

F1 LAUNCHES INSIDE THE NEW CARS

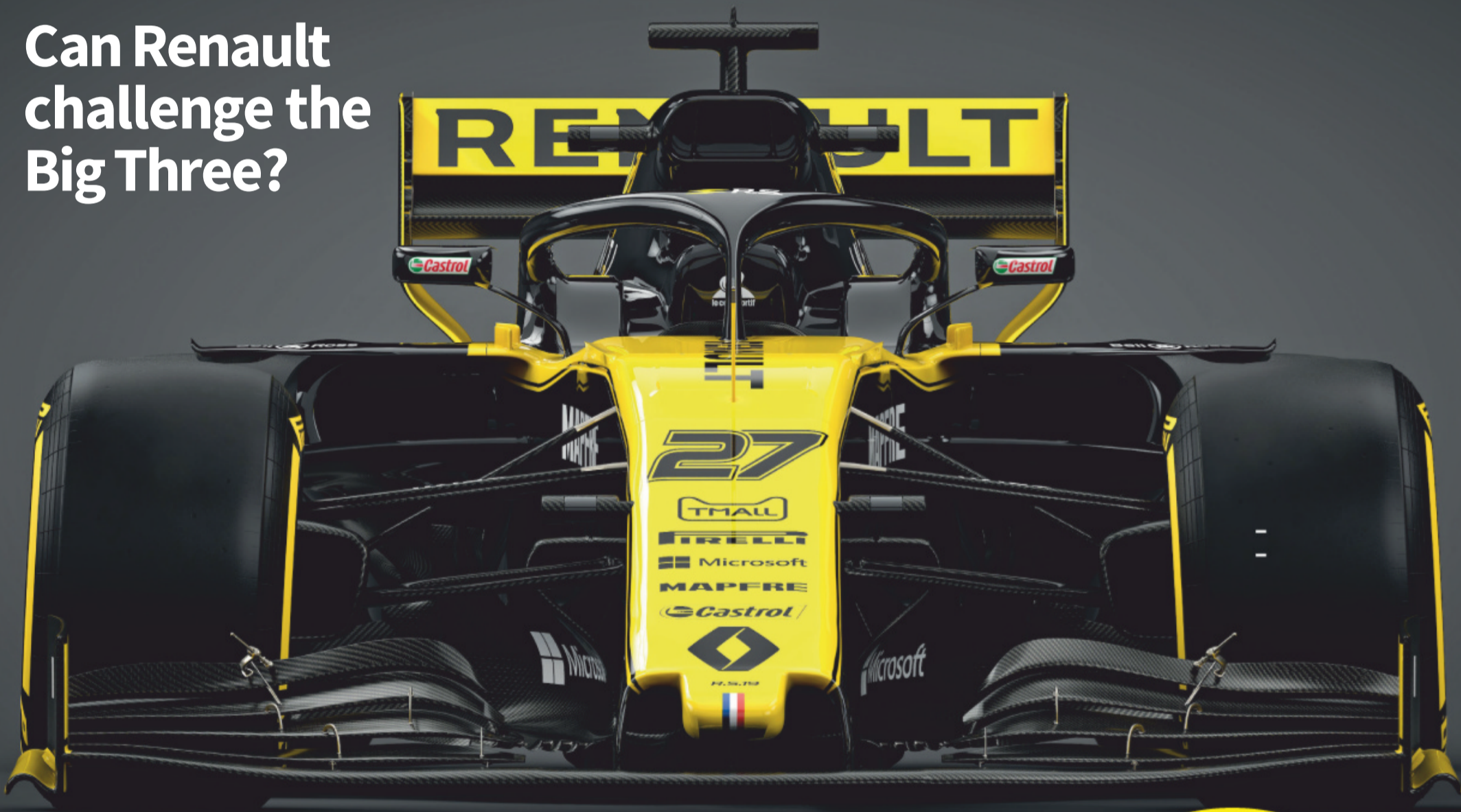
AUTOSPORT

BRITAIN'S BEST MOTORSPORT WEEKLY

14 FEBRUARY 2019

F1 2019 BREAKS COVER

Can Renault
challenge the
Big Three?



PLUS

- How F1 teams go testing
- We reveal **your** greatest F1 era
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and Toro Rosso**

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Formula 1's newest generation begins to break cover

This is an exciting time for Formula 1 fans. Yes, the days of teams revealing something truly unusual, such as a six-wheeled challenger, are over. But there's always something to spot on the new cars, particularly when there are rules changes, as there are this year.

As Autosport closed for press, Renault, Haas and Toro Rosso had revealed their 2019 cars, and our technical experts Gary Anderson and Jake Boxall-Legge give their insights in this issue. Next week they'll be casting their eyes over the remaining seven cars.

Renault is arguably the most intriguing (see page 14). Given its increase in resources and budget in recent years, the team that took Fernando Alonso to his two world titles is the one most likely to bridge the gap to Mercedes, Ferrari and Red Bull.

As well as looking forward, we take a glance back to reveal the results of our Greatest Eras poll on p28. What it tells us about the direction F1 needs to take in the future is open to debate, but the results are interesting – and our statistical analysis on p30 demonstrates some fundamental truths that F1 may want to keep in mind when formulating new regulations.

Outside F1, Scott Dixon is one of the best drivers in the world and the five-time IndyCar champion's new Ganassi team-mate is someone who probably should have made it to F1. Felix Rosenqvist doesn't have the profile of fellow rookie Marcus Ericsson, but he could prove to be a bigger threat to the established stars. And it's hard not to like the enthusiasm and honesty he displays in our interview with Marcus Simmons this week (p36).

- Formula 1 testing starts on Monday. For live coverage, head to **autosport.com** to keep pace with all the developments from Spain.



Kevin Turner

Kevin Turner
Editor

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WIN
A FORMULA 1
DVD BOX SET

in our Duke Video
competition
on page 34



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Renault; Haas

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ROCKET MAN BUTTON BECOMES

BLANCPAIN GT ENDURANCE

Jenson Button has become a team owner, of sorts. The 2009 Formula 1 world champion is linking up with the RJN Motorsport squad to field a Honda NSX in the Blancpain GT Series Endurance Cup under the Jenson Team Rocket RJN banner.

The entry revives the Rocket Motorsport name used by Button's late father John for the karting team he ran for his son and others, including Lewis Hamilton and Oliver Rowland. The team's NSX GT3 Evo will also tip its hat to Button's more recent motorsport past – it will run in a livery that takes its inspiration from the minimalist colour scheme on his title-winning Brawn BGP 001.

The deal has been put together by long-time RJN driver Chris Buncombe, who describes himself as Button's "best friend and wingman". He is commercial director of the team, which will enter its solo NSX in the BGTS Silver Cup class.

"I raced for Rocket, and Jenson and I have talked about bringing the name back," explained Buncombe. "Jenson wanted to do something that could help young guys come through and I wanted to help Bob [Neville, boss of RJN] after the end of his Nissan deal. It was a case of a few things happening to make it all come together.

"If JB was involved, the only option was Honda because he is a long-time ambassador for them. We felt that the NSX programme was far enough along and had shown some decent performance, without necessarily getting the results, to give it a go."

Reigning Super GT champion Button, who will not be part of the driving squad, said he was excited



to bring the Rocket name back to motorsport. "I'm sure a number of current drivers remember Rocket from back in their karting days," he added, "and I hope we can use this platform to help with new young talent in GT and endurance racing. As a Honda ambassador, I'm pleased to be a part of something that brings the NSX to the BGTS and I'm looking forward to seeing this project evolve."

Blancpain regular Buncombe, who will announce his own driving programme with another team soon, stressed that the new venture wasn't a Honda-funded programme. "It is still very much RJN and we will need funded drivers," he explained. "We are looking at the Silver Cup because that's probably where the most opportunities for the team are."

RJN/Rocket hasn't ruled out running a second car some time this season, and has its eyes on the Spa 24 Hours blue-riband round in July to bring on an additional NSX. "This is a starting point to get the wheels in motion, but we'd love to run a pro car at some point," said Buncombe. "The aim is to get RJN

TEAM BOSS



back to where it was with the Nissan programme.”

RJN was left without a programme for this season after the end of its relationship with Nissan to run the winners of the defunct GT Academy game-to-racer scheme. It won the Blancpain Endurance Series in 2015 with a GT-R NISMO GT3 shared by academy winner Wolfgang Reip, Katsumasa Chiyo and Alex Buncombe, the younger brother of Chris.

There could be more news from Rocket soon. Chris Buncombe said that further announcements “involving cars and motor racing” were planned.

- Another F1 race winner, Olivier Panis, will have a team in the BGTS Endurance Cup, plus the sister Blancpain GT World Challenge Europe (formerly BGTS Sprint Cup). European Le Mans Series LMP2 regular Panis-Barthez Competition has announced a tie-up with Toyota brand Lexus, but the team – run in conjunction with Tech 1 Racing – has yet to reveal how many cars it will run or any drivers.

GARY WATKINS



‘Pure’ constructor Williams slates rise of F1 B-teams

FORMULA 1

The Williams Formula 1 team must make better use of its resources to meet its short-term goal of fighting for the top four again, says deputy team principal Claire Williams, who has reiterated her opposition to the rise of ‘B-teams’ that she believes dilutes F1’s DNA.

Williams, which launched its new livery and title sponsorship with new British telecomms brand ROKiT earlier this week, slumped to last in the constructors’ championship in 2018.

Collaborations between F1 teams remain a key issue ahead of the 2021 overhaul planned by F1 owner Liberty Media. There are concerns that manufacturers will use smaller squads to help get around future budget cap restrictions. Similarly, scrutiny has grown over close (but legal) alliances between teams, such as Haas using many listed parts from Ferrari.

Williams said that planned 2021

changes to insist that teams produce more parts themselves would help protect independents, but that her team must do more itself in the meantime. “It’s not easy currently with the way the regulations are for truly independent constructors to compete,” she said. “That probably was one of the reasons we slipped to P10 last year, based on the work going on between certain teams.

“However, that falls within the existing regulations. We know that [changes to listed parts rules] will change the landscape of F1 in 2021 and beyond to enable teams like ours. We’re incredibly proud of the fact we’re true constructors in the sense we make all of our race car in-house. Personally, that’s the DNA of F1. It shouldn’t be diluted.”

Williams said her team has looked at “every single area” as it bids to bounce back from its difficult 2018 season. “We have some great resources,” she added. “We’ve got great capability at Williams and we need to make sure we’re using it in the right way.”

Williams’s new light-blue-and-white livery replaces the famous Martini stripes that adorned the team’s cars from 2014 to the end of last season. Thought had been given to returning to the navy/white colour scheme that the team has used at various points throughout its history.

“This year is such an important year for us,” said Williams. “I wanted a livery that told a story as to where Williams is. I think a lot of people are fully aware that Williams’s traditional colours are navy blue and white. I wanted to move away from that and show the world we’re a fresh, revitalised brand. Reverting to our traditional navy and white didn’t really tell that story.”

SCOTT MITCHELL



WHAT IS ROKIT?

ROKiT is the new telecommunications arm of the ROK group of companies, which specialises in mobile technology, applications and services – as well as including various drinks brands. Its co-founders are Jonathan Kendrick, whose first involvement with Williams was as a Goodyear tyre engineer for its first grand prix as a constructor in 1978, and US billionaire John Paul DeJoria.

➔ P14 FIRST F1 LAUNCHES OF 2019



Hamilton and Blundell commit to 2019 BTCC season

BTCC

Ex-Formula 1 racer Mark Blundell and Lewis Hamilton's brother Nic will both contest the British Touring Car Championship this season.

The 52-year-old Blundell, whose last comeback came in the British GT Championship in 2013, says he expects it to take time for him to get up to speed on his BTCC rookie campaign in a Trade Price Racing Audi S3.

Blundell joins Jake Hill at the team, which is being overseen by experienced squad AmD Tuning. "It will almost be like starting my career again, and I will be taking baby steps to start with," said 1992 Le Mans 24 Hours winner Blundell, who will begin his test programme later this month. "While I know there is much to get to grips with, when I pull the crash helmet on I will be giving it my all, as I always do."

"[BTCC chief executive] Alan Gow had been talking to me for ages about the BTCC, and this year I thought, 'Why not?'. If I didn't do it now, I probably never would."

Meanwhile, Hamilton completes Motorbase Performance's three-car line-up of Ford Focus RS machinery, and joins Tom Chilton and Ollie Jackson. He will contest his first full BTCC season, after taking

part in four rounds in 2015 at the wheel of an Audi. Hamilton (above), who has cerebral palsy, will race a specially adapted car.

"A lot of people assume that, due to my name, I will have all the funding in the world," said the 26-year-old. "This could not be any further from the truth. I have been on my own for the past six years, grinding away, trying to get a full season under my belt with all the support I need."

"I've not had a continuous career in motorsport that allows me to work on my foundation. I have just been testing at the races, doing a decent job due to my funding level and experience, but getting judged on who I'm related to."

Hamilton's car will be backed by ROKiT, the telecommunications firm that is the title backer of the Williams F1 team this year.

Another recruit to the 2019 BTCC ranks in the past week is 2018 race winner Chris Smiley. The Northern Irishman, who was sixth in last year's Independents Trophy, will remain with the BTC Racing team to race one of its Honda Civics. BTC Racing, which will again run two cars, has been the subject of a 50% buyout by national racer and businessman Steve Dudman.

MATT JAMES

Markelov in as Motoyama quits

SUPER FORMULA/SUPER GT

Toyota and Nissan both unveiled their 2019 motorsport programmes last week, and the big news is the move of Formula 2 star and F1 test driver Artem Markelov to Japan, and the retirement of one of the all-time greats of Japanese racing: Satoshi Motoyama.

Markelov's new programme, after five seasons and nine wins at GP2/F2 level, sends him to Toyota-powered Team Le Mans to become the latest European recruit to Super Formula. But perhaps the most significant move among the Toyota ranks is that of 2018 SF runner-up Nick Cassidy. The Kiwi joins TOM'S – where he has already won the 2017 Super GT title – from Kondo Racing, and lines up with Kazuki Nakajima. Cassidy replaces Briton James Rossiter, who loses his role among the Toyota teams.

Taking Cassidy's old seat at Kondo is 2016 champion Yuji Kunimoto, whose move from Cerumo-Inging opens up a slot alongside two-time title winner Hiroaki Ishiura for the deserved promotion of runaway Japanese Formula 3 champion Sho Tsuboi.

Kamui Kobayashi remains at KCMG in SF, but has stood down from Super GT, meaning his place alongside Heikki Kovalainen in the SARD Lexus is taken by GT300 graduate Yuichi Nakayama. Tsuboi gets promoted here too, joining Kunimoto in the Bandoh car. Yamashita moves from Bandoh to the Le Mans Lexus, where he partners Kazuya Oshima in place of new IndyCar recruit Felix Rosenqvist.

Motoyama's retirement brings to an end a career that encompassed four Formula Nippon crowns, three Super GT titles and four Le Mans 24 Hours starts. The 47-year-old, who drove for Jordan in free practice for the 2003 Japanese Grand Prix (below), will now act in support of the Nissan teams in Super GT.

Nissan has snapped up Rossiter, who joins Daiki Sasaki in the Team Impul Super GT team. Rossiter replaces Jann Mardenborough, who joins Kondo Racing alongside Mitsunori Takaboshi after Brazilian veteran Joao Paulo de Oliveira split with the manufacturer. Frenchman Frederic Makowiecki rejoins the Japanese ranks, and will partner 2016 co-champion Kohei Hirate at NDDP/B-Max.

MARCUS SIMMONS





NASCAR The first NASCAR 'Big One' of the season is moments away... Jimmie Johnson (48) starts to pass Paul Menard during last Sunday's Clash at Daytona, but contact spun Menard and caused a chain-reaction shunt. When rain then began to fall, the race was called and Johnson declared the winner. It was a perfect weekend for Hendrick Motorsports, with William Byron taking pole for this weekend's Daytona 500 from the sister Chevrolets of Alex Bowman, Johnson and Chase Elliott. The front-row positions of Byron and Bowman are locked in, with the rest of the grid to be set by Thursday's two 125-mile Duel races. Joey Logano was the top driver of the new Ford Mustangs in sixth, with Martin Truex Jr top Toyota racer in seventh. **Photograph by Motorsport Images/NKP**

Robin Smith 1943-2019



OBITUARY

A master of stretching meagre funds to the limit, sportscar specialist Robin Smith, who died on Saturday aged 75, enjoyed a varied racing career spanning five decades. Had an 'Index of Performance' prize been awarded for results against budget, the Kilmarnock-born Scot would have been a champion.

Smith built his own Project 4 car in

1964, before honing his preparation craft at Alan Mann Racing and in Europe. His first driving successes came in the early 1970s, when he rebuilt Tony Evangelisti's crashed Chevron B8 in spyder form. Smith achieved wins at the Nurburgring and Luanda, Angola, in later Chevrons, and was part of the triumvirate that rescued Chevron Cars, moving it to Scotland in the 1980s.

The most successful of Smith's eight

Le Mans 24 Hours assaults from 1978-94 was in 1979, anchoring long-time pal Tony Charnell and Richard Jones to 17th overall (first of the two-litre Group 6 entries) in Charnell's Mogil Motors B36 (pictured) – despite a heart-stopping spin in the wet at Indianapolis! Smith returned to Le Mans with Martin Schanche's Argo JM19 in DFL and Zakspeed turbo engine guises, and GT Ferraris.

Smith tried single-seaters too. One of few Brits to race in 1970s Formula Renault, he graduated to an F5000 Lola T330 in 1976 ShellSport Series events, then to Aurora F1 Ensign and Surtees TS19/20, before a British F3000 effort in 1990. Back in sportscars, he built the C2 Simpson (a DFV-powered Chevron B36) and cars for Italian 'Stingbrace' in Thundersports. Robin's last races were in the ISRS with a Riley & Scott-Chevrolet in the early 2000s.

He subsequently moved to the Caribbean, where he was known as 'Fixman' for his ability to mend boats. Following a stroke and cancer treatment, Smith returned to the UK last autumn. He is survived by son Julian, owner of Simpson Engineering.

MARCUS PYE



IndyCar returns to Laguna Seca for test

INDYCAR/STEPHEN KING

INDYCAR SERIES

It's a classic image of motorsport – an IndyCar diving down into The Corkscrew – but it hadn't been seen since the old Champ Car days in 2004. That changed last week when the IndyCar teams held a test to prepare for the return of the classic Laguna Seca circuit in California to the schedule.

With rain forecast for the afternoon, the morning session was extended to four and a half hours, which at least allowed the 21

cars present to get in some decent running. Max Chilton topped the times for the Carlin team, which is entering its second season in IndyCar, while series part-timer RC Enerson lapped the sister car sixth fastest – that probably indicates that Enerson will fill the seat of the #23 car for the races in which Charlie Kimball does not take part.

On just his fifth outing in an IndyCar, Felix Rosenqvist set the second quickest time with Chip Ganassi Racing. He outpaced team-mate Scott Dixon, who was

struggling with a brake problem, by almost half a second. Rosenqvist's fellow Swede, F1 refugee Marcus Ericsson (pictured), was 17th fastest as he got down to work with Schmidt Peterson Motorsports.

Ryan Hunter-Reay was third in the times with Andretti Autosport, while Briton Jack Harvey posted an encouraging start to his year with fourth for Meyer Shank Racing, a car run in conjunction with SPM.

➔ P36 ROSENQVIST'S INDYCAR SWITCH

Lawson wins New Zealand GP, lifts crown

TRS

Liam Lawson dramatically won the New Zealand Grand Prix and the Toyota Racing Series crown after a thrilling final weekend at Manfeild.

But fellow Kiwi Marcus Armstrong was left feeling hard done by following contentious penalties in races two and three. The second of those cost him the GP; the two combined denied him the title.

Armstrong led the opener all the way from Lawson, with



TRS

Lucas Auer making it a 1-2-3 for M2 Competition.

Lawson (above, leading) won a heated battle for fifth with Armstrong in the reversed-grid

race, the duo stuck behind Brendon Leitch. But a 5s penalty for Armstrong, after Calan Williams ran wide as Armstrong passed, dropped the Ferrari

junior to ninth. Cameron Das won the race.

Armstrong won the GP on the road, but picked up a penalty in very similar circumstances to earlier. As he passed Lawson, the younger man ran wide, bounced across the grass and dropped to fourth.

Lawson demoted the scrapping Leitch and Esteban Muth on a restart to take second on the road, and inherited the win by staying within 5s of Armstrong, who dropped to second.

IN THE HEADLINES

VERSTAPPEN DOES HIS TIME

Red Bull Formula 1 star Max Verstappen completed his two-day public service penalty, imposed for shoving Esteban Ocon at last November's Brazilian Grand Prix, by attending the FIA International Stewards Programme in Geneva last Saturday. He spent time with WEC and tin-top hero Andy Priaulx, M-Sport WRC team boss Rich Millener and BMW sports chief Jens Marquardt on a competitors' panel discussion, and participated in a number of interactive case studies.

JUST ONE DTM v SUPER GT?

The DTM and Japan's Super GT series look set to have just one post-season 'match race' this year, because the late finish of the Japanese schedule makes it near-impossible to get them to Germany before winter hits. Fuji is likely to host a race in November, while the DTM is looking into inviting the Japanese teams to a proper DTM round.

SHWARTZMAN AT PREMA

Ferrari junior Robert Shwartzman has finally been confirmed in the Prema Racing line-up for the FIA Formula 3 Championship. The Russian, who joins Ferrari stablemate Marcus Armstrong and Jehan Daruvala, was third in last season's F3 European Championship with Prema and won the Rookie title. Prema has also snapped up Briton Olli Caldwell for the inaugural Formula Regional European Championship.

NASR GETS DRAGON RIDE

Ex-F1 racer and reigning IMSA SportsCar champion Felipe Nasr has replaced Maximilian Gunther in the Dragon Racing FIA ABB Formula E line-up from this weekend's round at Mexico City. Gunther, who was only on a three-race deal, will revert to being the team's simulator, test and reserve driver.

HARTLEY TO SUB FOR BUTTON

Two-time World Endurance Championship title winner Brendon Hartley will return to the series at next month's Sebring 1000 Miles with the SMP Racing LMP1 squad. He will drive the #11 car at the US round and then Spa in place of Jenson Button, who has clashing Super GT commitments.

LOTTERER AND BYKOLLES OUT

Three-time Le Mans 24 Hours winner Andre Lotterer will miss a WEC race for the first time since the series' rebirth. He will not take up his place in the #1 Rebellion at Sebring because of simulator commitments with the DS Techeetah Formula E squad. His place will be taken by Mathias Beche. The ByKolles LMP1 team will also miss the eight-hour race, citing issues with a "third-party supplier".



Hydrogen car to race in '19

SPORTSCARS

The whoosh of a racing car powered by a hydrogen fuel cell could become a familiar sound on the racing circuits of Europe before the end of this season. The GreenGT LMP2HG experimental prototype that broke cover last year is on course to race some time in 2019.

The Swiss-based group behind the car, which was demonstrated at the Spa European Le Mans Series round last September (pictured), and Le Mans 24 Hours organiser the Automobile Club de l'Ouest have aspirations to get the car into competition as soon as possible. The ACO regards the LMP3-based GreenGT as an important stepping stone towards the introduction of a zero-emissions class for hydrogen-powered cars at Le Mans in 2024.

The two organisations have expanded their previous cooperation under the Mission H24 banner in order to achieve their goal, with the new initiative being dubbed H24Racing.

"The idea is to have our prototype racing soon; we hope and think it can be this year," said GreenGT president Christophe Ricard. "But we cannot say where and when, because it all depends on the homologation of the car. There are no safety issues, but fuel-cell technology is new to everyone, so it is to be expected that this process will take some time."

ACO sporting director Vincent Beaumesnil explained that the intent of the H24Racing initiative was to get the

car racing in one of the series under the Le Mans organiser's umbrella as soon as possible. "It is important to bring this technology into competition on the race track as we prepare for the future and 2024," he said. "We have the possibility to have a Garage 56-type experimental entry in all our series and we are looking for the best option."

Beaumesnil suggested that the Michelin Le Mans Cup – the ELMS support series open to LMP3 and GT3 machinery – "could be a good place for the car to start racing". But he stressed that no decisions had been made and no timeline laid down because of the complexities of the technology involved.

Beaumesnil did not rule out H24Racing competing in the 24 Hours at Le Mans ahead of 2024 as part of the data-gathering exercise for the new class. "A Garage 56 entry at Le Mans could potentially be a step in the process, but it will not be this year," he said.

GARY WATKINS



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Can Gasly do the business?

The potential for a season-defining rivalry between Pierre Gasly and Max Verstappen at Red Bull has been greatly underestimated

EDD STRAW

W

ill Charles Leclerc bury Sebastian Vettel's Formula 1 career with his performances at Ferrari this year? Can Valtteri Bottas save his Mercedes place by bouncing back from a difficult second half of 2018? Who will lead the line at Renault, incumbent

Nico Hulkenberg or star newcomer Daniel Ricciardo? These are the three big driver storylines of the coming season.

But amid these common, and legitimate, questions there's another 2019 rivalry that could have a major impact. That's despite it barely seeming worthy of a footnote in the eyes of some, simply because it's regarded as a foregone conclusion.

In the neglected case of Max Verstappen versus Pierre Gasly at Honda-powered Red Bull, the assumption is that it will be a walkover. After all, the ever-improving Verstappen is a driver who will surely go on to become world champion, and Gasly has just a year and a bit of F1 experience and is being pitched into the lion's den. Red Bull is now Team Verstappen.

But it won't be that simple. Gasly might be the junior partner in the alliance despite being almost 20 months older than Verstappen, but heads into 2019 on the crest of a three-year wave that took him to GP2 glory, the typhoon-frustrated brink of a

Gasly is too fast not to find himself on the same piece of asphalt and on a similar strategy to Verstappen

Super Formula crown and then a strong start in F1. He will be determined to cause problems for Red Bull this year not through design, but as a consequence of good, old-fashioned pace.

To be a problem, he doesn't have to beat Verstappen over the season. Even matching him is a Herculean challenge, as Daniel Ricciardo discovered. But Gasly showed enough last season to prove he has the potential to be disruptive to the equilibrium of Verstappen's team. Gasly is, after all, the only obstacle standing between Verstappen and supremacy within Red Bull.

When Ricciardo pulled back from the brink of putting pen to paper on a lucrative one-year deal to stay at Red Bull and made his surprise decision to join Renault, Gasly was already regarded by the team as his successor. Most assumed it would be Carlos Sainz, an ostensibly logical move given he was under contract to Red Bull and a proven performer with four seasons of experience. But Red Bull was partly motivated by a desire to ensure a harmonious team.

Verstappen will shed no tears over the absence of Sainz. While Max was unquestionably the stronger driver when they were together at Toro Rosso, Sainz was closer than a glance at the results suggests. But Gasly is certainly preferable, since by all accounts he and Verstappen already have a good relationship. Red Bull, by definition, must therefore believe Gasly will fit in better than Sainz would have done alongside Verstappen. But it also knows Gasly is a very capable driver and hasn't picked him to trundle around half a second a lap slower than Verstappen.

If you want to show your potential, and like all F1 drivers Gasly believes that winning the world title is a realistic ambition, you don't do that by being a good, well-behaved number two. And no driver in their first exposure to the competition at the front of F1 will accept that isn't in their future, especially before the reality of taking on a driver like Verstappen over a season sets in.

Gasly will look back at what Ricciardo did to Vettel in 2014, or Verstappen himself did when he joined Red Bull during '16, for a model of how to make an impact. It's hard to see him beating Verstappen over a season on performance, as Ricciardo famously did to Vettel, but you don't need to do that to be a thorn in the side.

There is one prerequisite for doing this: pace. Gasly has that, particularly when things are going well. In Bahrain and Hungary last year he was best of the rest, proving himself capable of nailing what might be termed race-winning performances in a midfield setting. He was also fast at Monaco, although the seventh place he is rightly feted for followed a disappointing Q3 showing in which he should have been behind only the big three teams.

The least favourable interpretation of Gasly's season was that it was mercurial, with some flashes of brilliance and some more mundane performances. But rookies, and Gasly is rightly regarded as a 2018 rookie despite his five late-season outings in 2017, deserve a greater emphasis to be put on their peaks. As experience builds, the dots of those peaks must be joined. That's one reason I rated Gasly ninth in Autosport's top 10 F1 drivers of last season.

If there's a crunch point, it will be when the pair cross swords on track. Inevitably, this will happen because Gasly is too fast not to find himself on the same piece of asphalt and on a similar strategy to Verstappen sometimes. That's why pace will lead to flashpoints. A driver doesn't have to set out to be a problem to become a disruptive influence and Gasly isn't going to set out to be difficult. But if he delivers on his objective of showing he can be a true F1 ace, that could inevitably lead to problems for Red Bull to deal with.

But to do that, he *has* to be fast — and consistently so. Can he be? That's the question every driver is attempting to answer in the affirmative. And Gasly might be able to pull it off. Certainly, he's fast enough at least to cause occasional problems to Verstappen. Even that might just be enough to have a big impact. 🏁

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YOUR SAY

Colour-changing bodywork to reflect the driver's mood? Surely that would be in danger of clashing with the sponsor's corporate colours

ALAN HENDRY

Schumacher fan's final word

I see Mr Holden responded again (7 February) to my letter regarding the whole Schumacher debate, and after going on for many weeks I intend this to be my final word on the subject.

I certainly agree that Schumacher's time at Mercedes was a bit ordinary and unspectacular, but in his defence the sport had evolved a lot since he retired the first time and he was up against drivers who were 10-20 years his junior. It was a risk for him to come back, but he deserves credit for doing that – and I'll never forget his 'pole lap' at Monaco in 2012 (right).

You also mention that the team orders aspect rankles, as if he were the only driver to benefit. I guess you accepted Mercedes' decision in Russia last year to implement them for Lewis, one of a few times where Bottas was told to move over or back off to ensure the team leader got maximum points.

And yes, the Hamilton-Massa incidents were seven years ago, but not quite as long ago as the Schumacher incidents you reference, so what's the difference? I mentioned that as a reminder that over a driver's career many things can happen that they are not proud of, but unless it's Schumacher (or Senna), they get glossed over and forgotten about.

I've enjoyed this debate greatly, and thanks to Autosport for printing it over the past few weeks. All the best for this season to everyone, I hope this year provides many memorable moments in all forms of motorsport.

Joe Padgett
By email

McLaren concept feeds debate

The McLaren concept is interesting (31 January). I wonder if the same projection had been made in 1988, would the designers have envisaged the current cars?

The 'all electric' prediction is probably accurate with the active aerodynamics close behind in the probability stakes. After that I begin to wonder – 500km/h may be technically possible, but even the authors of this discussion-provoking piece admit the current tracks won't support that speed.

Runoff areas would be so large that spectators would have



to be so far away that the feeling of 'being there' is very diluted. And with fans so far back, would they see the driver through the transparent bodywork or read the targeted advertising?

Colour-changing bodywork to reflect the driver's mood? Surely that would be in danger of clashing with the sponsor's corporate colours. But if it's possible, how about using the technology to show who is leading and who is a lap down.

But my biggest problem with the concept is the tracks. Who could afford the investment in these tracks when F1's profits seem to be with the drivers, teams and Liberty Media and not the promoters. Does McLaren think the future of F1 is with state-funded tracks and with none of the existing circuits?

Do any of the ideas in the concept address more likely developments? The lack of interest from the next generation of spectators, the move away from 'free to view' and a general lack of relevance to teenage interests, combined with economic problems for promoters, don't encourage me to think that in 30 years F1 will be the multi-billion-dollar industry it is today.


But I hope to be able to watch it in 31 years, or maybe I'll be watching 'historic' racing from 2019 and muttering that 'they don't make proper cars like that anymore'?

Alan Hendry
By email

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F1
2019



Renault's next step towards the front

Only the powersteering is carried over from last year's car as Renault steps up its campaign to join the leading pack

EDD STRAW

Renault won the midfield battle last year, but the new RS19 machine is part of a much bigger objective – winning the war. While the Anglo-French operation will not win the world championship this season, it needs to take strides towards Formula 1's battle of the big three and ideally leave the squabbling pack disappearing in its mirrors, and that's no easy task.

The RS19 can be declared a big step forward even before it turns a wheel. By team principal Cyril Abiteboul's own admission, there was disappointment that Renault didn't close the gap to the front last year, even though it did achieve its objective of finishing fourth in the constructors' standings. Tempting as it is to see it that way, development progress is non-linear. With a car that has been described as almost entirely new, save for the powersteering system, Renault is attempting to move to another level and unlock the performance potential of a true top team.

"It's a reflection of the ambition," explains Renault executive director Marcin Budkowski. "Every year you try and maximise the development opportunities. Packaging is a big one because it frees up possibilities for aerodynamic development, so anything that you can package more tightly or better is going to give you performance. Maybe it's not immediate performance, but performance during the development phase. And if you don't take that opportunity during the winter then that is not going to be available to you during the year."

"The increase in complexity of the car is inevitable if you want to increase its performance, so that's the phase we've gone through during the winter, then developing an aero package around that and evolving it. All these decisions free up potential performance."

"Renault has stepped off the top rung of the midfield ladder and onto the bottom rung of the top-team one"

That might sound like a handy thing to say to tick some words off your launch bingo card, but it's particularly pertinent to Renault. F1's giants already have the countless components that are packed into the car as carryovers, whereas Renault is having to work to get to that level. It doesn't mean the car is a 'size-zero special', but those tiny improvements in all areas add up. Effectively, it means Renault has stepped off the top rung of the midfield ladder and onto the bottom rung of the top-team one. >>

The new Renault RS19 is a major development from its predecessor

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“It is in a way,” says Budkowski when the ‘ladder’ analogy is put to him. “There is not a second-and-a-half gap in aero or in power, it’s not that simple.”

“There are a lot of small details in terms of packaging, the mechanical systems, the way you manage all the dynamic characteristics of the car, the way the tyre is presented to the ground. All of these things have an importance on top of the aerodynamics. A car that has a better aerodynamic platform uses the tyres better. So all these things have to come together. It’s the positive interaction that elevates the performance envelope of the car.”

The major changes that have been made are necessary, but inevitably that means there is the possibility of problems cropping up in testing. Enstone has been transformed since the days of the team under Genii Capital ownership, when underinvestment allowed a team with title-winning pedigree to decay, so this is a necessary step in turning it into something more serious. So even if there is pain, it’s necessary.

“What you really need is a platform that allows you to do development work,” says Budkowski of testing. “What you really want to avoid is having fusses with gearboxes, electronics, wires rubbing and getting disconnected – things that seem basic but on cars of this complexity are reasonably common. You want your winter testing to be very useful and every day to go through a series of tests that have come from various engineering departments and get that learning and all that data before Melbourne. The worst you can have is a very unreliable or problematic, unstable car during testing and get to Melbourne without this learning.”

So, from a chassis perspective, things look promising. This is in effect the first step in realising the potential of the team, and a successful season would be defined by finishing in a strong fourth place and making genuine inroads on the front. This season is a step on the path to title contention, and the major rules overhaul mooted for 2021 is a realistic target. Even with star signing Daniel Ricciardo, 2019 is about building on the foundations that have been created by Renault’s investment.

But the elephant in the room isn’t the aerodynamics or what comes from Enstone, but the power unit. Renault has struggled in the V6 turbo hybrid era. Although it propelled Red Bull to 12 wins



Renault recruited Marcin Budkowski (right) to make the most of its investment

over the past five seasons, it hasn’t been on the level of Mercedes or, in more recent seasons, Ferrari.

Renault engine technical director Remi Taffin has admitted regret about the lack of focus on developing potent qualifying modes earlier in the programme, and it’s hoped that there will be improvements in this area in 2019. If that can be brought to fruition without compromising reliability, then things are looking up. But Renault has had years to get things right, and we can’t take it as read that it will succeed despite its illustrious F1 history. We need to be convinced by cold, hard results. What is critical is that Renault does capitalise on its status as one of F1’s few genuinely integrated works squads.

“From the numbers I see and the conversations I have, I’m optimistic about the steps our colleagues in Viry are making on the engine,” says Budkowski. “What we are trying to do is the best chassis-plus-engine combination – so the best car. It’s not about pure engine development or chassis development; it’s the combination of the two. This is one of the differentiating factors of being a works team.”

Everything seems positive for Renault, and the car itself does look like a step forward. But it’s only once the car gets on track and running similar programmes to its competitors that we can really judge its progress. Even if it can’t get in among the big three this season – and the likelihood is it will still be behind – if Renault can make big inroads, F1’s top teams will have reason to look over their shoulders.

This isn’t the season Renault will really arrive. But it’s certainly the season that it can tell F1’s big boys that it’s coming. 🏁



Renault’s driver stats

Starts: 306
Wins: 7
Poles: 4

RENAULT RS19

GARY ANDERSON AND JAKE BOXALL-LEGGE

DURING THE WINTER, RENAULT SAID that everything other than the powersteering is new on the RS19. Overall, the new car doesn't look dramatically different from its predecessor — there are a couple of nice pieces and a couple that are questionable.

The leading edge of the sidepods comes from the Ferrari concept. Most teams will head in that direction as it opens up the gap between the leading edge of the sidepods and the front tyre, allowing the various turning vanes more opportunity to optimise the airflow in that area.

Looking at the front wing in general, it doesn't look like Renault has been struggling

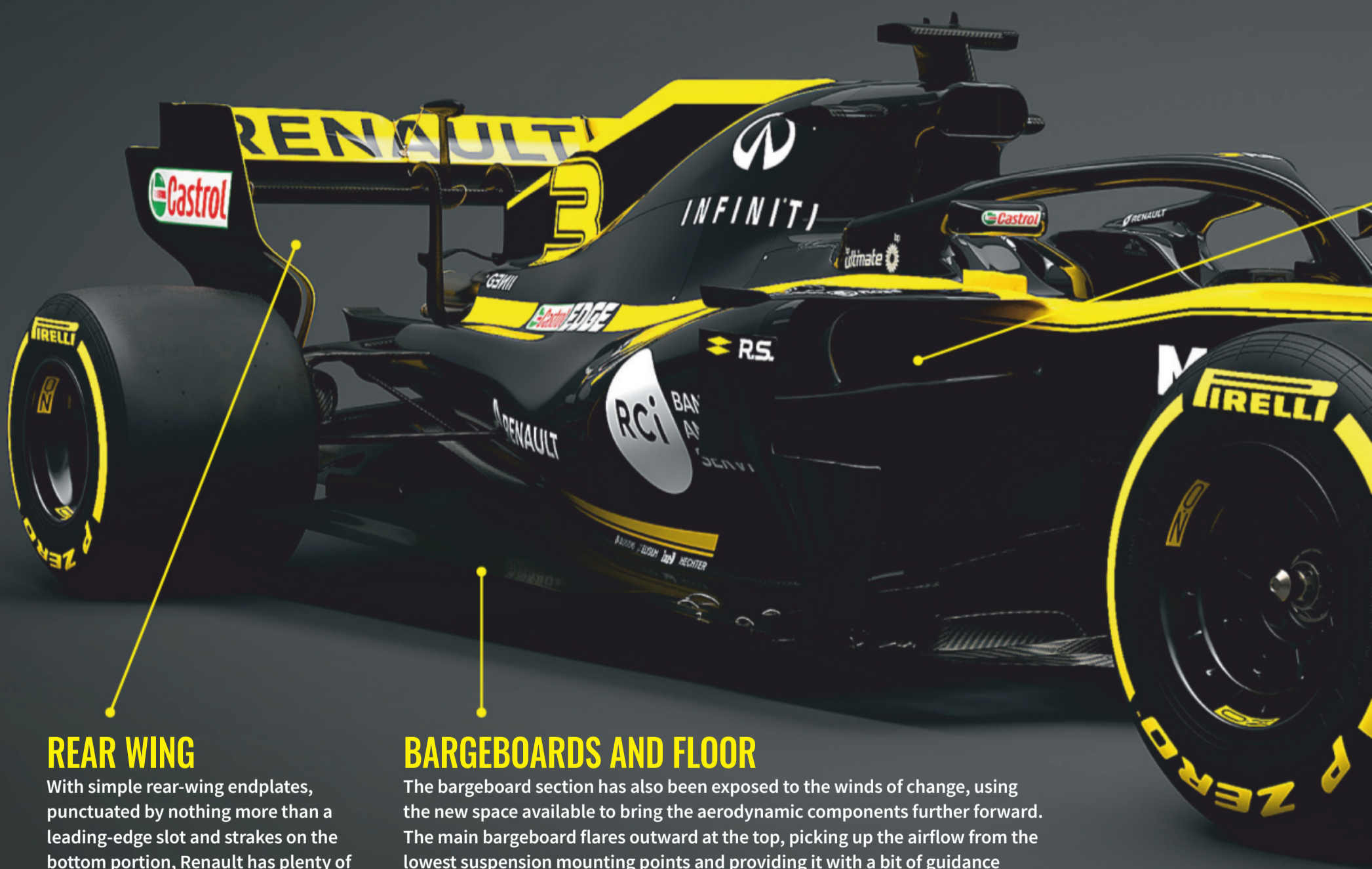
for front downforce to balance the car. The way the flaps sweep downwards as they go outwards suggests they have given up some potential front-end load. That would suggest it doesn't have the rear downforce to require that extra front load.

These cars struggle for front-end grip in medium and low-speed corners, so need as much front wing as possible. The cars then rely on the front-wing stall characteristics to give a small understeer balance in the fast corners. Renault has a very long chord front-wing mainplane that, when it stalls, will be like a light switch. A lot of front load will be lost and this can very easily lead to

porpoising, which is when the front of the car starts bouncing at high speed.

One nice area is the airbox intake. Having it as high up as possible and oval-shaped will reduce the negative influence on the airflow coming off the driver's helmet and the halo. It also improves the airflow around the sides of the engine cover so should improve the performance of the rear wing.

Renault has to move forward this year. If that is only by closing the points gap significantly to the top three, then that may just be acceptable. If it drops off a couple of places in the constructors' championship then that is not acceptable.



REAR WING

With simple rear-wing endplates, punctuated by nothing more than a leading-edge slot and strakes on the bottom portion, Renault has plenty of growing room to take advantage of. Using swan-neck rear-wing mounts is a contemporary touch, but is complemented by a small monkey seat between them to make use of the space available above the exhaust.

BARGEBOARDS AND FLOOR

The bargeboard section has also been exposed to the winds of change, using the new space available to bring the aerodynamic components further forward. The main bargeboard flares outward at the top, picking up the airflow from the lowest suspension mounting points and providing it with a bit of guidance around the bottom of the chassis bulkhead.

There's also a smattering of serrations to pick up some vortices, where the raised sections further back are able to shepherd them around the side of the car.

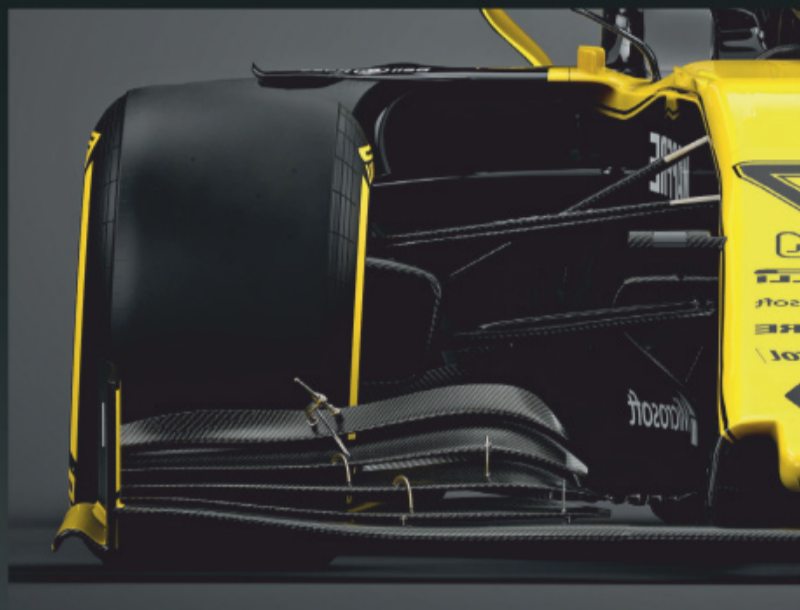
There's also a clear foray into the world of high rake angles, with the team hoping to create as much downforce as possible from the underside by accelerating airflow at the front of the floor.

SIDEPODS AND INTAKES

Evidently, the high sidepod inlets are 'in' this year, offering a pronounced undercut for the bargeboards to work airflow around. Like the other cars launched so far, the crash structures have been used to hone further aerodynamic geometry, and as such Renault's engineers have reshaped the 'aerocat' sidepod winglets, devised to manage the wake shed from the tyre.

This year, the sidepods are a lot tighter, suggesting that Renault has made advances with its cooling over the off-season. Without having to cater for Red Bull, whose demands perhaps became the millstone around the neck of the engine department in Viry-Chatillon, Renault has perhaps been unshackled – free to create a package on its own terms. The undercuts follow along to the rear of the car, sweeping underneath the openings at the rear used for cooling.

That's perhaps also encapsulated by the idiosyncratic air intake, which results in a rather fat-looking engine cover. Rather than sucking in the sides, evidently the team has been able to collect the requisite flow attachment to minimise the rear-wing blockage. The mirrors also follow in the current trend of having them as outboard as possible, using them for as much aerodynamic benefit as possible. Given the choice, engineers would simply choose to run without them.



FRONT WING

In launch spec at least, the front wing is incredibly curious. Unlike the Toro Rosso (see page 22), which appeared to use the maximum of the bounding boxes, Renault's solution appears to be a compressed outboard section, while the inboard arrangement is fanned out with wide slot-gaps.

It seems to be an extreme solution to restoring the outwashing lost to the new regulations, winning back the performance of the floor as the effects of the tyre wake are less pronounced. The front-wing-flap adjuster, endplates and attachments are angled to promote this.

The mainplane is also a partial spoon shape, allowing vortices to propagate under the wing at the endplate, which can be carried around the front face of the tyre. Previously, teams could employ intricate footplates to manage that, but the new rules on curvature mean that those vortices are going to be a bit more free-form.

Unlike the rest of the 2019 front wings seen so far, the second element is detached from the mainplane, rather than included as a split up to the neutral section in the centre. This offers perhaps a little more control of the inboard vortex, an important factor in the current ruleset in managing the tyre wake further downstream.



HAAS VF-19

GARY ANDERSON AND JAKE BOXALL-LEGGE

THIS IS A BIG YEAR FOR HAAS. IT HAD the fourth-fastest car last year despite finishing fifth in the points, and it's had to adapt to the challenge of working on the new rules as it attempts to build on 2018. Last year, the Haas was a fairly straightforward evolution of the 2017 car, but it worked for the team as it took something it knew and understood and made it better. Beyond the changes for the modified rules, Haas seems to have taken a similar approach this year and that should again give it a car it can get the best out of.

Haas has the now-common five-element,

wider front wing. It looks big and brutal, and the endplates are a simple vertical panel with a horizontally tunnelled lower footplate, but that's what the regulations require.

The inboard end tells us more about the fact that Haas has been struggling to get the required front downforce. Instead of the 2018 trend of having the inner end of the flaps tapering outwards as you go rearwards from the mandated central FIA wing section, they are much straighter, meaning they require that area to improve the overall performance of the wing assembly. They then twist

downwards fairly dramatically, diffusing the pressure differential between the upper and lower surface of the wing-flap profiles, which will act as an endplate containing the low pressure under the wing surface. But it will also reduce the intensity of the Y250 vortex.

The sidepod inlet and undercut, which is massive, and radiator inlet follow the Ferrari concept. With its technical relationship that's no surprise but it also shows that, even with the reduced bargeboards required for the new rules, opening up that exit area to allow the bargeboards more room to work is still critical.

REAR WING

Although simplified on the top half, the endplates feature overhanging strakes, much like those pioneered by McLaren in 2017. But Haas has opted for a design with nine even teeth, hoping to draw out a lower-pressure zone underneath the rear wing, and boosting rear-wing performance by increasing its effective span.

BARGEBOARDS AND RADIATORS

Haas seems to be keeping its cards close to its chest on the bargeboard front by including a design in the renders that seems to be distinctly similar to what it ran last year.

This is expected to be quite an important area, especially as the effect of tyre wake on the underbody flow is going to be a greater hurdle to overcome this season. Furthermore, the wheel centre has been covered off, removing any potential to create a blown axle at the front end.

On the sidepods, the bargeboard geometry retains Haas's Venetian blind-like slat designs, although lowered to satisfy the new ruleset. The highly positioned inlets continue the design ethos pioneered by Ferrari, which Haas – in its capacity as Ferrari's customer of listed parts – has also followed. This appears to omit the split in the inlet that both Ferrari and Haas used last year, suggesting a reduced demand for cooling.

BODYWORK

More svelte than last year, the sidepods and the engine cover have been tightened up, inviting the designers to reprofile the associated fin. A small notch behind a small winglet allows the airflow coming from the rollhoop intake to be cleaned up, assisting the rear wing's efficiency.

Like last season's car, a T-wing appears further down on the fin, albeit now curved downwards for this year much like the 2018 Ferrari design. This seems to tie in more with the greater flarings in the rear-wing endplates, a result of the larger wing geometry.

Curiously, Haas has positioned the wing mirrors further outboard, perhaps seeking to use the mounting to work in conjunction with the bargeboard extensions over the top of the sidepod.

SUSPENSION

While the front suspension looks conventional, perhaps limited by the allowed workable area for the brake ducts and wheel uprights, the rear suspension moves towards what Ferrari used last year.

A raised mounting point lifts the wishbone up to clear air around the top of the diffuser, offering a more consistent pressure differential between the top and bottom.

This comes with an aggressive-looking rake angle, where the front of the floor is inclined closer to the ground to increase the effectiveness of the underbody.



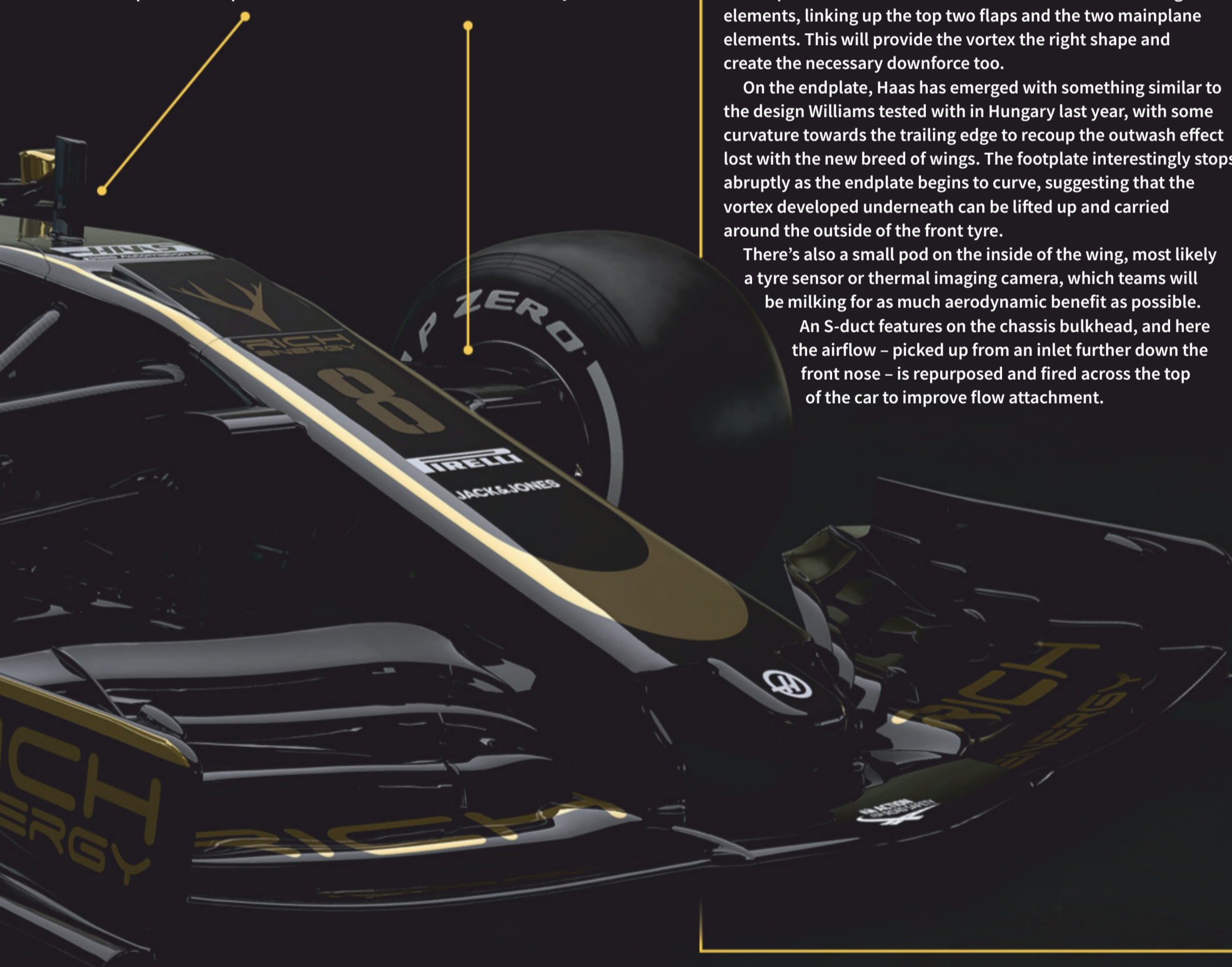
FRONT WING

The middle flap of Haas's wing has been shaped to manage the vortex produced from the inboard-most section of the wing elements, linking up the top two flaps and the two mainplane elements. This will provide the vortex the right shape and create the necessary downforce too.

On the endplate, Haas has emerged with something similar to the design Williams tested with in Hungary last year, with some curvature towards the trailing edge to recoup the outwash effect lost with the new breed of wings. The footplate interestingly stops abruptly as the endplate begins to curve, suggesting that the vortex developed underneath can be lifted up and carried around the outside of the front tyre.

There's also a small pod on the inside of the wing, most likely a tyre sensor or thermal imaging camera, which teams will be milking for as much aerodynamic benefit as possible.

An S-duct features on the chassis bulkhead, and here the airflow – picked up from an inlet further down the front nose – is repurposed and fired across the top of the car to improve flow attachment.



TORO ROSSO STR14

GARY ANDERSON AND JAKE BOXALL-LEGGE

AFTER THE LOSS OF TECHNICAL director James Key to McLaren, Toro Rosso has decided to form a stronger partnership with parent company Red Bull. That will not make Toro Rosso into a championship winner, but it should make it a stronger midfielder.

Key didn't want to rely on others because it can hold you back from achieving your full potential. If you can build your own design group to a level that can create a competitive car, then you're ready for anything. But given what midfield rivals such as Haas are doing, you could say that Toro Rosso is sensibly joining the B-team club.

Honda and Toro Rosso are heading into the second year of their relationship, so they should both have more confidence in the areas they can optimise. Packaging the current engines isn't easy, and just having confidence

in the cooling requirements means Toro Rosso can alter the underbody layout. They'll also both know how to work together that little bit better and what they can ask of each other.

The question is, given the closer technical relationship, is this a Red Bull with different stickers? It's the outer clothing that really gives the big performance advantages, so as long as it's Toro Rosso's own work, that's fine.

Toro Rosso has to design its own 'listed parts', but there will be an influence in certain areas. The gearbox, driveline, uprights, suspension components, wheels, brakes, steering etc are all things we never really see, so why not make them the same? Yes, they can give you some small percentages of improvement in performance, but all these parts are just a means to an end. It's the outer clothing that really gives the big performance advantages.

TIGHT BODYWORK

The undercut below the inlets is extreme, leading into a very compressed midriff that folds into the flared bodywork exit, retained for cooling.

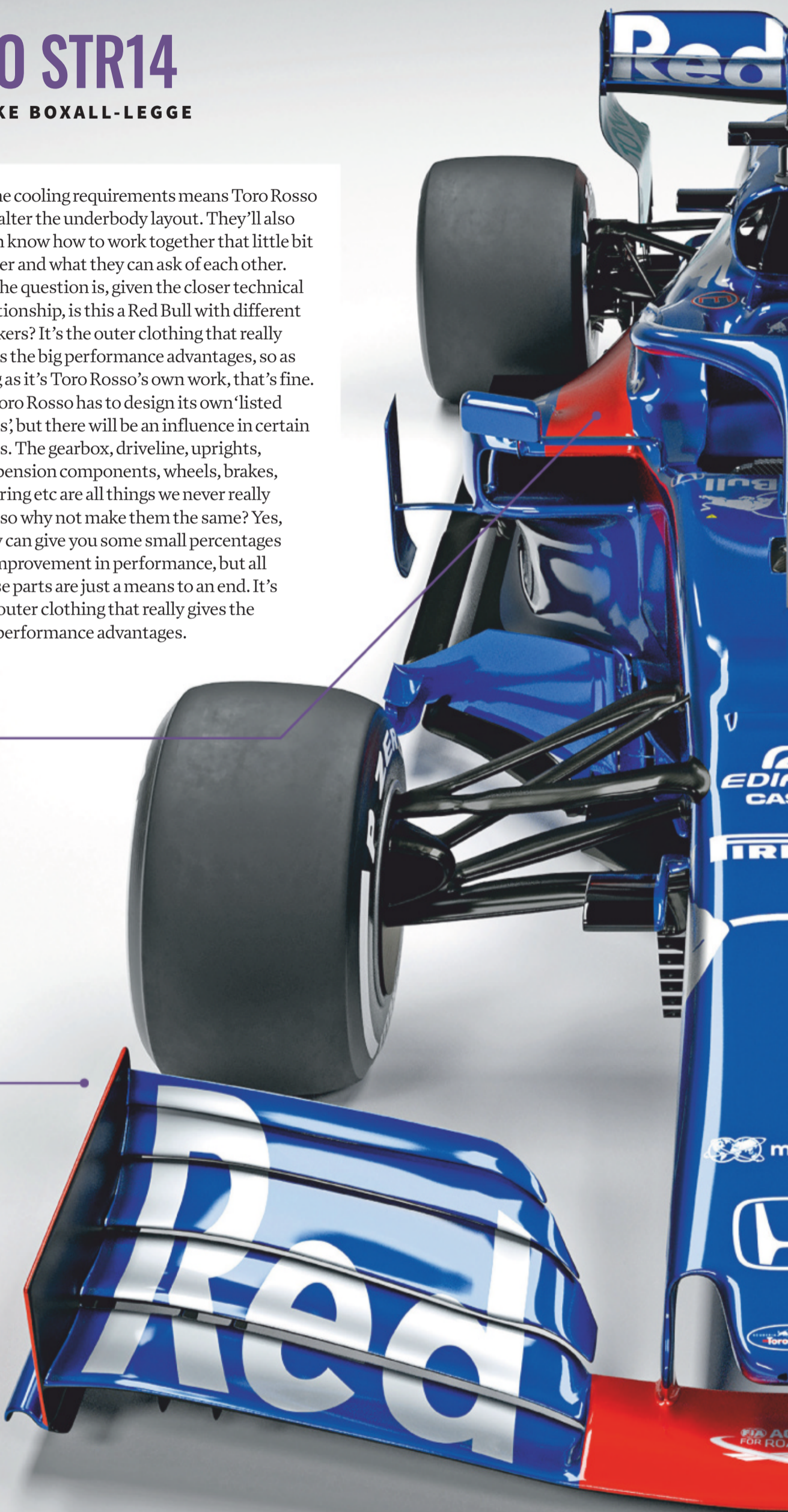
At the rear there's a continuation of the noticeably tighter packaging, and that gives an indication of how the parent Red Bull team will put together its own rear end, given the increased crossover between the two teams. The shared rear-suspension components and gearbox casings have been produced by Red Bull Technology, meaning that both squads are designing their rear-end geometries within the same box.

FRONT WING

If there was a design that encapsulated the spirit of the new front-wing regulations, Toro Rosso's interpretation would be it. Featuring five distinct elements, the wing curves upwards towards the outboard sections, looking to lend as much space as possible to the reduced number of strakes beneath.

It seems that the engineers are relying on the shape of the wing itself to carry outboard flow rather than doing so with the endplates, which are distinctly flat-sided. Using previous examples as a reference, the design falls more in line with the concept that Force India tested in Hungary last year, with a small top flap to maintain flow attachment.

The mounting pylons feature three slots to ensure that as much airflow is driven and guided underneath the nose as possible. The vortex produced by the inboard section of the front wing can then be unpacked and drawn along towards the bargeboards, which are something of an oddity.



REAR WING

The rear wing is connected to a single swan-neck mounting point, continuing the trend of mounting the wing at the pressure surface to improve the suction underneath the main element. This is incorporated into the DRS actuator housing, cleaning up the flow to the wing, and ensuring that any vortex spilled off pours into the V-shaped cutout on the middle part of the top wing flap.

A slot at the leading edge of the endplates assists with managing flow at the rear of the car, while overhanging strakes are positioned at the rear-most point to present a last bastion of improving rear-wing efficiency as the car passes through the air.



EXHAUST

Angled slightly upwards, there's a suggestion that the exhaust is blowing the underside of the rear wing, another trend that has emerged in the past couple of seasons with the centralised outlet position.

Here the fast-flowing air expelled from the exhaust develops a more pronounced low-pressure region underneath, essentially developing an extra few newtons of downforce.

BARGEBOARDS AND SIDEPODS

The trailing edge of the bargeboards features a couple of dagger-like protrusions, trialled to a lesser degree on last year's car. These seem aimed at lifting the tail of the tyre wake outwardly, working in conjunction with the sidepod-mounted winglets, which appear to be positioned at the most extreme outboard points possible.

Twin-mounted mirrors are positioned two-thirds of the way along the sidepod, using the mountings to stabilise the airflow along the top of the sidepod inlets. These are as high as possible, in keeping with current trends, to minimise the blockage from the front-suspension components. The inlet itself seems to be very small, and the deformable structures lead into a small shroud, which guides airflow down the face of the sidepods.

With small sidepod inlets, Toro Rosso continues to run a large rollhoop intake above the driver's head. The team has two tall drivers, so the intake has to be carefully shaped in order to minimise any potential blockage, and the position of the seat will also be governed by that.



F1
2019

How F1 teams go testing

As the class of 2019 rolls out at Barcelona, the job list only increases. The pressure of understanding new tyres and aero will be felt across the board

GARY ANDERSON

PHOTOGRAPHY  motorsport
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The weeks leading up to the first Formula 1 test are always crucially important, with a huge amount of work being done to get the car finished and ready to go in Spain. Every team wants to leave the actual build of the car as late as possible. That way, it has as much research time as possible, and when the parts hit the assembly shop they are right up to date.

It's all about day-to-day manufacturing schedules being updated and addressing any delays. If the plan works correctly and everything arrives on schedule, the car can be assembled in about a week.

This also allows time for minor finishing details of the piping and wiring etc. Everything else – for instance the gearbox or upright assemblies – will be sub-assembled by the various departments through the company. Prior to and during the final assembly of the car, many of the initial components will have arrived and been thoroughly rig-tested to make sure they meet their design criteria.

All of the teams can simulate the loads going through the various components, and these hydraulic rigs will run in order to ensure the lifecycle each component is designed to withstand can be achieved, and that their ultimate strength is in line with predictions. The gearbox will have run on the dyno to optimise the gearshifts and check out the lubrication system.

Teams such as Mercedes, Ferrari, Renault and Red Bull have

had the 'boxes running on their transient engine dynos. This is a luxury the small teams don't have but, because most of them – other than Williams and McLaren – are using a gearbox housing and internals designed by their engine suppliers, they will get first-hand info on the gearchange set-up required. This puts Williams and McLaren on the back foot before they even start.

The build plan will be put in place four months or more in advance and then, just to throw a spanner in the works, some bright spark will come up with the idea of a launch in the week prior to the test.

This sort of thing is great for the sponsors, fans and media but it really can affect the build plan. Unfortunately, it goes with the glitz and glamour that some say is what F1 needs and has to be absorbed into the plan. But that doesn't make it any easier for the guys and girls trying to get the car together.

In the past, we have had a variety of launch styles. We've seen cars propped up with bits of wood to make them look good; we've seen a live Cirque du Soleil show where the car was supposed to be the star of the show. Both of those were OK as the car could be, let's say, 'unfinished' under the bodywork.

But the most difficult is when it's a launch with the car running. Then everything needs to be finished and ready to go perhaps a week earlier than absolutely necessary. Most teams that do it this way don't allow the press along, so if there is a little hiccup



they can cover it up and just release some pictures. Mercedes is taking that approach this week.

Once the launch is over there are usually a couple of nights burning the midnight oil just to get everything packaged correctly. The test cars will have lots of extra sensors fitted to comprehensively check out all the systems are working as planned.

The first runs will be about data gathering, so these extra sensors need to be in place before getting to the track. With everything being modelled and designed in 3D, the car build should go faultlessly as it will have been all but assembled on screen prior to the actual physical assembly.


But that also means that if anything has been missed it is a bit

more of a drama. If your approach is focused more on the actual assembly, then you will be better prepared and capable of reacting if something goes awry. Your ability to regroup and rectify will be more important if a problem does occur.

That's the same even when the car is up and running, as problems will appear and the technical director's job list from the car build and initial pre-season testing will only get longer as the days go by.

The big thing is being able to prioritise and react to the issues. Reliability has to come first, so at the head of the to-do page you need the heading 'to finish first, first you have to finish'. And you need to stick to it.

In the background, there will be an ongoing performance >>



Expect cars to sprout all sorts of sensors as teams try to gather as much data as possible

development plan. You can't neglect this, as researching new parts takes time, but this is mainly in the vehicle or aerodynamic departments so they are not really affected by reliability problems.

In the initial stages of the season, and especially with the aerodynamic rule changes to the front wing and bargeboard areas this year, you have to keep adding performance to the car and you have to be able to redirect that research after the car's first track running.

Initial testing will be about making sure the car behaves as predicted. If it does, then push on with the development plan. If not, you have to recognise why and react to it. It's this sort of detail that Williams and McLaren didn't react to last year and it destroyed their seasons very quickly.

The teams will arrive at Barcelona and, provided they have everything they need, the last 24 hours will be spent with final fettling, just checking that the wiring and pipes etc are away from anything hot, and that the bodywork fastenings are all in place and fixing the bodywork correctly.

The last thing you need with a new car is losing the only engine cover you have at speed. If, for some reason, you haven't got everything you need to run the car, then the garage at Barcelona is just an extension of your factory base. As the parts arrive, they will be fitted and the car will be finally assembled.

You can't rush things. When the car hits the track it needs to be properly prepared – any shortcuts will cost you in the long term. Those first laps may only be about getting data from those extra sensors, but that's data you need at the outset.

If the car hasn't had a shakedown before arriving at Barcelona then just making sure all the systems are working as planned will be the order of the first morning. This can take quite a few in and out-laps, with a quick underbody inspection between each run just to make sure nothing is burning up.

There will be temperature stickers all over the place. These change colour depending on what temperature that component has been subjected to while out on track. It's very important that things like the rear-wing pillar are not overheating from the exhaust gases. Once you have confidence that the car isn't going to burst into flames at any moment, or that you are not going to have a leak from a pipe that isn't supported properly, then the real work of understanding the car begins.

The days of trying to find the best set-up by experimenting with suspension settings on track are long gone and most teams will have optimised this with simulation tools back at base. So it's now all about making sure that the car is performing aerodynamically on track as predicted in the windtunnel.

Some small rideheight changes will be done to make sure that the underfloor airflow separation height correlates with the tunnel. And if it doesn't, just knowing the offset is very important to how the car gets set up. The same will happen with the front wing especially, as it's the victim of some serious regulation changes this year.

The team will alter the wing angle to check if its characteristics are as expected. Being so close to the asphalt, it works in ground-effect, so a range of angles will be tested to identify any problems with correlation in that area.

The front wing will be the focus for most teams. It is one of the most powerful areas of the car, and if the airflow in this area is not doing what was predicted it can affect the whole car downstream.

So I expect to see aero rakes like we have never seen before. These massive grid structures are full of sensors measuring the airflow direction and speed off the car's surface.

“If your car is not behaving as predicted, you have to dig a bit deeper to understand what's going wrong and why”

Flow-vis paint gives you the surface airflow, but it's the airflow off the surfaces that can alter the airflow on the surface, so it's critical to understand something that you just can't see.

As far as the suspension set-up is concerned, changes to vertical and roll stiffness in something like 5% steps will also be tested. This is more to get an understanding of how different car set-ups change the car's behaviour and especially how it works the tyres. The rubber is new this year, so tyre testing will also come into play.

The first test is normally all about getting as much information as possible and trying to understand as far as you can if the car is behaving as predicted. If it is, then your back-at-base development plan can proceed.

If not, you have to dig a bit deeper to understand what is going wrong, where it's coming from and why. If all is working as planned, which it very seldom is, then the second test will be a bit more about performance and long-run tyre durability.

With that comes race runs, which prove reliability (or not).



Understanding the tyres is always key, so some focus will be on them

That's not to say that some teams won't show their hand as far as performance is concerned at the first test or do some race runs. They will. But it's normally at the second test when things get just that little bit more serious.

During car build and testing, the technical director's job list gets longer – as does everyone else's. These job lists all need to come together and be prioritised. There is no point in using a scattergun approach to solving them – they need to be allocated and solved.

It's a fine line between elation and despondency when the car first runs. Within very few laps you really do know, as does the driver, if what you have created is going to do the job.

It's the old saying that you can't make a silk purse out of a sow's ear. If it doesn't feel right to the driver they will know it and they will know if it needs just a small adjustment or major surgery.

The opening Barcelona pre-season test will be the first time the

cars will appear in public, so it's the first time the teams will have seen each other's interpretations of the new regulations. They will all be having a quick look at each other.

Each team will have at least one of those pesky photographers snapping as many shots as possible. We used to get someone to do it and nothing has changed, so post-test the technical director's desk, or at least their laptop, will be littered with holiday snapshots from Barcelona. It's not about copying other teams – it's about trying to understand how the opposition went about sorting out the details.

As I have said on many occasions, these current cars all have to work as one. It's not about putting together a bunch of individual parts; it's about the sum of the whole that ends up giving you the performance. For example, the front-wing-endplate detail has a major influence on the performance of the underfloor.

You could change your front-wing endplate to exactly the same detail as the fastest car, but your underfloor design wouldn't respond in the same way, so it would probably be detrimental to your overall performance. It's like a jigsaw – all the parts need to fit together.

And after all that you are trying to get an understanding of this highly strung vehicle at a track where the temperatures will be at least 15C lower than they will be at any of the first four races. Temperatures change everything.

Yes, the tyres will respond differently, but that's just a small thing and it's the same for everyone. But the aerodynamics will also respond differently. Any airflow-separation problems that appear at Barcelona will be much worse when the ambient and track temperatures rise, so performance information from testing needs to be taken with a pinch of salt.

Basically, if you are aerodynamically critical in any area then be aware it will rear its ugly head and bite you when the temperatures increase once the season is up and running.

As a technical director, pre-season testing is a bit of a pressure pot. You have seen your new baby evolve and now it's on show for the first time. It's not a beauty contest, although I have always liked nice-looking cars. The real judgement is against the stopwatch.

Yes, fuel loads and the teams' individual test programmes can change things, but the stance of the car and its consistency on track normally gives a reasonable idea of who's hot and who's suffering from the winter blues. ❧



Anderson believes watching trackside during testing can tell you a lot

NEXT WEEK

The 2019 F1 designs will break cover over the next few days. In the 21 February issue we will assess them.

F1 GREATEST ERA POLL

YOUR VERDICT

In our 13 December 2018 issue, six eras of grand prix racing were nominated as the best ever, their cases made in turn. Then we asked what you thought...

KEVIN TURNER

PHOTOGRAPHY  **motorsport**
IMAGES

SPINNEY

When was Formula 1 at its best? That's the question we asked you before Christmas. As well as having expert advocates for each of six eras in the magazine, we also ran a poll on Twitter. The eras open to your votes, by email or post, were 1950-60, 1961-73, 1974-82, 1983-93, 1994-2005, 2009-18. Many thanks to the 3000 or so of you who participated. Now it's time to reveal the results.

On Twitter, we ran two semi-finals to establish a four-way fight in the final. That eliminated the eras at either end of the debate: 1950-60 and 2009-18. Reflecting the close battle in the second semi, the final was very tight (see right). The 1994-2005 era won by just 2% over the preceding 1983-93 period. Michael Schumacher in his pomp, V10 engines and rising exposure were highlighted as strengths of the period.

As some of you pointed out, the result strongly indicates the age of those voting on social media. Many voters admitted that the period during which they first attended a motor race tended to be the one that still grabs them, acknowledging the power of nostalgia. Although demographic data doesn't exist for the Twitter results, it's likely that those voting were of a younger average age than, for example, the magazine readers. That means the winning period on our Twitter poll was always likely to be more recent than the email/post/magazine vote.

“THE LOSS OF GREAT CIRCUITS AND DEPENDENCE ON DOWNFORCE HURT THE MORE RECENT ERAS”

The results from our email and postal votes were indeed quite different, with the 1974-82 era coming out a clear winner. The unpredictability of the races, access to drivers, car variety, and the sound of the era were all mentioned numerous times, as was one other word: oversteer.

The following period of 1983-93 also did well – thus taking second in both polls – but it was tied with 1961-73, which performed much better than in the social media contest. A strong number of Autosport magazine readers attended their first event during this era.

By contrast, the recent decades, including 1994-2005 that won online, performed poorly. The loss of great circuits and dependence on downforce were two key factors that hurt the more recent eras.

There were also a number of correspondents who argued that all of the eras had some merit. All encompassed the best drivers of the time battling it out in the best racing cars then possible. While we applaud that sentiment, we still plan to produce some special pieces on your favourite era, so look out for those later in 2019.

TWITTER RESULTS

ROUND 1

ERA	VOTE
1974-1982	70%
1961-1973	23%
1950-1960	7%



ROUND 2

ERA	VOTE
1994-2005	42%
1983-1993	41%
2009-2018	17%



Motaz Shilu @MotazShilu

Definitely among the three, 1994 to 2005 is the greatest. Started with dramatic events, Ferrari delivered after a long drought, generational shift, rise of Schumacher stardom, son of WDC becoming WDC, one of the best entertaining technical regs, and growth in fan base & exposure.



Mark B @HGB1892

1983-93 simply as it's the period of my childhood and when I got into F1. That and the cars were more spectacular and reliability always played a part in making it a bit unpredictable.

Hill battles Schumacher
at Estoril in 1995





Schumacher was the big winner in the 1994-2005 period that topped the Twitter poll

FINAL TWITTER RESULTS

ERA	VOTE
1994-2005	43%
1983-1993	41%
1974-1982	10%
1961-1973	6%



Kate Hewitt @katehewittx

I'm actually so shocked to see the 1960s so far behind. Classic, old-school F1 packed with British talent in the most extreme of conditions.

This generation don't know much prior to the 1980s because it wasn't televised and/or no movie made about it. It's a shame because the 1960s and 1970s were littered with talent and beautiful cars!



Is Schumacher's Ferrari dominance now remembered fondly?



RESULTS GREATEST ERA



Ronnie Peterson demonstrates why 1974-82 was popular

EMAIL/POST RESULTS

HOW YOU VOTED

ERA	VOTE
1974-1982	43%
1983-1993	24%
1961-1973	24%
1950-1960	5%
1994-2005	2%
2009-2018	2%



Phil Hoyland

It's a tough choice but I believe 1974-82 was Formula 1's greatest era. Not only was Marcus Simmons's argument highly persuasive, the fact that the cars were so different, James Hunt, Niki Lauda, Ronnie, Gilles, Jody, Patrick Depailler in a six-wheeled Tyrrell, ground effects, the birth of the turbo, 1982 with its multitude of winners, drivers with personalities, access to paddocks, no acres of gravel traps separating the spectators.

Mick Hunt

I have to agree with Marcus Simmons that the best era of F1 was 1974-82. The engineering innovation was unique to that era: Cosworth engines, Renault turbo, Brabham fan car, Tyrrell P34, Lotus 79, plus the best looking Ferrari, the 312T. I was only 13 at the start of this era and been an F1 fan since but losing a little interest in the present Mercedes domination.

Paul McKie

Has to be early 1970s with its broader technical freedom and

variety of engines – DFV, Ferrari, Honda, Matra, Alfa, BRM. The last four were glorious V12s that all sounded different. Reliability was suspect but this somehow added to the suspense.

James Rollin

The 1983-1993 era gets my vote – Mansell vs Piquet; Senna vs Prost; the 1987 British Grand Prix; Mansell passing Berger around the outside at Peraltada in the 1990 Mexican GP; James Hunt & Murray Walker commentating, etc...

David Sherratt

1961-1973 in my opinion was the best era simply because the cars (each design) were different from one another and aero was basic giving the cars more unpredictability and relying on driver skill a lot more.

Mark Smith

The 1980s was the best time in F1. The cars with different-looking designs and simple wings looked great, encouraged close racing and, with various engine configurations, sounded great.



WHEN WAS F1 CLOSEST?

You've had your say, now the numbers get their turn...

KEVIN TURNER

PHOTOGRAPHY



motorsport
IMAGES

STATS



motorsport
STATS

T

he extensive and varied response to our Greatest Eras poll encouraged us to look a bit further into the state of Formula 1 over the past seven decades. And specifically, when was it *really* at its most competitive?

We looked at the number of winners and average margins in our original piece (13 December 2018), so this time we thought we'd look at supertimes to see how gaps between leading cars have fluctuated in terms of raw performance.

Supertimes are based on the fastest single lap by each car at each race weekend, expressed as a percentage of the fastest single lap overall (100.000%) and averaged over the season. No statistic is perfect and there are several caveats. Firstly, because they are based on the best lap time of a weekend, this usually means qualifying. And qualifying pace does not, of course, always translate into race pace.

For example, the Ferrari F2004's supertime advantage over the BAR 006 in second place was only 0.218%, yet it dominated, winning 15 of the 18 races. Partly that was due to its incredible finishing record – advantages further back in F1 history have sometimes been squandered by poor reliability – but largely it was because Ferrari's Bridgestones were better race (and worse qualifying) tyres than the Michelins on the rival cars.

The need to qualify with fuel loads required to start the race also meant some cars ran lighter than others, skewing the figures for the 2003-09 period for which those rules were in place.

Similarly, drivers are not constants, so they will also have an influence on some of the gaps. But if you agree that the margins between top drivers are always small, this should still give us a good idea of the relative pace of the top cars over the years.

This isn't an attempt at a definitive answer to when F1 was at its best. That's too subjective a question. How do you quantify the appeal of a screaming Matra V12, the sight of Ayrton Senna on a qualifying lap or a pass around the outside of Suzuka's fearsome 130R? But hopefully these numbers give some interesting background to what fans remember, and perhaps challenge some assumptions too.

F1 ERAS SUPERTIME ANALYSIS

ERA	1ST-2ND AVERAGE (%)	1ST-5TH AVERAGE (%)
1950-1960	1.173	6.595
1961-1973	0.433	1.508
1974-1982	0.365	1.114
1983-1993	0.869	2.55
1994-2005	0.336	1.456
2009-2018	0.401	1.448



COMPARING THE ERAS

The gaps in our first era were huge compared to what came later. Only when the innovative Lancia D50 locked horns with the professional Mercedes team was the gap at the front truly close, although the competitiveness of the field did improve during the decade.

Given that the Lancia only appeared at the end of 1954, that season's gap could be read as the 0.464% margin between Mercedes and Maserati, rather than the 0.142% Lancia-Mercedes figure. The gap between Cooper and Lotus in 1960 was also small (0.042%), but that season was not close in reality, partly because of Lotus's poor reliability and also due to the fact that the quickest Lotus driver – Stirling Moss – missed three races following his serious crash at Spa.

Although the unpopular switch to 1.5-litre cars – an era that really split our voters as the cars were relatively slow but did sometimes provide good racing – gave Ferrari an initial advantage, it continued the trend of better competitiveness.

Margins increased when the three-litre regulations arrived in 1966 and when the game-changing Lotus 49 arrived the following year. But the field closed up as the Cosworth DFV became widely available from 1968. It remained competitive until the end of the 1970s, though there were seasons for Niki Lauda-era Ferrari and Lotus (with ground-effects in 1978) when the gap at the front briefly rose again. Overall, though, the 1974-82 era that won our email/post vote is the second-closest era in terms of the gap between first and second, and is the closest when it comes to the first-fifth figure. That, combined with poor reliability by today's standards, helps to explain why there were so many different winners.

The turbo era, which required manufacturer input to make the most of the technology, increased the gaps. Even the small 1984 gap between McLaren and Brabham is misleading, given how much better a race car

the McLaren-TAG MP4/2 was than the Brabham-BMW BT53. It's clear that the complexity of the engines provided a stark contrast with the DFV era, though for many fans it was the spectacle of the extra power – up to 1500bhp in qualifying trim – that provided them with their motorsport high-watermark.

But the biggest spreads of the 1983-93 period came *after* the return to normally aspirated engines in 1989. The margins came down to begin with, but as the development of gizmos – traction control, active suspension, anti-lock braking and even four-wheel steering – kicked in, the gap between the haves and the have-nots grew. The 1992 (1.492% and 4.451%) and 1993 (1.706% and 3.764%) seasons were among the most one-sided in F1 history in terms of speed, harking back to the 1950s.

The banning of the gizmos for 1994 immediately closed things up and, from 2000, the raw-pace gaps between the top teams stayed narrow, though the qualifying-with-race-fuel rules should be noted. That helps to explain why the 1994-2005 era, which topped the social media poll, actually produced the closest gap between first and second. It is also worth noting that, long before this point, the difficulty of following another car thanks to the 'dirty' air had become apparent. The pace advantage needed to be bigger for a pass to become likely.

HOW F1 STANDS NOW

On the face of it, the 2009-18 period doesn't come out too badly. It's third-closest when it comes to the gap between first and second, and runner-up in terms of the first-fifth results. But when looking at how F1 stands *now*, this 10-year period should really be split in two, which paints quite a different picture:

The gaps are around twice as big for the five years of the turbo hybrid era than it was in the previous five seasons with normally aspirated V8s. Two main factors explain the difference. The first is the much-publicised complexity of the modern hybrid engines. There can be no

doubt they are more relevant for manufacturers and the wider world, but they have given F1 cost and competitiveness problems.

The second is that, from 2007, F1 had a freeze on engine developments, aside from the odd tweak, ostensibly for 'reliability reasons'. This took F1 close to the DFV era in terms of engines, and the result was F1's closest period on raw pace. Despite the controversy over the double diffuser, the 2009 season was the closest ever from front to back. Slowest team Force India was 1.241% behind pacesetter Red Bull, a gap that only covered the big three in 2018.

Red Bull's ability to win four drivers' and constructors' championships between 2009 and 2013 shows how good modern F1 teams generally are at making the most of any advantage they have, thanks largely to better reliability and the enormous amount of data that can be used to optimise cars almost every weekend.

The average gap between first and second over the 69 years of the world championship so far is 0.580%, making the 2018 gap of 0.118% between Mercedes and Ferrari look strong. Indeed, that is the closest gap since 2013. But the average gap from first to fifth is 2.392% over the seven decades, with last year's margin between Mercedes and Renault standing at 2.018%. If the relatively uncompetitive years of the 1950s are excluded, the average falls well below the 2018 figure.

It illustrates once again how the gap between the haves and have-nots has grown too big since the introduction of the turbo hybrid engines, echoing the first turbo and gizmo eras of the 1980s and early 1990s.

This highlights two issues for those now considering F1's future. It is clear that the field closes up when engines are less sophisticated and/or similar (or largely the same, as with the DFV era). That makes sense because it is essentially reducing a variable, but the direction of the automotive industry is currently largely about alternative and hybrid powerplants. How can you close up the field while at the same time allowing innovation? Is that even still possible?

The second is that the gap is too big between the big teams and the smaller ones, not helped by the uneven revenue distribution they receive. By and large, all the teams are now too good for there to be an opportunity for smaller squads to jump far out of their financial position – though Force India/Racing Point has been pretty successful in that regard in recent years. And that is one of the other big questions facing F1: how to prevent the bigger teams simply spending their way to the front.

F1 ERAS SUPERTIME ANALYSIS		
ERA	1ST-2ND AVERAGE (%)	1ST-5TH AVERAGE (%)
2009-2013	0.258	1.076
2014-2018	0.544	1.820

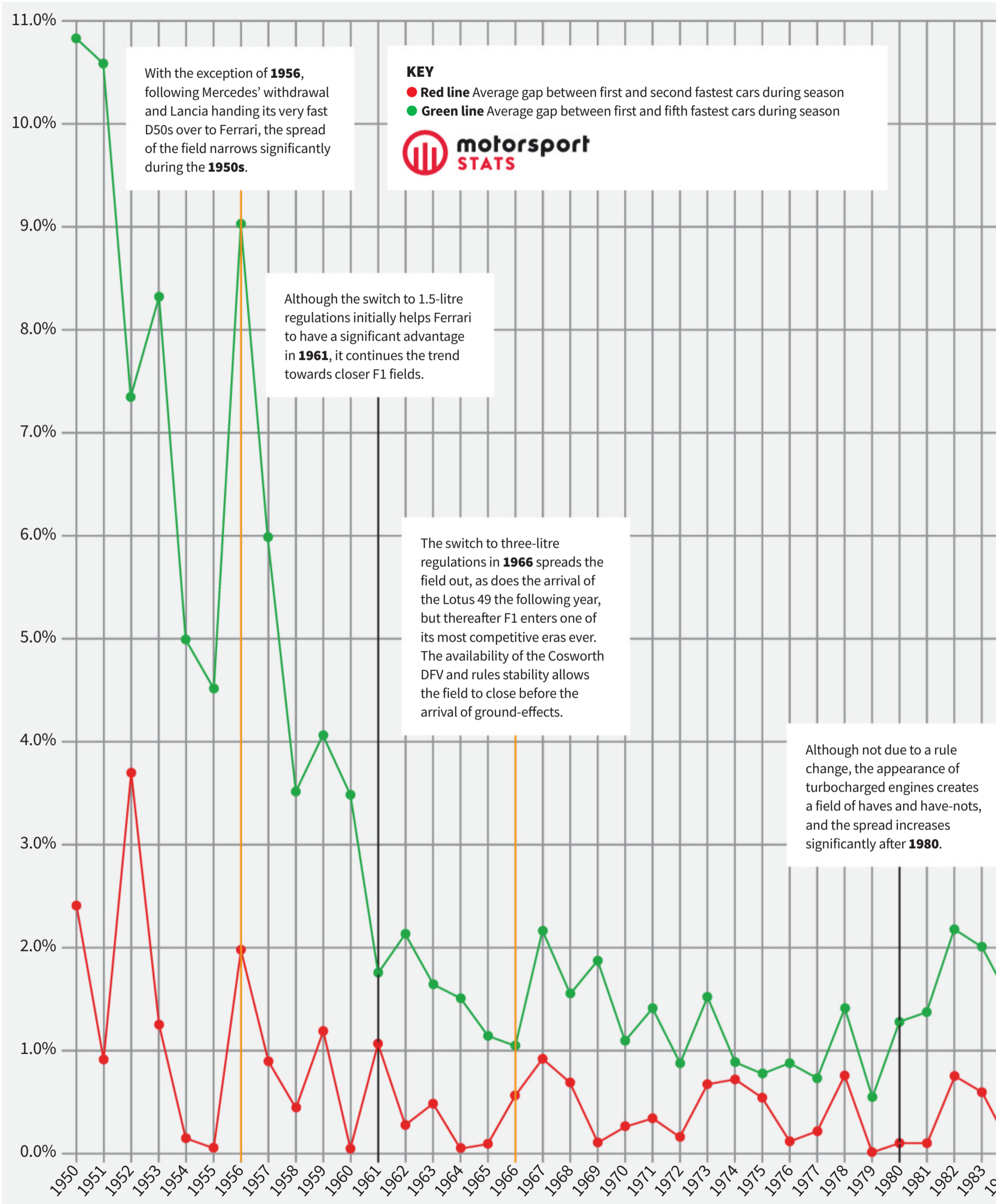


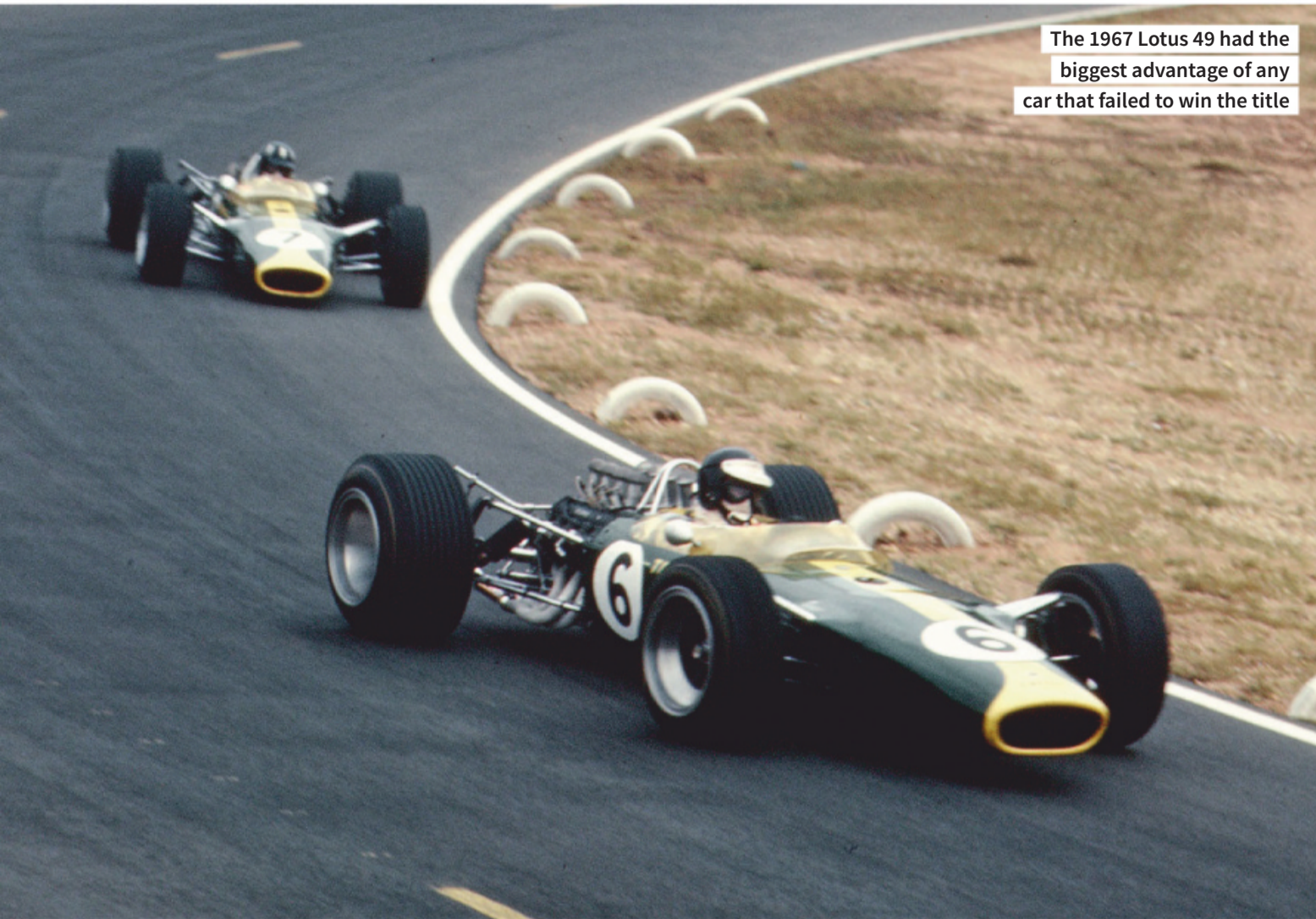
F1 SUPERTIMES GRAPH 1950-2018

“HOW CAN YOU CLOSE UP THE FIELD WHILE AT THE SAME TIME ALLOWING INNOVATION?”

The gap between Red Bull and Force India was small across the 2009 campaign

F1 SUPERTIMES GRAPH 1950-2018





NEXT WEEK

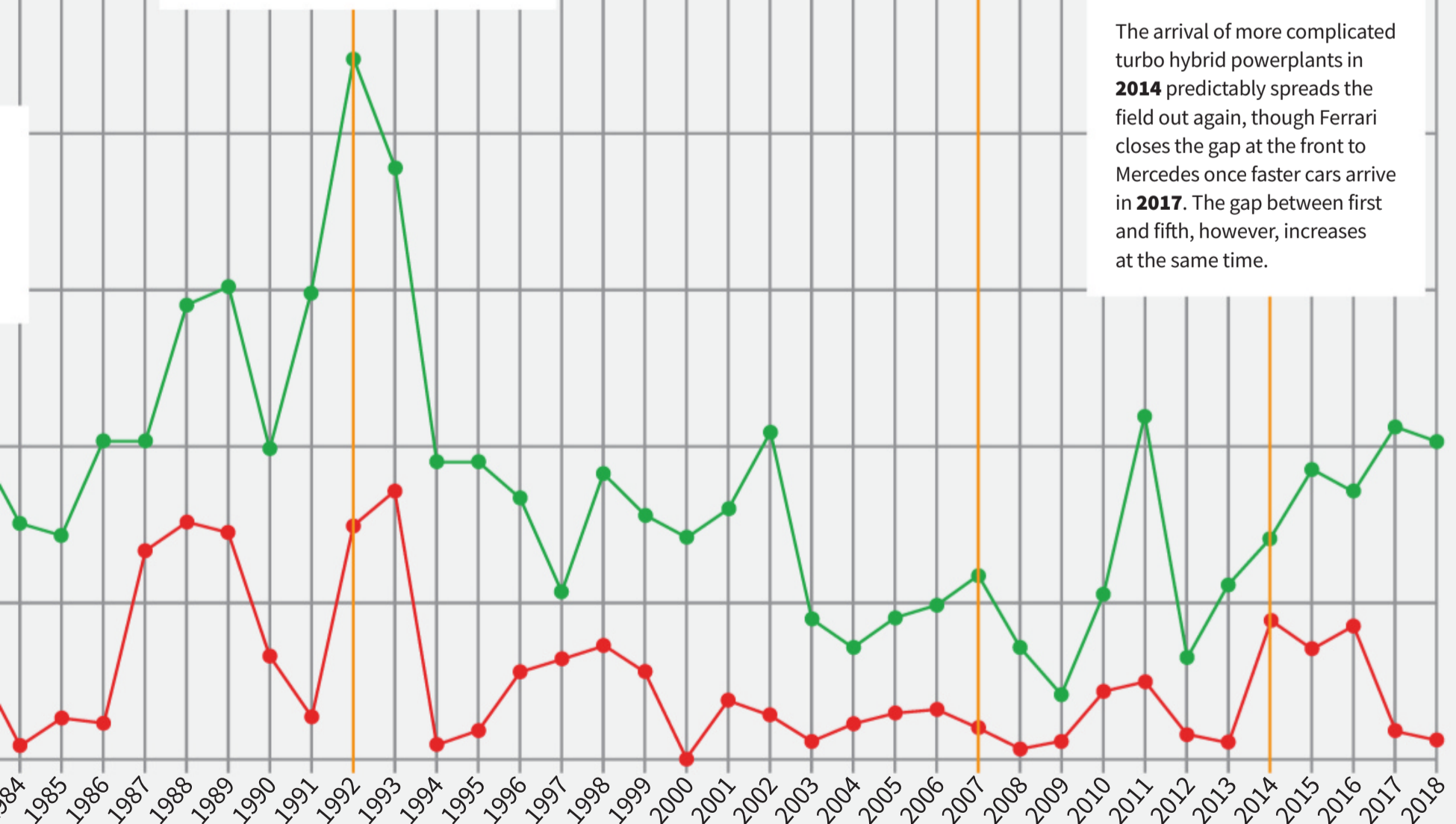
F1 LAUNCHES

Who will set the pace this year? Our tech experts run the rule over the contenders that will battle it out for honours in 2019.

The banning of turbo engines for **1989** does not make things closer. Indeed, the arrival of electronic gizmos, such as traction control, creates some of the most one-sided seasons since the **1950s**. The banning of gizmos for **1994** brings the field close together almost immediately.

Ever-more-restrictive engine regulations – including a freeze from **2007** – contribute to the **2000s** rivalling the DFV era for the title of F1's most competitive period.

The arrival of more complicated turbo hybrid powerplants in **2014** predictably spreads the field out again, though Ferrari closes the gap at the front to Mercedes once faster cars arrive in **2017**. The gap between first and fifth, however, increases at the same time.



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QUESTION

John Watson's win at the 1983 Grand Prix of Long Beach saw him drive one of the most incredible races in F1 history. How many places did he make up from the grid to take his victory?

a) **21** b) **22** c) **23**

The newly released F1® box sets from Duke Video® capture the essence of four decades of Formula 1 racing in handsome collections that look as good on your shelf as they do on your TV. Duke went back to the original masters to complete the digitisation of the reviews that had previously been released on DVD, ensuring that the transfers are the highest quality and the DVDs in your collection represent the ultimate record of 40 unforgettable years of action at the pinnacle of motorsport.

The 1980 to 1989 set covers a decade of

incredible change and growth in F1 as the sport finally put the FISA-FOCA wars behind it and embarked on the turbo era in earnest. As the British McLaren and Williams teams found their stride and the cars improved in quantum leaps, they were piloted by drivers with the flamboyance and skills to equal the loud and lively cars. Legends were born as Alain Prost, Ayrton Senna, Nigel Mansell, Nelson Piquet and others thrived in the ultra-competitive environment, pushed on by the ever-increasing popularity of the sport thanks

to the effects of improved TV coverage.

The official reviews of the seasons began in the 1980s, and watching these programmes now it is fascinating to see how they developed over the years. There were experiments with narration – including having the drivers themselves provide the commentary – and the running time of the shows, but the overall picture is one of excellence almost from the word 'go'. For real F1 fans, the sets are a time capsule to be savoured and enjoyed time and again.



MOST SUPERIOR CARS

Victory in all but one race to usher in a new era

KEVIN TURNER

PHOTOGRAPHY  **motorsport**
IMAGES

THE SUPERTIMES USED TO produce the graph on p32-33 can also pick out the most dominant cars in the history of the world championship, in terms of raw pace. Unsurprisingly, three of the top five are from the 1950s, but two are far more recent.

5 1988 McLAREN MP4/4 ADVANTAGE 1.511%

Voted by Autosport readers in 2017 as your favourite F1 car of all time, the Honda-powered MP4/4 famously won 15 races from 16 starts in 1988 – just the Italian Grand Prix missing from its score. With the best engine, a fine chassis, and two greats in Ayrton Senna and Alain Prost behind the wheel, it was 1.511% ahead of Ferrari.



4 1993 WILLIAMS FW15C ADVANTAGE 1.706%

The FW14B is often the dominant Williams people remember, but its successor had an even bigger advantage over closest rival McLaren, 1.706% ahead compared to 1.492%. Helped by traction control, active suspension and anti-lock brakes, the FW15C won 10 races and helped Alain Prost to his fourth and final title success.



3 1956 LANCIA-FERRARI D50 ADVANTAGE 1.964%

Ferrari was struggling in 1955, but two major developments worked in its favour for the following year. Mercedes-Benz withdrew from motorsport, and the financially struggling Lancia team handed its innovative D50s over to Enzo's scuderia. The result was an advantage of nearly 2% over the Maserati 250F as Juan Manuel Fangio scored a fourth world crown.



2 1950 ALFA ROMEO 158/159 ADVANTAGE 2.391%

The best non-German single-seater before the Second World War was, unsurprisingly, the car to have after hostilities ended. The supercharged 1.5-litre Alfetta was the fastest at every round as Giuseppe Farina won the inaugural world drivers' championship. Ferrari was second fastest, but a whopping 2.391% behind on our supertimes.



1 1952 FERRARI 500 ADVANTAGE 3.682%

After the failure of BRM and the withdrawal of Alfa Romeo, the world championship was switched from Formula 1 to F2 regulations for 1952. The result was a Ferrari benefit, the two-litre four-cylinder 500 winning all the rounds, excluding the anomalous Indianapolis 500. It was 3.7% faster than second-quickest effort from Gordini.



THE SWEDE WHO COULD ROCK INDYCAR

There's a more famous name in F1 refugee Marcus Ericsson heading to the IndyCar Series this season. But the real threat to the establishment could be Felix Rosenqvist

MARCUS SIMMONS



MAIN IMAGE: FELIX RACING

FELIX RACING

Rosenqvist has clocked up mileage at Barber and Sebring

He's an IndyCar Series rookie with a dream drive at Chip Ganassi Racing in 2019, but Felix Rosenqvist could have taken the same opportunity last year. So when the offer came up again this time around, he wasn't going to turn it down. "I realised that I've been lucky enough to get this chance two years in a row now, and I really wanted to take it because I might not get it again," he reflects. "Going with Chip is just something I had to do."

The reason why he couldn't go IndyCar for 2018 was that, by the time it became apparent that there was a potential berth alongside the great Scott Dixon, Rosenqvist was already committed to Formula E: "I had a contract with Mahindra. I was happy in Formula E. It was not an easy decision. Obviously I'd always wanted to do IndyCar, but at the time I was doing well in Formula E, and why would I leave this? The decision at that point was to stay put – 'There's no reason to do anything stupid now, let's just stay in Formula E and see what happens'"

The whole Ganassi gig is something in which Rosenqvist's manager Stefan Johansson has been instrumental. The older



STAT

66

Single-seater wins for
Rosenqvist in six
different categories

Swede has looked after Dixon since the Kiwi burst onto the Indy Lights scene with his Johansson Motorsports team in 1999. He started giving Rosenqvist friendly advice after his rookie European Formula 3 season in 2011, and the relationship became formal around the time of his maiden Macau Grand Prix victory in 2014. With strong links to Japan and the US from his own racing career, Johansson initially tried to steer Rosenqvist to the East, but his new protege was in debt after eking out four years in Euro F3. “At the time when Stefan and I started working, there was already so much stuff that I had brought from the past,” he alludes.

Lance Stroll’s father Lawrence — the Prema Powerteam majority shareholder — gave Rosenqvist a debt-clearing lifeline in 2015 and he romped to the Euro F3 title, and further Macau glory. Now, for 2016, Johansson took him West — to Indy Lights. “That was something that probably personally I wouldn’t have put highest on my list at that time,” admits Rosenqvist, “but we gave it a shot and I remember Stefan saying, ‘You never know what it could lead to, and you might get a test with some of the big teams in IndyCar if you do well.’

And that’s exactly what happened and that’s why I’m with Chip today, so that’s pretty cool.”

Remember, 2016 was the year when the go-anywhere, drive-anything Rosenqvist had an insanely busy schedule. He dovetailed Indy Lights with a Mercedes campaign in Blancpain GT, in which he wrested second in the Spa 24 Hours and a Sprint Cup race win. Merc also called him up to replace Formula 1-bound Esteban Ocon in the DTM; at this point his Lights campaign was terminated, but he’d done enough to earn a crucial IndyCar test with Ganassi — and, it’s worth mentioning, he had a DTM grid average two positions higher than that of Ocon. Two years earlier, the penniless Rosenqvist had been making arduous roadtrips to F3 races from Sweden with his mate. Now he’d laid the foundations to become a newly minted professional, joining the racing diaspora in Monaco.

By the time he made his DTM debut, Rosenqvist had already set the ball rolling on his 2019 deal with a hugely impressive first IndyCar test at Mid-Ohio in July 2016. “IndyCar had a rookie test, where the teams could get another test day if they used an Indy Lights driver for half a test day,” he explains. “So



Double win in Toronto
Indy Lights weekend...



...preceded sparkling
first test for Ganassi



Rosenqvist was a race
winner in Formula E

I had to share the car with Scott, but I had to drive more than Scott that day. They put me in for the morning and I drove 120 laps or something, then Scott drove the rest of the day. It was a win-win for everyone. I had good momentum at that time – I came from two straight [Lights] wins in Toronto, and that's where it all happened."

So, 120 laps at Mid-Ohio... That must've been tough! "The IndyCar is a very physical car because it doesn't have power-steering. But at the time I was very fit because I was driving so much – that's the year where I did, like, everything that had four wheels. And I did a lot of stuff with Prema [helping Stroll's Euro F3 title success] at the time. So I was formula-car fit, and it wasn't really any problem for me. But I would say that when I had my first test since I signed my Indy contract, at Barber a couple of months ago, that's where I really had gone unfit and I got a wake-up call!"

In 2017, this time while he was racing in Japan's Super Formula series, Rosenqvist took part in the same Mid-Ohio test, again with Ganassi – and now the team began raving about him: "It went even better. All the points where... I wouldn't say I'd struggled, but the points I needed to work on, seemed to be a lot better. That's where every one of us decided to say, 'Well, let's make something happen'"

And now it has happened. Many observers of the sport would go so far as to suggest that the Ganassi line-up of Dixon and Rosenqvist is at least on a par with that of all but a very few F1 teams. Dixon prevaricated a little before committing for 2019, but elected to stay with Ganassi as he bids for his sixth IndyCar crown, as part of an all-Johansson-managed driver line-up.

"I was really happy when he renewed his contract because I was signed before him," says Rosenqvist. "I found it really important for him to be there because there's just so much to learn from a guy like Scott. He's one of those guys like... when you nail a lap and then you compare it against him... well, by my standards I know normally when I've beaten someone, but he will always surprise you and be better somewhere, and is always pushing the limits every session. He's the kind of guy

"I COULDN'T FEEL A COMPLETE DRIVER IF I COULDN'T MAKE MYSELF GOOD ON OVALS"

that whenever he's in the car he's just going for it, no matter if it's a test, quali or race – it's in his blood to push all the time.

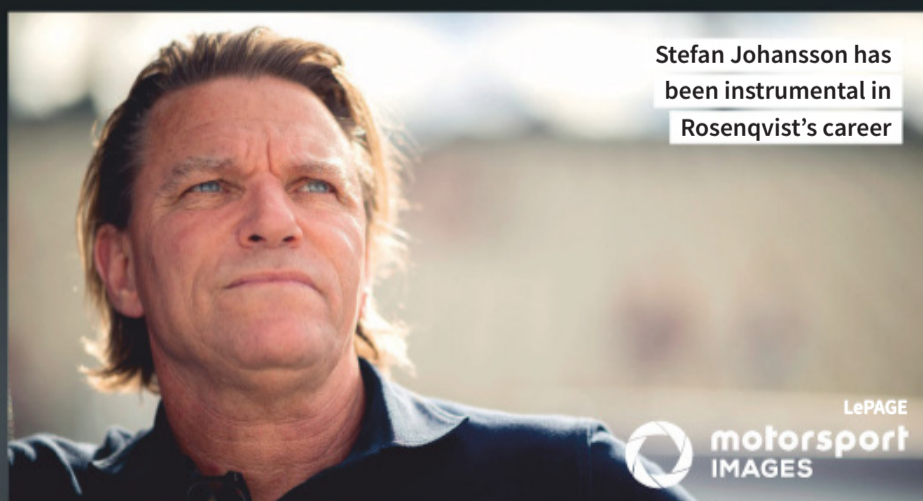
"He's also a super guy – he's not playing any mind tricks, as drivers can. I'm pretty lucky to have him as a team-mate. I would also consider myself to be a straight-to-the-point kind of guy when it comes to the racing, and I try always to work with my team-mates to make everything better. He seems to be of the same philosophy, so I think it's going to be a good match."

There's no reason why Rosenqvist, who has already tested for Ganassi's parallel Ford GT endurance programme "in case they have somebody injured, so I could be there", can't be ready to win on road or street circuits from the off. But the 27-year-old is not one for bold self-proclamations. He puffs, then considers: "Well, I think the benchmark has to be Robert [Wickens, Rosenqvist's 2016 DTM team-mate] last year. He didn't win a race but he was close already in his first one. I wouldn't say anything now – I know it's a big task ahead. But if you feel quick and it works from free practice onwards, there's no reason why you shouldn't go for a win. Whenever I come into a new championship, my first target is always to take a win. It doesn't matter how or when, or if you're quick or if it's luck. But I feel there's always something changing after you take your first win."

Chances are it won't come on an oval though. By his own admission, Rosenqvist struggled at Phoenix and Indianapolis during his Lights campaign: "Leaving Indy Lights, I felt like you can be two kinds of driver. You can be the one who says, 'OK, I was shit on ovals and I will never go back because that's my weakness'. Or you can be the guy who's staying up awake at night because he wasn't good at ovals. And it bothered me a lot, and that was one of the big reasons why I decided to give IndyCar a shot, because I couldn't feel like a complete driver if I couldn't make myself good on ovals.

"That's definitely the big thing this year. I've been on the simulator – I haven't driven an actual oval yet – but I think it went pretty good, basically starting from zero. I feel like there's a lot of things that I didn't learn back then in the Indy Lights days that I already know now. These guys have the possibility to really prepare me well – it's a different approach now. It's going to be exciting to see how it goes!"

It will be. Dixon's now 38, and can't go on forever. In being offered the seat alongside him as a paid pro, Rosenqvist is clearly viewed as Ganassi's man for the future. Once he gets the hang of those ovals – and he will – he'll never have to bother with a Formula E contract. 🏆



Stefan Johansson has
been instrumental in
Rosenqvist's career

ERICSSON THE 'OTHER' NEW SWEDE

INDYCAR'S OTHER VIKING import – Marcus Ericsson – has never raced in cars against Felix Rosenqvist, but the duo spent time together at Swedish karting giant Ward Racing, the team of 1992 Formula Renault UK race winner Joakim Ward.

"We were team-mates in 2006, but we didn't race in the same category," recalls Rosenqvist. "We haven't seen much of each other since then, but now I have an apartment in the same building as him in

Indianapolis! We're both new over there, so we just try to stick together and learn from each other."

Furthermore, the duo's respective managers – Stefan Johansson [Rosenqvist] and Eje Elgh [Ericsson] rivalled each other in Formula 2 in Europe and Japan, and are close now. "Stefan and Eje are really good friends," says Rosenqvist. "So it's pretty cool that he is helping Marcus and we end up in the same series after 10 years of wild journeys all over the world."

Ericsson's task now is to at least match his new Schmidt Peterson Motorsports team-mate James Hinchcliffe – a very good IndyCar driver, though not in the top echelon. Comparisons will also be made to his incapacitated

predecessor, Robert Wickens, who had marked himself down as a future champion within the first five races of his IndyCar career.

So far – he has completed just two days of testing, both at Sebring, as this is written – Ericsson has fitted in well at SPM. He impressed the team's new general manager, Taylor Kiel, in his very first outing, while Hinchcliffe praised his pace on used tyres on a 'gripped-up' surface in the second test. But there is still much for Ericsson to learn.

"I'm trying to build up a reference about what each change does to the car and its handling balance, and also for the team to have a reference for how I react to the set-up changes, and what I tend to like and not like," says Ericsson. "And of course there's the driving, the basics. It's not an easy car to learn. It's tough to get your head around it and know how to use it in the best possible way."

That hasn't lowered his target for the season, however. "Winning a race is the goal for sure; it has to be," he states. "I have huge respect for the top guys in this series who have been here a long time. I know it will be a big challenge for me, but I have a great team behind me."

**MARCUS SIMMONS
& DAVID MALSER**



Down to work: Ericsson gets a seat fitting with Schmidt Peterson team



FELIXRACING

FELIXRACING

THROWING OUT THE OLD FURNITURE

Martin Truex Jr won the 2017 NASCAR Cup title with the cosy Furniture Row Racing team. Will he cope alongside Kyle Busch at Joe Gibbs Racing and banish his racecraft demons?

TOM ERRINGTON

PHOTOGRAPHY  **motorsport**
IMAGES

A

s he pulled into the Homestead pitlane last November, Martin Truex Jr cut the engine of his #78 Furniture Row Racing Toyota for the last time, moments after falling at the last hurdle in his pursuit of a second straight NASCAR Cup title.

While Joey Logano celebrated a first crown in the way Truex had in 2017, the emotional 38-year-old racer from New Jersey clambered out of his car and was asked by the swarm of media for his take on the team that was about to become defunct. “Best time of my life,” he said of the little Furniture Row squad. “I don’t know what else to say. Those guys have been amazing.

“They’ve made me a superstar in NASCAR. I’m just very thankful for them all.”

But as is the way in motorsport, stardom can be fleeting. The fact that it was Logano lifting the trophy and not Truex was a pertinent reminder of the 2017 champion’s biggest failing in 2018: letting Logano live in his head and influence his performances. On top of that, the closure of Furniture Row after a key sponsor doomed it financially in an already “complex situation” left Truex and his star crew chief Cole Pearn without a job, briefly, before they signed for Joe Gibbs Racing.

So not only have questions been asked of Truex but, come this weekend’s Daytona 500 season opener, he’s sitting alongside his new team-mate: 2017 title rival Kyle Busch. It’s not a totally unfamiliar situation, as the one-car Furniture Row squad had held a technical alliance with Gibbs. Unsurprisingly, the upstaging of Gibbs by

Truex in 2017 did not go down well — so much so that Busch’s and Truex’s pitcrews scrapped on the pitlane at Indianapolis and forced a modification to the partnership. Now they’re sharing a garage...

Not only that, but the external pressure is high. Gibbs has two champions and title favourites, and Toyota will be expecting to wrestle the crown back from Ford in 2019. That means that Truex now has to banish a creeping whisper from NASCAR’s cult-of-driver fandom that his success was down to the superhuman crew-chief talents of Pearn.

While that is no doubt an exaggeration, the truth is that Truex was his own biggest enemy in 2018. First, there was the daunting Charlotte ‘roval’ that threw a curveball into the title race. Truex’s control of the race was supreme, until he gave just enough space for seven-time champion Jimmie Johnson to launch an audacious lunge that ended with the Hendrick Motorsports Chevrolet clattering into Truex’s Toyota and spinning the pair out in a crucial playoff race. An incensed Truex was quick to get in front of a microphone and label the move “last-corner desperation behind us”, and that Johnson missing out on the playoffs as a result was “karma”.

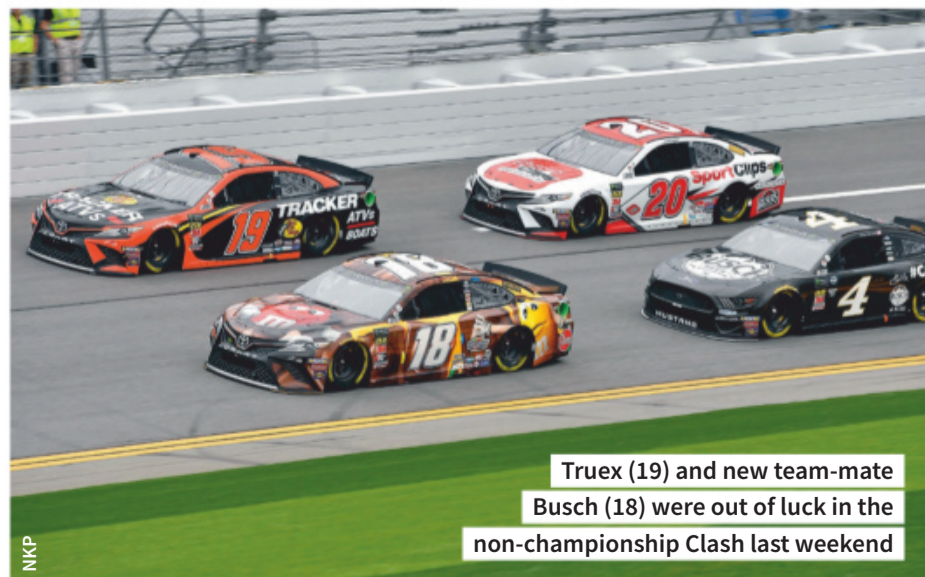
But that incident paled in comparison with the repeated clashes with Logano. Truex worked his way into the lead at Martinsville, surging past the Penske Ford with two laps to go, only for Logano to elbow Truex aside in a last-corner clash to take victory.

It had the hallmarks of a typical NASCAR ‘bump-and-run’ — Logano called it a “classic NASCAR move” — but Truex was incensed. Even the usually stoic Pearn got into a heated argument with counterpart Todd Gordon. “He won the battle but he ain’t winning the damn war,” Truex declared. “That’s it. I’m just not going to let him win it [the title]; I’m going to win it.”

Those words proved hollow when the title decider at Homestead became a Truex-versus-Logano battle during a 15-lap dash to the flag after a late caution. After nudging Logano as a warning early on, Truex barely fought Logano — who had a fresher-tyre advantage — as the Penske Ford cruised to the title.

In three crucial flashpoints, Truex came out second best and showed a weakness in wheel-to-wheel battle that he perhaps had little of in his title-winning campaign. And with the backdrop of a brand-new aerodynamic package this year that is going to bring drivers closer together in draft-style racing, Truex has to wise up in close quarters if he is to recapture the crown.

As new team-mate Busch said after the first pre-season test at Las Vegas, it’s now “more of a mental game, a lot more of a chess



Truex (19) and new team-mate Busch (18) were out of luck in the non-championship Clash last weekend



“TRUEX NOW HAS TO BANISH A CREEPING WHISPER THAT HIS SUCCESS WAS DOWN TO A SUPERHUMAN CREW CHIEF”

match, thinking how you make moves, how daring you'll be". And that shines a light on Truex's 2018 problems. He cannot repeat this failing against Busch in 2019, and he has lost one of the greatest strengths in having a one-car team built around his preferences.

It would be harsh to highlight only Truex's weakness ahead of a year that will likely play a huge part in deciding how he is remembered in NASCAR history. One of his biggest strengths — alongside Pearn — is to lift the level of an existing team. Furniture Row had taken seven years to get a top-10 finish and a victory, before a brief upswing with Kurt Busch elevated it to a more consistent challenge. But Truex's arrival in 2014 set the foundations for his and the team's first title, and the arrival of Toyota's dominant latest-spec Camry three years later was the final piece of the jigsaw.

Even so, Truex had to execute and that he did, finishing the season with a career-high eight wins, 19 top-fives, 26 top-10s and 2250 laps led as he hit his stride when the pressure increased in the playoffs. No one else came close, and it flummoxed his Toyota colleague Kyle Busch. "I don't have a theory," retorted Busch, after again being asked why Truex and Furniture Row Racing had the edge during 2017. "I've had probably 10 theories since Furniture Row has joined us [as a Toyota team] and none of them are true, so I'm done with theories."

Truex has also proved that he can cope on the days when things don't go to plan. Although Furniture Row's closure saga understandably seemed to play on his mind, his early career was played out amid claims that he was overrated, underrated or relying on Pearn to perform.

Truex endured a six-year, 218-race drought without a win between June 2007 and June 2013, before overcoming six near-misses to beat Jeff Gordon at Sonoma. That was a key moment in his revival following disappointing years at Dale Earnhardt Inc and Chip Ganassi Racing. So Truex has surmounted career disappointment before. And now he must regroup and ensure that he matches his greatest test in 2019, starting from this weekend. 🏆

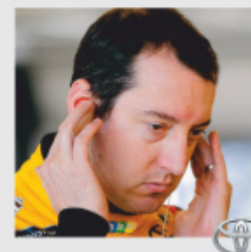
THE OTHER TITLE FAVOURITES



JOEY LOGANO

Team Penske
Age 28
Races 363
Titles 1 (2018)
Wins 21

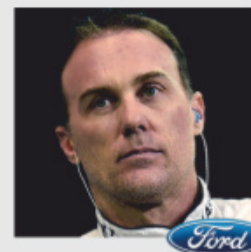
Logano's nickname of 'Sliced Bread' is certainly cringe-inducing, but it's a good reminder that his rapid climb to the top means age is on his side. Much will depend on the new Mustang, but the Penske man has a habit of rising to the occasion at key moments when the pressure is on.



KYLE BUSCH

Team Joe Gibbs
Age 33
Races 498
Titles 1 (2015)
Wins 51

Toyota's continuity with the Camry and Joe Gibbs Racing's pedigree should ensure that Busch is right at the front while Ford grapples with the new Mustang. That's a chance for one of Toyota's best drivers to set a marker. His biggest threat is likely to be new team-mate Truex.



KEVIN HARVICK

Team Stewart-Haas
Age 43
Races 646
Titles 1 (2014)
Wins 45

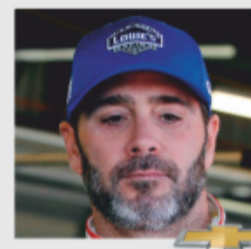
Harvick's 2018 season was largely derailed by repeatedly falling foul of NASCAR's more-stringent inspection process. That detracted from a season in which Ford's long wait for a title ended. His class is clear, and much will depend on SHR understanding the Mustang quickly.



CHASE ELLIOTT

Team Hendrick
Age 23
Races 113
Titles 0
Wins 3

Surely Hendrick Motorsports can't be as bad as it was in 2018 after a failed organisational shake-up and an underperforming Chevrolet Camaro. Elliott was the team's best driver last year, winning three races and emerging as the talent NASCAR has trumpeted as the next up-and-comer.



JIMMIE JOHNSON

Team Hendrick
Age 43
Races 615
Titles 7 (2006-10, '13, '16)
Wins 83

Johnson has spent much of the off-season, following his worst campaign in the Cup series, on the offensive after comments that he was past his best. Crew chief Chad Knaus has moved on, so Johnson has a fresh slate for 2019. An early win to end his drought could do wonders.



BRAD KESELOWSKI

Team Penske
Age 34
Races 341
Titles 1 (2012)
Wins 27

Keselowski was one of the few drivers able to put a streak of wins together in 2018, managing three as the playoffs approached. Penske took too long to challenge SHR, but once it had Logano and Keselowski made progress. If Penske can get to grips with 2019's package, Keselowski will be a threat.



NEW MUSTANG

A STALLION, OR A 'MARE?

Ford brings the Mustang to the NASCAR Cup this season to take on the Chevrolet Camaro. But can it build on the unexpected swansong success of the old Fusion?

TOM ERRINGTON

It was an era-defining rivalry back in the Trans-Am days. But the Ford Mustang and Chevrolet Camaro have never duked it out on a race track in the top league of NASCAR — until this season. That fact is all the more remarkable when the mere idea of suggesting that one is better than the other is enough to knock a room silent in the United States's motoring heartlands.

Since 1967, Ford and Chevrolet have tried to get one up on each other through marketing, and releasing one model after another to beat the sales of their rivals. And Ford's decision to retire the ageing Fusion after 13 years of service — awkwardly after winning the 2018 Cup title — laid the foundations for the Mustang's arrival.

Ford's decision to phase out all cars in North America except the Mustang and a Focus variant for 2019 meant its choice was limited, but crucially the many iterations of the current Mustang mean the transfer of developments from the road to the race track becomes all the more rapid. Yet it would have been impossible to bring the Mustang to NASCAR without the series loosening the rules on bodyshapes.

Ford's drought — it failed to take a Cup title between 2005 and 2017 — brought the key players together in 2015 to discuss what the Blue Oval needed to do in order to win again in NASCAR. Ford global performance director Mark Rushbrook describes it as "a long process because there's no one thing that's going to help you win a championship". Instead, Ford took smaller steps and lined up the factors it believed could turn around its fortunes in the long term.

One of the key moves was to hire Red Bull Formula 1 aerodynamicist Tommy Joseph. If that sounds like a backwards step for an F1 man, Joseph's reaction to his arrival at Ford's world headquarters suggested otherwise. "I'd say this is the first time I've ever worked for a large company; it's the first time I've really been outside a race team in the last 20 years of work, and it was a surprise to me," says Joseph.

"I didn't know what to expect but I remember last February, a few weeks after I started, I went to visit Ford [World] headquarters and I went to the research and innovation centre. It was like one of those movies where you walk into some secret government lab and you see a UFO or a spaceship. Some of the things I saw in there

CHEVROLET NEEDS TO GET ITS HOUSE IN ORDER

Chevrolet's stranglehold of 13 consecutive NASCAR Cup manufacturers' titles from 2003-15 was made to look like a distant memory last year.

It was given a bloody nose by Toyota in 2016 and 2017 as the Japanese manufacturer's investment bore fruit with the newest Camry, while Ford won last season.

But Chevy had taken advantage of a loophole relating to the style of car used in the Cup series in order to plot its comeback. With the series no longer restricted to stock cars, it had begun a two-year plan to bring its Camaro for 2018.

A win on its debut in the Daytona 500 with Austin Dillon (pictured) was the fairytale start Chevrolet



intended with the Camaro, but only three more victories came its way, with Chase Elliott.

Chevrolet vice president of performance vehicles and motorsports Jim Campbell explains the reasoning for its

slump as a "transitional year".

"Obviously we didn't have anybody in the championship for the Cup [title], so that's disappointing," he says. "But we're definitely heading in a better direction than in the front half of

the [2018] season. When you bring a new car in, and you have changeover in drivers, those are big moments for manufacturers."

It's believed that NASCAR's new-for-2018 Hawkeye system, which brought cutting-edge scanning systems to the series to detect any illegalities – usually related to aero – cost Chevrolet. And a downturn in the performance of the marque's leading team Hendrick Motorsports only made matters worse last year.

With NASCAR's days of tweaking the rules to ensure constant parity between the manufacturers over, Chevrolet has had to slowly recover in the hope of returning to its previous domination.



Rushbrook wants new car to be winning from the off

"WE'RE IN A POSITION NOW WHERE WE CAN CONSTANTLY BE WORKING ON NEW BODIES AND IMPROVEMENTS"

weren't prepared to do a new body at the level that we wanted every two years; I think now we are.

"We're not committed to when we're going to do the next body yet [after the Mustang joins in 2019], but we're in a position now where we can constantly be working on new bodies and improvements. That is another advantage of the Mustang. The way the rules are you can't just make changes to make changes – they have to be tied to changes on the road car.

"With the Mustang there are so many different versions that have a different front end or sometimes bodysizes on them. From a base Mustang to the 2.3 EcoBoost Mustang, the GT, the Shelby GT350, other variants are always coming. There's more opportunity to do Cup cars for NASCAR because of the very frequent changes on the road car Mustang."

While all these factors sound like the logical progression for a manufacturer correcting its course, there is one potential spanner in the works. Ford has been homologating and providing its Mustang's details to NASCAR through the latter stages of 2018 with the then-existing rules package, at a time when NASCAR was developing its radically different 2019 package. At the same time, 2018 featured the Hawkeye inspection system that detected illegalities on Cup cars at an alarming rate, as Chevrolet admitted it got caught out on the design of its 2018-spec Camaro. So not only does Ford have to understand a new aero package that will increase draft racing (see page 44), but it also has to build a car that fits to the dimensions without even the slightest infraction.

Consider that Chevrolet won a random Daytona 500 in 2018 on the Camaro's Cup debut, but then failed to take another victory until August. That means the challenges will mount whatever the result this weekend. "We want to go and win the Daytona 500 with the new car, or Atlanta the week after," says Rushbrook. "We don't want to wait for the competitiveness to come later in the season. We don't want to accept reduced performance for the first part of 2019 – we want to be winning right up out of the gates." ❧

with materials and processes and techniques – research that was done that I would never have been able to think of previously."

That's a result of Ford slowly building up its resources to compete, including luring Stewart-Haas Racing to the Ford fold from Chevrolet in 2017. After a transitional year, SHR played a key role in winning the manufacturers' championship in 2018, and has been influential in developing the Fusion, which underwent modifications in areas such as the engine block last year. SHR has helped Ford improve its understanding of aerodynamics, the area that played a crucial role with Toyota's successful Camry.

With Roush Fenway Racing steering its engines and the experience of the Wood Brothers team in its stable, Ford's acquisition of Joseph was the piece in the jigsaw it needed to oversee the rapid acceleration of its windtunnel and R&D structures. Crucially, Ford can now match the two-year development cycle pioneered by Toyota.

"To be candid, we didn't have all the right things in place, including people like Tommy Joseph, including our tools," says Rushbrook of Ford's previous NASCAR form. "We

CAN NASCAR IMPROVE ITS SHOW?

It's not just Formula 1 that has problems with aero. NASCAR has tweaked things once again in an attempt to improve the racing in 2019

TOM ERRINGTON

This weekend's Daytona 500 represents something of a relief for NASCAR. Not just because it's the start of a new season, but because it's a chance to move on from its latest battle over the 2019 car package.

This year the Cup series has two new aero packages, with one or other of them chosen for 21 of the 36 races. They feature increased downforce, with horsepower also reduced, to encourage drafting and closer racing. The Daytona 500 is run to the same rules as last year, with restrictor plates used on the superspeedway track.

During a recent 10-hour test session at Las Vegas, 14 teams competed in three 25-lap drafting sessions to replicate racing conditions. It was the latest step in a process that began in last year's All-Star Race at Charlotte with a trial package that managed to produce 38 green-lap passes — or, in other words, 38 more than in 2017... Away from the numbers, it produced a race where the leader was still tricky to pass, but kept cars close in a pack.

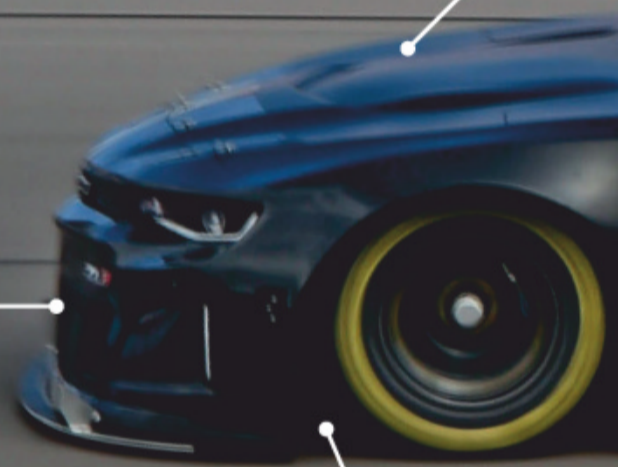
But it didn't take long for Kyle Busch to step in front of the microphone at Las Vegas and give his take that NASCAR had "taken the driver skill away from the drivers in this package", before adding: "It's a lot more of a mental game. It's going to be a lot more chess match, thinking how you're going to make moves and how daring you'll be making some of those moves, and how hard of a time the guy you're trying to pass is going to give you back."

Uncharacteristically, NASCAR hit back firmly. "These drivers, some are going to love it, some are going to hate it, no matter what we race," says John Probst, its vice-president for innovation and racing development. "I was just encouraging fans who are on the fence to give it a try. I think they are going to be pleasantly surprised at what they see at the race track."

"For the drivers we know who don't like it, they are very good at what they do and they get paid a really good chunk of money to do things that take a lot of talent. If they want to spout off

RADIATOR

The front end of the car has been reworked with a wide radiator pan and an increased front splitter to increase downforce, which NASCAR hopes will improve the handling of its cars, with a similar approach taken to its spoiler. This will likely be part of its push to create more than one stable racing line at the majority of circuits.



about [this racing] not needing a whole lot of talent, then eventually that will hit them in the pocketbook too. They should be careful."

NASCAR was entitled to hit back, even if it did tone down Probst's comments in a subsequent statement, because its new aero came after consultation with the three manufacturers — Toyota, Ford and Chevrolet — as well as the drivers and even the manufacturers it wishes to attract to the series. On top of its methodical steps to 2019 is the backdrop that this incoming package will set the tone for a wider overhaul when the Generation 7 car lands in 2021.

A closer look at the technical specifications gives a clue as to what the 2021 cars may look like, with a key part of the agenda being to ensure that they look like their road-going counterparts and that the technology remains relevant to the showroom. "I think



New rules are aimed at improving the racing

ENGINE

At most tracks NASCAR will reduce its horsepower by 200bhp from a starting point of 750bhp to help end an engine war. The target goal will be reached by using a spacer to cut down the airflow reaching the engine, meaning less fuel can be burned, and in turn reducing power output.

BODYWORK

On the surface the car looks similar to the 2018 package, with just enough freedom for Ford and Chevrolet to bring muscle cars into a stock car series and to allow for brand identity. The front of the car is now 37 inches wide, and tapers back to 31 inches at the rear, again playing towards the target of increasing downforce.



AIR DUCTS

The 2019 car will be fitted with front-wheel air ducts at certain tracks, which will help improve the airflow and reduce aerodynamic resistance, allowing cars to follow more closely in a pack. The ducts also tidy up turbulent air from nearby cars, aiding close running further.

BECKER/GETTYIMAGES

“ONE THING WE KNOW THAT’S IMPORTANT IS WE’RE NOT TRYING TO CREATE SOME ARTIFICIAL COMPETITION”

it’s important to note that the reason we headed in this direction with the 2019 rules package was really to line us up for where we wanted to go in the future from a racing standpoint, both on track from a car’s look and feel and then under the hood from an engine perspective,” says NASCAR executive vice-president and chief racing development officer Steve O’Donnell.

“If you look at a lot of the dialogue we’ve had with our existing OEMs, potential OEMs, there’s a lot of interest to do some things differently in terms of making the cars look even more like they do on the street, making sure that we can evolve some of our engine technology as well.”

The engine is a key part of the change in 2019, with Toyota arguing that a lighter block would help road-relevance and Penske’s Brad Keselowski suggesting hybridisation. Instead, NASCAR has opted to reduce the horsepower from 750bhp to 550bhp at most races in the hope that it will close off costly engine development and entice another manufacturer.

The wider changes to the aero package are also to rectify a growing feeling that NASCAR races were being fought in the windtunnel due to a rulebook that’s put heavy reliance on aerodynamics while also reducing downforce. The theory is that by putting the cars into a pack-like situation there is a greater premium on driver talent, and this has had a mixed reception.

Naturally, NASCAR wants to improve the racing product, particularly by offering more than one racing line on tracks, but two packages configured in several different ways is hardly straightforward. Laying it out in basic terms, we have: 16 races with 550bhp and air ducts through the front of the wheels; five races with 550bhp but no air ducts; 14 races with 2018-spec 750bhp and no air ducts; and then the Daytona 500’s restrictor-plate package.

The big fear is that if this approach manifests itself in full-on pack racing, that makes leading a race worthless until the final corners and devalues results, as Busch has expressed already. Testing at Las Vegas in controlled conditions can only give so much insight, which NASCAR has recognised, with Probst saying the series is not “declaring any kind of victory”. He adds: “We’re trying to make it as competitive as we can from the top to the bottom. I think the one thing we know that’s important out of this is we’re not trying to create some artificial level of competition.

“The good guys are going to go out and win. And that’s kind of the way we wanted it to be and that’s probably the way it should be. We want to have entertainment but we want to keep the competition as well.”

Expect business as usual at the Daytona 500, but the next stretch of races could make or break whether NASCAR captures the imagination, at a time when it can hardly afford to lose any more fans. ❧

NEXT WEEK

DAYTONA 500 REPORT 21 FEBRUARY ISSUE

We’ll bring you all the key moments that decided NASCAR’s biggest event of the year in our report. The issue will also include WRC and Formula E coverage.

CAN PRIAULX FLY THE FLAG DURING HIS SUPER SEASON?



This year Andy Priaulx will split his time between sportscars and making a sensational return to international tin-tops. The four-time touring car champion explains why it's the perfect fit

JACK COZENS



STAT

18

The number of Priaulx wins in WTCC

Priaulx has signed for Cyan Racing to drive new Lynk & Co 03

PRIAULX'S RECORD

ETCC	
2003	3rd
2004	1st
WTCC	
2005	1st
2006	1st
2007	1st
2008	4th
2009	4th
2010	4th

World Touring Cars has attracted plenty of its former stars back for more since reinventing itself by adopting TCR regulations. Multiple touring car champions Gabriele Tarquini, Yvan Muller and Fabrizio Giovanardi are among the names that attest to that. But Andy Priaulx's deal to join Cyan Racing's new Lynk & Co project for the 2019 season is arguably the biggest of those yet.

You might argue that Muller's sensational return for 2018 – a reversal of his decision to retire at the end of the 2016 World Touring Car Championship season – plus his greater haul of championships and record number of race wins make him the standard bearer for the series, and therefore a bigger deal. But Priaulx is still the only driver to have won four international tin-top titles in a row (including his European Touring Car Championship success in 2004) and, unlike Muller, has been out of the WTCC for getting on for a decade.

So just what does the driver who's effectively won the category four times, and has an existing World Endurance Championship programme in place, need to prove?

"The timing is right," says Priaulx. "The WEC superseason wasn't a huge amount of races, and I think this fits really well with that calendar. To be able to do both, have the World Endurance Championship and WTCR in the same year, is awesome. I think they complement each other; touring cars is great for the WEC, because you have traffic and [it is] keeping you sharp. Doing WEC is good for World Touring Cars because you need to be driving a lot and need to get the miles.

"The championship [WTCR] is going in the right direction; it's going to be really competitive and I just really fancied the challenge, to be honest. I've been watching it the last year and with the regulation change, and the manufacturers coming in, the timing's right."

While the programme with Chinese brand Lynk & Co that Cyan is bringing to WTCR is new, the team needs little introduction. As Volvo's motorsport partner it competed sporadically in the WTCC from 2007-10, contested a full campaign in 2011 and later committed to the series' TC1 regulations in 2016. The following year, Polestar Cyan Racing beat Honda to the manufacturers' crown and also helped Thed Bjork to the drivers' title – the last of the WTCC era.

It's little surprise, then, that Priaulx says "I haven't been

"THE TIMING IS RIGHT. TO BE ABLE TO DO BOTH THE WEC AND WTCR IN THE SAME YEAR IS AWESOME"

disappointed" of his early dealings with the outfit, which he feels shares similarities with the RBM BMW squad that ran him during his mid-2000s hot streak.

"I've done six tests, they're very professional, very committed long-term, and I would say it's really in a good place," says Priaulx. "That's really important for me as well, to have the chance to obviously bring some experience from all the top touring car teams I've driven with over the years.

"Cyan has a lot of potential and can only improve. From the moment I arrived at the facilities and saw the commitment they had before I signed, it was a no-brainer.

"My relationship with Bart [Mampaey, RBM team boss] was just very special. We drove together for 11, 12 seasons and achieved four back-to-back titles. I see a lot of Bart in Christian [Dahl, Cyan team principal], I see a very similar structure in the team and I think that can only bring results in the long term."

That's not to say Cyan was the only interested suitor. Priaulx's name was floating around the WTCR paddock towards the end of the 2018 season after he tested a Volkswagen Golf GTI – a one-off outing he says had no planned "end result". That impressive test performance sparked interest from VW to make something happen, but the budget wasn't forthcoming to get the deal over the line.

With a long-term WEC programme with Ford and Multimatic Motorsports already in place, it would be wrong to label the Cyan deal as salvation. Priaulx is keen to stress that his WTCR adventure is "not instead of, it's as well as" his WEC commitments. But the approach from Cyan, and subsequent meetings with team bosses including Dahl, came at a point when he had got used to the idea that he might not return to tin-tops this year.

"I got a call one Sunday out of the blue from Ron [Hartvelt, former Chevrolet WTCC project manager who now works with Cyan]. He said, 'Would you be interested?' I said, 'Yep.' He said, »

PRIAULX'S WORLD TIN-TOP RETURN

'Can you get on a plane?' I said, 'Yep'. 'Tomorrow?' 'Yep'. And I flew out, they sat me down and said, 'We've got a load of guys we're looking at, but if you tell us yes we'll sign you, but we want to know now,'" explains Priaulx.

"I thought, 'Christ'. I had to stall a little bit. I spoke to Larry [Holt of Multimatic], my boss, and he was great. He said to do it, it's good to be racing and driving a lot. [We] agreed a deal and there we are."

So far, so good as regards team atmosphere. But in terms of where Priaulx will slot in, it's impossible to tell right now. Bjork has been part of the Cyan fold since 2012, while Muller's relationship with the team goes back two years after he joined as development driver and advisor in 2017. The squad's fourth 2019 driver, Muller's nephew Yann Ehlacher, was due to join last season until that deal fell through.

It will also be fascinating to see how the relationship between long-time on-track rivals Priaulx and Muller develops. Priaulx stresses that the dynamic is already strong, and he expects to be able to draw on Muller's knowledge of the current rulebook during the year.

"I've got a lot of respect for him [Muller]," says Priaulx, who shared a stable with the Frenchman on his British Touring Car Championship debut at Oulton Park in an Egg Sport Vauxhall, when Muller was a factory driver in 2001. Priaulx has also partnered Muller in a handful of Supercars enduro starts: "He's a strong character. He knows what he wants and of course he's delivered for a long period of time."

"I think where I'm going to need to learn from Yvan is on making sure I'm pushing the right areas on set-up and things like that."

Cyan's haul of WTCR silverware from 2017 and its WTCR efforts — it ran Muller's YMR squad to the teams' title — have unsurprisingly made it an early favourite. But it's easy to overlook the fact that it will start this year in the dark in terms of how the Lynk & Co 03 stacks up against the rest.

Priaulx says his first impressions of the car have been



Brit enjoyed international tin-top success with BMW in the mid-2000s

"CYAN SAID, 'WE'VE GOT LOADS OF GUYS WE'RE LOOKING AT, BUT IF YOU SAY YES WE'LL SIGN YOU'"

positive, but is cautious of making any bold predictions — especially as he will contest a full season in front-wheel-drive machinery for the first time since the early 2000s.

"It's going to be different, I know that," he says. "But if I want to achieve the same end result I'm going to have to come at it a different way. That's straightforward and I understand that. I have to come in as a rookie, but as an ambitious rookie. I don't expect it to be easy — looking at the grid and the names that are in there, you're not going to have an easy weekend."

"It's going to be tough for them [Cyan]. I think Hyundai's



Kristoffersson ran away with 2018 World RX title, and also took another tin-top crown



Priaulx will reunite with 2001 BTCC team-mate Muller

a very strong package and we've got a lot of work to do, but I think we're moving ahead."

Realism does not rule out ambition, though. Priaulx's record speaks for itself. He never finished lower than fourth in the ETCC or WTCC and won races every year from 2003-10, so it's natural that he wants to add a fourth world title in time.

"I feel like at the moment I'm driving very well. I know there might be a bit of silver on the hairline now, but I've still got plenty of fire," jokes Priaulx. "The goal has to be to win the championship. I don't know if that will come in one year or

four or five, [but] I definitely want to be winning races and helping Cyan win the championship – whether that's me or one of us. I'm expecting the best and planning to try to make that happen, but I'm also very realistic."

This is very much a long-term commitment from Priaulx to fit in alongside his sportscar commitments. If, as he hopes, both programmes complement each other and bring out the best in a driver who already feels "super motivated", will it really be that much of a surprise to see the British flag flying on the top step of the podium again? 🇬🇧

WTCR'S OTHER 'NEW' FACES FOR 2019



Macau GT winner Farfus will race a Hyundai i30 N

THE ROLL CALL OF WORLD Touring Car returnees over the past two seasons feels as though it could have been plucked from 2008, but it's a sign of the appeal of the series in its WTCR guise that those drivers had, by and large, moved on to equivalent or bigger things.

Like Andy Priaulx, Augusto Farfus last contested a WTCC campaign in 2010. The Brazilian remains part of the BMW fold, but has been given dispensation by the marque to race a Hyundai i30 N in WTCR. His emphatic Macau GT World Cup win last November proved he's still got it. But he will be up against it as part of Hyundai's four-car line-up alongside WTCR champion Gabriele Tarquini, the experienced Norbert Michelisz and Farfus's

fellow BMW driver Nicky Catsburg.

Dutchman Catsburg's World Touring Car experience is more recent, as he's driven for Lada and Volvo in the TC1 era. The GT ace was Lada's standout performer during its most competitive WTCC spell and, although his factory Volvo switch for 2017 didn't play out as planned, Catsburg has been tipped to be a frontrunner from the off.

His 2017 team-mate Nestor Girolami is also back for another crack at World Touring Cars. The two-time Argentinian Super TC 2000 champion came highly rated when he first drove in the WTCC, but failed to kick on with Cyan, and will hope linking up with compatriot Esteban Guerrieri at the Munnich Motorsport

Honda squad will bring out the form he has shown domestically.

Of the full-series rookies, double World Rallycross champion Johan Kristoffersson has by far the highest profile. His second World RX title in a row understandably grabbed the headlines, particularly given that he won 11 of 12 rounds for the PSRX Volkswagen squad, but his exploits in claiming another title in VW machinery last year mean he should not be underestimated.

His path to the Scandinavian Touring Car title was not as dominant, but a run of three victories and a fifth from the final four races helped Kristoffersson beat ex-Volvo driver Robert Dahlgren by 13 points. Superstars and STCC titles in 2012 prove his pedigree.

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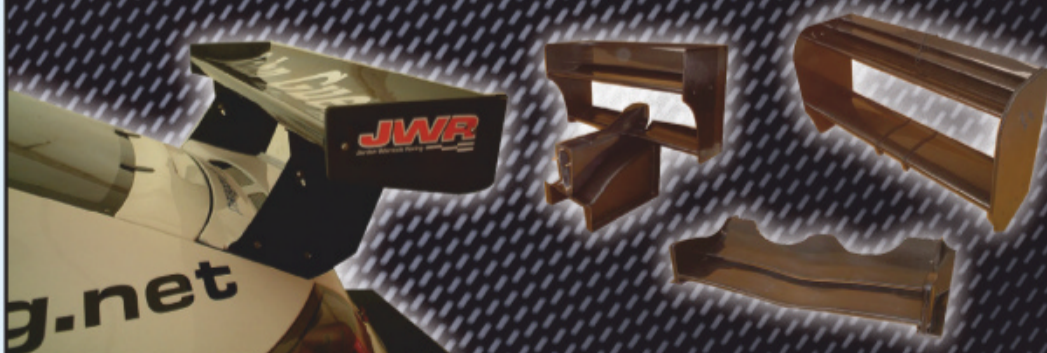
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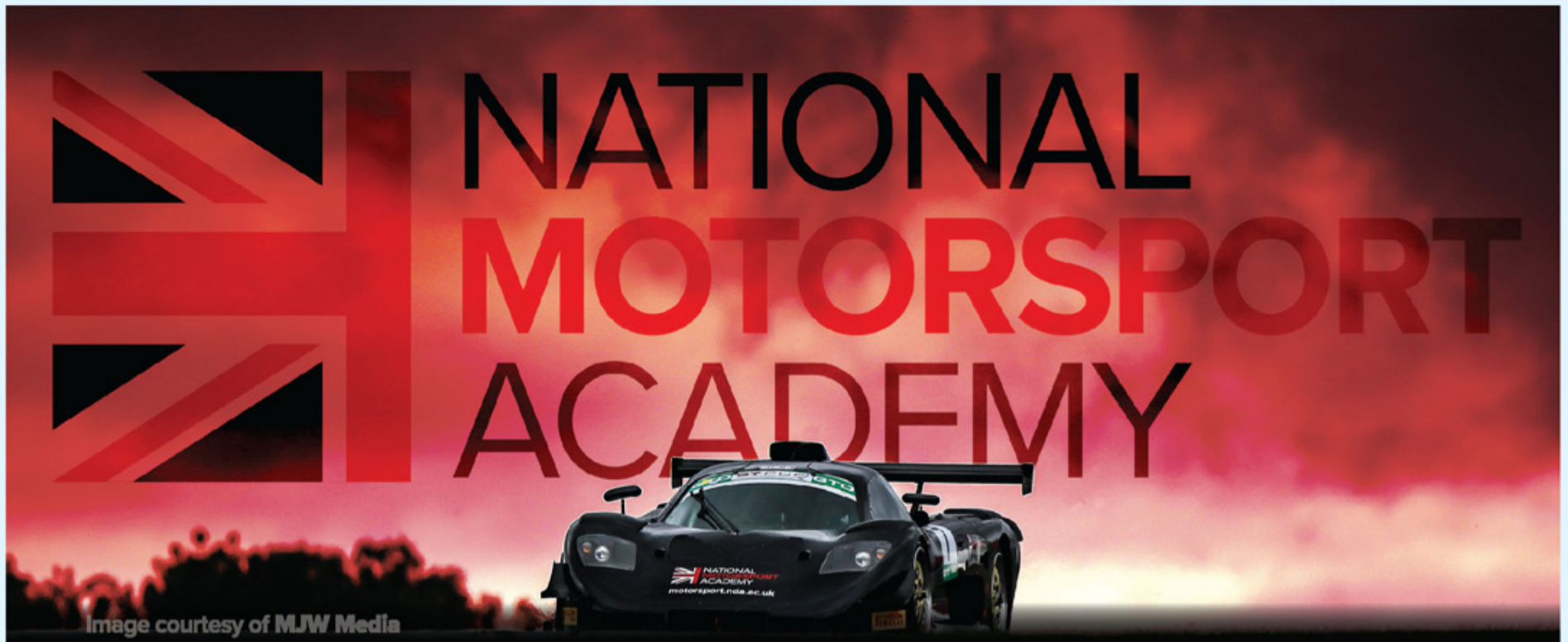
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BTCC RACE WINNER IN BROADSPEED ESCORT

HISTORICS

British Touring Car Championship race winner Simon Graves will return to competition this year in a Ford Escort RS1600 BDG alongside Barwell Motorsport boss Mark Lemmer in selected historic races.

Graves, who has not raced since winning three BTCC races outright in a Barwell-run Production class Honda Accord in 2001, is returning to the sport after time away to focus on business commitments. He bought the Escort, which was built by ex-Broadspeed engineer David Silcock to the exact specifications of a Team Castrol Group 2 Escort BDG raced by John Fitzpatrick in 1971, just over a year ago.

Following a full restoration over the winter, the car was shaken down at Brands Hatch earlier this month by Lemmer. He told Autosport that he and Graves would contest a limited schedule of events, including the Motor Racing Legends Historic Touring Car Challenge opener at Donington Park and Youngtimer Touring Car races at Brands Hatch in May and Spa in June.

“It’s a case of fitting it in around our business and GT commitments, so the plan is most of those are 30-minute races and we’re going to do a race each,” said Lemmer. “It’s an area that’s gaining more and more interest – it was the golden era of touring car racing.

“We looked at pre-1966 stuff, but we both fancied something a bit 1970s, saw from some onboard footage of drivers in an Escort BDG how sideways they were and thought, ‘Let’s go and find one of those’. We managed to track it down and buy it and decided to give it the full Barwell rebuild treatment.”

• Lemmer’s Barwell operation has signed Belgian engineer Wim Everaerts to run Phil Keen and Adam Balon – who replaces Jon Minshaw – in its new Lamborghini Huracan Evo in British GT this season. Everaerts engineered Grasser Lamborghini pair Mirko Bortolotti and Christian Engelhart to the 2017 Blancpain GT Series overall and Endurance Cup titles.

JAMES NEWBOLD



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Tin-top ace Deegan bags win on single- seater debut

MRF CHALLENGE

British club racer Lee Deegan was a surprise addition to the MRF 1600 Challenge ranks at the Madras Motor Race Track at the weekend after earning a prize drive.

Deegan, the 2017 Civic Cup champion running on MRF rubber, joined the F4-style class for his first single-seater races and took a win on the twisty Chennai circuit.

“Part of the prize for the Civic Cup was to race here, but it took a while to get it sorted,” explained Deegan, who starred in the BMW Car Club series last year.

“I’d never raced a single-seater or a car with real aero before, so this was all new.”

The win in race two was a contrast to Deegan’s stressful journey to the track a day earlier when a road accident delayed his team coach, which was then stopped and impounded by police for not having a valid licence to carry passengers.

Clad in his race overalls, Deegan



Deegan had to thumb a lift to get to the track

and his team flagged down a passing minibus, belonging to a local religious clan, to get him to the circuit for the 9am session – but the driver then headed for a petrol station.

“I told him to put in four litres and no more,” said Deegan. He made it, with the session delayed, having missed just under a minute of the action.

Deegan intends to compete in the British Touring Car-supporting Mini Miglia Thruxton races in 2019.

DAVID ADDISON

Brexit fears as Carrera Cup GB joins WEC at Silverstone

PORSCHE CARRERA CUP GB

The Porsche Carrera Cup GB has decided not to visit Barcelona this season and will instead join the World Endurance Championship support bill at Silverstone in a calendar U-turn.

The category has appeared at seven of the 10 British Touring Car Championship events in recent years as well as holding an away round. It was due to race at Barcelona in July, but the series opted to drop this in favour of Silverstone after being offered the WEC date.

Uncertainties around Brexit and travel also meant category bosses were concerned about the potential difficulties of running an overseas event.

“A few weeks ago we were presented with this opportunity by WEC and they asked if we were interested in supporting the WEC at Silverstone,” explained Porsche GB motorsport manager James MacNaughton. “It came out of the blue and it was something that was quite exciting as it will be the first race of the 2019-20 WEC season. It was a very attractive offer to us.

“Add that to the potential complexities of running an event overseas now [because of Brexit] and it seemed like an offer we couldn’t refuse. It’s not to say we won’t do any events overseas in the future – they are something that is very much enjoyed by everybody.”

MacNaughton says the Barcelona event would still have been possible – despite the Brexit confusion leaving organisers uncertain of what they needed to plan for – but the chance to race alongside the “more prestigious” WEC was too good to miss.

“This was a consultative process and we were already looking into what effects the political situation might have,” he added. “We spoke to teams and drivers and sponsors, and an overwhelming majority were in support of doing this.”

The remaining seven Carrera Cup dates remain unchanged, but the new Silverstone Grand Prix date means the series will have back-to-back rounds at the Northamptonshire track. MacNaughton is unconcerned by this, however, as they “are on different circuits and different platforms”.

STEPHEN LICKORISH



Chadwick dominated the last two MRF rounds

Chadwick takes MRF title

MRF CHALLENGE

Jamie Chadwick claimed the 2018/19 MRF Challenge title after securing a hat-trick of wins at Chennai last weekend.

The 20-year-old, who became the first female driver to win a British Formula 3 race last season, trailed 2016 Formula Renault NEC runner-up Max Defourny by 18 points coming into the event.

But three wins across the final five races allowed her to take the crown by 37 points, having already secured a hat-trick of victories at the previous round in Bahrain.

“After qualifying [sixth] it was a bit disappointing, but we outqualified Max and I was pretty confident we still had a good shot at the championship,” said

the 2015 British GT4 champion. “I didn’t think too much about the points, and that’s what everyone kept telling me.

“In terms of the amount of races we did today [Sunday], it’s the same as a whole British F3 weekend so a lot can go right and wrong. My focus was just to keep my head down and stay out of trouble.”

In recent months Chadwick has made it through the first selection process of the all-female W Series and conducted two tests with Formula E team NIO.

• BRDC British F3 champion Linus Lundqvist made his MRF debut at Chennai, but mechanical problems meant he managed a best result of third.

STEFAN MACKLEY



Historic FF1600 ace to race ex-Watson McLaren

MASTERS HISTORIC F1

The McLaren MP4/1B in which John Watson famously won the 1982 Detroit Grand Prix will race again this season, with new owner Steve Hartley and double Historic Formula Ford 1600 champion Callum Grant behind the wheel.

The innovative John Barnard-designed

MP4/1 of 1981 was the first F1 car to feature a fully carbon-composite monocoque chassis, with Watson winning the British GP. Aboard the MP4/1B in 1982, Watson and Niki Lauda claimed four victories. At Detroit that year, Watson won from 17th on the grid in a grand prix that had been plagued by poor organisation, and which was truncated owing to a crash between Roberto Guerrero

and Elio de Angelis that caused the event to be red-flagged for an hour.

Steve Hartley – who has previously raced an Arrows – has purchased the chassis Watson used in that race. He will contest the eight Masters Historic Formula 1 rounds after an extensive rebuild of the car, which began in July last year.

The highly rated Grant drove the McLaren at Llanbedr Airfield in Wales last week as the Mirage team that runs the car worked on set-up. “I think he [Hartley] gets a bit bored of running up and down a runway, but I’d cut my left leg off for that chance!” Grant told Autosport. “I looked at it before the test and said, ‘Bloody hell I’m going to drive that!’

“It’s some piece of kit. We were just running random gears to test the drag, basically running up and down the runway. I tried going a bit quicker on a right-hand sweep into the runway, but I didn’t want to do anything stupid and spin Steve’s new McLaren like an idiot. We’ve got a test at Estoril in two weeks, and after that I think I’ll be parked up for the rest of the winter.”

Hartley said that Grant could drive the car at the Silverstone Classic. “It’s had lots of work done to it, we’ve done a complete rebuild and we’ve put it in a computer-simulated wind-tunnel,” he said. “We’ve learned a lot of things from that. Probably at the Silverstone Classic Callum can have a drive in it. I’ll let him have the odd race in it.”

JACK BENYON

Tuck impresses in BMW shootout

VLN

British GT4 runner-up Ben Tuck reached the final four in BMW’s shootout for a place on its prized junior programme, and will race in VLN this year.

Tuck will race a BMW M240i run by Spa 24 Hours winner Walkenhorst Motorsport in the first few rounds of the Nurburgring-based VLN Endurance Series. His participation in the Nurburgring 24 Hours

is “under discussion”.

The 21-year-old was the only Briton to reach the final, which consisted of sessions in BMW’s Formula E car. British GT team-mate and GT4 champion Jack Mitchell missed out as the entry was whittled down from an initial 16 candidates.

Despite missing out on the “once in a lifetime opportunity” – won by Swedish junior single-seater champion and

tin-top racer Erik Johansson – Tuck says he came away from the evaluation greatly encouraged.

“It’s a definite confidence boost getting into the top four, knowing I’m firmly on BMW’s radar,” said Tuck. “It’s almost given me more motivation to do better this year and get myself another opportunity with them to prove that I’m worthy of that spot and they’ll consider me again.”

JAMES NEWBOLD



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New Aston Martin series launched with Silverstone

HISTORICS

A new Aston Martin Heritage Racing Festival Series will headline a three-year partnership between Aston Martin and the Silverstone Classic.

The series will be open to all non-current Aston Martin GT class race cars, including DBR9s and Vantage GT2/GT3/GT4/N24/GTE models, as well as specials including the Vulcan.

After the Silverstone Classic race in 2019, a second event is planned for the Spa Classic Six Hour meeting in late September. The series may then expand to three races in 2020. Factory Aston Martin GT racer Darren Turner will take a driver coaching role with the new series.

Aston Martin recently opened a new state-of-the-art, high-performance test

and development base at Silverstone and its presence at the Classic will be increased by the supply of pace cars as well as other off-track activities.

Aston Martin has also strengthened its presence in historic racing by partnering with Masters Historic Racing to become the title sponsor of the Masters Endurance Legends series.

The Masters race series for recent Le Mans and ALMS prototypes and GT cars from 1995-2012 will now be renamed Aston Martin Masters Endurance Legends. The six-race schedule includes the Silverstone Classic, as well as other grand prix venues Paul Ricard, Monza, Magny-Cours, Nurburgring and Spa.

The format allows for one or two drivers per car with a mandatory pitstop in races between 30 and 40 minutes.

Simmons joins British F3

BRDC BRITISH F3

British Formula 4 Championship runner-up Ayrton Simmons will step up full time to BRDC British Formula 3 this season with Chris Dittmann Racing.

The 17-year-old contested three rounds of British F3 last season with Dittmann's team – at Spa, Donington Park and Silverstone. His best performances included taking fourth position at Spa, and he also managed to qualify third at Donington.

“CDR really helped me to make a very quick adaptation to the car last year, and our results were incredible when you consider the amount of testing we were able to do compared with the other drivers,” said Simmons, who claimed four wins and a further eight podiums in F4 last season.

“With a bit of seat time and good experience of the car, I hope we can challenge for wins and maybe even the title in 2019.”

STEPHEN LICKORISH

IN THE HEADLINES

MORE IN BRITISH F4

Formula 4 racer Sebastian Alvarez will remain in the British championship for a second season this year with Double R Racing. Mexican Alvarez finished 12th in the standings last year, with a best result of sixth. Returning team Carlin, meanwhile, has snapped up successful Barbados-based karter Zane Maloney. British F4 now has 10 drivers signed up for the season.

CAROLINE TESTS LAMBO

Jamie Caroline, the winner of the 2017 British F4 title, will test a Lamborghini Huracan in Malaysia this month in preparation for a potential move to Super Trofeo Asia. The 20-year-old, who was a McLaren Autosport BRDC Award finalist last season on the strength of a starring cameo in British F3, will conduct the test with Top Speed at Sepang on February 19-20.

DISCOUNT HSCC RACES

A new initiative from the Historic Sports Car Club will offer drivers the chance to tackle a second race at any event for an entry fee of just £99, as long as it's the same driver in the same car. The offer applies to cars that are eligible for more than one of the club's 16 race categories.

OLIPHANT BACK IN GT4

The younger brother of 2015 Ginetta GT4 Supercup champion Tom Oliphant will graduate to the series this year. Jack Oliphant, 23, finished as runner-up in the G40 Cup last year and will now step up to the GT4 Supercup with Century Motorsport – the team that powered his brother to the title.

COLBURN TO CLIO CUP

Ben Colburn (pictured below) will contest a full season of the Renault UK Clio Cup this year with the family Westbourne Motorsport squad after making his debut in the category halfway through 2018. Colburn, the younger brother of Clio Cup regular James, took a best result of ninth last year.



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The image displays the Autosport magazine cover for the 14th of February 2019. The cover features a Renault F1 car and headlines such as 'F1 2019 BREAKS COVER', 'Can Renault challenge the Big Three?', and 'New cars from Haas and Toro Rosso'. A yellow badge indicates 'F1 TESTING 4 DAYS TO GO!'. To the right of the magazine is a red circular badge that says 'SAVE UP TO 63%'. Below the magazine is a computer monitor showing the Autosport website with various news articles and images. To the right of the monitor are two smartphones, one showing the Autosport app interface and the other showing the magazine cover.

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Parisian pilgrimage

The French capital's Retromobile show is must-see for any enthusiast's pre-season calendar, its stunning highlights matched in appeal by an eclectic mix of attractions

MARCUS PYE

This time of year, with British and Northern European circuits largely dormant, is show time. January's Autosport International drew the usual throng to Birmingham, and historic motorsport is showcased by Race Retro at Stoneleigh later this month. Craving something different and keen to see some of the greatest cars on the planet, I paid a flying visit to Retromobile in Paris, the classic fraternity's mecca for 44 years.

It's been a decade since I last ventured to the Porte de Versailles expo centre for this extraordinary all-embracing salon. I couldn't believe the transformation of the venue, or the staggering magnitude of its content. The Paris motor show's halcyon days, when manufacturers (when there were many!) proudly introduced new models, may have eluded me, but I did enjoy London's equivalent at Earls Court in the 1970s. Retromobile now resembles those heady days, when charismatic marques boasted individuality and partisan followings.

Never have I seen a higher value of motor vehicle per square metre than in the principal hall, where emporia serving the most rarefied strata of collectors' and sporting cars courted existing and aspiring clientele with mouthwatering displays of magical

Never have I seen a higher value of motor vehicle per square metre than in the principal hall

machinery. Two Alfa Romeo T33s graced Girardo & Co's stage, while Fiskens (showing the ex-Elio Zagato Aston Martin DB4 GT, one of 19 bodied by his family firm), Lukas Hurn's jaw-dropping Lancia line-up, debutant Kidston (with a sextet of Lamborghini Miuras), William I'Anson and others had clearly striven to wow thousands of privileged enthusiasts, aspiring EuroMillions winners and contented window shoppers over five gruelling days.

Apart from a magnificent grid of Formula 1 McLarens – from a glorious 1969 M7C to moderns from the factory, exhibited by motorsport-mad watchmaker Richard Mille – single-seaters were few and far between. The staggering pair of BRMs for sale on the I'Anson stand – the exquisitely restored P578 in which Richie Ginther finished second at Monaco in 1963 looking svelte beside the delightfully unpainted ex-Dan Gurney 1960 Ballarat, Australia-winning P48 – had onlookers drooling.

Should my lottery numbers come up, I'd be investing in

something a little more practical and easier to run. The ex-works Chevron-Hart B26 nicknamed 'Chocolate Drop', raced by Peter Gethin, Brian Redman, John Watson and John Lepp in 1974 – and corralled with the BRMs – ticked those boxes. Not only did I watch Chevron founder Derek Bennett's monocoque masterpiece raced in period by second owner Iain McLaren, and subsequently (disguised as a Skoda Special Saloon) by Malcolm Johnstone and Walter Robertson, but I also had the joyous privilege of racing it for Mike Pendlebury at Thruxton in the 1990s.

Fans of grandee marques Alfa Romeo, BMW, homegrown centenarian Citroen and Renault were well catered for, but equally *'les amicales'* animated enthusiasts of bijou enterprises. A display of weird and wonderful Bedelia cyclecars caught my eye, and there was a gallery of Minis (including a Mini Marcos, past which company founder Jem Marsh's son Chris, now busy restoring his father's products, was ambling) celebrating the 60th anniversary of Sir Alec Issigonis's game-changing brainchild.

For sale prospectors, Artcurial Motorcars – with the celebrated Herve Poulain, 78, inspiration behind the BMW art cars painted by Alexander Calder and Frank Stella (CSLs), Roy Lichtenstein (320i) and Andy Warhol (M1, in which Poulain finished sixth at Le Mans in 1981), wielding his gavel – came up trumps once more. Count Volpi's Serenissima barchetta, raced at LM in 1966, appeared as a 'time warp' find. F1 memorabilia nuts had an enormous selection of genuine crash helmets from a single collection, plus racesuits, to choose from in Sunday's Vibration plateau. Spanning 82 drivers of modern times, from Christijan Albers to Ricardo Zonta, via all the champions, they were offered without reserve.

But Retromobile is not exclusively about high-end stuff. It is for everybody, with a sub-€25,000 'starter classic' car market tempting would-be converts. Indeed, it's packed with nuances at every turn. An enormous MV Agusta motorcycle collection for sale, massive Berliet truck, tanks, Gnome & Rhone aero engines, a SNECMA rocket motor from the Ariane space probe plus trade stands offering every conceivable service and spare, sensational scale models, books and automobilia needed two days to take in.

A personal highlight was a fascinating chat with authors Dominique Vincent and Pascal about their recent French-language books published by Editions de l'Autodrome on Matra (a magnificent tome), *1000 Pilotes Francais, Formule France 1968-1970* and, for connoisseurs of the obscure like myself, the twin-volume *Constructeurs Sans Patente* (artisan competition car builders). Catherine Debuire's *Racer 500*, inspired by one her father Jean built, is a cracker too.

It's easy to see why Retromobile has become an annual pilgrimage for so many. Not been? Make a date for February 2020. Surely nobody needs an excuse to visit Paris... ❁



PRIZE DRIVE THAT ALMOST NEVER WAS

Mini racer Kyle Reid enjoyed
the trip of a lifetime to
compete at Daytona

GARY WATKINS

PHOTOGRAPHY JEP

It was one of those pinch-yourself moments. Kyle Reid was coming out of Turn 4 at Daytona International Speedway strapped into a BMW M4 GT4 and about to start his first international motor race. Not bad for a Mini racer who couldn't even have dreamt of competing on the high banks of the self-styled 'World Center of Motorsport' at the start of last season.

But it very much became the 29-year-old Scot's dream through the 2018 season. Winning the Sunoco 240 Challenge and its prize, a drive on the Daytona 24 Hours support bill last month, became the *raison d'être* of his year.

Reid, a stalwart of the Scottish Mini ranks, wasn't planning a full season last year as he ventured down south to race in the Cooper Pro class of the Mini Challenge UK. He wasn't entertaining thoughts of a tilt at the title, let alone even thinking of Sunoco honours. A chance exchange between a Sunoco representative and Reid's father at the opening round of the series at Donington Park last April changed that.

Reid had just won both races and notched up a pole and a fastest lap – so a big haul of Challenge points – when the Sunoco man pointed up at the podium and suggested to the stranger standing next to him that the guy spraying the champagne looked like a short-odds bet to win the Sunoco 240 Challenge. That man happened to be Reid Sr, and it resulted in some soul searching by the Reid family that evening.

The plan for 2018 was for Reid to contest only selected events in his first season of racing outside of Scotland with the family SCK Motorsport squad. He works in the oil industry in Africa, so he wasn't able to do all the rounds and hadn't even signed up with Sunoco to be part of the Daytona competition.

"I'm out of the country for six months of the year, working one month on, one month off," explains Reid. "I contacted my rig manager on Monday morning and he said he'd support me. He offered to fly me back to the UK so I could do the three races I was going to miss. I then got on the phone to Sunoco. Thankfully I had until the Monday after Donington to register.

"It turned into an amazing season. It went from not planning to do all the races, to thinking I could win the title and the Challenge, and then get to Daytona. Most of the tracks were new to me; I'd only ever raced at Knockhill, Oulton Park and Donington before the season started."

Reid notched up 12 wins from 17 races aboard his Mini R50 Cooper last year and made it onto the podium on three more occasions. And in the two races in which he didn't collect silverware he finished fourth and sixth.

The sixth place came during the penultimate weekend of the championship at Cadwell Park. The Mini title was as good as won, but he still needed vital Sunoco points as he battled with the best amateur drivers from the British GT Championship and the frontrunners in the Radical Challenge.



Left: Reid flies the Saltire at Daytona.
Right: He pushes BMW M4 GT4 to its limits in 24 Hours support race

“Maybe the pressure was getting to me,” he says. “I wasn’t really thinking about the Mini title. It was all about the Challenge for me. To be honest, I quickly forgot about winning the championship.”

The prize drive in the opening round of the IMSA Michelin Pilot Challenge, formerly known as the Continental Tire SportsCar Challenge, came with the Fast Track/Classic BMW squad. He wouldn’t get behind the wheel of its M4 until the official pre-race test at Daytona, known as the Roar, in early January. It was a massive step up for a driver who’d never previously raced a rear-wheel-drive car.

“I had done some work on the simulator, but it was still a massive step going from a 130bhp front-wheel-drive Mini to a rear-drive BMW with something like 450bhp,” he says. “Going into Turn 1

at 173mph was a bit of an eye-opener.

“When I arrived at Daytona for the first time, I was about 1.6s off my team-mates, but by the time I left after the test we were all within a few tenths of each other, so the team was super-happy.”

The team continued to be impressed with the newcomer through practice and picked Reid to qualify the car, which meant that he would be the starting driver. On a fresh set of Michelin tyres, Reid found 2.2s to put the Bimmer 22nd out of 36 GT4 cars.

Reid managed to move up a couple of positions during the early stages of the four-hour race. He made it as high as 16th before handing over to the first of his team-mates, Jayson Clunie.

The car briefly led the race before third driver Toby Grahovec – Fast Track’s pro and also its team manager – collected a spinning

»



Reid enjoyed two 45-minute stints aboard the BMW



Reid has received more attention since claiming Sunoco prize



car. Four laps were lost to repairs, and after another delay with a puncture the car ended up in 30th position at the chequered flag.

These issues meant, however, that Reid was strapped back in to finish the race, completing a second 45-minute stint. The team didn't get the result it was looking for, but for Reid the whole event was a rewarding experience.

"I've gained so much out of doing Daytona apart from just the thrill of racing here," he says. "Things like working with a data engineer were all new to me. And to come away as the quickest driver in the car was quite an achievement."

Reid isn't sure what the future holds for him, but the phone has started ringing since he claimed the Sunoco 240 Challenge. That's an indication, he says, of the prestige it now holds in its eighth year of existence. British GT teams have been in touch, though he stresses that the finance isn't available to take up any of the offers. He's also been asked back to the US with Fast Track, but that again will be dependent on finance.

"I'm not committed to anything at the moment, but the plan is to try to get out on the TOCA package this year," says Reid. "I want to do at least one round in the Renault UK Clio Cup and try to get out in the JCW class of the Mini Challenge as well, but of course I want to get back out in some kind of GT car again."

Reid wasn't the only Sunoco winner racing at Daytona last month. BRDC British Formula 3 champion Linus Lundqvist competed in the main event after coming out on top in the Sunoco Whelen Challenge in 2018. The 19-year-old Swede followed in a line of illustrious predecessors, whose number include ex-Sauber Formula 1 driver Felipe Nasr. The Brazilian is now one of the stars of the IMSA SportsCar Championship, which kicks off with the Daytona 24 Hours, and won last year's title together with Eric Curran.

Lundqvist wasn't at the wheel of a prototype like the Sunoco winners that have gone before him, rather a GT Daytona-class Lamborghini Huracan GT3. The stakes are ever higher at the front of the field, reckons Anders Hildebrand, the architect of the Sunoco scheme as the British importer of Sunoco racing fuels, and throwing a challenge winner into one of the Daytona Prototype international (DPi) racers competing for outright honours is a "bit like asking a League One or Two footballer to play in a World Cup Final".

Lundqvist managed two stints early in the race aboard the Precision Performance Motorsport Lambo, which subsequently spent nearly three and a half hours in the pits undergoing a clutch change. The Swede would get back behind the wheel, but only when the safety car was out as heavy rain turned the IMSA



Lundqvist (right) and Reid raced at Daytona



Lundqvist set the fastest race lap for his Lambo squad

“EVERY LAP YOU DO IN A RACING CAR IS EXPERIENCE GAINED” – LUNDQVIST

Huracan spent more than three hours in pits being repaired



series opener into a stop-start affair that was red-flagged twice. The car was classified down in 18th position in class after the results were declared early.

Lundqvist reckons he's taken a lot away from his international sportscar debut. He managed just 49 laps across the pre-event Roar test and practice for the race, yet he notched up the car's fastest race lap. He outpaced Milos Pavlovic, a Lamborghini regular and also a British F3 racer in his time, by 0.6s, setting his race best when conditions were not at their quickest.

“I've really enjoyed myself here and every lap you do in a racing car is experience gained,” says Lundqvist. “My plan is to race in some kind of international F3 series this season, but I can definitely see myself doing the odd one-off here and there in sportscars if the opportunity arises.

“I think it will help make me a more complete driver and I hope one day I can come back to Daytona.” ❧

THE BOSS'S HIGHLIGHTS ONE DECADE ON



Sunoco Challenge boss Anders Hildebrand picks his personal high points from the first 10 years of the scheme.

2010 DEREK JOHNSTON

Doran Racing Dallara-Ford DP01

“When Derek first jumped in the car (below), he thought it was going to kill him, but he got on top of it and proved that the concept of the Challenge could work.”



2012 FELIPE NASR

Michael Shank Racing Riley-Ford MkXX

“Felipe was so impressive as the Challenge winner that he was invited back the following year by Action Express. I believe he raised the bar for drivers in Grand-Am.”

2015/2016 PHIL KEEN/JONNY ADAM

Action Express Racing Coyote-Chevrolet Corvette DP

“Phil (below) and Jonny were our more experienced winners. They were so composed and the team gave them a lot of time in the race and both came away with the second-fastest lap time in the car.”



2017 SEB MORRIS

Action Express Racing Cadillac DPi-V.R

“In the wet during the night, Seb outperformed everyone else on track. He gave the team a heart attack, but he'd just been very clever in warming up his tyres.”

2018 STUART MIDDLETON

Action Express Racing Cadillac DPi-V.R

“That was a drive of such enormity for a young driver. Stuart had to fuel-save and nurse an engine with a water leak, but he still brought the car home in second place.”

THE CREAM OF THE CROPPED

PHOTOGRAPHY  **motorsport
IMAGES**

MOTORSPORT IMAGES AN ENDURING LEGACY

The Motorsport Images archive houses a staggering 23million photographs and drawings that document motorsport history stretching back to 1895. In celebration of this unrivalled collection, Motorsport Studios has released a four-part documentary, available at Motorsport.TV and entitled *Motorsport Images: An Enduring Legacy*.

Over 45 minutes across the four episodes it explores the famed collections of LAT Images, Sutton Images, Rainer Schlegelmilch and Ercole Colombo, plus 50 years of technical artwork by Giorgio Piola.

It encompasses the anecdotes of the photographers, how they found themselves in the right places to snap the most famous moments in motorsport, and why adding their work to the archive ensures the images will continue to be seen long after they switch off the camera for the final time.

According to the photographers and Piola, these are what they consider to be the finest works of their entire careers.

1 JIM CLARK

SPA 1962 Rainer Schlegelmilch

Although Rainer Schlegelmilch is known for his action shots, he was equally interested in drawing out the human side of motorsport. Here he captures Clark, whom he considers to be the “hero” of his work, in black and white.

2 JACKIE STEWART

ZANDVOORT 1968 Rainer Schlegelmilch

After winning the Dutch Grand Prix, Stewart embraces his wife Helen. Owing to the fractured scaphoid in his wrist, Stewart has to leave it to someone else to hold his visor open so the couple can celebrate on the podium.

3 LOTUS 72D

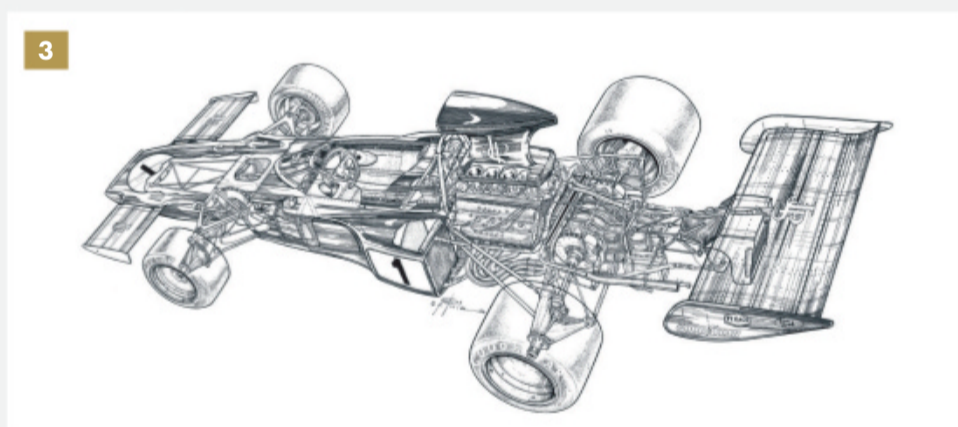
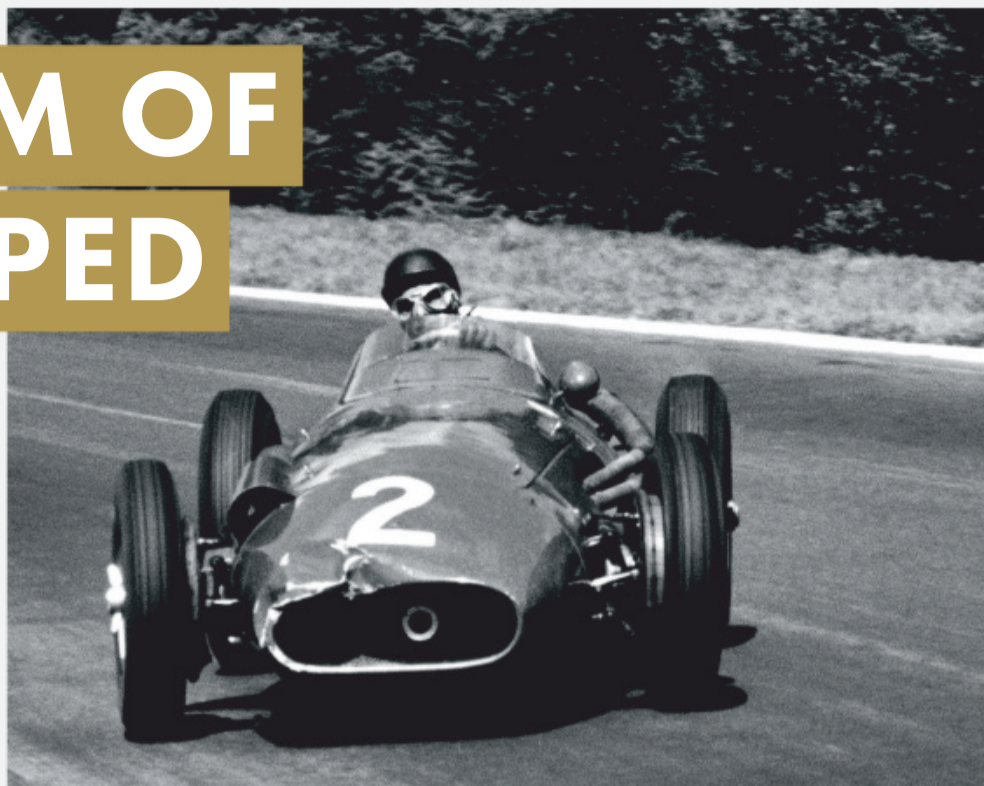
1972 Giorgio Piola

Across a 50-year career, Giorgio Piola still considers this his finest drawing. To mark Emerson Fittipaldi winning the 1972 Formula 1 title, over 45 days Piola crafted the two-metre sketch – his largest ever creation.

4 GILLES VILLENEUVE

IMOLA 1980 Ercole Colombo

The day after Villeneuve’s enormous crash in the Italian Grand Prix at Imola, and in front of his wife Joann, Enzo Ferrari embraces his driver with an affectionate kiss. Ferrari is so impressed with Ercole Colombo’s image that he requests a copy for himself.





JUAN MANUEL FANGIO

ROUEN 1957 Michael Tee

Fangio powerslides his Maserati 250F to victory. He isn't distracted by the prospect of hitting the grassy bank (and photographer Michael Tee) on the inside, nor of falling down the 30-foot drop to his left.



4



7



9



youtube.com/AUTOSPORTdotcom



As the Formula 1 teams unveil their 2019 challengers thick and fast, head to the Autosport YouTube channel for technical assessments of all the cars. See what's caught the eyes of our experts and whether it looks like anybody has stolen an early march ahead of the first pre-season test at Barcelona.

5

AYRTON SENNA

ESTORIL 1985 Steven Tee

Following a glorious wet-weather drive to win the Portuguese Grand Prix, Senna returns his Lotus 97T to parc ferme – whereupon team boss Peter Warr comes to embrace his victorious driver. A moment captured by LAT's Steven Tee, son of company founder Michael.

6

NIGEL MANSELL

ADELAIDE 1986 Keith Sutton

Mansell's championship hopes are wiped out as he collects a left-rear puncture in the Australian Grand Prix. Armed with a print, Keith Sutton enters the press room and is able to name his price to every magazine and newspaper.

7

AYRTON SENNA

SPA 1991 Keith Sutton

Having set out to find a different angle from which to photograph the podium, Keith Sutton captures Senna's podium celebrations from a lofty viewpoint after the Brazilian takes his fifth and final Belgian Grand Prix victory.

8

MIKA HAKKINEN

ADELAIDE 1993 Mark Sutton

After clipping the kerb during practice, Hakkinen launches his McLaren MP4/8 into the air at Malthouse Corner. When Mark Sutton hands a copy of the photograph to Hakkinen, he signs it as 'The Flying Finn'.

9

JOS VERSTAPPEN

HOCKENHEIM 1994 Steven Tee

A sticking fuel valve during Verstappen's pitstop in the 1994 German Grand Prix results in the Benetton B194 and its crew being engulfed in flames. Whether you consider that to be a case of right place, right time or not, Steven Tee caught the moment in three epic frames.

WHAT'S ON

INTERNATIONAL MOTORSPORT

Rally Sweden

World Rally Championship

Round 2/14

Torsby, Sweden

February 14-17

TV Live BT Sport 1, Thursday 1900. BT Sport 2, Saturday 0830. Red Bull TV, Saturday 1350. BT Sport ESPN, Saturday 1400, Sunday 1100

TV Highlights Red Bull TV, Friday 2100. BT Sport 3, Friday 2230. Red Bull TV, Saturday 2100. BT Sport 1, Saturday 2300. Red Bull TV, Sunday 2100. BT Sport 2, Sunday 2000

Formula E

Round 4/12

Mexico City, Mexico

February 16

TV Live BT Sport 3, Saturday 2100. Eurosport 2, 2130

Jaguar I-PACE eTrophy

Round 2/9

Mexico City, Mexico

February 16

TV Live BT Sport 3, Saturday 1945

Daytona 500

NASCAR Cup

Round 1/36

Daytona, Florida, USA

February 17

TV Live Premier Sports, 1900



FROM THE ARCHIVE

Ferrari team-mates Rene Arnoux and Patrick Tambay relax and debrief over a bottle of something refreshing in the Silverstone pitlane during the 1983

British Grand Prix weekend. The French pair would have had plenty to celebrate after qualifying, as they finished first and second fastest, Arnoux securing pole position in his 126C3 by more

than half a second. The race did not go quite so well: Tambay at least made the podium in third, while Arnoux ended up fifth, almost a minute behind the Renault RE40 of winner Alain Prost.

← COMPETITION

For your chance to win the F1 Review 1980-1989 box set, please turn to our Duke Video competition on page 34.



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QUIZ



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WHO IS THIS?

This crowd pleaser overcame a grave challenge to earn a place among the greats.

From the streets of an historic socken he met a friend who not only shared his name but his ambition too.

He took over the ride of a national hero to get himself in a seat and serial success soon followed. A move into the garden of England brought more silverware and a chance to be a Europe-wide gem.

With the support of flavour country he found a home on the banks of the Thames, while in a faraway enclave he had his first encounter with his future nemesis.

In the big time he performed miracles for an ailing giant, before stepping back to support a contemporary behemoth.

When the chance came he grabbed it with both hands and rattled the cage of a genius, but he had to be patient for the expected breakthrough. Success then followed thick and fast, before he walked away at his peak.

ON THIS DAY

- 1 Ronnie Peterson was born on this day in 1944. With which marque did he win the 1969 Monaco Formula 3 race?
- 2 It's Michael Ammermuller's birthday today. For which team was he driving when he claimed his only GP2 win?
- 3 Who won the 1999 Daytona 500, which was held on this day?
- 4 Which driver claimed his second of two World Rally Championship victories in Sweden on this day in 1993?
- 5 Campos claimed a 1-2 in the GP2 Asia Series race held in Qatar on this day in 2009. Who were its drivers?

NAME THE HELMET



LAST WEEK'S ANSWERS

Who, what, where, when Craig Lowndes, McLaren MP4-23, Mount Panorama, 22 March 2011.

Who is this? Jack Brabham. **On this day** 1) Fairman was the last driver to start a race in a front-engine car, and the first to enter a race in a four-wheel-drive car. 2) 2005 Japanese GP. 3) 1960 Argentinian GP. 4) Two. 5) Price Cobb, Martin Brundle. **Name the helmet** Mark Webber.



IN NEXT WEEK'S ISSUE

FERRARI IN 2019 CAN IT END THE TITLE DROUGHT?

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