nice to see something slightly different, and the Toro Rosso nose is much more like the Mercedes approach than the rest.

The Mercedes nose has a thinner section horizontally, but the effect overall is similar in that the airflow is not confused as much as it could be with the more complicated designs chosen by other teams. Complexity tends to breed complexity in this area. With this simpler approach there is a better chance that the air will do what you want, and do it consistently.

The front-wing design follows what Red Bull has been doing for a while. The outboard end has seven elements with six slot gaps, and is basically trying to maximise the amount of downforce you can get while still turning the air to generate a good tidy airflow between the two front wheels.



# RENAULT RS17

Renault needs to make a huge leap forward in performance for 2017. And at first glance, at least, the team seems to have put a lot of effort into its new car

By Gary Anderson, Technical Expert

🐦 @autosport

1



2

## FRONT WING

The main assembly is the now-customary multi-element package. This maximises overall downforce while keeping it consistent. Drivers struggle to cope with sudden, brief increases in downforce, so the aim is to reduce these erratic changes to improve driveability.

The concept of turning the airflow outside the front tyres has been around for a while and most teams will move the outer part of the wing further outwards by 10cm to replicate the old airflow around the now-wider front track. Developments should come regularly.

The extended turning vanes on the front wing help direct the airflow under the chassis and onto the underfloor's leading edge. This also helps the consistency of the package, and Renault seems to have put a lot of effort into it.

## FRONT SUSPENSION

This is a twin wishbone with a pushrod-operated spring-and-damper unit. I am pleased to see that the suspension geometry is not as radical as it has been over the past few years.

Getting the best from these much wider Pirelli tyres will need a lot of effort in suspension geometry. The days of compromising the suspension design just to satisfy aerodynamic requirements are gone.

## ROLLHOOP

The airbox intake is a different shape to most. It is more of a horizontal opening and a bit like the 1997 Jordan.

That car is 20 years old, but the reasons for doing this don't change. It moves the intake away from the driver's helmet, which is the worst possible shape – a sphere – to aerodynamically optimise.

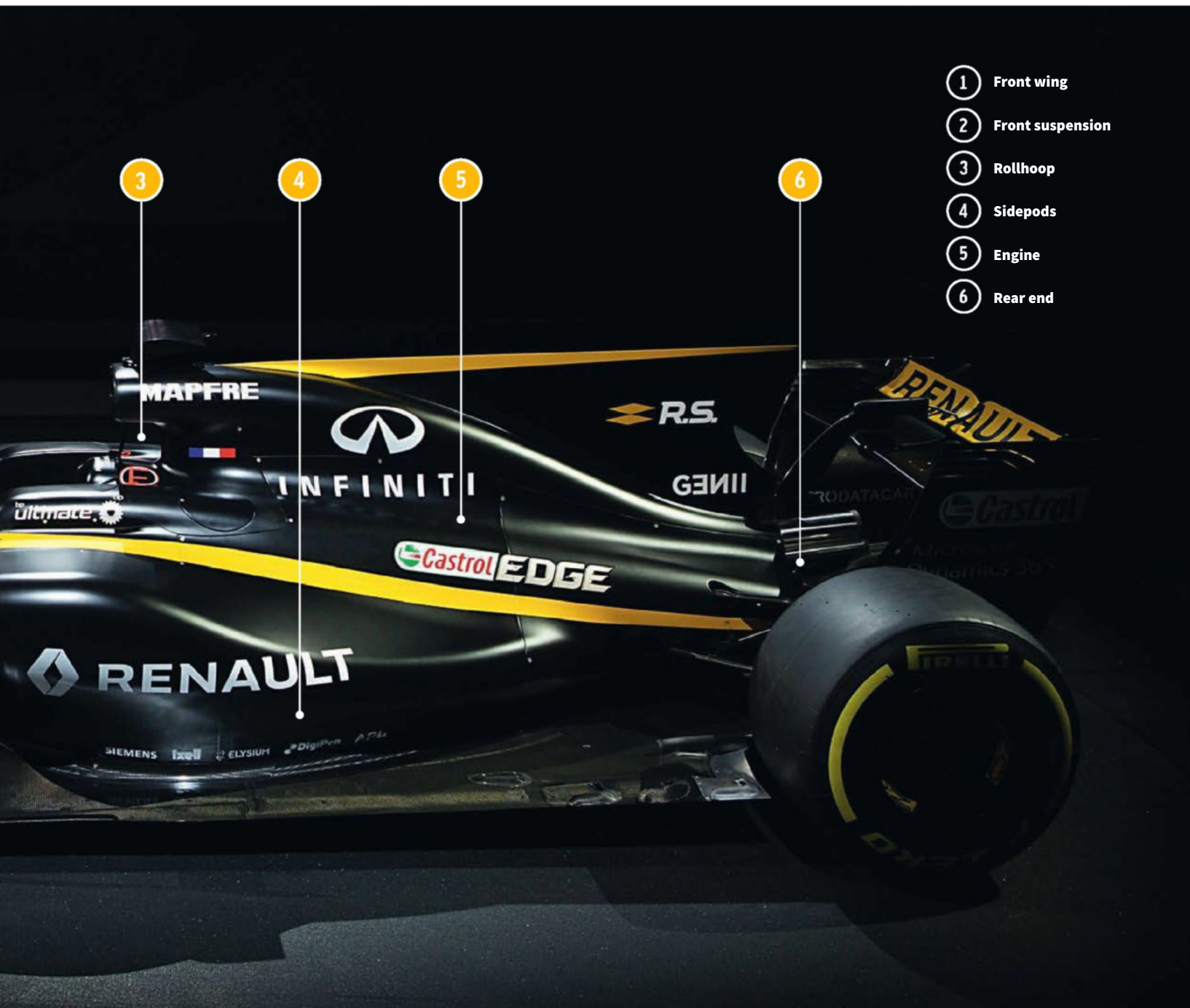
This allows a bigger undercut between the top of the driver's headrest and the intake, improving the consistency of the airflow to the rear wing.

**L**ast year was dismal for Renault. It took too long at the end of 2015 before taking over the Lotus team, leaving little time to come up with the car concept and optimise it before the season, so the team suffered for the whole year.

During the launch, Renault's bosses were saying that fifth in the constructors' championship in 2017 was the minimum.

But the RS17 looks like a major step forward from the 2016 car. It needs to be.





- 1 Front wing
- 2 Front suspension
- 3 Rollhoop
- 4 Sidepods
- 5 Engine
- 6 Rear end

**SIDEPODS**

The vertical sidepod turning vane is another area where the shape is more three-dimensional than we have seen with the Williams and the Sauber images revealed so far. This component is there to help control the turbulent airflow wake coming off the trailing edge of the front tyre.

It streamlines the airflow and helps to introduce it to the sidepod undercut without affecting the airflow coming out from the underneath of the chassis.

The sidepods themselves drop off very quickly to allow the air flowing over the Coke-bottle area to stabilise as early as possible. This may counteract lift induced on the upper surface of the sidepods as low pressure underneath sucks them down.

**ENGINE**

The engine cover adopts a similar central-fin design to Sauber's. While complying with the regulations, this allows the engine-cover cross-section area to be reduced fairly early, improving the airflow to the rear wing.

But the engine itself will be more important than if the engine cover just looks like a barn door.

Over the past couple of years, Renault has made many winter statements on how engine development has gone and 2017 is no exception. The talk is of improvements between 0.3 to 0.5 seconds from the engine between the end of 2016 and the start of '17.

If Renault has achieved this, it is going to be right up there in the engine stakes. And we will be able to judge where Renault the chassis maker is because it has frontrunner Red Bull and now front-of-midfield Toro Rosso using the same power-unit package. In other words, there's no hiding place for the works team.

**REAR END**

Most teams are keeping the rear end of the car under wraps. The new regulations permit a much more powerful diffuser, so that's the golden bullet for 2017, if there is one. Keeping this hidden for as long as possible will give others less time to try their own version of a good idea and integrate it for the early races.

The rear wing and rear-wing endplates follow what we have seen already. As this is basically a bolt-on component, initially all the teams will be complying with the new height and width regulations.

Watch out for regular developments in this area once engineers come to terms with the levels of downforce and drag that will be required.

The rear suspension is the common pushrod-operated system, and the exhaust detail has new the mandatory twin-wastegate tailpipes. The latter were introduced to help improve the noise levels.







# DANNY WATTS COMING OUT

## Anatomy of a bombshell

A huge weight has been lifted from the ex-driver's shoulders. But his story is about more than just one man reaching out for acceptance

By Matt Beer, Autosport.com Deputy Editor

🐦 @mattofautosport

**I**t's approaching lunchtime on Monday, February 20. Recently retired British racing driver Danny Watts has been "physically ill all morning with dread, stress, worry and anxiety". After a quick exchange of messages with Autosport to confirm he's still on for a 1pm announcement, he puts his phone out of sight and awaits the world's reaction.

Before last Monday, Watts's career story had been on the very respectable side of standard. Formula First and Formula Renault UK titles, British Formula 3 wins and A1GP podiums. A predominantly Strakka-based sportscar stint, headlined by LMP2 Le Mans 24 Hours success. A switch from racing to driver coaching after passing his mid-thirties. A great set of achievements for a driver who began with little money behind him, but nothing too out of the ordinary.

Then when the clock hit 1pm that afternoon, via articles on Autosport, other motorsport websites, blogs, *Gay Times* and *Huffington Post*, Watts became the highest-profile European racing driver so far to come out as gay.

Listening to Watts before the announcement was harrowing. Particular tormented phrases came up again and again: "it grinds you down", "it wears you down", a viscerally frustrated "arrghh" noise when language ran out of capacity to describe quite how bad he was feeling. He feared coming

out might lose him the driver-coaching work he loves, or at least cost him respect from those he tutored. He feared awkwardness in paddocks, people declining to shake his hand or look him in the eye.

After his news broke, there was a "non-stop bleep, bleep, bleep" from his phone as messages and social media notifications poured in, "99% of them really good". His fear of spurned handshakes was swiftly dismissed by his peers – Jaguar Formula E driver Adam Carroll's "mate, I'll always shake your hand" note starting a trend of racers' messages to that effect on Watts's Facebook page.

Bridget Schuil of the Motorsport Sisterhood, a primarily feminist community organisation approached by Watts after it wrote about LGBT issues last year, coordinated the coming-out announcement, alongside providing "really awesome" personal support for Watts. She and University of Florida sports sociologist Christine Wegner's qualitative study of social-media responses measured an overwhelmingly positive reaction (see page 59).

Re-entering the motorsport world went smoothly too, Watts describing his first time back at the Hitech GP team he coaches for as "not an awkward situation, it was very laid back and felt totally normal".

But he remains adamant that he wouldn't have come out while still racing even if he had known the response would >>





## “All I want is for motorsport to be more open and friendly about this sort of thing”

be so good. “I think it’s different when you’ve got your helmet on and you’re racing someone at 160mph. Would they have the same respect for you? I don’t know,” he says.

“Definitely, 100%, I wouldn’t have come out while racing. I wouldn’t have felt comfortable driving and having that on my head, knowing that other people know.”

That’s a feeling Oliver Warman understands. A karter for 12 years, he only came out after stopping competing in 2007 and recently founded the Gay Racers organisation for which Watts is now an ambassador.

“Drivers are sensitive creatures. Almost insecure,” Warman says. “You’re trying to demonstrate you are better than other people. It’s about winning outside the car as well as in it. Your image and your reputation and your personality are entwined with that. If there’s a hint of a perceived weakness, then you’re going to hide it. Of course you are.”

Can that perception of weakness be eradicated? So far Gay Racers has primarily been a group “where we can connect with other drivers, enthusiasts, fans, mechanics, journalists and say, ‘We’re gay, but you know what? We love motorsport!’” Now Warman wants to ramp up its campaigning side, initially targeting sponsors. Last year Adidas issued a statement making clear it would never drop its backing of an athlete because they came out, a position Warman says motorsport sponsors must also make explicit: “That was a huge step. We need the same in motorsport. That would go a long way to helping future generations of drivers to feel that they could come out.”



The surge of support for Watts last week was mostly community driven – fellow drivers (including 1996 Formula 1 world champion Damon Hill), fans, journalists – with less sign of ‘top-down’ backing. British governing body the Motor Sports Association declined an invitation to be involved in this feature, beyond a message that Watts was welcome to approach it at any time. That disappointed Warman: “Silence is very loud, isn’t it?”

Watts takes time to carefully consider what a governing body could do that would help LGBT drivers. He suggests that having a group or representative they could go to for confidential support and advice would be helpful, while acknowledging that he was so fearful of others’ reactions that he probably wouldn’t have used such a service himself.

The biggest thing Watts needed was evidence of other gay drivers being accepted. “It would’ve helped knowing that there was at least one other person out there,” he says. “Having zero people to go on makes it harder.”

That’s why Warman is so delighted that Watts can now “put a face to the cause and be one of those role models that

The motorsport community’s reaction to Watts’s announcement has been positive





XPBIMAGES

Career highlight: Watts's 2010 LMP2 win at Le Mans

were so lacking when I was racing all those years ago”.

Watts is already (inadvertently) becoming a figurehead for motorsport diversity and inclusivity. But at heart this is a tale of a man who felt he had to share a personal secret just so he could sleep at night. Sure enough, he's slept much better and feels “like a new person” since the announcement. His conversation remains very intense, but now that intensity comes from the adrenalin rush of a life-defining fear having been suddenly eased, from the scale of the response (it took him over three days to get through all the supportive messages he received) and from excitement at what may come next rather than dread.

His diary looks pretty full. There's plenty of driver coaching on the horizon, a role in family fun karting days planned by the Motorsport Sisterhood in collaboration with Pride organisations, other Pride events he'd like to attend, the Gay Racers ambassadorship and an approach from the European Gay and Lesbian Sport Federation.

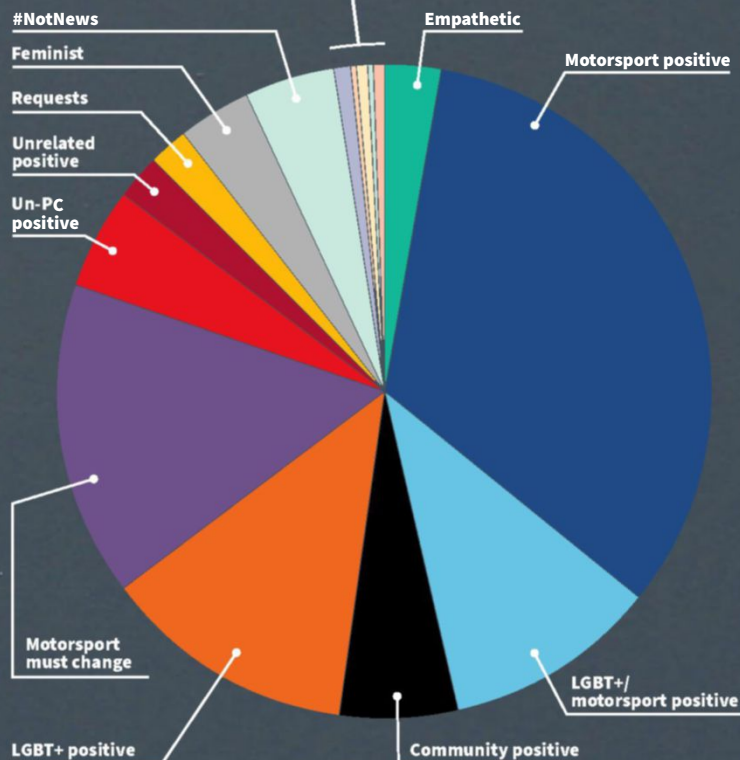
“The EGLSF is very proud of Danny taking such a huge step by sharing his story with the world,” says EGLSF general secretary John Ryan. “We know how difficult it can be, especially in the male-dominated world of motorsport. When an elite sports person takes the step to come out, it paves the way for others. Hopefully in the near future such a story will not make headline news.”

The fine detail of what all those roles will involve is still to be determined amid the whirlwind of the initial reaction. “All I want is for motorsport to be a bit more open-armed and friendly and welcoming about this kind of thing, because other sports are already a bit further down the line than us, aren't they?” says Watts. “I want the racing world to be a more relaxed space for people to do what I've done.”

And his advice for anyone feeling as he did a week and a half ago? “There are people in the LGBT community who are there for you to talk to anonymously. It's better to go down that route. I just bottled it up, kept it to myself and didn't open up to anybody.”

“That would be the main thing I would say. Don't end up like me, in a hell of a state.” ❄️

Tone policing | Sexist | Unclear | LGBT+ critical | Motorsport critical



## Analysing the reaction

“IT SHOWS HOW STRONG WATTS is that he can be so unhappy for so long and still win races.”

That tweet is just one example of the support Danny Watts has received, as shown in early results of a social-media study. Thus far, only tweets to @watts racing have been analysed; tweets from related searches have been captured and read.

It seems from early analysis that Watts trended on Twitter because of the debate between the #NotNews group, and those defending Watts and the publications that ran the story, rendering the #NotNews argument moot.

This is Dr Christine Wegner's analysis of #NotNews: “This deflection strategy is a way for the dominant group to exert its power; it questions the use of resources and dialogue about the progress and barriers of marginalised groups. It's a way to stay in denial of the systemic issues that led to this event becoming news.”

Of the positive responders to @watts racing – 89% of tweets – 3% were empathetic, and 63%, including 11% from LGBT+ motorsport personalities, were uniformly positive; 19% commented that motorsport needs to be more visibly supportive of marginalised groups; and 4% were clearly

well-intentioned despite using politically incorrect language.

Another 6% of tweets praised thought-leaders' responses. Those in this group are basically saying they feel serotonin when witnessing kindness, which is an evolutionary response to humanity's social instinct.

From this data, the theory of diffusion of innovation suggests that queer-positive media messaging has permeated a majority of motorsport fans. This is an indicator that other LGBT+ people can come out without losing many supporters or attracting an avalanche of hate.

The silence – with notable exceptions – from governing body, series, team, sponsor and big-name driver accounts was obvious. Perceived as homophobia by pro-Watts commenters, this may be due to innocent factors, such as ‘no-politics’ social-media policies, not wanting to provoke trolls, or not knowing what to say.

The Conscious Capitalism movement – people supporting brands whose corporate values match their own – is gaining momentum. Public tolerance of homophobia is at an all-time low and decreasing. It's likely that motorsport brands being publicly supportive of LGBT+ people will reap benefits in their support base.

BRIDGET SCHULL



LAT IMAGES





# Sometimes you just know it's gonna be your day

Kurt Busch avoided all the crashes — including The Big One — to put the #41 in Victory Lane after the late-race leaders ran short on fuel

By David Malsher, US Editor, Motorsport.com

🐦 @DavidMalsher







**I**f you wanted to win last Sunday's Daytona 500, there was no pattern to follow. Racing's standard clichés — run error-free, avoid crashes, have a perfect car — meant nothing. Race winner Kurt Busch received an early drivethrough penalty for speeding in the pitlane, he picked up significant damage in one of the race's major shunts, and he lost his rear-view mirror so he was entirely reliant upon his spotter for knowing when to move across to defend or get a push from a charging line of cars behind him.

And at no point did the #41 Stewart-Haas Racing Ford Fusion appear to be the fastest car. Heck, it took until the 200th and last lap for him to hit the front. But as the exultant Las Vegas native remarked afterwards: "The more it becomes unpredictable at Daytona, the more it becomes predictable to predict unpredictability."

Had there been one more yellow flag, he'd likely not have won, but a long

final stint obliged everyone to save fuel. Busch's primary rivals in the closing stages — Kyle Larson of Chip Ganassi Racing, Hendrick Motorsports' Chase Elliott (both Chevrolet) and the Furniture Row Toyota of Martin Truex Jr — appeared to be faster... but they weren't saving enough gas, and they paid the price.

With three laps remaining, polesitter Elliott was forced to relinquish the lead to Truex, who then had to hand it to Larson on the penultimate lap. Then Larson too slowed and dropped to the bottom of the track as Busch swept past. His closest challenger over the final mile or so was Ryan Blaney's Wood Brothers-run Ford, but Blaney had nothing left in the tank to take on Busch. Kurt won by a quarter of a second to become the first driver in Daytona 500 history to have his name stencilled on the Harley J Earl Trophy after leading just the final lap.

It was the perfect start to Ford's relationship with SHR, for new series sponsor Monster, which also backs Busch, and for newly retired (from NASCAR driving, anyway) Tony Stewart,

Busch celebrates post-race aboard the battle-scarred Stewart-Haas Ford

co-owner of the squad. Famously, 'Smoke' never won the Daytona 500 in his 17 attempts as a driver and was now bubbling with enthusiasm.

"It was a crazy race, even crazier to sit and watch it from a pitbox, finally," said Stewart. "If I had known all I had to do to win the race was retire, I would have retired 17 years ago! Kurt did an amazing job. He didn't even have a rear-view mirror so his spotter, Tony Raines, did an amazing job. That is the most composed I have ever seen Kurt at the end of a race. He deserved this."

Given who was left at the end, that's probably true. But among the frontrunners there were many blameless victims of chaos during a race in which, by three-quarter distance, only five of the 40 starters had not been damaged or suffered some other mechanical strife.

So the real deciding factors in Busch's triumph were patience and race smarts... along with the one racing cliché that will always hold true — you have to be in it to win it.

Many of the pre-race questions





surrounded the breaking of the event into three stages, as per NASCAR's new rule, which basically formalises the much-derided 'competition yellows'. For Daytona, that would mean full-course cautions flying at 60 and 120 laps, but on this occasion these appeared to have little effect on the end result. It's traditionally a race governed by the draft – breakaway groups are rare, so bottling up the competitors was hardly going to result in a major shift in race order.

Even so, the allure of the controversial bonus points to the top 10 at the end of each segment did provoke an interesting strategy from the Toyota contingent. The Joe Gibbs Racing quartet of Kyle Busch, Denny Hamlin, Matt Kenseth and Daniel Suarez, together with the Furniture Row cars of Truex and Erik Jones, pitted under green on lap 17 for fresh right-side tyres. But the rookies revealed their novice nerves, as Jones skidded through his pitstall and Suarez was penalized for speeding on pitlane. No such excuse for Kenseth, who flat-spotted his left-side front tyres braking hard at pit entry, >>

## KURT BUSCH: RUNNING UP THAT HILL, NO PROBLEMS

UNSURPRISINGLY, KURT BUSCH WAS IN magnanimous mood last Sunday night, handing out compliments like candy to his team owners Tony Stewart and Gene Haas, his exultant crewchief Tony Gibson, his sponsors, his wife Ashley, who he married in January, and even to his rivals.

In the midst of the press conference afterwards, he said Daytona International Speedway didn't owe him anything, despite three times finishing runner-up. That much may be true, but maybe this win was some kind of karma. Two years ago, he was indefinitely suspended by NASCAR while under investigation for domestic assault on his then partner. No criminal charges were ever brought and a month later he was reinstated, but by then he had missed the Daytona 500, along with two other races. Whatever the governing body's internal regulations on such matters, the outsider's perception was that Busch had been the victim of a guilty-until-proven-innocent reaction.

Not helping his cause was his reputation as one of the sport's notorious bad boys. He had always come across as a driver who expected to win, and when he didn't the 2004 champion made no attempt to mask his temper. Relationships with team colleagues, TV commentators and journalists were regularly burned. But something's changed, and part of it is without doubt his domestic bliss with Ashley, who he credits for turning him into a "positive thinker".

Whatever the case, this wasn't merely his 29th Cup win, and even seemed to go above and beyond the fact that it's *the* NASCAR race

to win. Personally, it came across as a turning point. Busch looked truly exultant in pitlane, and genuinely grateful in the press room.

"I'm blown away by the amount of effort it takes to win one of these races, let alone the Daytona 500," he commented. "To come here over the years and have fast cars, to not deliver for the team, you leave here feeling more dejected than at any other race track. The years that you have really fast race cars, you end up on the hook, wrecked – those are the worst feelings. Then there's years where you don't have speed and you can't figure out why. You try to salvage a solid finish.

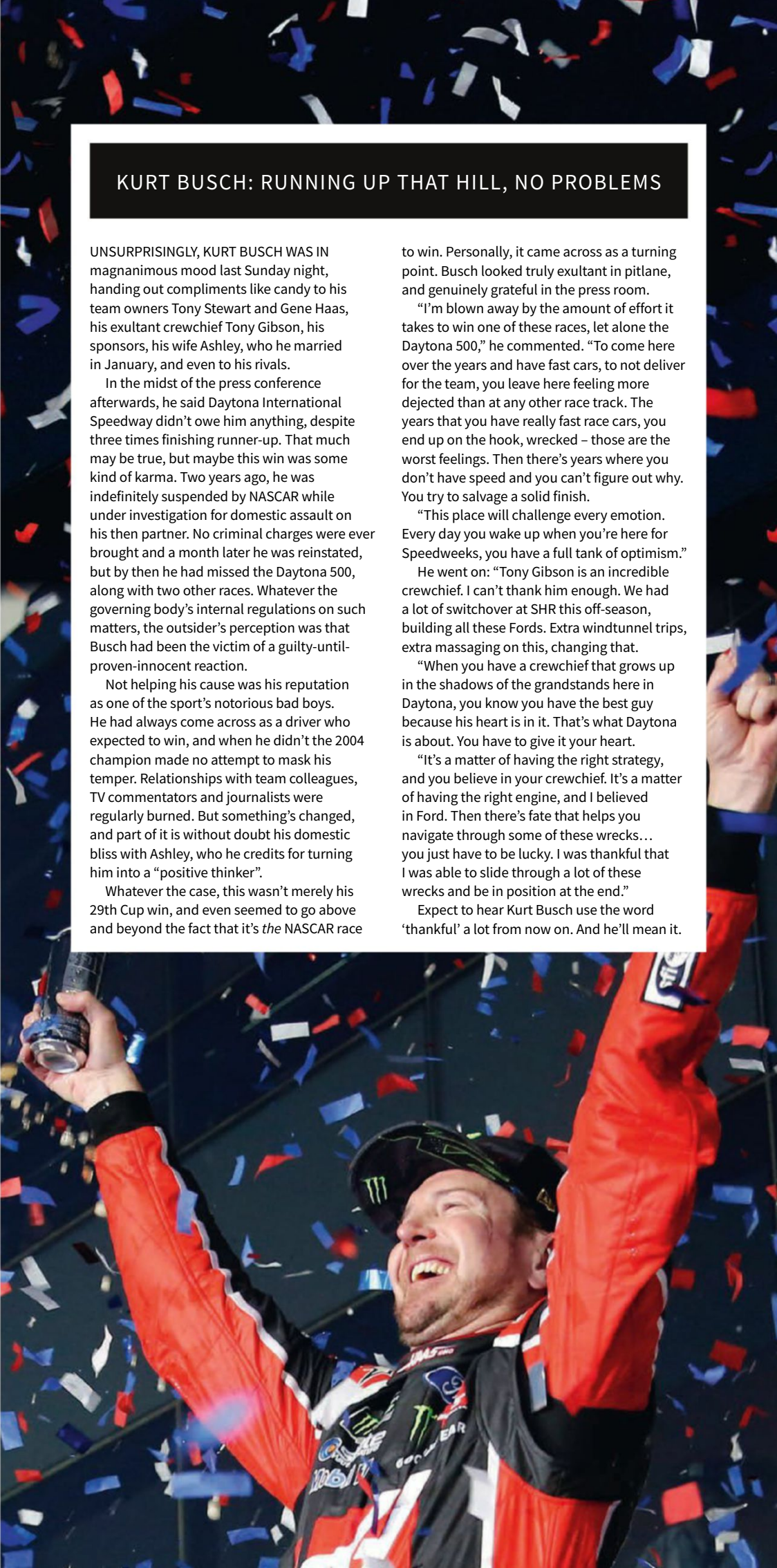
"This place will challenge every emotion. Every day you wake up when you're here for Speedweeks, you have a full tank of optimism."

He went on: "Tony Gibson is an incredible crewchief. I can't thank him enough. We had a lot of switchover at SHR this off-season, building all these Fords. Extra windtunnel trips, extra massaging on this, changing that.

"When you have a crewchief that grows up in the shadows of the grandstands here in Daytona, you know you have the best guy because his heart is in it. That's what Daytona is about. You have to give it your heart.

"It's a matter of having the right strategy, and you believe in your crewchief. It's a matter of having the right engine, and I believed in Ford. Then there's fate that helps you navigate through some of these wrecks... you just have to be lucky. I was thankful that I was able to slide through a lot of these wrecks and be in position at the end."

Expect to hear Kurt Busch use the word 'thankful' a lot from now on. And he'll mean it.





obliging him to circle the track and pick up new lefts too.

Still, Busch, Hamlin and Truex worked together to create their own draft and stay clear of the leading pack, thereby remaining unlapped. Once the Ford and Chevrolet drivers had stopped, and the track had been cleared of debris after another rookie, Corey LaJoie, messed up his pit-in and pushed up into the wall, Busch, Hamlin and Truex were back among the leaders, headed only by the Stewart-Haas Ford of Kevin Harvick and the Ganassi Chevy of Jamie McMurray.

Kyle Busch hit the front on lap 42 and, after briefly losing the lead to Truex and then Blaney, the #18 Toyota was back at the head of the field when the green-'n'-white chequered flew, signifying the end of the first segment.

During the enforced yellow between segments, everyone dived pitward and Ganassi jumped Larson seven spots and into the lead by giving him only fresh right-side tyres. It was a tactic that worked to a degree, but he couldn't prevent Harvick from taking the lead soon after the restart. Again, the JGR drivers and Jones pitted together and early, but this time their tactic failed more conspicuously. They didn't leave the pits together and so, without each other's drafting help, they were running 8mph slower than Harvick, who quickly led the pack right onto their tails and tried to put them a lap down.

Hamlin tried a little too hard to block the #4 SHR Ford and found himself elbowed into Nowheresville, tumbling down the order. Jones was a tougher nut to crack, playing Kyle Busch's loyal wingman. So the leading runners headed to the pits, leaving Jimmie Johnson – who like Blaney had started from the back of the grid in a back-up car following their mishaps in the Duels (see panel, opposite page) – at the front. The seven-time and reigning champion would hold the lead for just six laps before Hendrick team-mate Dale Earnhardt Jr, the master of restrictor-plate racing, took over.

Kenseth, who'd worked hard with Truex to recover from his earlier pitlane mishap and had unlapped himself from Junior to run behind Busch and Jones, had cause to regret it on lap 105. A rear puncture on Busch's #18 Toyota swung him at a right-angle to the track in



Turn 3 and, as he backed into the wall, Jones and Kenseth piled in.

Earnhardt too was left with nowhere to go, and rode over the front of Busch's Toyota before sideslapping the wall. Elliott Sadler's Tommy Baldwin Racing entry steered clear of the worst of it but still collected some damage on the right side, took the lead and then stopped: the race had been halted by a red flag. The veteran Sadler would have to make his way to the pits once engines were fired once more.

Harvick was leading at the 120-lap mark, when the second segment ended, but when the third segment got the green polesitter Elliott was back in front along with Hendrick team-mate Kasey Kahne. But behind them another disaster struck. The 2011 Daytona winner, Trevor Bayne, tried to make it four-wide at the end of the back straight, turning and shunting Johnson, and the pile-up included Harvick, Clint Bowyer, Brad Keselowski, Joey Logano and Hamlin. Bayne's lost momentum and drift up the track surface had also forced Kurt Busch to grind along the wall in avoidance, leaving the #41 with modified right-side aerodynamics and a scuzzy new colour scheme.

More chaos followed. Elliott, who had spent much of the day using the whole

**Above:** Kyle Busch crashes as Jones (77), Kenseth (20) and Ty Dillon pile in. **Bottom:** Larson (42) and Blaney (21) came close to victory, here battling Harvick and Kyle Busch. **Above right:** Truex was another to be denied late in the race

track, trying to head whichever line of cars had the most momentum at any given time, made one move too far. Swerving from the outside lane to try and cover McMurray's attempt to lead a conga line up the middle, he got tagged by the Ganassi machine and, while the #24 Hendrick car survived unscathed, McMurray spun and the various avoidance manoeuvres turned into a melange of smoke, bent metal and flying turf. Effectively eliminated from frontrunning ability were Ty Dillon, Ryan Newman and Suarez.

A minor shunt between backmarkers on lap 149 provided the yellow that gave everyone a chance to pit, and the green waved with 47 laps to go. It would be a stretch to make it on the remaining fuel were the race to remain green – but surely that wouldn't happen...

Except it did. Over the race's final quarter, pretty much everyone ran single file, using the slipstream to eke out the fuel. With three laps to go, Larson ducked down to the inside, looked in his mirrors and saw no-one was following him, and swiftly returned from whence he came but a couple of cars further up the line, sliding into third ahead of Kurt Busch. But Larson, Truex and Elliott, as the frontrunners with the least amount of draft assistance, were now on fumes and plummeted to 12th, 13th and 14th. Busch, restrained and soft-peddalling his Ford for much of the final stint, found himself at the front, with the sputtering Blaney, pushed to prominence by a generous Logano, as his token opposition. Job done.

AJ Allmendinger was a remarkable third for JTG Daugherty, equalling his best result at Daytona, while fourth went to Aric Almirola from Paul Menard, Logano and Kahne. In eighth was the highest Toyota, that of two-time 500 winner Michael Waltrip in his final Cup race. ❁







## DUELS TO ELLIOTT, HAMLIN



### RESULTS DAYTONA 500 NASCAR CUP ROUND 1/36, DAYTONA (USA), FEBRUARY 26, 200 LAPS

POS	DRIVER	TEAM/CAR	TIME	GRID
1	Kurt Busch	Stewart-Haas Racing · Ford Fusion	3h29m31s	8
2	Ryan Blaney	Wood Brothers Racing · Ford Fusion	+0.228s	36
3	AJ Allmendinger	JTG Daugherty Racing · Chevrolet SS	+0.419s	38
4	Aric Almirola	Richard Petty Motorsports · Ford Fusion	+1.195s	13
5	Paul Menard	Richard Childress Racing · Chevrolet SS	+1.564s	33
6	Joey Logano	Team Penske · Ford Fusion	+2.196s	15
7	Kasey Kahne	Hendrick Motorsports · Chevrolet SS	+2.288s	26
8	Michael Waltrip	Premium Motorsports · Toyota Camry	+8.826s	30
9	Matt DiBenedetto	Go FAS Racing · Ford Fusion	+9.451s	25
10	Trevor Bayne	Roush Fenway Racing · Ford Fusion	+9.581s	11
11	Brendan Gaughan	Beard Motorsports · Chevrolet SS	+9.669s	39
12	Kyle Larson	Chip Ganassi Racing · Chevrolet SS	+11.267s	16
13	Martin Truex Jr	Furniture Row Racing · Toyota Camry		35
14	Chase Elliott	Hendrick Motorsports · Chevrolet SS		1
15	Michael McDowell	Leavine Family Racing · Chevrolet SS		22
16	Landon Cassill	Front Row Motorsports · Ford Fusion	-1 lap	27
17	Denny Hamlin	Joe Gibbs Racing · Toyota Camry	-1 lap	4
18	Cole Whitt	TriStar Motorsports · Ford Fusion	-1 lap	17
19	Austin Dillon	Richard Childress Racing · Chevrolet SS	-1 lap	10
20	Elliott Sadler	Tommy Baldwin Racing · Chevrolet SS	-1 lap	40
21	Ryan Newman	Richard Childress Racing · Chevrolet SS	-2 laps	14
22	Kevin Harvick	Stewart-Haas Racing · Ford Fusion	-3 laps	5
23	Joey Gase	BKRacing · Toyota Camry	-4 laps	29
24	Corey LaJoie	BKRacing · Toyota Camry	-7 laps	31
25	David Ragan	Front Row Motorsports · Ford Fusion	-12 laps	20
26	Jeffrey Earnhardt	Circle Sport/TMG · Chevrolet SS	145 laps-accident	32
27	Brad Keselowski	Team Penske · Ford Fusion	143 laps-accident	7
28	Jamie McMurray	Chip Ganassi Racing · Chevrolet SS	141 laps-accident	3
29	Daniel Suarez	Joe Gibbs Racing · Toyota Camry	141 laps-accident	19
30	Ty Dillon	Germain Racing · Chevrolet SS	140 laps-accident	18
31	Ricky Stenhouse Jr	Roush Fenway Racing · Ford Fusion	133 laps-accident	23
32	Clint Bowyer	Stewart-Haas Racing · Ford Fusion	128 laps-accident	6
33	Danica Patrick	Stewart-Haas Racing · Ford Fusion	128 laps-accident	12
34	Jimmie Johnson	Hendrick Motorsports · Chevrolet SS	127 laps-accident	24
35	Chris Buescher	JTG Daugherty Racing · Chevrolet SS	127 laps-accident	37
36	DJ Kennington	Gaunt Brothers Racing · Toyota Camry	127 laps-accident	28
37	Dale Earnhardt Jr	Hendrick Motorsports · Chevrolet SS	106 laps-accident	2
38	Kyle Busch	Joe Gibbs Racing · Toyota Camry	103 laps-accident	21
39	Erik Jones	Furniture Row Racing · Toyota Camry	103 laps-accident	34
40	Matt Kenseth	Joe Gibbs Racing · Toyota Camry	103 laps-accident	9

Winner's average speed 143.187mph.

**Championship 1** Kurt Busch **56**; **2** Blaney **44**; **3** Logano **43**; **4** Harvick **42**; **5** Allmendinger **39**; **6** Almirola **37**; **7** Larson **36**; **8** Elliott **33**; **9** Hamlin **33**; **10** Menard **32**.

THE DAYTONA 'DUEL' QUALIFYING RACES awarded points for the first time, and produced two action-packed, quickfire events that set the majority of the grid for the 500.

In Duel 1, polesitter Chase Elliott was passed by Brad Keselowski on the opening lap.

Kyle Busch grabbed the lead when the competition caution was called on lap 25, and he took a fuel-only strategy in the pitstops. Keselowski, who'd dropped back to third, quickly powered his way in front at the restart.

Busch clashed with Paul Menard soon after Elliott had repassed Keselowski for the lead. But a more serious crash caused a caution, as non-guaranteed 500 starters Corey LaJoie and Reed Sorenson collided in the tri-oval, LaJoie sending Sorenson hard into the wall. "I'm sure it looked like I meant to do it, but I didn't," LaJoie insisted before later admitting: "Man, when I'm trying to get into the Daytona 500, if my mom was in that spot, I'd probably wreck her too."

Sorenson responded: "I hope he's proud."

In a frantic dash to the finish, Elliott made some crude defensive moves to ensure victory (above) in the face of the charge of a hooked-up Kevin Harvick and Keselowski. Jamie McMurray cannily tailed Elliott for second, ahead of Harvick and Keselowski.

In Duel 2, Dale Earnhardt Jr led from pole in his first race back since his concussion-enforced layoff. Denny Hamlin briefly hit the front, but his inside lane of cars stalled out, sending him plummeting to 13th.

Hamlin also incurred a penalty, for driving through too many pit stalls as he rejoined from the competition caution. But last year's 500 winner then got his act together.

Jimmie Johnson was hit by David Ragan, sending him into Ryan Blaney. A few laps later, Johnson blew a tyre, causing a caution.

Earnhardt led until the penultimate lap, when Austin Dillon pushed Hamlin to the front. Clint Bowyer finished second, ahead of Kurt Busch, AJ Allmendinger and Dillon, with a miffed Earnhardt slumping to sixth. Earnhardt rued: "Maybe if [Dillon] went with me we'd finish first and second."

LaJoie and DJ Kennington were the drivers who raced their way into the 500, but that was the sideshow with regular-season points at stake.

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MacLeod will make his full-time return in a GT3 Bentley

## MacLeod and Howell get full-time deals

BRITISH FORMULA FORD CHAMPION Callum MacLeod and British Touring Car race winner Gareth Howell will return to full-time racing this season with campaigns in British GT.

MacLeod has struggled to find a full-time drive since his 2007 title-winning single-seater campaign. He will race alongside Ian Loggie – who he has coached in recent seasons – in a Team Parker Racing Bentley Continental GT3.

MacLeod and Loggie are the first pairing confirmed for what is expected to be a two-car Bentley GT3 entry from the Team Parker crew.

“This year is really big for me because it’s the first time in 10 years that I’ll be getting a full season in a championship,” said MacLeod.

“We did two rounds of British GT last year, but I didn’t do a racing lap in either [after gearbox issues at Silverstone and a crash in practice at Spa], so I feel owed some luck this year.

“Ian has come on hugely in the last

year, and we’ve worked with TPR and M-Sport [which builds the Bentleys] to make the car more predictable and comfortable, and we start this year with a really good base. I think we’ve got a lot of reasons to feel confident.”

Meanwhile, three-time BTCC winner Howell will team up with fellow ex-touring car racer Richard Marsh in an In2 Racing McLaren 570S GT4. Howell’s last racing experience was seven years ago in the Trofeo Abarth series.

He said: “I’ve not actually raced anything since a couple of outings in Trofeo Abarth back in 2010. I’ve been working for McLaren Automotive developing their road cars, so racing has taken a bit of a back seat.

“Richard and I have known each other for years, back since we raced Fiestas together in the late 1990s. He wanted to do something serious this year and the GT4 opens up the chance to race a McLaren to more



Howell will drive a McLaren 570S with GT debutant outfit In2 Racing

gentleman drivers. It’ll be an exciting year, and we definitely aim to be at the sharp end.”

This will be Porsche Carrera Cup GB squad In2’s first season in British GT. It plans a two-car entry, although the driver line-up for the second car is yet to be announced.

● AmD Tuning has confirmed Lee Mowle and Ryan Ratcliffe as the two drivers who will pilot its new Mercedes AMG GT3 in British GT this season.

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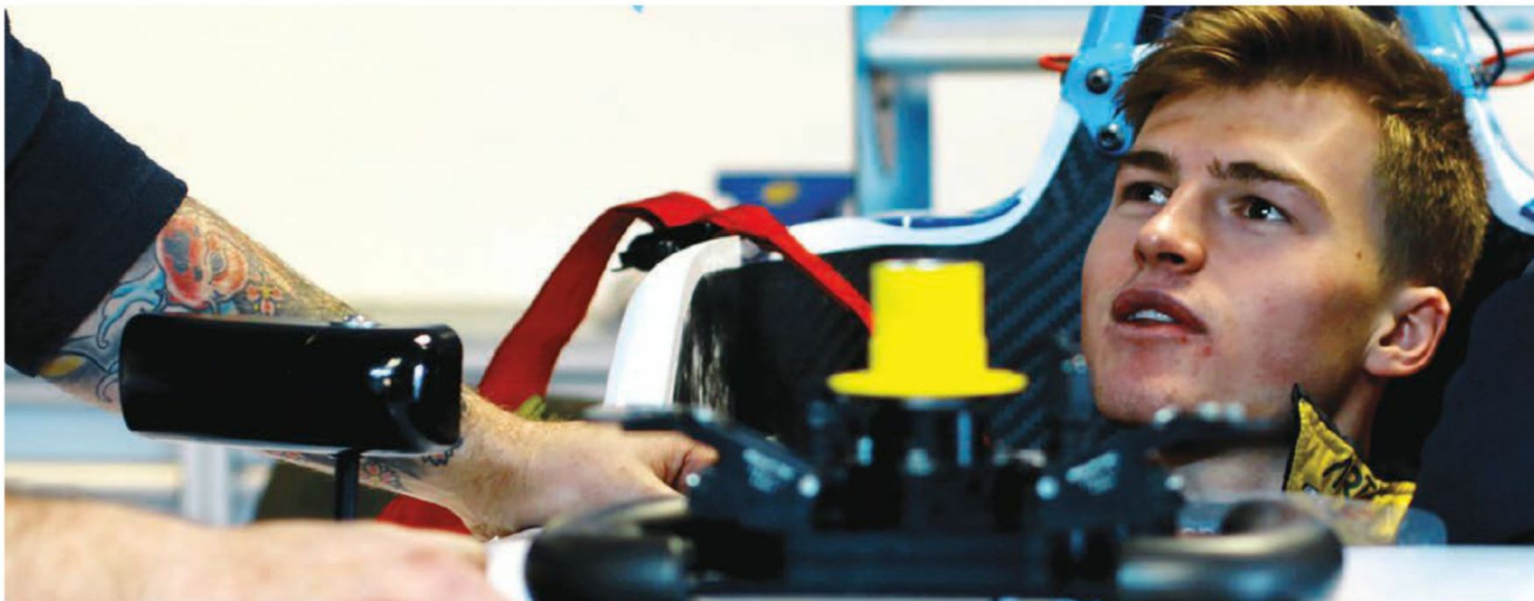
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BRITISH F3

# O'Keeffe gets F3 chance with Douglas

SOUTH AFRICAN DRIVER CALLAN O'KEEFFE has joined Douglas Motorsport for a full campaign in the BRDC British Formula 3 Championship.

O'Keeffe spent the majority of 2016 without a regular drive, making a sole outing in the Formula Renault NEC series in the regular season. Later in the year he appeared in the F3 Autumn Trophy at Snetterton with Fortec, claiming third in the standings with a pair of fourth-place finishes to his name.

The 20-year old has spent the intervening months attempting to put together a programme in the main championship, and on Monday (February 27) was confirmed as the second driver for Wayne Douglas's eponymous team.

O'Keeffe's first run in one of the team's two Tatuus-Cosworth machines was thwarted by

Storm Doris at Snetterton last week, but he completed a day of testing at Oulton Park on Tuesday and was scheduled to test again on Wednesday as Autosport went to press.

"The Autumn Trophy outing was pretty instrumental in this deal happening," said O'Keeffe. "I couldn't find budget last year and spent pretty much the entirety on the sidelines. [But] I was called up for one race in Formula Renault out of the blue, and then Fortec called a couple of weeks before the Autumn Trophy and said they had a seat and asked if I wanted to race."

"I just dropped in and had the one practice the day before the meeting. The speed was good and I ended up third overall, so that went well, and there was a lot of interest from that. A few teams got talking and that's where the door opened."

"Everyone says in a press release how much hard work it was to get a deal done, but people have no idea – I've not got a manager, I run my career completely by myself."

"I spoke to three or four teams – obvious ones that people would know – before landing on Douglas. It all comes down to where you feel most at home, and Wayne did a great job last year with Enaam [Ahmed] and Thomas [Randle], two rookies, and the team is very much like a family. It was the best decision for me and I'm thankful they had a seat open."

O'Keeffe will race alongside Petru Florescu at five of the eight British F3 events this year, the Romanian having last week confirmed a part-campaign with Wayne Douglas's outfit (Autosport, February 24).

FORMULA FORD 1600

# Youngster Cane adds FFord with Dempsey

TEENAGER JORDAN Cane has added a deal to drive with Cliff Dempsey Racing in the National Formula Ford championship this year.

In 2015 Cane became the youngest driver to win a race in the American F1600 series, aged 14. He called time on his campaign in USF2000 last year before announcing he would race for Hillspeed – which will be supported by Cliff Dempsey's outfit – in the BRDC British F3

Championship in 2017. Having already tested one of Dempsey's Rays, Cane has now added a programme of select Formula Ford outings.

The traditional Festival and Walter Hayes Trophy events are also expected to form part of his schedule.

As with his F3 season, Cane will only be able to make his FFord debut when he turns 16 in May.

"We'll just do select rounds with Jordan," said Dempsey. "He can't really do [attempt to win]



a championship since he's not 16 until May, so there's no point concentrating on just one championship.

"He's just going to do races to try and improve his driving."

"He's driven Kents before, but he hasn't competed in one."

"If it interrupts [Cane's F3 programme with Hillspeed] we'll stop him doing the Kents, simple as that."

RENAULT CLIO CUP

# Orrock is latest to join Jamsport

FORMER VOLKSWAGEN CUP RACER LUCAS Orrock will switch to the Renault UK Clio Cup this year with the title-winning Jamsport squad.

The 26-year old competed in the SEAT Leon Eurocup last season after finishing runner-up in the VW Cup in 2015.

"I had my first test with Jamsport last week at Snetterton," said Orrock, "and immediately the car was enjoyable to drive. Comparable in some areas to what I've driven before, but with some unique characteristics such as the paddleshift gearbox as well as the all-round engineering."

"We've done the entry-level stuff and gained some very good experience from Europe, but for sensible money and setting yourself up for a shot at the BTCC, then this is the one."

Orrock joins Nathan Harrison and Aaron Thompson in Jamsport's line-up this year.





## GINETTA JUNIOR

# Collard to HHC for Juniors year two

TITLE-WINNING GINETTA JUNIOR SQUAD HHC Motorsport has completed its line-up for 2017 with the signing of Jordan Collard.

The 16-year old, son of British Touring Car race winner Rob, made his debut in the series last year with TCR and finished 16th overall.

HHC team boss Charlie Kemp said: "It's great to have another second-year driver on board. We've done a few days with him and we've made some progress with his driving.

Collard joins fellow second-year racers

Tom Wood and Charlie Digby in HHC's line-up, alongside rookies Scott McKenna and Ruben del Sarte.

● HHC will return to the Ginetta GT4 Supercup this year with Callum Pointon. The team won the title with Charlie Robertson in 2014 and Pointon, who finished sixth in the standings last season, will drive for the team in the Ginetta series after a planned drive in British GT fell through.

EBREV/LAT

## IN BRIEF



### OULTON AND BRANDS MODIFICATIONS

Oulton Park and Brands Hatch have enjoyed upgrades ahead of the 2017 season. Changes have been made at Britten's Chicane at Oulton (above), including a new raised viewing area. An Armco barrier and increased runoff were also added with improved drainage. The treeline at Druids has been moved back 70 metres. At Brands the pitlane exit has been resurfaced, while a new debris fence has also been put in place. Further improvements include access road repairs and new road markings on Colin Chapman Way.

### DOUBLE R'S F4 LINE-UP COMPLETED

Chinese racer Zhou Cao has been confirmed as Double R's third British F4 driver. The 15-year-old Asian karting champion joins the already announced Linus Lundqvist and Karl Massaad to complete the team's 2017 line-up.

### WISE MAKES MOVE TO OSS FOR 2017

750 Motor Club Bikesports regular Richard Wise will switch to OSS for 2017. Wise finished fifth in his Bikesports class for the past two years driving a Spire GT3, but will now move to driving a Chiron in OSS.

### COMPACT CUP ORGANISERS STAY ON

The BMW Race Days team of Greg Graham, Dan Collett and Barry Kennedy will continue to run the Compact Cup after the BRSCC bought the company. After previous boss Paul McErlean decided to sell BMW Race Days, Graham will take up the role of championship manager.

### NIELSEN TO RACE IN LMP3 CUP

Radical outfit Nielsen Racing will race in the LMP3 Cup this season. The team has acquired a Ligier JSP3 for its assault, but is yet to announce its driver line-up.

### CYCLIST KENNY IN ACTION AT OULTON

Olympic cycling gold medallist Jason Kenny and brother Craig gave their Ginetta G20 a run out at Oulton Park last month. Kenny spent four days over a fortnight on general trackdays at the Cheshire venue. The 28-year old does not have any motor racing plans for 2017.



## GT CUP

# Standing back after enforced year out

FORMER MAZDA MX-5 DRIVER Darrent Standing will race in the GT Cup in 2017 after a year out with health problems.

Standing will partner 2016 5Club MX-5 frontrunner Jack Sycamore in a Ginetta G50 (below) in the GTA class.

"A week before Christmas 2015 I was taken ill and spent the best part of 10 weeks in hospital," said Standing. "I had

plans for the year. I almost signed Ben Tuck as a co-driver but he ended up going to do Caterhams instead. I spent the rest of the year trying to get back to good health and get ready for this year.

"It [Standing's pace] was promising at the media day. Rob Gaffney came along to help with set-up. I was just under a second off his

fastest lap so I think I can get back on the pace."

Double champion Jeff Wyatt and former British Touring Car driver Geoff Steel have also confirmed they will enter the GTA class, campaigning a BMW E92 V8 M3 for a full season. The pair started to test the M3 last year, and are set to begin their pre-season schedule in March.



## GINETTA JUNIOR

# Winter winner Priaulx stays at JHR

GINETTA JUNIOR WINTER SERIES champion Seb Priaulx will compete in the main championship again this year.

The 16-year old, son of three-time World Touring Car champion Andy, finished seventh in his rookie season last year before winning the winter series last November.

He will remain with the JHR Developments squad he competed with last year, and with which he claimed the Winter Series title. During the winter he also sampled one of

JHR's British F4 cars, as well as testing a French F4 car last week, but has decided the Ginetta category will be his priority for 2017.

Priaulx has been boosted by the addition of a new sponsor this year and will head into the campaign as one of the favourites.

"I know from my father how finding such sponsorship at a crucial time is important," he said. "We can now work on laying down a foundation for my career, and being able to plan long-term is amazing."



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# 2017



## RACE MEETINGS

- ROUND 1 SILVERSTONE**  
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- ROUND 2 OULTON PARK**  
10 JUNE
- ROUND 3 CADWELL PARK**  
23 JULY
- ROUND 4 MALLORY PARK**  
12 AUGUST
- ROUND 5 SNETTERTON**  
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- 3 JUNE **HAREWOOD HILL CLIMB (BARC)**
- 17-18 JUNE **BROOKLANDS DOUBLE TWELVE MOTORSPORT FESTIVAL**  
(INC. SPEED TRIALS-SAT)
- 1-2 JULY **SHELSLEY WALSH HILL CLIMB (MAC)**
- 5-6 AUG **PRESCOTT SPEED HILL CLIMB**
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**HISTORICS** David Thorburn, runner-up in the Radical UK and European championships in 2011 and '12, will switch to Classic Formula 3 this season with an ex-Martin Brundle Ralt RT3. After his Radical success, Thorburn spent three years out of racing before returning in Scottish FF1600 last season. Now he will join the Classic F3 grid in the car that took Brundle to second place behind Ayrton Senna in British F3 in 1983. The Ralt has more recently been raced by Graham Fennimore. "I've had the car for six months as I got tired of trying to race teenagers in FF1600," said Thorburn. The car was tested last week by Thorburn at Donington Park (pictured above). **Photograph by Mick Walker**

**HISTORIC F1****BRONSON SCARAB F1 CAR TO GET OZ GP DEMO**

JULIAN BRONSON WILL give the American Scarab Formula 1 marque its Australian debut at Phillip Island on March 17-19, followed by a demonstration run at the Australian Grand Prix in Melbourne a week later.

Bronson has turned the 1960 front-engined racer into a leading contender in period grand prix car races.

"It will be the first time they've had a Scarab race in Australia," said Bronson, who last competed at Phillip Island 15 years ago. "It's a fantastic circuit and the Scarab should be good round there."

Bronson hopes to start his European season at Czech venue Most in May.

**CLASSIC VW CUP**

# Pinkney reunited with VW Vento VR6

TWENTY YEARS AFTER HE RACED IN THE Volkswagen Vento VR6 Challenge, tin-top ace David Pinkney will drive the same car in the Classic VW Cup.

Pinkney's long-time race engineer Andrew Dean spotted an advert for a Vento VR6 for sale in Kent 18 months ago, and quickly realised it was the ex-Pinkney car.

"I'd painted 'think Pink' on the dashboard, and it was still there," said Dean. Without

telling Pinkney, he bought the car and it has now been restored to period specification.

"We've restored it to the original livery by using period photographs," said Pinkney, who will race the car at Cadwell Park and Thruxton this summer.

Dean, who will take his ARDS test next week, plans to make his race debut in the Vento, taking part in two rounds of the Classic VW Cup. Stuart Kendal will

also take the wheel for two race weekends.

Pinkney has not competed regularly since the 2010 British Touring Car Championship, when he drove a Vauxhall Vectra.

"It'll be a bit of fun and a couple of boys' weekends away," said Pinkney. "I love racing at Thruxton, and won there in the Carrera Cup, so I want to do that one."

"It's in bog-standard Vento spec, so we're up against some much quicker machinery."

**HISTORICS**

# New Crossle school car inspired by marque's first FFord design

JOHN CROSSLE'S FIRST FORMULA Ford design has inspired the new 90F school single-seater, which has opened a new avenue for the Crossle Car Company in its 60th year.

Unveiled at Historic Motorsport International, the evolution of the 16F of 1969-70 has been built for the new Classic Racing School at Charade in France, which has placed an initial order for seven cars.

The 90F features a stronger,

stiffer tubular chassis, with enlarged cockpit and enhanced componentry for safety, ease of operation and longevity.

Another key to the concept is a 'bulletproof' Ford Zetec engine, detuned from 150bhp to 105bhp and geared to produce an FF1600 feel within a 90dBA limit. The carburetted unit, with an alternator for repeated self-starting, is mated to a four-speed Elite gearbox. The cars will use FF1600 wheels.

Run by Frenchmen Julien Chaffard and Morgan Pezzo, the CRS business model will allow the individually owned cars to be run by a team of young motorsport professionals from this July.

"Our totally classic-themed experience will be very different from traditional race schools, of very high quality – including the food – and with numbers limited for maximum driving," said Pezzo.





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# Race Retro and HMI don't need to battle

By Marcus Pye, the voice of club racing

[@Autosport](#)

## ENTHUSIASTS WERE SPLIT BETWEEN THE

established Race Retro and new Historic Motorsport International shows last weekend. But the events – at Stoneleigh's National Agricultural Centre, near Kenilworth, and ExCeL London respectively – were very different in content and aspiration.

Having visited both (Race Retro on set-up day), I sensed that they can co-exist happily, particularly since HMI, and The London Classic Car Show it piggy-backed in year one, have announced dates of February 15-18, 2018, a week before Race Retro's usual slot.

Friends who headed to England's heartland for Race Retro's public days reported that new owner Clarion Events had spruced up the 15-year-old event's feature halls. Activity was brisk and, of course, the great benefit of a rural parkland setting is that rally cars – driven by superstars Ari Vatanen and Markku Alen, national champions and mere mortals – can be let loose, literally, on a special stage around the campus to entertain fans. Inside, meanwhile, smiling Dane Tom Kristensen headed the Hall of Famers who enthralled the audience.

British organisers of blue-riband historic events chose the imposing ExCeL venue to preach their gospels to the capital's catchment area rather than the converted.

Masters Historic Racing (promoter of the FIA Formula 1 and sportscar championships), Motor Racing Legends, Goose Live Events (Silverstone Classic), the Historic Grand Prix Cars Association and Historic Motor Racing News (U2TC) showed wonderful cars. France's Peter Auto – of Classic Endurance Racing and Tour de France Auto fame – attended its first UK event, such was the audience's demographic, with a Group C Porsche 962 and an F2 Chevron B42 colouring its enclave.

The Historic Sports Car Club and Classic Sports Car Club, both of which bat well above their weight at home and abroad,

boldly split their resources and manpower between the shows and saw benefits in both.

The HSCC's 'grid' at HMI was mouthwatering, ranging from Lincoln Small's ex-Derek Bell Wheatcroft Racing Brabham BT30 (which 'Dinger' was pleased to see, having flown in from his home in Florida) to Leo Voyatzides' Lola-DFV T282.

For equipment and memorabilia sales, enthusiasts would have gone to Race Retro, where dozens of traders set out their stalls. In London, world-class businesses Cosworth Engineering, Nicholson-McLaren Engines, the Crossle Car Company – the Northern Ireland concern now the world's longest continuously operational racing car manufacturer, the late John Crossle having started it in 1957 – Duncan Hamilton and Hall & Hall were among the pioneers populating a very different marketplace with sensational machinery.

Sportscar legend Jacky Ickx cut the tape to open Historic Motorsport International last Thursday. Visitors also reported enjoying the on-stage verbal interaction between the brilliant Belgian all-rounder, his long-time partner Bell, Jurgen Barth and Jackie Oliver at the Porsche-themed soiree. By closing time on Sunday the attendance was said to be 37,000 over three and a half days, more than 10% up on last year's stand-alone classic car show's, which justified HMI's promoter's vision.

London is where the British Racing and Sports Car Club first ran its Racing Car Shows – which evolved into the contemporary-themed Autosport International at Birmingham's NEC – more than half a century ago. With the city and everything it offers on ExCeL's doorstep, superb transport links via the Jubilee Line, Docklands Light Railway, City Airport and the spectacular Emirates Airline cable car over the Thames (a first for me), few attendees would want to go by car. It's here to stay. 🏁



## TILLEY'S FF1600 CAMPAIGN SAVED

Benn Tilley, 17, landed personal support from Silverstone Auctions towards his Historic Formula Ford programme at Race Retro last weekend, hailing the deal "a life-saver". Tilley was last season's outstanding HSCC rookie, finishing fourth in the championship with several fastest laps. He starts among 2017's favourites.



## PAUL GIBSON TO F2 CHEVRON-HART

Thirty-seven years after he campaigned a B40, Paul Gibson is going Historic F2 racing this season with another F2 Chevron-Hart. Gibson's B42-78-16 – one of four ex-Briggs/Breidenbach Tropicana Hotels cars, albeit presented in works ICI livery – was victorious at Brands Hatch last year when Richard Evans drove it for owner Hugh Price.



## PECO TEAM LIVERY FOR HADFIELD

Simon Hadfield has returned his ex-Mike Formato 1970 Lotus 59 to its original South African Peco Team livery for Historic Formula Ford's 50th Anniversary celebrations. The car graced the HSCC's stand at Historic Motorsport International last weekend. Period twin Geddes Yeates' 59 is being given a similar treatment by Mike Wrigley.



# The best of Race Retro

Autosport's staff brings you the highlights from last week's international historic motorsport show

By Jack Benyon, Paul Lawrence and Marcus Pye

[@autosport](#)

**R**ace Retro is one of the highlights of the historic racing calendar. Held at the National Agricultural and Exhibition Centre in Stoneleigh near Coventry, it draws some of the world's most expensive and exotic race cars.

With stalls selling items from books and models to art and overalls, it features something for racing enthusiasts of every stripe. And if you run out of steam browsing the historic machinery and merchandise, there's always a star or two appearing on stage for a chat.

## REUNITED AND IT FEELS SO GOOD

### TK and the legendary Bentley

By Jack Benyon

One person who won't need any introduction to historic racing fans is Tom Kristensen. The nine-time Le Mans winner regularly competes at Goodwood; indeed, the Dane confirmed last week that he will compete at the Members' Meeting in a Rover SD1. He'll complete a Goodwood hat-trick by attending the Festival of Speed and Revival meetings too.

But at Race Retro, his focus was more modern. One thing Race Retro does is partner the modern and historic elements of the show brilliantly. There are subtle flashes of more contemporary machinery without robbing the show of its historic appeal.

For 2017, TK was reunited with his 2003 Le Mans-winning Bentley, pulling on the beige-and-green overalls for the first time since the event.

"To see the original car is fantastic,"



said Kristensen. "It's tighter in a few places but I fit well in the overalls and in the car, it's nice and memories come flooding back. When you have done so many laps in the car at Le Mans at day and night and in testing and at Sebring, there's a lot of emotion."

And there was definitely a lot of emotion. Seeing Kristensen dressed in his regalia, and standing next to the Speed 8 he drove to victory only once before the programme was concluded, felt like 2003 all over again. That was one of the most emotional Le Mans, when Bentley took a first victory in the

The 2003 Le Mans-winning Bentley was a show highlight, as was the appearance of its famous driver

prestigious race since 1930, doing so in style with a one-two finish.

And a 450-mile journey away from La Sarthe, TK delighted in regaling his fans with stories of old. But the part he was really interested in was the flea-market-style stalls...

"What I've seen is there's some great stuff, a lot of it original, and there are some things that catch the eye," said Kristensen. "I like the wheeler-dealing going on with the art and the models. There's a lot available to tune your car too. That goes back a long time but never goes out of fashion."



LAWRENCE



### CELEBRATING THE COSWORTH DFV

## 50 years of accessible power

By Paul Lawrence

The 15th edition of Race Retro was easily the best yet, both inside the halls and outside on the live-action rally stage.

At the heart of the show was a celebration of 50 years of the Cosworth DFV engine. It was in June 1967 that the peerless Jim Clark rocked the grand prix world by giving the new engine a debut victory at Zandvoort on a day that made motor-racing history.

Race Retro marked this landmark anniversary with a major display of cars using the eight-cylinder double-four-valve powerplant. Pride of place went to a Lotus 49, Keke Rosberg's 1982 title-winning Williams FWo8 and James Hunt's McLaren M23, while two more rarely seen cars from Surtees – a TS7

from '70 and a TS14 from '72 – added to the exhibit's appealing depth.

At a time when modern F1 cars are built to narrow design parameters, two period machines provided a stark reminder that outlandish experiment and innovation once had a part in GP racing: the six-wheeled Tyrrell P34 and the unraced four-wheel drive Cosworth F1 car from 1969.

Mike Costin, joint founder of Cosworth with Keith Duckworth, curated the display and was on hand last Friday to remember a remarkable period in his life. In his typically understated manner, he talked of the early development miles, and of the merger of the design genius of Duckworth with the competitive drive and determination of Colin Chapman that made it all happen.

### RIGHT IN FRONT OF YOUR EYES

## Radical Warren racer rebuilt

By Marcus Pye

The most radical car in the 750 Formula's illustrious 67-year history, the extraordinary Warren Reliant in which the late Robin Smyth won the 1973 championship, sprang back to life before visitors' eyes over three days on the 750 Motor Club's stand.

Designed by the late Jerry Evershed, the ultra-low wedge-shaped machine is

powered by a Godfrey (Roots-type) supercharged Reliant engine with a custom cylinder head devised by Evershed. It has long been owned by 750MC stalwart Ron Welsh, who will run it in the 750 Trophy events – the club's historic series – this season.

Apart from a belt replacing the original chain-drive system to the Morris 1000 axle, the Warren will compete as it did when Smyth won nine of the 16 races he contested and claimed five lap records in Britain's oldest club-racing series. With each competitor able to count only eight scores from the 20 rounds, Smyth pipped six-time race winner Mike Street (DC+) in the final reckoning.

Starting with a bare frame on Friday morning, East Londoner Welsh and his pals had the machine on its 10-inch wheels by the time the show closed on Sunday evening.

LAWRENCE



### RACE RETRO IN BRIEF



#### RAUCOUS RALLYING

The event holds a rally stage each year, featuring many drivers and co-drivers from international and national rallying. 1981 WRC champion Ari Vatanen drove cars from his past including a Subaru Legacy and BMW M3. British champion Russell Brookes and current European two-wheel-drive champion Chris Ingram (both in Opel Mantas) also starred.

#### FAMOUS FACES

A host of motorsport personalities appeared on stage and in the crowd, including Norman Dewis, chief test driver and development engineer at Jaguar for over 30 years. Also in the mix were competitor Barrie 'Whizzo' Williams, co-driver and TV personality Tony Mason, and ex-works BMC driver Christabel Carlisle.

#### UNDER THE HAMMER

Race Retro featured a host of prestigious cars for sale by auction. A 1989 Aston Martin AMR1 Group C headlined the list valued at £500,000-550,000, while a 2005 Ford GT first owned by Jensen Button was sold for £264,375. Cars ranging from an MG Metro to a Lamborghini Countach were also on offer.

#### GIVE IT A GO WITH HERO

HERO events returned to the show for 2017 and offered the chance to drive historic cars (from Porsche 911s to Ford Cortinas) for just £35. There was also driver and navigating training for would-be competitors.

#### EIFELLAND PITCHES UP

A rare Eiffelland 21 F1 car was on display on the Vintage Racecar stand. The March-based car was driven in period by Rolf Stommelen and entered eight world championship GPs in 1972. The team was named after the owner's caravan firm.





# WHAT'S ON

## NASCAR's shake-up affects more than just racing



WHEN IT COMES TO MOTORSPORT series making changes, NASCAR has traditionally tended to be the one to do so unflinchingly.

It's perhaps an unexpected trait, since stock-car racing has always been viewed as a provincial relic of motorsport, with fans and team owners alike expressing a wish to keep the sheet-metal bodyshells as American as possible, and drivers as red-blooded as the fans. But while the look is sacrosanct, the format is flexible, and this year NASCAR has made a huge amendment to its rules, splitting races into three distinct stages.

Multi-part formats are popular in the movie trade, but rarely seen in motor racing since the demise of the Brooklands Double 12. NASCAR's experiment could be an anomaly if the three stages continue to prove as farcical as last Sunday's Daytona 500, the opening race of the 2017 Cup calendar. Split into two rounds of 60 laps and a final 80-lap stage, it was calamitous.

The reason this staged format reaps chaos is that it artificially compresses

the field into one huge pack with slightly cold tyres waiting to restart a race and settle relatively recent feuds. In a dominoesque fashion, if one of those cars loses its back end then half the field follows. The Daytona 500 had four cautions occur halfway into the final stage of the race, and one of those was for an accident that eliminated half the field. Sure, there have been wrecks in previous years, but they didn't feel as put-on as this.

It was a stuttering, painful mess of an event in which the winner, Kurt Busch,

**Above: did new three-stage format make TV more disjointed?**

**Below: wrecks were a common theme during middle phase of Sunday's Daytona 500**

was decided after others – including polesitter Chase Elliott – miscalculated how much fuel they'd need to finish the last 80-lap stint. Many other contenders were already out of the race, including iconic returnee Dale Earnhardt Jr and last year's champion Jimmie Johnson. The race felt contrived, poised not so delicately for chaos to repeatedly show its ugly face just when the drivers would settle into a rhythm. The TV coverage told a similar story.

As American NASCAR broadcasts do so often, adverts were sandwiched where they just didn't belong. The use of the word 'sandwich' there may genuinely be a result of about five of those ads – I don't dispute their effectiveness – but many laps of racing went unseen. Since stage lengths are so short, a three-minute ad break with FOX's graphical flourishes added in could mean missing the 'Big One'.

The upside of all these commercial breaks is the juxtaposition of adverts for insurance companies, who thrive on reminding you of the dangers of living.





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## HOT ON THE WEB THIS WEEK

You **HAMILTON BLOWS AWAY COBWEBS**

**Search for Hamilton 360° onboard lap in 2017 F1 car**  
Lewis Hamilton drives, and comments on, Mercedes' new F1 W08 EQ Power+ [we'll just stick to F1 W08 - ed] at Silverstone. His excitement is endearing; stepping out of the car after what is by necessity a restrained installation lap, he enthuses: "I can't believe it, I'm so lucky to have a job like this."



LAT IMAGES



LAT IMAGES

### F1 TESTING DAY FOUR

SKY SPORTS F1

Friday 1745

Rejoice – Formula 1 has, after an off-season of intrigue over the look of the new-generation cars, returned to our screens. OK, the Australian Grand Prix may still be three weeks away, but testing is now in full swing as teams prepare for the season opener *and* there are moving images to enjoy. Catch the best bits from today's (Thursday) on-track action at Barcelona on Friday afternoon with Sky Sports F1's succinct round-up.



Cutting from an insurance advert to the wreck of a Toyota may work more wonders for the industry.

FOX did, however, explain the rule changes with a level of coherence and understanding (one that has not necessarily extended to its other news outlets). Viewers weren't left feeling baffled by the rule changes themselves, just the carnage that the three-pronged race brought on. Still, there's an irritating feeling that we've all been short-changed by this new design to a point where it may not be sustainable.

While advertisers may be salivating right now, thinking about the extra airtime they can gain every time a stock car spins out, 'The Great American Race' suffers. It should only be a matter of time until NASCAR reverses its decision to split races into three, a World Wrestling-style contrivance that may entertain in the short run but will infuriate over a season: NASCAR doesn't need rules to instill chaos; it creates that without trying.

SAMARTH KANAL

## INTERNATIONAL MOTORSPORT

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### NASCAR CUP

**Rd 2/36**  
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**March 5**  
**WATCH ON TV**  
**Live** Premier Sports,  
Sunday 1900



**AUSTRALIAN SUPERCARS**









## FROM THE ARCHIVE

Jim Clark leads the 1964 Solitude Grand Prix on his way to victory in the non-championship F1 race. Driving a Lotus 33 at the Solitude track, near Stuttgart in Germany, he led home John Surtees by just over 10 seconds.



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# MY FIRST MOTORSPORT MEMORY



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### BROCK FAN HOOKED BY BATHURST

**W**hile I don't have any direct family involvement in motorsport, I'm pretty sure I would have seen it on TV before the 1992 Bathurst 1000, a race that in Australia dominates its Sunday in October. But that edition stands out as my earliest motorsport memory.

I guess I had somehow already decided I was a Peter Brock fan, because I remember being disappointed that his Holden failed to get away at the start of the race.

The Mobil-liveried 05 Commodore he shared with Manuel Reuter broke a tailshaft (new and fitted on race morning) on the grid. They rejoined the race 15 laps down and despite the length of the day it was game over, even before breaking another tailshaft and being turned around in the rain much later.

Back then the notion of mechanical failures was a new phenomenon to me. Brock's Commodore was one of four cars built to the new-for-1993 Group C regulations that became V8 Supercars, replacing the unpopular Group A – cars that didn't resonate with local fans.

That same event was the Bathurst farewell for Nissan's Skyline GT-R. A car so dominant that it was nicknamed Godzilla basically led to Australia jumping off the Group A wagon. Jim Richards and Mark Skaife won (to follow up their 1991 victory) in controversial circumstances.

Richards led when a late deluge hit Mount Panorama, and he crashed on slicks. Twice, actually – the second time he aquaplaned into three cars already in the wall on Conrod Straight. The race was red-flagged, with Ford heroes Dick Johnson and John Bowe considered the winners until results were backdated the mandatory lap, which was still led by Richards.

The Nissan pair were booed when they made it to the podium, and Richards probably wouldn't have been in the mood to celebrate anyway, given the death of close friend Denny Hulme after suffering a heart attack mid-race. New Zealand-born Richards gave as good as he got, on live TV, and this is perhaps the part of the race you may be familiar with.

"I'm just really stunned for words, I can't believe the reception," he said. "I thought Australian race fans had a lot more to go than this, this is bloody disgraceful. I'll keep racing but I tell you what, this is going to remain with me for a long time – you're a pack of arseholes." ❄



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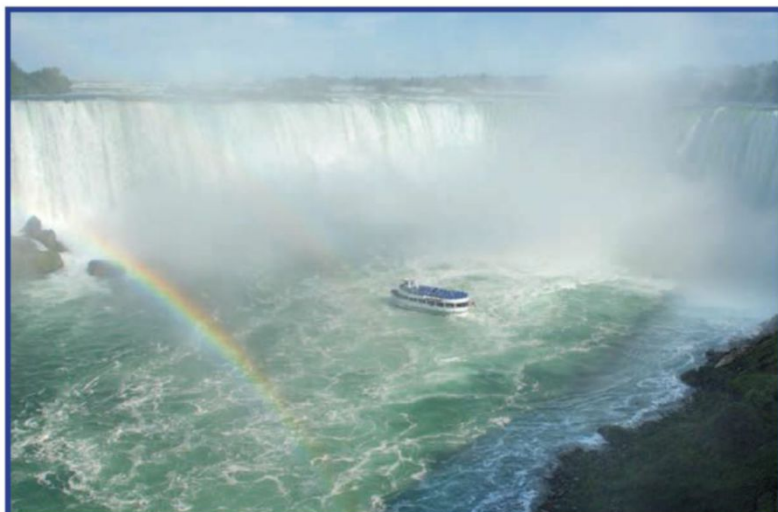


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