

**ROEBUCK WHY MORE
DOWNFORCE IS BAD**

**DANNY WATTS
ON COMING OUT**

**HOW TOYOTA WENT FROM
RALLYING ZERO TO HERO**

AUTOSPORT

FORMULA 1's NEW LOOK REVEALED

**Williams
first to
launch its
2017 F1 car**

**“The key to
performance
will be the floor”**

GARY ANDERSON



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SAUBER

No matter what the rules, physics remains

THROUGH ALL OF THE CHANGES TO THE FORMULA 1 regulations made over the years, one element has remained constant: physics. So it should be no surprise that the new-look cars that have been unveiled in recent days have not exactly reinvented the wheel (or, indeed, the nose).

There are things to be optimistic about. Those who have called for the cars to be faster have been answered. Those who have called for the tyres to be wider have been answered. Those who want to see drivers pushing harder for a greater proportion of the race have, provided the Pirellis don't disappoint, been answered. But expecting rule changes of this scope, focused solely on making the cars faster, to deliver a revolution so grand that it'll be like the 1970s all over again was always naive.

What really matters is how good the racing is, and that will be dictated more by the relative performance of the cars. None of the three new cars in this issue — Williams, Renault and Sauber — is likely to be in the fight up front. But what F1 needs is for someone to be on a similar pace to Mercedes, because that is what will create a dramatic title fight. The technical regulations cannot guarantee that — the only way to do that would be by tinkering with the sporting regulations in ways that would transform the nature of grand prix racing dramatically.



EDD STRAW EDITOR-IN-CHIEF

edd.straw@autosport.com

@eddstrawF1



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FREE INSIDE

PERFORMANCE SUPPLEMENT



Our quarterly guide to how to be a better racing driver returns with a range of advice from some of the sport's leading drivers and coaches.

NIGEL ROEBUCK

No gimmicks, keep it simple

IN NASCAR, AS IN OTHER FORMS OF motorsport, spectator interest has been on the wane for many years, and those in authority are trying to do something about it. A place like Bristol – only half a mile in length, but one of the signature tracks – used 10 or 15 years ago to be full to the rafters, but these days its amphitheatre stands, expanded to meet apparently unlimited demand, look forlorn on race days, and even the Daytona 500 pulls nothing like the crowds it did.

In Formula 1 it's been the same story. Silverstone might be invariably a sell-out, but it's far from typical, and in part this is due to the changing map of the world championship. In recent years, under the dread ownership of CVC Capital Partners, Bernie Ecclestone's focus – even more than before – has been on finding countries willing and able to pay silly money for a race, and discarding those not.

Very frequently the new grands prix have been in places where the culture of F1 was unknown, and spectators stayed away in droves. In Malaysia, for example, MotoGP might have caught on, but the F1 race has always been poorly attended, which is why the circuit owners are looking to drop it.

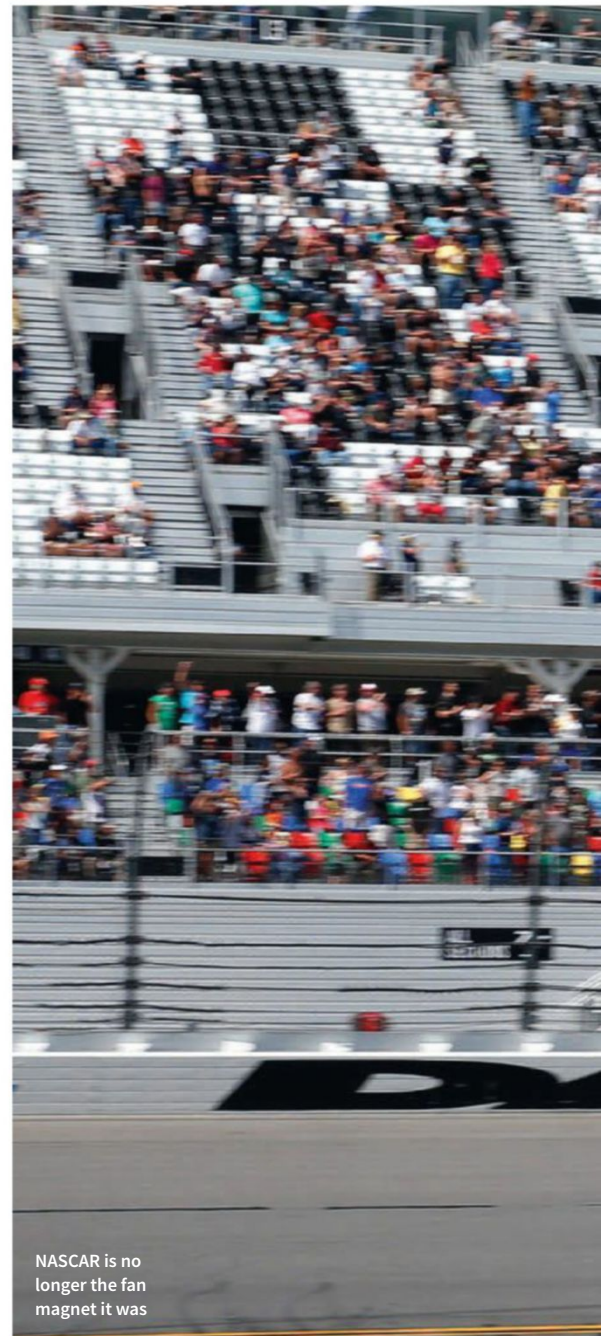
Falling spectator figures – both at the track and on TV – have caused the powers-that-be in

both NASCAR and Formula 1 to seek ways of turning the situation around, of pulling in again those longstanding fans who have lost interest – and, far more, to attract a new, young audience, on which motor racing's future, be it at Hockenheim or Talladega, necessarily depends.

In both series, they have largely gone about it in the wrong way. Rather than recalling what worked so well in the glory days, they have resorted to gimmickry – think of the double points in Abu Dhabi in 2014, the laughably convoluted qualifying system at the beginning of last year – and appear surprised when such changes not only fail to appeal to the young, but also drive away those who have loved racing all their lives. The need to keep it simple, keep it real, seems never to occur to them.

As we go into a new F1 season with heavily revised cars that might, on the face of it, have been designed to keep them from racing effectively, so NASCAR has come up with a complete revamp of its races. The aim is – yawn – to 'spice up the show', and many of the drivers, perhaps fearful of the retribution swiftly dealt to those who dare criticise NASCAR, have praised it to the skies.

A few years ago 'The Chase' was introduced, this a contrivance aimed at keeping the championship alive to the final race, and now



NASCAR is no longer the fan magnet it was



The Malaysian GP attracts only patchy crowds

NASCAR has tried to address a problem with the races themselves, this – in these days of apparently shortened attention spans – being that they are too long. That being so, each race is to be broken into three segments, and at the end of each of the first two the cars will park for 10 minutes, with additional points being awarded to the top 10 at the time.

Presumably the thinking is that, rather than droning along until the closing laps, when points come into the picture, the drivers will have an incentive to 'race' all the way through. This may or may not prove to be the case, but in toto NASCAR's revised point-scoring system is so complicated as to require a rulebook and calculator to work out championship positions. Can't imagine what Bill France would have thought about that.

It seems a shame that NASCAR is following this path – particularly when last season it very positively bucked the trend in motor racing, and significantly reduced downforce.



MILLER/LAT

As a consequence, the quality of the racing was better than for many a year, and how one wishes this thinking could carry over into F1.

Instead of that, in their blind casting about to 'improve the product', the decision-makers concluded that the cars needed to be much faster, as in the 3-litre V10 era of a dozen years ago – when, lest we forget, FIA president Max Mosley informed us that speeds were getting out of hand, that in the interests of safety we needed to go to 2.4-litre V8 engines...

Mosley recently said he doubted that increasing downforce was the way to go, and many others have expressed similar opinions, but if the aim were to make Formula 1 much faster, how else was it to be achieved? The move to hybrid engines, for all Jean Todt's contention that it was essential if interest from the manufacturers were to be maintained, might have produced stunningly efficient technology, in terms of the balance between power and fuel consumption, but if we are back to 1000bhp, so

“There are reasons to be optimistic about the future of F1. Apart from the seismic increase in downforce”

also we are landed with lumbering cars of more than 700kg. Can't imagine what Colin Chapman would have thought about that.

It is good that the wretched 'token' system has been dropped, allowing manufacturers a free hand once more in developing their engines, and I'm pleased, too, that after years of 'high degradation' rubber Pirelli has now been instructed to build proper racing tyres, allowing drivers to charge – rather than cruise – for long periods. Throw in that the stewards are apparently to take a less 'nanny state' attitude to race incidents, issuing fewer penalties than

in the recent past, and there are reasons to be optimistic about the future of Formula 1.

Apart, that is, from the seismic increase in downforce. Patrick Head, ever a fount of common sense, pointed out recently that the way to put speeds up should have been to increase mechanical, rather than aerodynamic, grip. Not a new thought, but one widely shared throughout motor racing – except, apparently, by aerodynamicists and those who dreamed up this new Formula 1. “Anyone,” says Head, “who thinks increasing downforce will improve the racing has got rocks in his head...” ✂



FORMULA 1

Analysis: the FIA's 1%

THE FIA LAST WEEK TOOK THE unprecedented step of clarifying the nature of its ownership stake in Formula 1. The governing body's move followed a barrage of criticism aimed at it over alleged conflicts of interest regarding its approval for the sale of F1's commercial rights by CVC Capital Partners to Liberty Media. This insight looks into why the FIA should have felt the need to explain itself.

Is the FIA's 1% share in Delta Topco, the rights-selling entity, a conflict of interest?

No, this 1% is insignificant in the greater scheme of things, plus the FIA had no choice other than to approve the deal given the provisions of the 100-year deal, also known as the 'Umbrella Agreement', negotiated by then-F1 CEO Bernie Ecclestone and former FIA president Max Mosley in 2001 [effective from 2011-2110].

The Umbrella Agreement contains the fabled 'Don King clause', which provides the FIA with limited veto powers if it believes in good faith that the buyer is unfit or improper, and unlikely to discharge its obligations as commercial-rights holder (CRH).

Liberty Media has an exemplary record in sport rights/promotion and digital-media operations and intends investing in F1, so could

be said to be "fitter and more proper" than previous CRH Delta Topco, a subsidiary of the CVC Capital Partners venture fund.

Documents seen by Autosport show that any refusal under such circumstances would have left the FIA open to multi-million-dollar lawsuits and/or accusations that its World Motor Sport Council, which approved the deal unanimously, did not have F1's best interests at heart.

Why the barrage of criticism?

Criticism has come mainly from media sources with provable links to Ecclestone, and Mosley. In addition, Labour MEP Anneliese Dodds has been vociferous regarding the alleged conflict, but caution: according to FIA sources she has not made contact with the FIA.

Clearly information has been supplied to Dodds, but she is unlikely to have the full picture. Ditto a national media outlet: it published various allegations, then requested comments relating to the allegations retrospectively.

How can a share valued at £400,000 in 2013 now be worth between £40-70 million, and why did the FIA acquire this 1%?

When the price of the FIA's 1% share was agreed between CVC and the FIA in 2013, its value was



FORMULA1

ACTIVE RIDE ON THE CARDS FOR 2018

THE MAJORITY OF Formula 1 teams agree that the return of active ride, perhaps as early as 2018, would be the simplest way to clarify confusion on legality of suspension systems.

This is one of four approaches, summarised in a document produced by McLaren, being evaluated, with the FIA understood to be looking into clarifying the existing regulations ahead of the first pre-season test at Barcelona in the interim.

The active-suspension proposal suggested the standardisation of the actuators would prevent a costly technical arms race.

Should this route be pursued, an active-suspension proposal submitted by Mercedes in 2014 has been suggested as a good starting point for defining a four-channel system that would allow teams to control heave and roll electronically.

A second option suggests tightening up the suspension rules to prevent passive systems designed to influence the aerodynamic platform. This is based on a Ferrari proposal to interpret the original decision banning active suspension more strictly and would require a change to the wording of the rules governing aerodynamic influence.

Option three involves exempting suspension systems from rules governing aerodynamic influence to allow passive forms of platform control.

The final option is to retain the existing rules, but with the FIA carrying out more checks to ensure compliance.

LAWRENCE BARRETTO

stake in F1 explained

established using the *original* \$313.6m agreed for 100% of the 100-year rights, as the base guideline. That price was chronically undervalued, so the 'buy-back' was equally undervalued. If anyone lost out, the FIA did when Mosley agreed to sell the rights at around 3% of intrinsic value.

When the Umbrella Agreement kicked in (10 years after signature) the FIA found itself in dire straits as the costs of administering the championship vastly exceeded annual income provided by the CRH for this service. After protracted negotiations it was agreed that the CRH would up the fee from \$7m (plus escalators) to \$25m, and grant the FIA a limited option to acquire 1% in Delta Topco.

The shareholding was negotiated as precursor to CVC's planned listing of the rights. CVC subsequently aborted the IPO, largely on account of negative publicity around F1 owing to Ecclestone's Munich fraud trial.

All shares are subject to market coordination and lock-up agreements; ie they may not be traded for a fixed period, and then only under specific circumstances. So the FIA is not suddenly flusher than at the end of August, due to the 'drag-along' clauses.

Is the 1% shareholding in breach of the EU's 2001 directive that the FIA separate commercial and sporting powers?

First, there was no such 'directive': the EU accepted a settlement jointly proposed by Ecclestone and Mosley, after the FIA agreed to put its house in order with respect to abuse of its sporting powers.

The EU actively encourages sporting bodies to benefit from proceeds of commercial rights, as these reduce the need for public subsidies. Consider that the FIA continues to benefit from ongoing income from the sale of rights to WEC, WRC and WTCC — so why not F1?

Why drag the FIA into the EU investigation into 'abuse of power', as filed by Force India and Sauber?

There's no denying that F1's 2013-20 inequitable-revenue structure unfairly tilts the playing field in favour of major teams, but the FIA was not a party to these bilateral agreements signed between teams and the CRH. FIA sources are adamant that they have no knowledge of the contents of these agreements. Clearly critics are not aware of this, or have not checked with the FIA, suggesting a political agenda.

DIETER RENCKEN



MAUGER/LAT

GP2 SERIES

KING SETS OFF GP2 DOMINO EFFECT

JORDAN KING'S DEAL TO stay in the GP2 Series for a third season, with a switch to MP Motorsport, has triggered the domino effect that should almost complete the series' driver line-up for 2017.

Dutch team MP and Norfolk-run Russian Time were each vying for King, who drove with both squads in the post-season 2016 test in Abu Dhabi.

Waiting in the wings was 2015 GP3 runner-up Luca Ghiotto, who shone in his rookie GP2 season last year with Trident. Sure enough, just one day after MP announced Briton King (23 next week), the Italian was confirmed by Russian Time alongside the incumbent Artem Markelov.

MP had a disappointing season last year with Oliver Rowland, but has been battling for months to secure King, who is not only quick but has an intense work ethic and will help push his team-mate, GP2 rookie Sergio Sette Camara.

What about the rest of the unconfirmed seats in GP2? ART Grand Prix still officially has a 'TBA', but you can scrawl the name of GP3 runner-up Alexander Albon in there.

Rapax and Campos Racing have been quiet, but don't rule out evergreen GP2 veterans Johnny Cecotto Jr (Rapax) and Sergio Canamasas (Campos). Trident hasn't announced anyone either, but sources suggest that Nabil Jeffri and Philo Paz Armand will line up with the team, each for their second GP2 season.

MARCUS SIMMONS



FERRARI

WORLD ENDURANCE CHAMPIONSHIP

Ferrari talisman Bruni to race for Porsche – from July

GIANMARIA BRUNI IS JOINING PORSCHE AFTER securing a release from Ferrari that will preclude him from racing in the World Endurance Championship this season.

The arrangement thrashed out between the two manufacturers will allow the two-time WEC GT champion to join Porsche in June after a period of gardening leave stretching until the summer. But because the deal does not allow him to race in the WEC in 2017, he will, according to a statement from the German manufacturer, "contest races in the USA".

Bruni will be free to test for Porsche from June and then race from July. That means he is likely to join its factory GTLM squad for the IMSA SportsCar enduro at Watkins Glen on July 2, although there has been no clarification from Porsche on whether he will contest the remainder of the series.

Porsche came knocking for Bruni for a second time in two years. A previous bid to obtain his services in 2015 resulted in a new long-term Ferrari contract for Bruni.

There is no word yet on who could fill the seat left vacant for Bruni in Porsche's WEC GTE Pro team. A transatlantic reshuffle of its drivers across the WEC and IMSA squads may be one possibility, while new factory signing Sven Muller and downgraded LMP1 driver Romain Dumas are the drivers on the GT roster yet to be allocated programmes.

Bruni's place at Ferrari alongside James Calado at the AF Corse factory team will be taken by Alessandro Pier Guidi. Giancarlo Fisichella, meanwhile, is confirmed alongside Toni Vilander for Risi Competizione's Le Mans 24 Hours assault.

GARY WATKINS



LAT

OBITUARY

Allan McCall 1941-2017

ONE OF INNUMERABLE NEW ZEALANDERS whose intuitive engineering skills left an indelible mark on motor racing, Allan McCall, who died last week, arrived in England in 1963 and found work with Team Lotus, preparing Jim Clark's Cortina.

McCall subsequently joined compatriots at McLaren, working on Bruce's Formula 1, Can-Am and USAC teams in the papaya army's golden era. He

subsequently designed and built Tui cars in which Northern Ireland-born, NZ-raised Bert Hawthorne starred and Swede Bertil Roos became US FSV champion.

After Hawthorne's death at Hockenheim in 1972, David Morgan and John Watson drove a sister F2 car – indeed 'Wattie' credits McCall with reigniting his career.

Allan managed the private Hexagon Brabham F1 equipe for which Watson

drove (above) and designed the 1973 Tecno PA123 F1 car around its cumbersome flat-12 engine for the chaotic Italian manufacturer to which Chris Amon was contracted.

McCall's reputation was untarnished by this disaster and he went on to make a decent living in the US restoring and race-preparing three-litre Historic F1 cars.

MARCUS PYE

KTM livery for Pol Espargaro and Bradley Smith was unveiled last week

KTM/SEBAS ROMERO



MOTOGP

Vinales vs Marquez

THE SMART MONEY IS ON A MOTOGP title fight between Maverick Vinales and Marc Marquez after this year's first two pre-season tests, despite Honda's apparent struggles to tame its heavily revised engine.

Replacing Jorge Lorenzo, Vinales was slotted in seamlessly at Yamaha, topping the post-season test at Valencia last November and then doing the same at Sepang and Phillip Island as 2017 running started. In Australia last week, Vinales led the second and third days of the test, ultimately finishing with a 0.294-second buffer over Marquez.

"The speed is there," said Vinales, whose team-mate Valentino Rossi was an unhappy 12th. "We need to still work in some areas, to be at 100% for the first race, but I feel great in the team, and that's the main thing."

Behind Vinales, Honda riders filled three of the next four places at Phillip Island, with Marquez's team-mate Dani Pedrosa third and LCR satellite rider Cal Crutchlow fifth. They spent the test evaluating two different specifications of a revamped engine, with a new version accompanying the one tested late last year.

Secrecy has long been Honda's core mode of communication and, while the riders were tight-lipped on which version they preferred, the consensus was that one offered more potential if the electronics could be updated to suit it. Engines for the leading factory teams are sealed at the first round in Qatar in late March, leaving Honda with a decision to make.

As Autosport went to press, it was understood that Honda was planning to dip

into its private testing allocation with an extra two days at Jerez at the end of this week, before the final three days of official pre-season running from March 10 at Losail in Qatar. While Phillip Island is a circuit that does not punish Honda's acceleration deficit as much as others, Marquez looked to have the best of the pace on race simulations, just ahead of Vinales.

"We found a small road, a small way," reigning champion Marquez said at the end of the final day. "It looks like [the team] starts to understand what I want, with this engine. Still it's not what I want, but it's getting better and better."

Rookies Jonas Folger (Tech3 Yamaha) and Alex Rins (Suzuki) impressed to end the Phillip Island test fourth and sixth, ahead of Ducati pair Andrea Dovizioso and Lorenzo, continuing his acclimatisation to a bike that "requires the opposite riding style" to what he raced with Yamaha.

Suzuki and Aprilia introduced their aerodynamics solutions for MotoGP's winglet ban, and Aleix Espargaro was an encouraging 10th for the Italian make. Newcomer KTM continued to make progress before launching its 2017 livery, Pol Espargaro leading the way in 17th, 1.308s off the pace.

"Right now the bull is a little bit wild, but it feels really good," KTM's Espargaro brother surmised. "We are making huge steps, improving – every time we are closer to them. It's beautiful to see the evolution of the bike."

MITCHELL ADAM

IN THE HEADLINES

DI RESTA STAYS ON AT WILLIAMS

Paul di Resta will stay on at Williams for a second season as the squad's Formula 1 reserve driver. The ex-Force India racer, whose role includes simulator work, will dovetail the commitments with his Mercedes DTM exploits.

GIOVINAZZI TO TEST WITH SAUBER

Ferrari F1 reserve Antonio Giovinazzi will replace Pascal Wehrlein in Sauber's line-up for next week's first pre-season test at Barcelona. Wehrlein has a back injury following his crash in last month's Race of Champions in Miami. Sauber is also evaluating the possibility of making Giovinazzi its reserve alongside his Ferrari duties.

JORDAN GETS LYDDEN WRX RIDE

BTCC star Andrew Jordan gets a World Rallycross Championship return at the Lydden round in May. Jordan will replace Timo Scheider – who is contesting the clashing Nurburgring 24 Hours – in the MJP Austria Ford Fiesta team.

MARDENBOROUGH STEPS UP TO GT500

Nissan GT Academy poster boy Jann Mardenborough has secured a plum drive for his graduation to the top GT500 class of the Super GT Championship in Japan. The Welshman joins the Team Impul Nissan squad of racing legend Kazuyoshi Hoshino to partner Hironobu Yasuda. Brazilian veteran Joao Paulo de Oliveira has been shifted from Impul into the Kondo Racing Nissan with Daiki Sasaki.

MAWSON GRADUATES TO EURO F3

Reigning German Formula 4 champion Joey Mawson has gained a step up to the Formula 3 European Championship, the Australian staying with the Van Amersfoort Racing team he raced with in F4. VAR has also confirmed a second season for Pedro Piquet. Motopark has also added two rookies: German Euroformula Open graduate Keyvan Andres Soori and Japanese Marino Sato, who steps up from the Italian F4 Championship.

CHAMP PULCINI IN ARDEN ATTACK

Euroformula Open champion Leonardo Pulcini is to move up to the GP3 Series, the Italian joining British squad Arden International. Arden has also recruited Steijn Schothorst, who switches from Campos Racing, with Red Bull Junior and European F3 race winner Niko Kari also in the line-up.

COLLARD REMAINS IN WSR BMW

Veteran BTCC ace Rob Collard is to stay on for a 10th season at WSR this year. He joins Colin Turkington and Andrew Jordan in WSR's BMW 125i M Sports.

ELLIOTT GRABS DAYTONA 500 POLE

Chase Elliott (below) and Dale Earnhardt Jr will start Sunday's Daytona 500 from the front row after qualifying for the NASCAR Cup opener last Sunday. The Hendrick Chevrolet pair are locked in at the front, with the remaining 38 places to be determined by Thursday's two Duel races.



LEVITT/LAT



Out and proud

Coming out in the masculine world of motorsport is a stressful and frightening process. But the pain of denial is worse

By Danny Watts

[@watts racing](#)

I THINK ME COMING OUT IS GOING TO BE A MAJOR shock to people, and it's highly scary. But here we go.

I'm a prolific worrier at the best of times. I'm sure I'm going to get a completely mixed response. Some people will be supportive. At the other end of the scale I'm sure some will hate it and say bad things. You kind of expect that. You hear jokes about gay people up and down the paddock, and in everyday life. I always kind of gulped and laughed it off.

You feel like you have to hide it within motorsport because it's a very masculine sport. But there was something burning inside that said, 'You can't hide it anymore, you've got to be free and be true to yourself and let it go out there.' I told close family members and friends. There was shock to start with, but people were also very supportive, which was nice. So I thought if they're cool with it, let's go for it.

It's mightily stressful and scary – worrying what people will think and how they'll portray you, how they'll act around you. Stupid things like wondering if people will shake hands with me. Am I going to be able to look them in the eye or not? Is it going to be awkward?

There are a million and one questions going round in my head about how this is all going to work out. My stomach is churning about the next paddock I go to and people knowing and how they'll think of me. I wonder

if people will have lost respect for me despite everything I've achieved with winning Le Mans twice, winning Formula Renault UK, etc.

What I really enjoy is teaching and coaching. You get a massive reward from seeing someone improve over a weekend, and the holy grail is seeing them on the podium when you've been a very small part of them achieving that. I really hope my announcement doesn't affect my coaching work.

Making the announcement is easier now I've stopped racing. What the sponsors will think and what the team will think is always on your mind.

Initially I thought this was a stage I was going through that would pass, because it just felt wrong and I shouldn't be interested in that sort of thing. Over time those feelings got stronger and stronger, and they didn't go away. That's when it hit home. It's been there a while and it's bloody hard trying to fit in. I was compensating to cover it up by being an absolute womaniser. That was just a way of hiding it, I guess.

I read up on the amount of homosexual people who

suffer from depression and, worst-case scenario, commit suicide. I can understand that. It builds up, it's constantly on your brain. It definitely grinds you down. It's painful. It's a horrible place to be.

The first half of last year with Strakka Racing I was definitely underperforming. I was trying my best, I didn't do anything different, but I was just losing my pace. Maybe mentally I wasn't in the place where I should have been. If something's on your brain all the time and wearing you down, you're not focused. That takes a little bit away from your edge as a racing driver.

The last six months have been the hardest for fighting my demons. You're in denial to everyone, you seem happy-go-lucky and outgoing, but when you're on your own and climb into bed at night it's on your mind.

You could tell just a few people – close friends and family – but then you go to work and you're back into the same routine of 'I've got to hide it and not let anyone know' and pretending to fit in. You can do that, but it's bizarre

living two separate lives.

So you either keep it secret in racing and have your separate life, or you can just go all out and say, 'There you go, my cards are on the table, take it or leave it.'

I got to a point where I wasn't happy and wasn't enjoying anything. So what's the best solution? Just do it and come out. If it's out there and everyone knows about, then they can think what they want, whether it's good, bad or ugly.

I looked up other sportspeople's experiences of coming out. For most of them it's all been very positive. I suppose I'm lacking a bit of confidence in myself and should have much more self-belief over what I'm doing. I reached out to somebody in the LGBT community who's experienced these kind of feelings – I wanted to be brutally honest with them and get some clear, concise advice on what I should do. That was a mega help and inspired me.

I've read about quite a few athletes who have come out, but I couldn't really find anyone else in motorsport in Europe who has. Will it start a domino effect? I don't think so. The bottom line is if I can help and share my experience with other people in a similar position, make their life a bit easier, that's great news. I'm more than happy to help others and get involved in the charity side and promoting the LGBT community. I know what I've been through and it's horrible mentally. 🌟

“People can think what they want, whether it's good, bad or ugly”

FEEDBACK

There's only one true all-rounder

Despite the many talents and attributes of the drivers put forward by yourselves (The greatest all-rounders, February 9), there can only be one choice.

Whether open-wheel, sportscar, tin-top, hard or loose surface – they were all four-wheel exponents.

Only John Surtees qualifies as a true all-rounder: open-wheel, sportscars (and CanAm) and motorcycles. Not only did he drive/ride them, he engineered, designed and built them.

Derrick Holden
Marlow, Bucks

Injustice to Hill

Well, once again the legend that is Graham Hill is granted a derisory 40 words to describe a truly *great* all-rounder. You detail his unbeaten stats, yet afford him the least column inches. How on earth can lots of mediocre overseas drivers even be considered in the same article?

Vic Hemming
Byemail

No vote for Villeneuve...

I cannot conceive of Jacques Villeneuve as one of the sport's greatest all-rounders (Letters, February 16). He

burned brightly but briefly in CART and F1 but then has spread disappointment across the categories: NASCAR (in many classes), sportscars, rallycross, V8 Supercars... No place at all.

Eliot Wilson
Byemail

...and Mansell too

I really can't believe that Nigel Mansell was placed in the pantheon of versatile drivers. He primarily drove single-seaters except for an outing in a Mondeo, which he crashed, and a few races with his sons in sportscars.

Stirling Moss or Mario Andretti? Both score the same in my eyes – nothing to choose between them.

Neil Davey
Ivybridge, Devon

The great and the good

One of the inclusions in your feature on motorsport's greatest all-rounders brought back a memory from a Goodwood Festival of Speed some years ago.

My wife, daughter and I had the pleasure of a brief conversation with twice Indy 500 winner Rodger Ward. A man in a race suit appeared in the



Surtees' skills on two wheels make him reader Holden's greatest all-rounder

next garage. Ward paused, and pointed towards him and said: "That's the man you should be talking to. That there is Mr Parnelli Jones, the greatest race car driver of all time. Period!"

The gesture spoke volumes about the great qualities of both men.

Robin Allen
London SE9

Attitudes need to change

Big, big respect for Danny Watts coming out as gay. Just a pity that something so normal needs to be reported as news. It is his life, his personal life, and shouldn't be newsworthy. He shouldn't have to be brave to come out. Hopefully attitudes change soon, so as a gay racing driver is not headline news on your website.

Mark Farrell
Byemail

Halo won't help trackside fans

I went to the US Grand Prix at the Circuit of the Americas last year and from our position in the Turn 6 grandstand we found it hard to identify car and driver from the side. Most teams make it almost impossible to identify the number on the side of the car. How is this going to be resolved if teams start to use the halo?

The next issue was the lack of wifi and phone coverage. There was an offer on Sunday to buy wifi, but as there was no phone signal to log on to it was a waste of time. Consequently we struggled during the race to know which car was which. The people next to us kept saying: "Why are Lewis and Nico both driving #6?"

Peter Pringle
Reigate, Surrey

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Autosport editorial
Autosport Media UK Ltd
1 Eton Street
Richmond
TW9 1EF

@
E-mail
autosport@
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WILLIAMS FW40

The famous British squad has skipped the FW39 designation to celebrate its 40th birthday, but what does the 2017 car tell us about the new regulations?

By Gary Anderson, Technical Expert

 @autosport

3

2

1

FRONT WING

The angled front wing has more or less the same package of elements as before. It is just moved forward in the middle.

The main purpose of the external components remains to turn the airflow around the outside of the front tyre. Since that is 25% wider this year, you have to work a little harder.

The regulations demand that the front wing now sweeps rearward as it moves outwards towards the front tyres. This, in effect, moves the centre section forwards and allows more space between it and the leading edge of the underfloor. Together with the FIA-defined central profile of the front wing, the objective of this is to improve the consistency of the downforce when following another car.

The front wing endplates have turning vanes on the trailing edge to help reduce the blockage of the front tyre.

You want to get as clean an airflow between the chassis and the inside of the front tyre as possible, and this is how you achieve it. Everything you do with the airflow at the front of the car influences what happens behind it.

NOSE

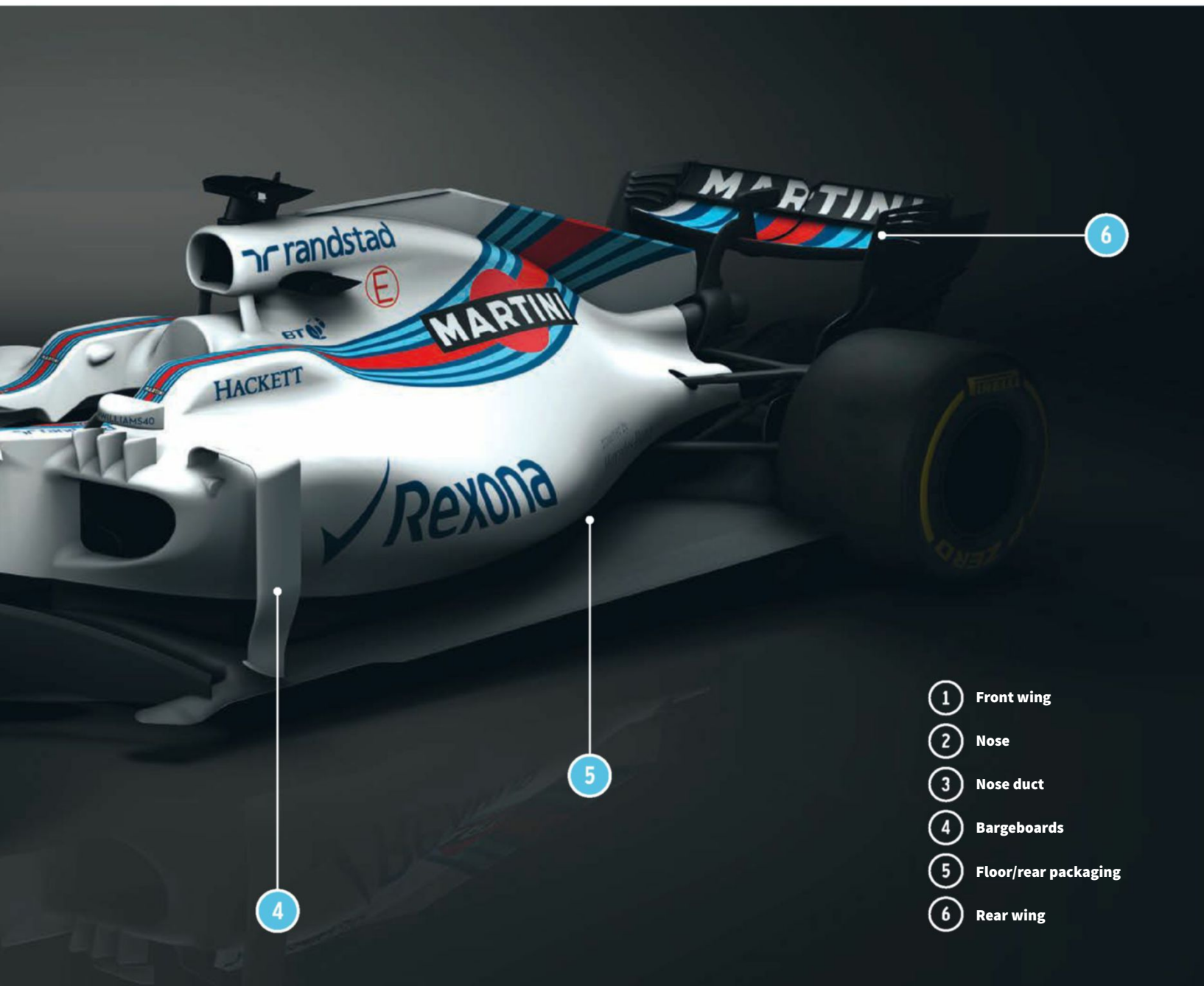
The regulations governing the nose height and the cross-section area have not changed, which is why there is no major difference to what we saw in this area under the previous set of regulations. The centre section of the nose has to be further forwards, and this is what dictates the overall length.

The Williams FW40 is the first of the 2017 Formula 1 designs to break cover, and after all the talk of how the new regulations would give the cars a radical and dramatic look, my first reaction is to ask if it really is a new car?

Of course it is, and Williams has put a huge amount of work into this design, but the regulations are written around the same basic concept as before. From this perspective it's no surprise to see this car sharing much with last year's FW38.

However, don't forget these are early renderings of a car that won't be completed until the last possible moment, so expect more details to appear when we get to Barcelona next week.

Will all the cars this year look like their predecessors? I hope not, because we all like variety, but it's highly likely.



- 1 Front wing
- 2 Nose
- 3 Nose duct
- 4 Bargeboards
- 5 Floor/rear packaging
- 6 Rear wing

NOSE DUCT

Just in front of the top wishbone's forward leg-mounting there is an exit duct. This is probably the outlet of what is commonly known as an S-duct because in profile its shape from inlet (beneath the nose) to outlet resembles a flattened 's'.

This channel pulls airflow from under the nose, effectively improving the flow coming off the trailing edge of the centre section of the front wing. Therefore, it reduces the need for that airflow to find a way around the nose blockage.

Usually the top surface of the nose induces lift as the airflow speeds up over its original surface. By having the exit duct here, you reduce that negative force. It's a win-win situation, reducing lift on top and better managing the airflow underneath.

BARGEBOARDS

The leading edge of the sidepods and the vertical turning vanes are there to control the wake coming off the trailing edge of the front tyre. If this turbulent wake is not controlled, it will have a very detrimental effect on the downforce produced by the underfloor.

The small vertical turning vanes on top of the sidepods reduce the amount of airflow that would normally spill into the cockpit opening. These vanes help to turn that airflow along and over the top of the sidepod's upper surface, improving the airflow to the rear of the car.

FLOOR/REAR PACKAGING

I'd describe the rear of the car as 'blended', with all of the surfaces neatly converging. This should maximise the performance of the cooling, the rear wing and the diffuser.

This is a key area for performance gains. In reality, the diffuser itself is the area of most change. From the images it's difficult to see much detail but that is surely intentional since Williams will want to keep what it has done secret for as long as possible.

The 'Coke bottle' area between the inner body and the inside of the rear tyre is now wider and this gives a larger floor area. Maximising the airflow here will help with the consistency of the diffuser.

Downforce produced from the underfloor does not suffer from the same turbulence effects as downforce produced from wing surfaces – so if Williams, or any other team, can get this area right the car could be a lot better in traffic.

REAR WING

The lower and wider rear wing certainly looks a lot more racey, and closer to what F1 had before the 2009 aerodynamic regulation changes. But its fundamental function remains unchanged, including the presence of the artificial overtaking device that is DRS.

Where now for the Williams revival?

Williams leaped to near the front of the field the last time F1's regulations changed in 2014, but has slowly slipped back since then. The team needs to repeat the trick

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

Williams is a grand old powerhouse of Formula 1, a team that's been an integral part of elite single-seater racing for the best part of four decades, a participant for even longer, yet its best days seem well and truly consigned to history.

The track record speaks for itself. The current incarnation of Williams as an F1 constructor (discounting its 1977 season as a March customer team, and the prior squad Sir Frank sold to Walter Wolf) is the third most experienced on the grid.

There have been 659 F1 races held during Williams's life, of which it has won 114, finished on the podium in 311 and started on pole for 128. Only Ferrari and McLaren can boast better records. Williams's haul of nine constructors' titles, augmented by seven world championships for drivers, is bettered only by Ferrari – the grandest of grande-epreuve equipes.

History can buy a reputation, an army of loyal fans, but it won't buy success. The first 20 seasons for Williams in its current guise in F1 were phenomenal; the last 19 nowhere close to those heady early heights. The statistical contrast between the pre-1998 Williams and the post-'97 one is stark.

There once was a time when Williams could do no wrong in

F1. At its best it was capable of winning one in every three grands prix it contested. Now, it's lucky if it can win once in every 30. That this team has failed to win a championship for the best part of 20 years (a pain McLaren also knows all too well), and hasn't even been able to outscore its historical self, despite more races being held and points awarded than ever in the modern era, highlights how far this once mighty team has fallen.

There was a brief period of moderate success between 2000 and '04, thanks to a works alliance with German manufacturer BMW, but otherwise Williams has had very little to celebrate since star designer Adrian Newey departed Grove and Renault withdrew its manufacturer support at the end of 1996.

When F1 first adopted V6 hybrid-engine technology in 2014, it looked as though Williams could finally be ready to reverse this slump. The team leapt from ninth to third in the constructors' championship – its best finish since '03 – by taking a Mercedes customer power unit and mating it to a well-conceived low-drag chassis, which developed well through the year and was the second fastest on average across the season.

Unfortunately, Williams proved unable to capitalise on that initial promise. A woeful 2015 season for Red Bull allowed Williams to repeat its third place in that year's constructors' title race, despite building only the fourth-fastest car, while last year represented a step backwards, with only one podium finish (for Valtteri Bottas in Canada) and a slump to fifth in the standings, behind fellow Mercedes engine customer Force India.

The emerging pattern is undoubtedly a worrying one. But 2017 presents an opportunity for renewal. The hybrid engines remain, but this year's new rules were drafted to encourage design of substantially faster cars, featuring enhanced aerodynamics, and bigger and better tyres. New rules usually lead to upheaval in the competitive order, and the hope within Grove is that Williams can grasp this latest opportunity to reverse its recent competitive slide.

"One of the things Williams has been good at doing in the past few years is very quickly identifying its errors and weaknesses, and then resolving those, not letting the grass grow under our feet," Williams deputy team principal Claire Williams tells Autosport.

"We started our dramatic restructuring in 2013, we made a whole wealth of changes, which obviously helped us move forward in 2014, but a Formula 1 team doesn't suddenly transform from being P9 to P1.

"There's a huge amount of work involved, and until you're winning there's always work to be done. Life is hard in Formula 1, but you need to keep plugging away at it. One day it will come to you. Frank plugged away at it for 10 years before he won ➤



1997

1978-1997

RACES HELD	317
WINS	103
PODIUMS	241
POLES	108
POINTS	1916.5
WORLD TITLES	16



2003

1998-2016

RACES HELD	342
WINS	11
PODIUMS	69
POLES	20
POINTS	1553.5
WORLD TITLES	0



Will new FW40 return Williams to the front?



“Setting any kind of expectation is really dangerous, but we don’t want to come fifth again this year”

a race. If it takes 10 years, so be it, we’ll keep fighting.”

But Williams surely cannot afford to wait another decade for glory. The team can take encouragement from a strong recent record in meeting the challenge of major rule changes in F1 – the problem comes in trying to consolidate that good work. Williams started well (with the help of a controversial ‘double diffuser’) in 2009, won a race in ‘12, but by ‘13 was lost in trying to properly harness exhaust-blown downforce.

The 2014 campaign represented a big leap forward again, but the team has gradually slipped back over the past two years, struggling particularly with tyre management and aerodynamic development. It became one of the best teams at performing pitstops last season, but otherwise had little else to celebrate.

Technical chief Pat Symonds, who left Williams at the end of last year, admitted Williams missed its pre-season targets and failed to develop its front wing effectively through 2016.

Williams agrees it was “a bit of a shock” and an “eye-opener” to get beaten by Force India last season – a team that uses the same engine as Williams, but employs fewer people (380 versus 530) and operates on a smaller budget (£90 million versus £105 million), according to Autosport’s most recent analysis.

Slipping behind a team that has traditionally been a smaller player in F1, rather than continuing to trade blows with the category’s current heavyweights, places Williams at a vital crossroads. Will it be forced to accept upper-midfield status, or can it find a way to push itself back into the big league, especially when it operates on a fraction of the budget of Formula 1’s current top teams?

“Slipping back isn’t an option,” Williams asserts. “We have to make progress forward, whatever that looks like. Setting any kind of expectation is really dangerous, but we don’t want to come fifth again this year.”

To do that the team will need to produce a better car, and

develop at a much better rate than it did last season.

In fairness to Williams, it is taking steps to address its faults. It recruited former Ferrari tyre specialist Antonio Spagnolo late last season – part of a concerted effort to become vastly better at understanding and using F1’s control rubber.

There is also the expectation that former Mercedes technical chief Paddy Lowe will soon replace Symonds at Williams’s technical helm, while it was announced last week that Ferrari’s former aero chief Dirk de Beer will start at Grove on March 1.

Signing Lowe could be the most significant move Williams makes ahead of this season. His experience from working inside F1’s current best team should prove invaluable in helping Williams implement the further structural changes needed to vault out of the midfield and back into F1’s elite group.

Lowe’s deal is not yet confirmed, so Williams won’t be drawn into discussing his expected arrival, but the team’s performance chief Rob Smedley has previously talked of Williams being stuck in the past in some areas, of a need to adopt fresh practices and not simply rest on past glories.

Lowe is a Williams face of old, having masterminded the active suspension systems that helped it dominate F1 in the early ‘90s, but his recent experience at Mercedes makes him a valuable commodity rather than a retrograde step for this ambitious team.

“Whenever you bring in new people that have a profile it can be an enormous boost to morale, but equally you have to recognise the talent you have in your business, and understand and highlight the role they play, because it’s not just about one person at the top, it’s about everybody working together,” says Williams.

“These race teams we run now are 700 people, so you can’t just expect one man or woman to come in and fix everything – it’s a team effort, but if you do have that leader at the top who is an inspirational figure then you’re in a good place, aren’t you?”

Talented technical personnel are vital, but a good car will be



STEVE HERRINGTON



HONE/LAT

Advent of hybrid era resulted in leap forward in 2014 (top), but in '16 Williams fell back behind smaller Force India

nothing without a good driver to extract its performance. Previously, Williams could rely on one of F1's brightest emerging talents in Valtteri Bottas. His departure to Mercedes to replace shock retiree Nico Rosberg means Felipe Massa will postpone retirement to partner rookie Lance Stroll in 2017.

However you slice it, this looks like a backward step for Williams. How can it expect to become a serious frontrunning team again if it cannot attract or keep the best drivers available?

"Would you not put Felipe and Valtteri on the same level?"

Williams shoots back. Autosport explains that replacing a driver courted by Ferrari and Mercedes with one who retired after his 2017 options dried up looks like a retrograde step.

"If you're going to look at it from a one-dimensional perspective then maybe that's what it could look like, but there are a number of considerations when you make these kind of decisions," explains Williams, who says she hears the same "fire in his voice" that Massa had when he first joined Williams after leaving Ferrari at the end of 2013.

"Anyone who knows me will know I did a good deal for this team. I have total confidence in the decision I made. I think we did the right thing and I have no regrets. We stood in Valtteri's way once, when Ferrari came along, and I made a promise to Valtteri I wouldn't stand in his way again – and I honour my promises."

A noble sentiment for what remains one of grand prix racing's noblest teams, but can Williams really deliver on its promise to return to the top? This year represents a new dawn for F1, an attempt to return to what Fernando Alonso would call its mid-2000s peak, when quick lap times were all that really mattered.

Williams itself has endured a series of false sunrises since the end of its mid-'90s pomp. If it is serious about becoming a true force to be reckoned with again, it needs to ensure that, this time, the FW40 really does represent a new beginning. ❄

TWO DECADES OF FALSE DAWNS

TRY AS IT MIGHT, WILLIAMS JUST CANNOT SEEM to break the cycle of premature decline after rebirth that has characterised its existence in Formula 1 since the end of its Adrian Newey era.

Williams muddled through in the immediate aftermath of its last world championship success in 1997, before securing a works BMW engine deal for the turn of the millennium.

But despite having what was reckoned to be the most powerful engine in F1 at the time, Williams could not produce a quick enough car to properly threaten Ferrari's hegemony.

After splitting with BMW at the end of 2005 there were high hopes for its new partnership with Cosworth, but 2006 represented Williams's worst season since the modern incarnation's debut in 1978.

The promise of 2009's double-diffuser car also petered out and, although Williams did a decent job with Cosworth power in '10 after a stint with Toyota engines, and won a race after switching to Renault power in '12, each time the anticipated revival has failed to arrive.

Even the very serious upturn in fortune that began with 2014's new hybrid era seems to have stalled. Try as it might, Williams just cannot seem to stay on course.

"There's a theme there, in that a lot of things just didn't work out," reckons deputy team principal Claire Williams. "I'm not going to sit in judgement on predecessors, and what happened years ago.

"I don't think it's been a particularly settled time for the team – there have been a lot of leadership changes at the top, and there have been a lot of changes to our engine partner, and that hasn't been particularly useful.

"I could open a can of worms about everything that happened at Williams in the 2000s, but I'm not going to. It's all about the future. You can learn your lessons from the past, but there's no point raking over it and dwelling on it.

"There's a very different culture and team spirit at Williams than there probably has been for a long time. It's about moving forward and what we're doing now that matters, and knowing that everybody here buys into what we're doing now."



HONE/LAT

Renault's **real** first year back

After 2016's 'year zero', this will be the season where Renault finally starts working its way towards the front. But there's a long way to go

By Lawrence Barretto, F1 Reporter

🐦 @lawrobarretto







MAUGER/LAT

Renault knew that 2016 was going to be a struggle. The French manufacturer returned to works status in Formula 1 last season by buying Lotus, after enduring a painful two-year period as engine supplier to Red Bull and Toro Rosso, but protracted negotiations delayed confirmation of the takeover, leaving the RS16 as an underdeveloped compromise, particularly as it required a change of power unit from Mercedes to its own.

While Renault pushed to get the best from the package over the course of the season, it also made an early decision to switch focus to 2017, given this year's dramatic change to the technical regulations. It scored points just three times in '16, reaching a lowly tally of eight and finishing ninth in the constructors' championship ahead of only Sauber and Manor.

Unsurprisingly, there was relief when the season finally came to an end. "I won't be sad to see the back of this car," sporting director Alan Permane told Autosport in Abu Dhabi. "It's mentally tough to go into each race weekend with higher expectations than you know you're going to achieve, and then battle every week to get out of Q1."

All these difficulties mean it's fair to view 2017 as Renault's first real F1 season since returning as a manufacturer entry. It turned its attention to this year very early and is prepared

to spend significant resources on developing the car. As a result there's a buzz about the place. "I'm very confident," says chief technical officer Bob Bell of the RS17's potential. "Our performance metrics show that we've made gains in a strong and consistent manner throughout its development."

"If you look at the car you'll see tremendous attention to detail and sophistication, illustrating that it's been designed by a talented and knowledgeable group of people. This is a proper Renault Formula 1 car, and what we know about it so far gives me a lot of optimism."

"It's no secret that our 2016 car was not one born of a lengthy or smooth development process, so the RS17 is the first real Renault F1 car of the modern era. It's a ground-up design as we had the time and the resources to do it, notwithstanding the fact that the change in the regulations demanded it. There is no carryover of components from 2016 to '17, so it really has been a 'clean-sheet-of-paper' approach."

The detail that Bell talks about is something Renault lacked last year. And a clean sheet of paper is exactly what was needed, after Renault had to make so many compromises just to get a car ready in time for 2016. The RS16 was essentially an upgraded '15 Lotus, on a budget.

But it's not just the car that Renault has focused on. Cashflow problems under the previous leadership had long-term consequences, which Renault has now inherited. Its staff, for example, was depleted, with people leaving

Last season Renault spent too long having to fight off backmarkers

**“Look at the car
and you’ll see
tremendous
attention to
detail and
sophistication”**



positions that went unfilled. Renault was quick to rectify that, instructing its HR department to strengthen staffing levels across the board. The trouble in F1, though, is that personnel have long notice periods, so some couldn't join for three months, others six, some even more. And even when they do start, it takes time to create a cohesive department.

Fortunately, that process is now well under way, with Pete Machin set to join on July 3 from Red Bull to head up the aerodynamics department, while Ciaran Pilbeam has rejoined the team from McLaren as chief race engineer. There have been internal movements too, with Rob White moved to Enstone from Renault's engine operation at Viry to take on the role of operations director. Renault has recruited “something like 100 people”, according to managing director Cyril Abiteboul.

“In terms of our personnel growth and development, we're well along the path of getting to where we need to be,” says Bell. “In terms of headcount, we're not far off our goal for 2017. Those already recruited are working well together, and it's the cohesion of the group that's important. This cohesion doesn't happen overnight, but the performance of our growing group of people has been impressive. Everyone at Enstone and Viry is united by a common goal and that's seen and felt every day.”

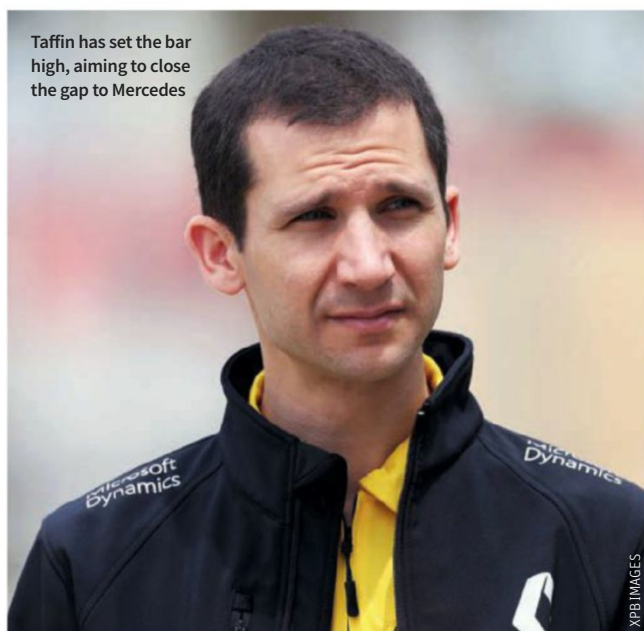
One key change is in the management structure, with Fred Vasseur vacating his role as team principal, with no direct replacement in the offing. Instead, his responsibilities will be shared among other members of the F1 team. Abiteboul will »

Palmer provides continuity,
Hulkenberg fresh blood –
and crucial experience



XPB IMAGES

Taffin has set the bar high, aiming to close the gap to Mercedes



RENAULT'S POWER STRUGGLE

RENAULT ENDURED A torrid time with its V6 turbo-hybrid power unit in 2014 and '15, suffering a multitude of performance and reliability problems.

Until last year, it had the third-best power unit behind Mercedes and Ferrari. But increased investment, coupled with a restructure at its engine base at Viry and a greater focus on reliability, has helped it turn a corner.

Italy's high-speed Monza circuit was a good barometer, with Renault-powered cars closer to the front in qualifying, the race, and in the speed traps.

It's believed that Renault was around 25kW down on Mercedes at Monza, with Ferrari on a 10kW deficit. But by the end of the season Bell believed that Renault was roughly on a par with Ferrari in terms of power.

To make a further step forward, Renault has gone for a radical redesign of the unit for 2017, as it felt the basic engine used for the past three years had reached the end of its development potential.

So there is an all-new architecture for the internal-combustion engine, as well as a new energy-recovery system. Renault has also changed fuel suppliers to BP/Castrol, which Abiteboul feels can deliver a competitive advantage as all

teams battle to overcome the higher drag produced by this year's new breed of cars.

So where does Renault expect to be in the pecking order?

"Last year we wanted to cut the gap to the best performing power unit on the grid in half while becoming the most reliable power unit on the grid, which is something we feel we achieved," says engine chief Remi Taffin.

"For 2017 we want to close the rest of the gap. This is a high target. The harder you push for performance the more you encroach on the safety zone for reliability, so it's a balance that has to be juggled. It's a battle we relish and which energises everyone."

Reliability was a cornerstone of Renault's revival last year, and critical to customer Red Bull being the only team other than Mercedes to win a grand prix. Red Bull boss Christian Horner is upbeat about Renault's progress since last season.

"They've had a big winter; we're hoping for a step in performance," he says. "If that's delivered, then hopefully we can really be a challenger this year and give Mercedes and Ferrari a hard time."

If Renault can close the rest of the gap, and Red Bull delivers a strong chassis for the new regulations, it could provide a genuine challenge to Mercedes. But for now, that remains a big if.

TEE/LAT



attend all F1 races this year, and take on some of Vasseur's duties, while Pilbeam will share trackside engineering duties, allowing Permane space to work more closely with the drivers.

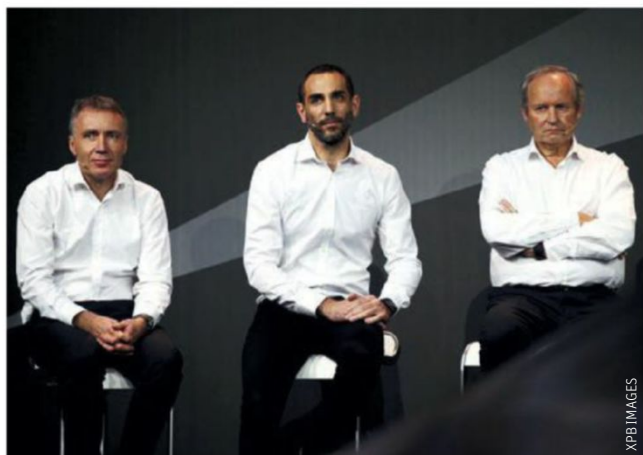
It's these tweaks that could prove decisive as Renault sets about trying to transform itself into a frontrunner that's capable of winning races and world championships in the near future, as well as putting to bed rumblings of discontent within the paddock about its management structure.

The Enstone base is changing too, with Renault embarking upon the biggest building project in nearly a decade. The facility is expanding in all directions to allow it to compete with the big teams. Mercedes and Red Bull have a staff of around 850 and 740 respectively. When Renault took over Lotus, its headcount was just 475. The French manufacturer is up to around 575, with a target of 650.

"When Renault took over, the factory was a pretty quiet place, but now it's full of activity, both inside and out," says Jolyon Palmer. "There a huge buzz around the factory and now the infrastructure is getting up to speed with where it needs to be to challenge for championships, and that's great to see."

"You really notice how many more people there are — even if that means I struggle to get a parking space when I come to the factory."

On the driver front, there's a blend of continuity and fresh blood. In Palmer, Renault has a driver who is desperate to repay the team's faith in re-signing him (admittedly after Kevin Magnussen rejected an offer to remain at the squad for a future at Haas). Palmer feels the challenge of dealing with a difficult-to-drive car and speculation over his future in 2016 has made him a more-robust character. After he struggled to get comfortable with the RS16 for much of the opening part of his rookie season, Palmer felt he improved his technical understanding significantly, with the post-British GP



Above left: last win for 'Team Enstone', Oz 2013; above right: target for 2017 car is strong midfield finishes; left: Renault bigwigs Bob Bell, Cyril Abiteboul and Jerome Stoll are rather more upbeat than appearances may suggest

test considered by him to be a breakthrough.

In the other cockpit is Nico Hulkenberg, a driver who, with 115 starts under his belt, has been tasked with offering a clear sense of direction in terms of where the team needs to take the car from a driver's perspective. After a tough first year back, Renault feels it's now at a point where it needs an experienced driver — one of Hulkenberg's character — to help it get the most out of the step it hopes to take this year.

Renault is remaining cautious and refusing to set bold and unrealistic targets for this year. It is aiming for a minimum of fifth in the constructors' championship — an improvement of four places. It understands that to achieve that target, it will need both cars to score points regularly.

"We will have better funding than all others apart from the three top teams," says Abiteboul. "McLaren is a bit of

an unknown — their commercial set-up is not clear to me. We will have the capacity to be in the race against Williams, against Force India, against Toro Rosso — so the target is to be on a par with those teams and overtake them over the course of the season. I expect our development rate will be stronger than these teams.

"When it comes to the bigger teams, the strategy of the five-year plan we put together is to kick off a virtuous circle that will give us access to extra funding, and allow us to target those teams in the near future."

The regulation change comes at a good time for Renault, as it offers a chance to make a big step forward. "The opportunities for us as a team are that the regulation changes mean going back to basics," says Bell. "Hence there are increased opportunities for us to take a step forward relative to our opposition, assuming, of course, we do a good job."

Whether Renault has done that or not remains to be seen. There's every chance that this campaign could be as challenging as the last. But last year was all about treading water while the wider operation was rebuilt. Renault also appreciates that, as was the case with the Mercedes works squad, and Red Bull, it takes time to build a team into a championship-winning force.

So far, Renault appears to be getting the basics right and can enter this season on a solid foundation, without a host of constraints foisted upon it. It has designed a bespoke car for the new regulations, and built that car around its own engine, with all the packaging advantages that go with being a proper works team. Results are bound to improve. With that, confidence will build.

So it's understandable that Abiteboul believes Renault has no excuse for not being solidly in the F1 midfield in 2017. It's only at the end of this season that we'll know if its foundation is strong enough to propel it to the top of F1 once more. ✱



SAUBER C36

The Swiss team celebrates its 25th year in Formula 1 with a car that explores some historical themes in its design

By Gary Anderson, Technical Expert

🐦 @autosport

FRONT WING AND NOSE

The close-up view of the front wing demonstrates the effort the teams are having to go to in order to turn the airflow around the outside of the wider front tyres.

If this airflow hits the front tyre and disperses around the sides and over the top of it, it will create lift on the top surface of the tyre and lots of turbulence on the inside of the wheel, which will adversely affect the performance of the underfloor.

The front wing itself is the now-common multi-element design. This is to keep the airflow-separation problems under control, in effect ensuring the consistency of downforce.

The nose follows very similar lines to the Williams, retaining the 'thumb-tip' design Sauber has used for the past two years. This is because the position of the cross-sectional areas for the impact tests are well defined in the regulations. This leads to the low nose, because it's the obvious solution.

SUSPENSION

The front suspension is the conventional pushrod set-up. The launch pictures don't show the rear, but I assume it will be the normal pullrod. The suspension emphasis will be on what we don't see and how all the teams will adapt to the reinterpretation of how the aerodynamic platform control system will work – assuming that the FIA goes ahead with this.

Looks can be deceiving, but overall the new Sauber appears to be a major step forward from what the team had during a difficult 2016. To me it looks like a good base from which to start.

Sauber revealed its car online on Monday. Over the past couple of years this team has struggled for budget, which has slowed development.

It was only the wet race at Interlagos late last year that brought Sauber its vital first points finish of the season, which allowed it to move ahead of Manor into 10th in the constructors' championship. That also brought with it a decently sized cheque, which is important to the team's future.



- 1 Front wing
- 2 Nose
- 3 Suspension
- 4 Air intake and engine cover
- 5 Sidepods
- 6 Rear wing

AIR INTAKE AND ENGINE COVER

The air intake is split, with a central main rollbar structure, something we have seen a few teams (including Mercedes) experiment with in recent years. This allows the cross section of the outer sides to be thinner, which will help with the airflow to the rear wing - especially when the airbox can't cope with any more airflow and it starts to spill around the sides.

Sauber has gone back to the reduced cross-section engine cover with a central fin. This was common a few years ago, but in the interests of aesthetics the FIA came up with a dimensional regulation to eliminate it. For 2017, this seems to have been missed.

The fin helps with the airflow coming off the engine cover when the car is in yaw. This improves the performance of the rear wing mid-corner, which is just where you need the most consistent rear downforce. But I'm not so sure it is as effective on a windy day!

Underneath that engine cover is a 2016 Ferrari engine - albeit the end-of-season Abu Dhabi GP spec that Sauber didn't run last year.

SIDEPODS

The sidepods are very sculptured at both the leading edge and the Coke-bottle area to the inside of the rear tyres. But it looks like it's not using the maximum width possible.

This would be to allow the Coke bottle to help pull the airflow around the sidepod, and in effect scavenge the airflow from under the front of the chassis. The airflow is so joined up along the length of the car that the Coke bottle also has a significant influence on the performance of the front wing.

The regulations for 2017 allow for more prominent barge boards. This, with the sidepod undercut, works on the airflow coming underneath the front of the chassis.

REAR WING

The rear-wing endplates have an angled trailing edge. Most teams have louvres in the lower area of the endplate to encourage the low-pressure area behind the rear tyre to 'talk' to the trailing edge of the diffuser.


If these two work together it will help scavenge the airflow from underneath the car, creating more downforce from the underfloor and diffuser. Sauber has opened this area up significantly - it will be interesting to see who else goes down this route.



Buemi completes hat-trick with his best win

Three wins from three rounds, and the championship leader appears stronger than ever. But his rivals look set to make his life much harder

By Scott Mitchell, Formula E Correspondent

 @ScottAutosport





The last place Formula E needed to come to end a three-month leave of absence was Buenos Aires. It had to return with a bang after such an extended gap between rounds two and three of the 2016-17 season. So heading to a venue where Sebastien Buemi has been quickest on the previous two visits, when he had ended '16 in such a rich vein of form, did not seem conducive to that.

So it proved, on paper at least. Another race, another victory — the first hat-trick in Formula E history — and Buemi's championship lead increased to 29 points. Those who fear a procession, or Formula E losing the element of unpredictability that helped give it such a positive first two seasons, could be forgiven for fearing the worst.

But that glosses over two key points from Buenos Aires. The first is that this was not just another Buemi win — it was arguably his best yet. And linked to that is the second point, which is

that this event indicated Buemi's life is only going to get harder.

Buemi has won in impressive fashion on several occasions in Formula E, though his success has often been all about metronomic execution. This was not exactly a swashbuckling display, but there were flashes of real brilliance. His passes on Lucas di Grassi and Jean-Eric Vergne were ruthless to rise from third to first. Buemi reacted immediately to Vergne passing di Grassi for the lead, following him through into second two corners later. His dive inside Vergne to move to the head of the field, from some way back, was met with no resistance but was consummate nonetheless.

Buemi tends to avoid boasting, preferring to let his work on the track do the talking. While he did describe it as "a very satisfying" win, he stopped short of calling it his best. But it was, and that is mainly because it came after his biggest challenge so far.

"Passing those guys was clean — I don't feel like I need much credit for that," he reckoned of his moves on di Grassi and Vergne. And while it is true that both drivers claimed that they

Di Grassi took his first Formula E pole, but couldn't maintain that pace in the race

offered little resistance because they were unhappy with their first cars, that Buemi had to overtake them is more significant than the manner in which he did it.

Buemi was outqualified on merit by di Grassi — who earned his first Formula E pole in the process — and Vergne, who has threatened great pace with his customer Renault powertrain since the start of the season. He didn't look massively confident in qualifying, after a disrupted couple of practice sessions left him with only one real 200kW effort and no real long runs. Buemi didn't go in blind, but he was compromised.

Come the race, he went wheel to wheel with his rival of the past two seasons and a man with the same powertrain as Buemi's factory Renault e.dams entry. That's the first time this season he's really had to do that — and, given that Buemi's always kept team-mate Nicolas Prost at arm's length, it's the first time in Formula E's open-powertrain era that he's had an 'equal' on track.

Buemi won those battles. Then, as only Buemi really can, he bolted. The hard work for this win was done in the middle of the opening stint, with a succession



CAMBIER/MICHELIN

of laps in the 1m11s as his rivals barely made it out of the 1m12s. That marriage of blistering speed when needed, without eating into the amount of useable energy, is now a Buemi/Renault hallmark.

It gave him a five-second cushion heading into the car swaps, and the job looked done. But a braking problem with his second car and a resurgent Vergne once he'd swapped one Techeetah for another ensured this was the hardest test Buemi has faced in Formula E – and he passed it with flying colours.

“The second stint was much more difficult because the temperature of the brakes went completely crazy so I couldn't keep the car straight,” he explained. “It got worse and worse and was pulling massively to the left. I had to take more margin, and when you take more margin you go slower.”

As Vergne slashed the gap from five seconds to two, Buemi made his only error of the race, a wobble under braking for Turn 1 on the penultimate lap. The Swiss driver composed himself and a superb final lap eventually put him 2.8s clear at the flag.

Despite a stronger second stint, »

JAGUAR SURPRISES ITSELF WITH POINTS NEAR-MISS

JAGUAR WAS THE ONLY TEAM TO FAIL TO GET at least one driver within a second of the pole time in the opening two races of the season. Mitch Evans's near-miss with the superpole in Buenos Aires therefore came as quite the shock.

A combination of errors from several more-fancied drivers and a barnstorming lap from the Kiwi meant a Jaguar started higher than 17th for the first time this season – 10 places higher, in fact.

Evans credited that improved performance to an instant feeling of comfort in first practice – “it was the best I've felt in a Formula E car” – and Jaguar nailing the set-up better here than in either Hong Kong or Marrakech. A slight misstep on tyre pressures hurt in FP2, but Evans was back on in qualifying: “I felt great as soon as I left the pits; you need that confidence in this car, especially one lap at 200kW and on the brakes, or you'll either be in the wall or just slow.”

After getting a bit bruised up on the opening lap and falling to ninth, Evans pulled off an exciting move on Jerome d'Ambrosio under braking for the Turn 1 hairpin, then ran comfortably in the points for the majority of the race.

A five-second penalty for speeding under a first-lap full-course yellow – ironically triggered by Evans's team-mate Adam Carroll, who had failed to launch off the grid – meant Evans was always up against it in the second stint. When he then struggled to hit his energy

targets, having run a lap shorter than most in the first half of the race, Jaguar's hopes of breaking its points duck disappeared. Evans “gradually got eaten up” and fell to 11th on the road and a classified 13th.

“I was hanging with the guys in front pretty comfortably and was pretty happy, and had a great pitstop,” said Evans. “The whole second stint was really tough – I couldn't match the energy targets as I could in the first stint. We know we've got a way to go on ultimate pace, but we're making great steps forward and today was quite evident of that.”

“It was the first race actually that we had a clean one – the first two rounds were an absolute mess for different reasons.”

Jaguar team director James Barclay admitted he thought points were on the cards until the second stint, though he conceded that the team's inexperience let it down, with both drivers being penalised under the early full-course yellow.

“We were really hoping, we thought we had a great chance,” he said. “It's a lesson for what strategy does and doesn't work, how far we can push. Having now been in that position, taking that to Mexico is invaluable.”

Barclay also conceded that there was an element of surprise for the team with the step forward from Marrakech.

“This is our hardest challenge to date,” he said of racing in Buenos Aires. “This was the first track everyone's been to. So if anything doing it here – making that step here – was really impressive to see.”

Evans's pace put down to 'best-ever feeling' in a Formula E car



Vergne was never convinced he'd actually catch Buemi by the end.

"It obviously gave me too much to do because I couldn't achieve it," was his verdict on a frustrating lack of pace in the first car that cost him almost half a second per lap to Buemi before the pitstops. More importantly to Vergne was what the second stint represented.

"At least I could put some pressure on him," he accepted. "I'm sure he's going to go to sleep happy, but he knows he's got an opponent who is really hungry for victories and has the whole package now."

"In the second car the pace was much faster than him — that's our real pace and that's what everybody can expect for the next race."

There were several operational changes at Techeetah for the Buenos Aires race, including ex-Formula 1 man David Stubbs being drafted in as team manager and Vergne's and Ma Qing Hua's engineers swapping over. So the team's Achilles' heel from the first two events — which included several errors — has now been addressed.

Vergne can take the fight to Buemi. But is he the only hope? Di Grassi's first pole and run to third — plus Daniel Abt's rise from 16th to seventh — was a good reminder of the Abt Audi Sport team's potency after two races that suggested it had fallen back this season.

Di Grassi shipped around 0.7s per lap to Buemi in the opening stint, but was 0.2s per lap faster in the second, with a pace matched only by Vergne. Unlocking that sort of performance on a regular basis will give di Grassi what he needs to keep himself in the title fight. Keep losing time like he did in the first stint, which dropped him to fifth at one stage, and di Grassi's races will only be a story of what might have been.

NextEV drivers Nelson Piquet Jr and Oliver Turvey mixed it with the podium battle in Buenos Aires, further consolidating the team's transformation from backmarker last season to frontrunner now. Turvey passed di Grassi in the opening stint to run third, but pitted a lap earlier than the rest of the leading group and fell back to ninth as he struggled



to manage the battery temperature.

Piquet was part of the same fight early on, battling with di Grassi and Prost, but was furious when the Abt Audi Sport team released di Grassi into his path in the pitlane. Piquet had to brake and finished fifth as di Grassi went on to beat Prost to third, and hit out afterwards at the stewards' decision to hand di Grassi only a reprimand and a fine.

"The FIA are never consistent with their actions," said the inaugural champ. "They say every case is its own. That's not the case — whatever the situation, an unsafe release is an unsafe release."

Still, Piquet accepted it was "a good race" for the team, having all but matched Vergne for pace in the opening stint and then doing the same with Prost and Buemi in the second. Turvey's thermal-management issues aside, the dual flirtation with the rostrum places marked another step forward as NextEV looks to balance its strong one-lap pace with a more-rounded package in the race.

DS Virgin Racing had a terrible time

**Piquet continued
NextEV's resurgence,
but hit out after podium
bid was thwarted**

in Argentina, much to the pain of home favourite Jose Maria Lopez, after errors from both drivers in qualifying. Sam Bird put together a self-confessed scruffy lap, while Lopez hit the wall. Two lots of contact contributed to Bird crashing out late on, while Lopez did well to rise from 20th to score a point. On the evidence of practice, in which Bird was quickest, this was a very poor return.

Buenos Aires provided further evidence that there are several drivers queuing up to try to stop Buemi, but Vergne is cast as the leading challenger.

"It's like an orchestra: you need the right people in the right place at the right time," said Vergne. "Now we miss nothing — everything is there."

If so, Buemi will rightly point out that it still wasn't enough to beat him in Buenos Aires. And had Vergne not conceded 0.8s to Buemi over the in/outlaps — or even replicated di Grassi, who was two seconds quicker than Buemi there — the story in the closing stages could have been quite different. So the Techeetah well can still be tapped.

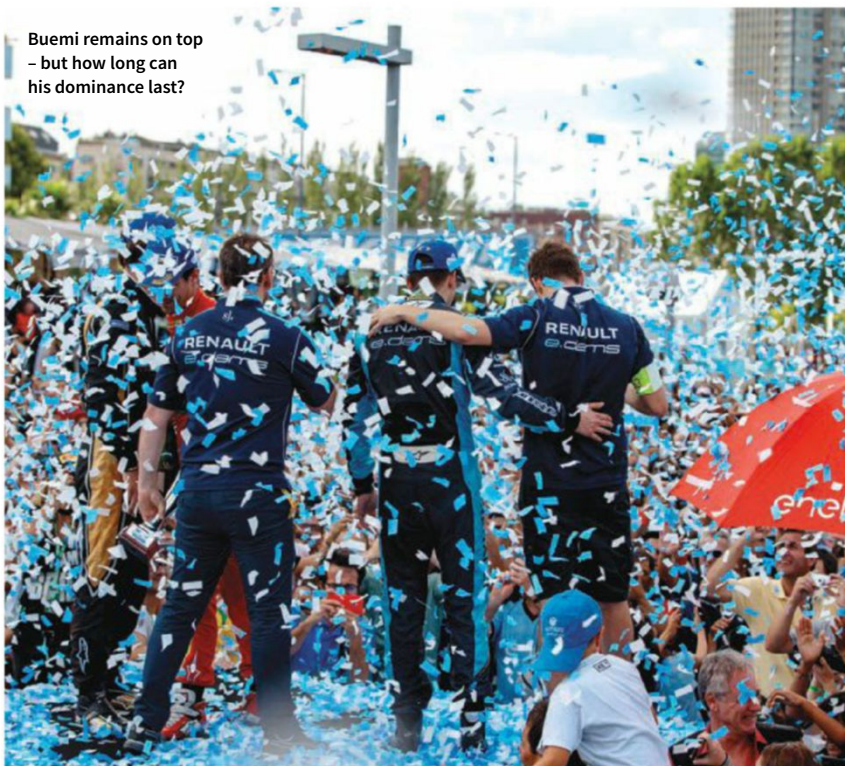
But there is truth in the fact that life will get no easier for Buemi from here. His reinvigorated rivals will hope to take advantage of his overnight flight from Toyota's LMP1 launch in Italy that will make him an eleventh-hour arrival in Mexico, and that means Buemi's reward for conquering his biggest challenge this season is to face arguably an even tougher one next time out.

That's the good news for the non-Buemis. The bad is that Buemi's been invincible for a reason. His latest success and next challenge will only combine to fire him up to prove his magic shows this season do not peak with a hat-trick. ❁



Buemi is forced to fend off threat from Vergne

Buemi remains on top
– but how long can
his dominance last?



MAUGER/LAT

RESULTS ROUND 3/10, BUENOS AIRES (RA), FEBRUARY 18 (37 LAPS – 57.017 MILES)

POS	DRIVER	TEAM/CAR	TIME
1	Sebastien Buemi (CH)	Renault.e.dams • Renault Z.E.16	45m45.623s
2	Jean-Eric Vergne (F)	Techeetah • Renault Z.E.16	+2.996s
3	Lucas di Grassi (BR)	AbtAudi Sport • Abt Schaeffler FE02	+6.921s
4	Nicolas Prost (F)	Renault.e.dams • Renault Z.E.16	+8.065s
5	Nelson Piquet Jr (BR)	NextEV • NextEV TCR002	+9.770s
6	Loic Duval (F)	Faraday Future Dragon Racing • Penske 701-EV	+35.103s
7	Daniel Abt (D)	AbtAudi Sport • Abt Schaeffler FE02	+35.801s
8	Jerome d'Ambrosio (B)	Faraday Future Dragon Racing • Penske 701-EV	+36.335s
9	Oliver Turvey (GB)	NextEV • NextEV TCR002	+37.111s
10	Jose Maria Lopez (RA)	DS Virgin Racing • Virgin DSV-02	+38.206s
11	Antonio Felix da Costa (P)	Andretti • Andretti ATEC-02	+43.740s
12	Stephane Sarrazin (F)	Venturi • Venturi VM200-FE-02	+44.243s
13	Mitch Evans (NZ)	Jaguar Racing • Jaguar I-type 1	+44.918s
14	Robin Frijns (NL)	Andretti • Andretti ATEC-02	+49.683s
15	Nick Heidfeld (D)	Mahindra • Mahindra M3ELECTRO	+51.456s
16	Ma Qing Hua (PRC)	Techeetah • Renault Z.E.16	-1 lap
17	Adam Carroll (GB)	Jaguar Racing • Jaguar I-type 1	-1 lap
18	Felix Rosenqvist (S)	Mahindra • Mahindra M3ELECTRO	-3 laps
NC	Maro Engel (D)	Venturi • Venturi VM200-FE-02	-11 laps
R	Sam Bird (GB)	DS Virgin Racing • Virgin DSV-02	20 laps-accident

Winner's average speed 74.759mph. **Fastest lap** Rosenqvist 1m09.467s, 79.859mph.

Super pole 1 di Grassi 1m09.404s; 2 Vergne 1m09.598s; 3 Buemi 1m09.825s; 4 Turvey 1m10.075s; 5 Piquet 1m11.274s.

Qualifying 1 Vergne 1m08.751s; 2 Buemi 1m09.018s; 3 di Grassi 1m09.084s; 4 Turvey 1m09.314s; 5 Piquet 1m09.383s; 6 Prost 1m09.442s; 7 Evans 1m09.505s; 8 Rosenqvist 1m09.681s; 9 d'Ambrosio 1m09.697s; 10 Bird 1m09.839s; 11 Sarrazin 1m10.100s; 12 Heidfeld 1m10.152s; 13 Frijns 1m10.172s; 14 Duval 1m10.257s; 15 Carroll 1m10.946s; 16 Abt 1m13.284s; 17 da Costa 1m13.326s; 18 Ma 1m22.405s; 19 Engel 1m44.239s; 20 Lopez 1m16.760s.

Championship 1 Buemi 75; 2 di Grassi 46; 3 Prost 36; 4 Vergne 22; 5 Rosenqvist 20; 6 Bird 18; 7 Heidfeld 17; 8 Abt 14; 9 Piquet 13; 10 Turvey 12.

IN THE HEADLINES



STALEY/LAT

RAPID ROSENQVIST UNREWARDED

Felix Rosenqvist (above, left) felt he was on course for a top-five finish before his second car failed to launch during his pitstop. The Swede admitted he struggled to pull a lap together in qualifying and lined up eighth, but would likely have finished at least sixth before mechanical misfortune intervened. He resumed after losing a minute, but did secure fastest lap.

ENGEL'S POINTS BID SHUT DOWN

Multiple car shutdowns curtailed Maro Engel's attempt to take his second points finish from three races. The Venturi driver ran behind eventual seventh-place finisher Daniel Abt in the early stages, but "had a shutdown and then another couple of shutdowns within a lap", which dropped him a lap down.

ANDRETTI IN THE WARS

A difficult qualifying and race for the Andretti team left its drivers puzzled over why its practice pace disappeared. Antonio Felix da Costa crashed in practice and again in qualifying, before making steady progress to finish 11th from 17th. Team-mate Robin Frijns was fifth in second practice but never came close to replicating that speed again, and finished 14th after starting one place higher.

TEAM-MATE CLASH CAUSES TENSION

Jerome d'Ambrosio's and Loic Duval's late fight for sixth caused considerable post-race tension within the Faraday Future Dragon Racing team. The pair duelled in the closing stages when Duval tried a move, causing light contact. D'Ambrosio fell behind Daniel Abt, while Duval recorded his best result since last season's final round in London.

OPPORTUNISTIC ABT FIGHTS BACK

Abt (below) shadowed Duval's rise up the order, after a qualifying crash left him 16th on the grid. He was a consistent mover through the field and made the most of the FFDR squabble ahead of him to steal seventh.



SELOX/HAW/LAT

HOW TOYOTA WENT FROM SHAMBLES T



McKLEIN/DE

TO SUCCESS

IN NINE WEEKS

No-one rated the Japanese giant's chances – then it won in Sweden

By David Evans, Rallies Editor

[@daviddevansrally](#)

Regardless of your politics, Britain's exit from the European Union took most people by surprise. Again, left or right, Barack Obama's successor in the White House came as something of a shock. And in the Swedish service park earlier this month, Toyota's victory on only its second event in its World Rally Championship comeback left many similarly dumbfounded.

What's more, the Toyota won on pace. And in some style, thanks to Jari-Matti Latvala. Granted, second on the season opener in Monte Carlo was good, but the #10 machine was gifted a step up the podium after a late engine problem for Ott Tänak's Ford. The Toyota was still more than two minutes off the ultimate pace of winner Sebastien Ogier, and that was after Ogier's M-Sport Ford Fiesta WRC had spent the thick end of a minute in a ditch earlier in the rally. Harbourside in Monaco last month, there was a grudging admission that feet would return firmly to the ground in time for the second round in the snow.

Expectations weren't just low when a factory Toyota took to the stages for the first time since 1999, they were non-existent. From the very beginning, the programme had looked doomed – certainly it did when Tommi Makinen Racing's comparatively humble base in Puuppola was selected as the team's headquarters and base for car preparation.

What was Japan thinking? How could it turn its back on Toyota Motorsport GmbH? TMG's Cologne base remains a Formula 1-spec facility and one that would certainly trump anything else in the World Rally Championship (at least before M-Sport's new test track and evaluation centre is finished). But no. Toyota's all-new Yaris WRC would be built alongside Makinen's Group N Subaru Imprezas in the middle of Finland.

Despite building, developing and testing its own Yaris WRC, Cologne's only involvement this year would be in engine preparation. Japanese sources have suggested that high-ranking officials are still smarting long after Toyota's troubled and eye-wateringly expensive F1 effort shut up shop. So when it came to running another international programme, Cologne was cast aside in favour of Tommi's place.

The internal battle between TMG, Toyota, company >>





Latvala has morphed into team leader at Toyota; intensive last-minute tests crucial to Yaris's performance

president Akio Toyoda and Mäkinen was a protracted one, but Toyota made his mind up and sided with Mäkinen. The pair had become close – Mäkinen built him a bespoke, four-wheel-drive GT86 to drive in Finland. During his visit to Jyväskylä in Finland in 2014, Toyoda stayed quiet about the firm's plans and refused to discuss how TMG and Mäkinen could work together. There was still no news at the end of the year and Toyota Motor Corporation offered no comment on TMG's decision to ramp up the test programme for its own Yaris early in '15.

A month into 2015 and, finally, word came from Tokyo. Yes, Toyota would be back, and back in cars built in Cologne. But even at that stage few genuinely believed it. And those doubts were confirmed when, in the middle of '15, Toyoda announced that Mäkinen would be team principal. And Cologne? No mention at all. Confusion reigned as the German Yaris continued to run.

A month in and with his feet under the table, Mäkinen made his first announcement of significance: the Yaris WRC would be built in Puuppola. At a stroke, TMG's car was forced into obscurity.

While Mäkinen entertained talk of moving to bigger premises near a military base in Halli, or even heading south to Helsinki, Cologne no longer featured with any significance on his radar. That was quite clear when, in the autumn of 2015, it was thought that the Cologne car could be a possible test mule for Mäkinen. No. Finland would be building its own Yaris.

But when? Not until the spring of 2016 – just nine months before the opening round of the car's maiden season in the World Rally Championship.

Noses were firmly attached to the grindstone.

The only news of any significance coming out of Puuppola in the winter of 2015 was that the team's number-one driver target, Kris Meeke, would not be joining. He'd decided to stick with fellow WRC returnee Citroën instead. The folk who were coming, however, were technicians from around the world – including a good few from M-Sport's Cockermouth base – on the promise of a new adventure. Oh, and a considerably fatter pay-package at the end of the month.

After working day and night, they wheeled out a fully functioning Yaris WRC in the middle of April last year. With Mäkinen at the wheel, the car clocked up 600 miles in its first five-day test.

By that time, no-one was more acutely aware than he was of the timeframe he faced to make the 2017 start ramp in Casino Square, so Mäkinen took what was a bold and ultimately decisive move. He kept a test Yaris in Finland and ran the car virtually every day, stopping only to redesign or reprep it. He also built another two cars that were shipped to semi-permanent test sites in Spain and Portugal. The southern European test cars never came back to Finland; instead, they were driven as long and as hard as possible, and fixed and fettled in situ.

"This was the secret for us," says Mäkinen. "We kept the cars down there and we kept bringing the people and the parts in and out. If something broke or something needed modifying, we flew it out with DHL and just kept the car running. If we had to bring the car back to the factory, we would have lost so much time that it wouldn't make sense."

The summer of 2016 is not one Mäkinen or any of his team is likely to look back upon with any real fondness. Depending on who you talk to, that could be because of the difficult



and sometimes acrimonious atmosphere in the team, or it could be because there was barely time to blink.

Certainly, the Mäkinen style of management didn't seem to suit everybody. Michael Zotos, a senior member of the technical department, walked in early July, and stories would follow regularly and often about others reckoned to be heading for the exit.

A 15-year-old Kalle Rovanperä came in the other direction, walking through the front door and straight into the test Yaris WRC, which he drove for a handful of kilometres. This move was met with incredulity elsewhere in the sport. At a pivotal moment, with homologation decisions already being made, a teenager with zero World Rally Car experience was allowed in the car for what was effectively a jolly.

A livery launch and a Microsoft sponsorship deal came in September, followed by news that long-time tester Juho Hanninen would lead the team. But who else? In the autumn of last year, the shelves were pretty much bare in terms of drivers. Thierry Neuville and Elfyn Evans were talked about, but it all came to nothing.

With the telephone having gone quiet and the nights drawing in, the squad now known as Toyota Gazoo Racing got its head down and focused on Monte Carlo in January. Then Volkswagen dropped its bombshell on November 2 and the phone started ringing again. It was Sébastien Ogier. It was Andreas Mikkelsen. And it was Latvala. Who did

Toyota want? All three were up for grabs following VW's shock WRC walkout.

Ogier was the only driver allowed to test the Yaris without having signed for the team. Which is how, in late November, a car was prepared with reflective windows offering no chance to see who was inside. Inevitably, word got out: it was Ogier. But it couldn't be, could it? The car looked nervous, full of understeer and, well, horrible to drive. Granted it was on wet asphalt, but still.

A fortnight later, Ogier admitted it was him. "It was better on the gravel..." was about all he offered.

Despite a reported tableful of yen, the Frenchman said 'non' and Toyota Gazoo Racing sank to its lowest ebb. The car looked shocking, and not even bundles

of cash could persuade the reigning world champion to come to the world's biggest carmaker. Instead he went the way of the Cumbrian privateers.

So, Mikkelsen or Latvala? Earlier in the year, when speculation was rife that J-M L was about to get the flick from VW, Mäkinen was cold on his fellow Finn. He wasn't Tommi's kind of driver. The four-time world champion has *sisu* coursing through his veins and is carved from the same ancient igneous granite on which his beloved country sits. Not for him a man with the frailties and self-doubt Latvala showed so openly towards the end of last year.

The common denominator between Mäkinen and Latvala »

“The car looked nervous, full of understeer and, well, horrible to drive”



remains legendary Finnish manager Timo Jouhki. It's reckoned that Jouhki had a word with his former charge and the Latvala deal was done.

Cue more disbelief. Mikkelsen, the man who had just won the final round of the 2016 WRC, beating Ogier in a straight fight to top the Rally Australia podium, had been overlooked for a colleague who had just endured his worst season as a professional driver.

Well aware that his Toyota deal represented a step into the last-chance saloon, Latvala appeared to have come out of his shell to lead the team. With just a fortnight before the car's final homologation date, he worked solidly with the team (including fellow former M-Sport employee Tom Fowler) and found some settings he was happier with.

It's impossible to underplay the importance of those 14 days. Had he arrived any later, there wouldn't have been time for him to test the car and ultimately effect the changes required. And those changes came from a driver who had spent the previous four years in the best rally car in the world.

Those changes could not have come from Mäkinen or Hanninen test sessions. Latvala had found his voice and, what's more, he'd discovered the confidence to use it.

His self-esteem had been completely shot by his time alongside Ogier – and latterly Mikkelsen – at Volkswagen. He had joined the Hannover team with high hopes of taking a world title or two, but he left defeated, his confidence on the floor. Looking from the outside, few gave him a hope at Toyota. He would, some said, be lucky to last the season.

But his move to Toyota looks to have been the making of Latvala. He now answers to a pragmatic team principal with a driver's view of management. Mäkinen hasn't exactly put an arm around Latvala; he's just given him the benefit of his experience. It's been solid, no-nonsense advice. Mäkinen doesn't really do histrionics or hairdryers.

What has also helped is that Latvala has felt immediately comfortable in the Yaris on the stages. By his own admission he's a driver who works the brakes harder than most. When



Toyota must build on shock Sweden win

ALL PICS: MCKLEIN/DE

he's on them, he's on them and he wants an immediate and very definite response. He's had that from the Yaris and immediately that's filled him with confidence.

His second place on the Monte, an event he really doesn't like, was another shot in the arm. But the icing on the cake was Sunday morning in Sweden. On a solid and, crucially, smooth surface with exceptional grip, Latvala and the Toyota blew everyone into the weeds. He won all three stages on the final day, and nobody looked like coming close in what was one of the most self-assured drives of his life.

Sweden does, however, present pretty much the ideal conditions for a modern World Rally Car – especially when the ice base is as good as it was around Torsby. The levels of mechanical grip are vast and can often mask any chassis shortcomings. What's more, the cold conditions play into the hands of turbocharged engines.

Midway through last season, questions were being asked



Latvala lost his mojo at VW (left), but now seems to have it back in spades



Neuville threw away victory in Sweden

Hyundai set to fly after a shaky start

TWO YEARS AGO THIS week Thierry Neuville was on top of the world. Driving quite brilliantly, he had carried a Hyundai i20 WRC to second place in Sweden and come close to winning against Volkswagen machinery that far outclassed his own.

Then his world fell apart. Hyundai's new car was delayed and Neuville was lost. He couldn't buy a result. The only thing he was coming close to was his P45. The Frankfurt squad was divided, with team manager Alain Penasse leading the criticism of Neuville in a vocal and ardent fashion.

By the end of 2015,

for the rest of the year. The Belgian was back.

Slow to conclude his 2017 deal with Hyundai, Neuville was left behind when it came to seat time ahead of this year, and plenty thought it would hinder his early-season progress. In reality, not so much. Of the 32 stages run so far, he has won 12 and led 23. But instead of being back on top of the world, he is eighth in the standings after crashing out of the lead on the first two rounds and successfully stealing defeat from the jaws of victory.

His retirement from a Rally Sweden superspecial was sloppy and

Fifty-one seconds in the lead or not, Neuville wanted to put a marker down. The 13th stage gave him that chance. Instead he ran wide – only by a couple of inches, but that was enough for the right-rear wheel to cannon off a bridge parapet, ripping the Coupe WRC's suspension from its mountings.

Neuville's speed and potential to be world champion are beyond question. But the jury is still out on his temperament and mindset. He's bounced back before and now needs to do the same again. But this time lessons must be learned.

Talking of lessons, Neuville has taught us plenty about the Hyundai's pace. From the side of the road, the i20 looks to be the class of the field, with a stunning engine mated to an excellent chassis. But Hyundai is not out front in the constructors' race because a) Dani Sordo hates the sort of changeable conditions that go hand in hand with rounds one and two, and b) Hayden Paddon suffered every driver's nightmare in Monte Carlo and was still recovering in round two.

Once that pair are into their stride alongside Neuville – particularly on asphalt – watch this team fly.

“Neuville's speed is beyond question. But the jury's still out on his temperament”

about the Yaris's ability to stay cool, with under-bonnet temperatures often running higher than the team would have liked. A lack of low-down grunt has forced Toyota to run an aggressive anti-lag strategy in an effort to combat the deficit out of slower-speed corners. Again, this will create more heat under the bonnet. Mexico will come as a stern test of the motor, while the rough and rocky roads will certainly allow the chassis and suspension nowhere to hide.

There were a couple of times when the Yaris sent Latvala skyward in Sweden. Crucially, he held his nerve, not to mention the car.

So, are we too early with this story of success for Japan? Not a chance: Mäkinen worked miracles to build a car and a team in next to no time. And Latvala's input and renewed verve behind the wheel has delivered a dream start.

Now come the hard yards – or maybe that should be harder yards. It's time to turn a new dawn into a title tilt. ❄️

it was hard to see a way back. Yet, somehow, Neuville found one.

With Hyundai's New Generation World Rally Car last year came a fresh start. Neuville seized his moment and began to rebuild his career. His win in Sardinia may have resulted from a fortuitous position on the road, but it didn't matter. And he didn't care.

Neuville didn't look back. After fourth in Poland and Finland, he wasn't off the podium

inexcusable. His failure to finish in Monte Carlo was more understandable – and apparently offered an insight into where his head is at. The second run from Bayons to Breziers was about the first all-dry stage of the season, so consistent conditions brought a chance to monitor who was where in terms of genuine pace. This was where the Citroens were supposed to come charging through and cast Neuville and Hyundai into the shade.

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Newey snatches title from Mawson

MRF CHALLENGE
CHENNAI (IND)
FEBRUARY 18-19
ROUND 4/4

TYRE PRESSURES... WHEN IT CAME to the crunch in the title-deciding MRF Challenge race in Chennai, that is what proved the undoing of Joey Mawson.

As the Australian hooked a wheel over the Turn 11 exit kerb, Harrison Newey went for half a gap. "They were old tyres and the pressures were wrong [too high]," explained a disconsolate Mawson. "I was struggling as the race went on and I ran wide."

"I had to go for it," said Newey. "Joey didn't think I was going to try so he only half defended, but it was my only chance."

As Newey, also on old tyres, swooped into the lead, Mick Schumacher bagged second with Mawson down in third. The story didn't end there, though. With a



clear track ahead of him, Newey was able to charge away and set the fastest lap to gain the extra two points necessary to put him equal with Mawson. With seven wins to Mawson's three, it was the Brit who took the title on the tiebreak.

Newey had boosted his win rate by securing honours in the first and third races, controlling both from pole position after an impressive qualifying session, with Mawson securing the reversed-grid race on Saturday afternoon after a troubled weekend. His lack of experience of this tricky circuit put him on the back foot, but he kept on pushing and went down fighting.

Schumacher ended up third in the championship, his title hopes

Triple race winner Newey battles it out with Ralf Aron

finally disappearing when he crashed out of the third race.

Estonians Ralf Aron and Juri Vips each claimed a second place, and Dan Ticktum took a podium on his MRF debut event.

DAVID ADDISON

RESULTS

Race 1 1 Harrison Newey 15 laps in 23m25.718s; 2 Mick Schumacher +4.243s; 3 Ralf Aron; 4 Juri Vips; 5 Joey Mawson; 6 Dan Ticktum. **Race 2** 1 Mawson 15 laps in 23m21.673s; 2 Aron +9.023s; 3 Ticktum; 4 Newey; 5 Vips; 6 Felipe Drugovich. **Race 3** 1 Newey 15 laps in 23m19.855s; 2 Vips +7.913s; 3 Aron; 4 Mawson; 5 Drugovich; 6 Dylan Young. **Race 4** 1 Newey 15 laps in 27m33.142s; 2 Schumacher +3.684s; 3 Mawson; 4 Vips; 5 Drugovich; 6 Ticktum. **Points** 1 Newey 277; 2 Mawson 277; 3 Schumacher 213; 4 Drugovich 169; 5 Aron 168; 6 Vips 135.

Logano on top as combat rocks the Clash

NASCAR CLASH
DAYTONA (USA)
FEBRUARY 19

JOEY LOGANO TOOK A DRAMATIC victory in NASCAR's pre-season Clash race after a last-lap collision between Denny Hamlin and Brad Keselowski as they fought for the win.

Joe Gibbs Racing's Toyotas dominated the 75-lap event, postponed by rain from Saturday night, until the Team Penske

Fords of Keselowski and Logano made a late-race push for the win.

Logano took first place on the final lap as he stayed well away from team-mate Keselowski, who made contact with last year's Clash winner Hamlin and spun him out.

Kyle Busch ended up taking second place for Gibbs, with Alex Bowman rounding out the top three in Dale Earnhardt Jr's regular Hendrick Motorsports Chevrolet after the final-lap

Hamlin (11) and Keselowski (2) tangle as Logano (22) steers clear for victory

scrap rearranged the whole pack, and Danica Patrick taking fourth.

Hamlin led comfortably from the pre-planned caution on lap 25, having restarted with a trio of team-mates in the forms of rookie Daniel Suarez, Matt Kenseth and Busch behind him. All four JGR Toyotas enjoyed clean air in single file for the majority of the race.

That comfort suddenly faded as Keselowski and Logano broke up the leading Toyotas with two laps left, splitting Hamlin from his team-mates. The ensuing collision meant Hamlin finished 14th.

Conditions were adverse as Saturday night's thunderstorms had washed away any grip on track and cars were set up for completely different conditions.

Seven-time Cup champion Jimmie Johnson crashed out with a third of the race to go, posting his sixth straight retirement from the Clash.

RESULTS

1 Joey Logano (Ford Fusion) 75 laps; 2 Kyle Busch (Toyota Camry); 3 Alex Bowman (Chevrolet SS); 4 Danica Patrick (Ford); 5 Kevin Harvick (Ford); 6 Brad Keselowski (Ford); 7 Chase Elliott (Chevy); 8 Daniel Suarez (Toyota); 9 Chris Buescher (Chevy); 10 Jamie McMurray (Chevy).



LEVITT/LAT

The Mexican who wants to rule America

NASCAR Cup rookie Daniel Suarez could be about to make a big impression on stock car racing's top tier

By Jim Utter, Motorsport.com NASCAR Editor

[@jim_utter](#)

NASCAR's biggest race, the Daytona 500, has had only one foreign-born winner in its history. Could Daniel Suarez become the first to follow in the wheeltracks of 1967 winner Mario Andretti this weekend? Or bigger yet, the first foreign-born champion of NASCAR's premier series? Both are possible this season.

Just over five years ago, Suarez could hardly speak a word of English. He left his home in Monterrey, Mexico, to chase a dream in NASCAR, not knowing if could he find acceptance as a foreigner, or as a racer on the track.

If he can master an unexpected ascension to the rebranded Monster Energy NASCAR Cup Series this year in the same fashion as he has the language, NASCAR may be set to go truly international.

The departure of Carl Edwards from NASCAR in the off season left Joe Gibbs Racing scrambling for a replacement in the Cup series. It immediately turned to Suarez.

Even though he didn't turn his first lap in the Cup car until a test at Phoenix International Raceway earlier this month, Suarez had already been turning heads. When he captured his first victory in the Xfinity Series last June at Michigan International Speedway, NASCAR's most popular driver, Dale Earnhardt Jr, was on hand watching from the broadcast booth.

"He made a statement today that he's the real deal," Earnhardt said of Suarez. "I think a lot of people knew that, but if they didn't, they found out today."

This weekend, Suarez will make his Cup series debut in the 'Great American Race'. The bar has been raised even further. Once again, he will face daunting odds in sometimes uncomfortable and unfamiliar surroundings. But that has never stopped him before.

An unlikely racer

Suarez, now 25, came from a family with no racing heritage. His interest in driving came when he was 10 and had the opportunity to step into a friend's kart.

The next year, Suarez was trying to race as much as he could. Even then, he admits he wasn't thinking about racing as a career. "I was just having fun," he says.

The more time Suarez spent racing, however, the better he got. By 2011, he was competing in NASCAR, first in the NASCAR Mexico Series and then in nine races in the United States during the season in the developmental K&N Pro Series East and West.

His best finish in the States was a fifth in a K&N East race in Columbus, Ohio. Among the others entered in the race that day were Darrell Wallace Jr, Alex Bowman, Matt DiBenedetto and Chase Elliott — now all familiar names in NASCAR competition.

In four seasons in the Mexico Series, Suarez won 10 times and finished a career-best second in the championship standings in 2013.

Eventually, Suarez uprooted himself to America, knowing if he was to have a chance at a career in NASCAR's big leagues, he would need to spend most of his time where they raced. "My first goal was to learn English, then move from there," he says. "I wasn't able to communicate with anyone. After that, I started to learn how to be a little faster in the race car."

"Even when I raced NASCAR for a few years down in Mexico, the style of driving is just very different. The race tracks are from a different world. But the real deal is here."

In 2013, Suarez was named to NASCAR's Drive for Diversity programme, an initiative designed to provide opportunities for minorities and women to grab a foothold in the sport.

The following year, Joe Gibbs Racing gave Suarez his first start in what was then the Nationwide Series, and he finished 19th at Richmond. In August of 2014, JGR announced that he would compete full-time in the series in '15 with occasional Truck Series races. "One of my dreams was to make it to the national series," he says. "I was a huge fan of Joe Gibbs Racing, I'm not joking. I was dreaming to be part of the organisation one day." »



Suarez finished second in 2013 Mexico Series





Dreams become reality

If Suarez had what it took to become a success in NASCAR, it would become apparent competing with Joe Gibbs Racing, one of NASCAR's top organisations. He failed to break into Victory Lane in 2015, but showed speed and consistency – two trademarks of NASCAR success stories.

Suarez took three poles and finished fifth in the Xfinity Series standings, but led just 83 of 5995 laps, having difficulty getting himself in position to win races. In 13 starts in Trucks, he finished second on three occasions, but again led just 44 of 2052 laps.

Suarez entered the 2016 season with high hopes of making his first visit to Victory Lane in a national series race. He got off to a strong start, finishing outside the top 10 in just two of his first 11 races.

But he led just eight laps during that span.

That all changed in the season's 13th race at Michigan. He led just four laps, but that included the final two, which also featured a pass of JGR team-mate Kyle Busch for the lead and his first chequered flag. It was a big moment for Suarez and bigger one for NASCAR, which now had its first winner of a national series race from Mexico.

"Daniel Suarez has competed in NASCAR for a relatively brief time, yet his impact on the sport has been immeasurable," NASCAR chairman Brian France said at the time. "Combining impressive talent and an incredible personality, Daniel has attracted fans throughout North America."

For Suarez, the victory provided validation of what had been

at times a difficult career path.

"To be honest with you, I think the win, it was meant to come any moment. Michigan wasn't in the list of my favourite race tracks; I felt like we were strong every single weekend.

"The only thing we needed was to put all the pieces together. A few weeks before the win I was putting a lot of pressure to myself to try to win the race, to try to get that victory, try to do it now. I felt like that was wrong. In the last week or so [before the win] I started to relax a little bit more."

As often happens in motorsport, once the first win came, others were not far behind: Suarez won again in October at Dover and added his first victory in the Truck series at Phoenix in November.

He advanced to the Championship 4 at the Xfinity Series season finale at Homestead with a chance to win the title and did so in dominating fashion. He started from pole and led a race-high 133 laps to win the race and the championship.

No one was more proud of his accomplishment than crew chief Scott Graves, who helped lead him there: "It's amazing to work with him because he's always wanting to learn."

Blazing a path

With great power comes great responsibility. Whatever personal accomplishments Suarez felt over his Xfinity Series wins and championship last season, he could never escape the bigger picture, nor did he wish to.

His victories helped add legitimacy to the efforts of a sport

"Suarez's impact in a relatively brief time has been immeasurable"



Clockwise from top left: Suarez fights it out with Ty Dillon in 2016 Xfinity finale; preparing for his Daytona 500 debut; he has also ran well in Truck Series races; celebrating 2016 Xfinity title at Homestead; already a favourite with fans

long dominated by white men to broaden its appeal. It's one thing to provide women and minorities the opportunity to race, it's quite another to see them succeed.

"If I was going to be in that position, if I was an upcoming driver from Mexico, in the Mexican series, or the national series in the United States, I would be very excited," says Suarez. "I would be very excited there is another Mexican driver, Latin American driver, in the national series doing something right.

"Hopefully, this can help to show more young drivers out there that they are doing good things and they are trying to follow a dream."

Suarez's team owner, Joe Gibbs, believes Suarez is a shining example not just for fellow young Mexican drivers, but for all up-and-coming racers who hope to one day break into the NASCAR ranks: "If you have that kind of work ethic and that kind of a person and that kind of character — he taught himself English — how do you do that, and how do you go to a country and not really have support there, don't speak the language? It tells you what kind of guts he's got.

"I say to young people out there, if you have a dream and you're totally committed to it, that's the path, and that's what I think Daniel is a perfect example of, somebody that can be a role model."

Politics of racing

If there was any downside to Suarez's rapid rise to NASCAR success in the 2016 season it was that it took place during a presidential-election year in the United States, an election that featured illegal immigration as one of the top issues.

Then-presidential candidate Donald Trump made a crackdown of illegal immigration a cornerstone of his campaign, including advocating for the construction of

a wall along the United States-Mexico border.

That issue alone would not necessarily affect Suarez, but, while advocating their cause, Trump and many of his supporters made what at times were considered racist remarks when speaking of Mexicans in general.

In the fall of 2015, NASCAR moved its annual Truck and Xfinity series banquet away from one of Trump's properties in South Florida in response to some of his remarks about immigrants. Yet last year, series boss France endorsed Trump's candidacy during a campaign stop in South Carolina, which led many to question the sincerity of NASCAR's previous decision to leave the Trump property.

Meanwhile, Suarez found himself caught in the crosshairs. The election campaign drew to a close around the same time as the 2016 NASCAR racing season, with Suarez repeatedly being questioned about his views of Trump, France's endorsement, and whether he remained comfortable competing in NASCAR.

"All I can say about that is that I'm super-proud to be Mexican, to be a Latin American driver in the United States," he said. "I'm very lucky to have a lot of support from the United States and from NASCAR in the past four years. Whatever is going on with the politics, that doesn't change anything."

Later in the year, after Suarez won his Xfinity Series championship and Trump the presidential election, he was asked again if he felt comfortable in the United States despite the current political climate.

"The very first time that I was going to move to the States, a lot of people told me it was going to be difficult because I was a Mexican driver, and nobody else made it happen in the past," he said. "Right now, honestly, I can tell that to be a Mexican driver, Latin American driver, is something positive.

"I don't believe that is going to change." ❄



KINRADE/LAT

What's new for 2017

As well as new-look cars and a fresh title sponsor in the form of Monster Energy, NASCAR has introduced a raft of rule changes

By Nick DeGroot, Special Contributor

[@ndegroot89](#)

NASCAR goes into 2017 with a fresh title sponsor and new-look cars, thanks to revised aero rules designed to reduce downforce, but the changes don't stop there. On the rules side, the alterations are abundant. Here is a guide to the major aspects of what's being implemented.

Race format and points system

The most-talked-about item has been the way races themselves will run. After working with competitors, NASCAR decided that races in all three national divisions – Cup, Xfinity and Truck series – will be split into three stages, with points awarded to the top 10 at the conclusion of the first and second stages.

Once stage two is completed, points for the overall result can be awarded in the event of, say, rain, forcing the cancellation of the final part. Stage winners will be awarded 10 points, with each position lower earning one point fewer.

The race winner will receive 40 points, second will score 35, and the scale will go down by one point with each position until 35th place. Positions 36th to 40th will all receive a single point. Bonus points will no longer be handed out for leading laps.

Damaged cars

NASCAR has put restrictions on damaged cars returning to the track. If a vehicle sustains damage and is taken to the garage, that driver will not be able to return to the competition. Teams are only allowed to make accident repairs on pit road and will have five minutes to do so (starting with the time the driver



Petty: “The changes help create excitement during the races”



crosses the yellow line at pit entry to the time they cross the yellow line at pit exit).

Teams will not be permitted to replace pieces of the damaged body with new panels. If a car or truck suffers a mechanical failure that is not related to an accident, they may return to the race after going behind the wall.

Playoff tweaks

NASCAR’s 10-race season closer, which has been known as the Chase since its inception in 2004, will now be called the Playoffs. The knockout-style format remains intact for the fourth consecutive season, but there are a couple more aspects of the updated points system that are worth noting.

After being requested by fans and several stakeholders in the sport, there will be an incentive for the regular season ‘champion,’ a title that has been good for nothing but bragging rights until now.

The points leader at the conclusion of race 26 will be granted 15 bonus points. Second through 10th in the championship standings will also earn bonus points heading into the Playoffs. Most importantly, the bonus points will carry through to the end of the Round of 8, which could prove critical bearing in mind how close things get at the climax of each Playoff round.

Inspection

A new procedure for pre-race inspections will have crew chiefs on their toes in 2017. In the past, if a team failed a stage in pre-race inspection, they could attempt to go back through the stage of inspection they failed after working on the issue.

Now, if a car fails any stage of inspection, it must go back through the entire pre-race inspection process. There were several situations during the 2016 season where cars were pulled

Pre-race inspection process has been revised and NASCAR will now have its own travelling safety team

to the side on race morning and taken through a stage of inspection multiple times before getting it right.

Travelling safety team

In a universally applauded move, NASCAR will finally have its own travelling safety team in 2017, after going into partnership with the American Medical Response (AMR).

During each event, a state-licensed doctor and paramedic will be on call in chase vehicles in order to provide immediate response in case of an accident. Additionally, local emergency-room physicians and personnel will continue to liaise with neighbouring medical facilities from each of the Infield Care Centres on the circuit.

Driver reaction

A number of current and former drivers took to social media to comment on the changes, which NASCAR has referred to as race enhancements. Although fan reaction was mixed, sometimes to the point of outrage, the responses from drivers and teams were mostly positive, including ‘The King’ himself.

Richard Petty said: “Since NASCAR started, there has always been change. The world changes and you have to change with it.

“This new format just adapts to the current and next generation of fans. It’s something to help create more excitement during the races. You have to put on a good race, a good show people want to watch at home and enjoy coming to the track. Having two additional winning moments is a good step in that direction to keep the drivers competitive and fans excited throughout the race and season.

“As an owner, I’m fine with it. I have the same rules as everyone else. That’s fair. We just have to figure out how to be the best under this format.”

The main contenders

By Lee Spencer, Motorsport.com NASCAR Senior Writer

[@CandiceSpencer](#)

Now that Jimmie Johnson has joined the elite seven-title club, will there be an eighth championship for the driver of the #48 Hendrick Motorsports Chevrolet?

Certainly, there's no reason to believe that Johnson won't be on a mission from Daytona Speedweeks all the way to the season finale at Homestead-Miami Speedway in November.

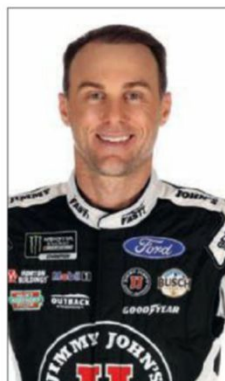
Johnson came out of the gate strong in 2016, winning two of the first five races. He saved the rest of his firepower for the Chase – and he won when it mattered, including at Homestead when the title was on the line.

There's not another driver in the NASCAR paddock who can match Johnson in championships or wins (totalling 80), but we take a look at the 10 drivers who will have the best chance of dethroning him in 2017. 🐾



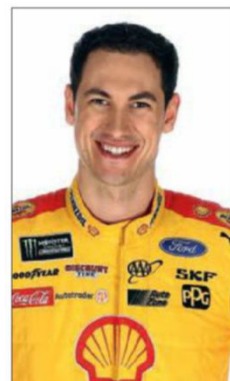
KEVIN HARVICK
Stewart-Haas Racing Ford

Next to Johnson, Harvick had the best overall statistics last season with four wins, 17 top fives and 27 top 10s. Harvick's average finish of 9.9 topped the Cup tour last year. With the change in manufacturer from Chevy to Ford, all eyes will be on Stewart-Haas Racing to see if the juggernaut has lost a step.



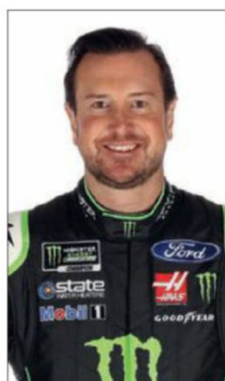
JOEY LOGANO
Team Penske Ford

For the past three years, Logano has been a threat to win the title, finishing in the top six in the standings. Since his first season at Penske, when he was acclimating to the team, the 26-year-old has won 14 races. The combination of Logano and crew chief Todd Gordon has paid dividends for the #22 Shell/Pennzoil Ford.



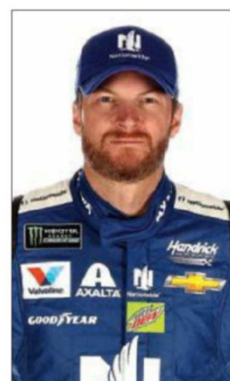
KURT BUSCH
Stewart-Haas Racing Ford

Busch might run under the radar, but the #41 team is a force at NASCAR's highest level. The 2004 champion has battled back from near obsolescence to become a perennial playoff contender, but he'll have to increase his top-five finishes and lead more laps to improve his chances of winning.



DALE EARNHARDT JR
Hendrick Motorsports Chevrolet

After missing half the 2016 season with concussion, Earnhardt, 42, is prepared to attack 2017 with a vengeance. But time is of the essence for Earnhardt. With a new wife and the desire to start a family, NASCAR's most popular driver has a short window to build on his resumé of 26 wins and 13 poles.



Drivers to watch: veterans and young guns

AT 44, MATT KENSETH IS enjoying the golden years of his NASCAR career. While he shows no signs of slowing down, the former young gun is now being chased by racers young enough to be his sons. Kenseth has earned 16 of his 38 career Cup wins and 11 of his 18 poles since turning 40.

Chase Elliott came close to victory in his rookie season but couldn't quite close the deal. Still, finishing 10th in the standings was a great accomplishment. With the Hendrick Motorsports juggernaut behind him, it's just a matter of time before he makes it to Victory Lane.

After winning early and often in NASCAR's lower series, Erik Jones makes his full-time Cup debut at Furniture Row Racing this season. Jones, 20, with equipment equal to that of his Toyota team-mates, will turn heads in 2017.

It took Austin Dillon three

seasons to qualify for the playoffs, but he's still searching for his first career Cup victory. Dillon, 26, is the future of Richard Childress Racing. But if he doesn't win soon, it's uncertain how bright that future will be.

Several other drivers are racing to save their careers

this season. Danica Patrick lacks results and a full-time sponsor: her best finish last year was 11th, and she failed to do better than 24th in the standings. Ryan Newman and Kasey Kahne both missed the playoffs again last year; Newman's last win was in the 2013 Brickyard 400.



KYLE BUSCH
Joe Gibbs Racing Toyota

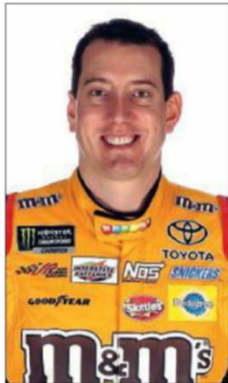


MARTIN TRUEX JR
Furniture Row Racing Toyota

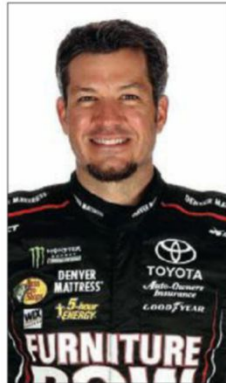


BRAD KESELOWSKI
Team Penske Ford

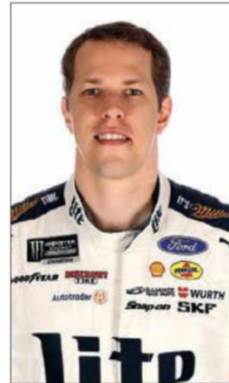
It didn't take long for Busch and crew chief Adam Stevens to find the magic that had been missing with the #18 M&M's Toyota. Together, the pair has won nine races, while posting 19 top fives, 41 top 10s and a championship in 61 starts. The 31-year-old continues to set the standard for Joe Gibbs Racing.



In 2016, Truex, 36, scored a career-high four wins and five poles. His 1809 laps led topped the Cup tour. If not for an engine failure at Talladega, it's likely he would have made the final four at Homestead. Can the #78 Furniture Row Racing team go the distance? Or will running a second car for Erik Jones stretch the company?



Keselowski, 33, had a stellar first 26 races in 2016 with four wins, 12 top fives and 17 top 10s. But after the first round of the playoffs, hopes of a second title dissipated with consecutive DNFs at Kansas and Talladega. Since recruiting Joey Logano, Team Penske has evolved into the top two-car operation in NASCAR.



KYLE LARSON
Chip Ganassi Racing Chevrolet

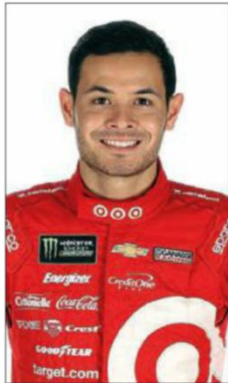


DENNY HAMLIN
Joe Gibbs Racing Toyota

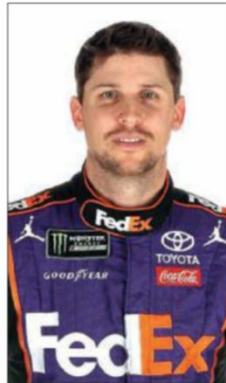


CLINT BOWYER
Stewart-Haas Racing Ford

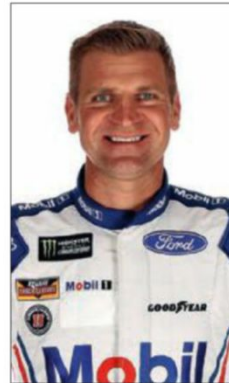
After three full seasons on the Cup tour, Larson finally earned his first win under the direction of crew chief Chad Johnston last year. The pair returned the #42 Ganassi Racing car to the Chase for the first time since 2009. Larson, 24, was more consistent in 2014 than '16, but the playoffs experience will serve him well.



Hamlin posted a remarkable average qualifying effort of 6.3 in 2016 – the best on the Cup tour – paving the way for three wins, 12 top fives and a career-best 22 top 10 finishes. After completing his first season with crew chief Mike Wheeler, last year's Daytona 500 winner should come out strong again in 2017.



There's no driver more eager for the season to begin than Bowyer. After another miserable campaign with another shuttered team, Bowyer will inherit the former championship car belonging to Tony Stewart. Still, 2017 will be a make-or-break season for the 37-year-old, who has just eight career wins in 397 starts.



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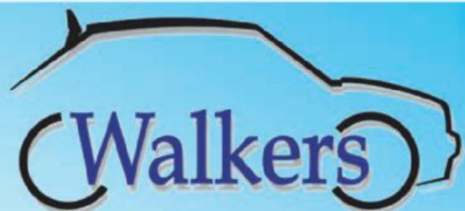


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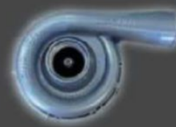
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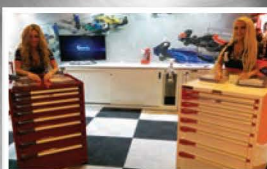


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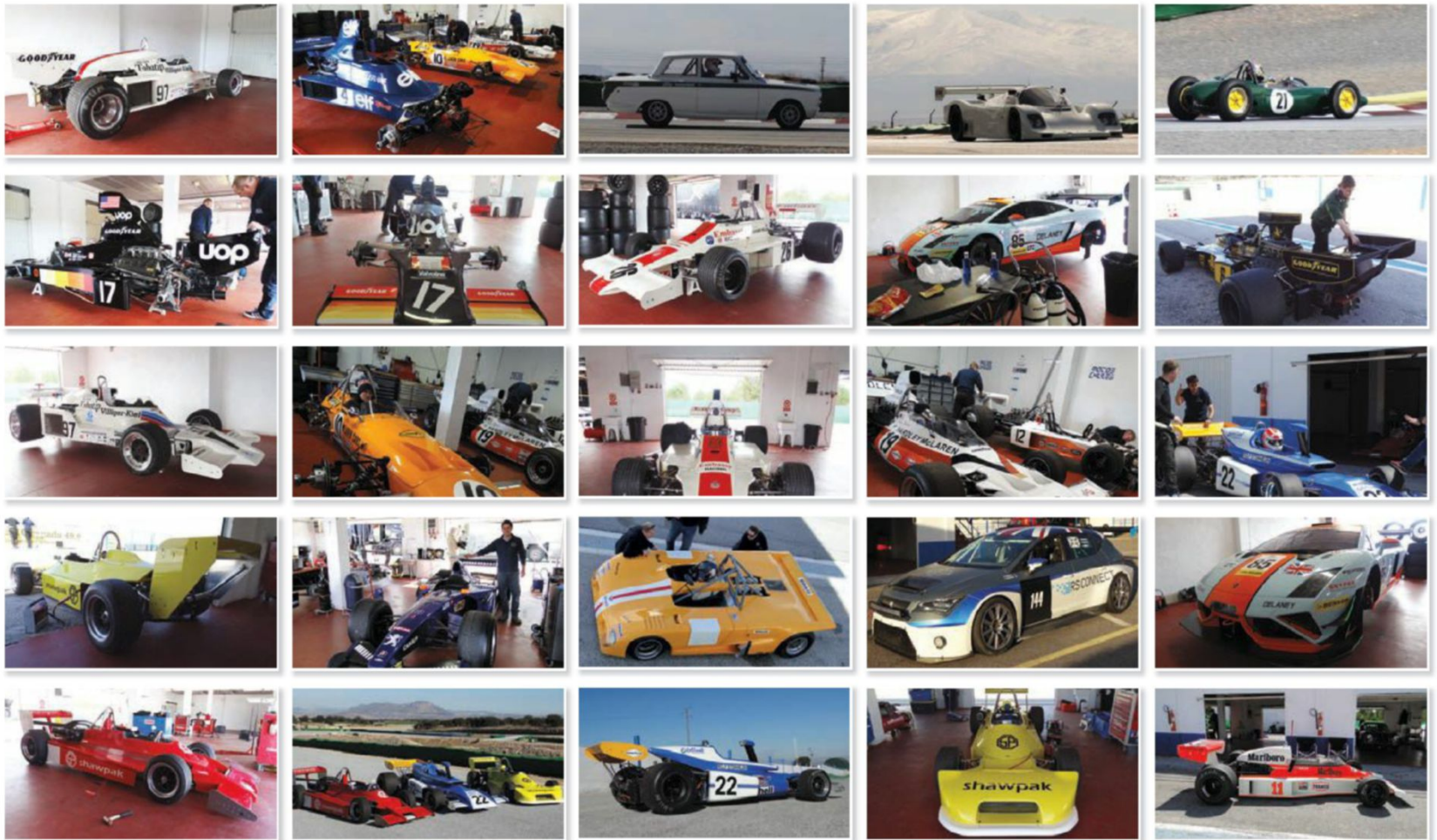
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Chadwick moves to single-seaters with Hieatt's (left) Double R team

GT4 champion Chadwick in British F3 switch with Double R

BRITISH GT4 CHAMPION JAMIE CHADWICK HAS completed a surprise switch to race for Double R in the BRDC British Formula 3 Championship this season.

Chadwick became the youngest driver to win a British GT title in 2015, aged 17, when she claimed the GT4 crown in a Beechdean Aston Martin V8 Vantage alongside Ross Gunn. She also became the first female driver to claim a British GT crown in the process.

The teenager, a BRDC Rising Star, last year contested a part-season in GT4 as well as VLN races at the Nurburgring, but has now agreed a deal to race in British F3 with Double R – which last year ran Matheus Leist to the championship – as part of a two-year development plan in the single-seater series.

Chadwick has previous experience of the championship's Tatuus-Cosworth machinery, having tested with Lanan and HHC at the end of last year.

"Most people come straight out of Ginetta Juniors and into single-seaters, [but] I chose a bit of an unconventional route by going into GTs, which was a great move for me," Chadwick told Autosport. "When I was evaluating it after 2016, I wanted to develop

myself as much as possible as a technical driver and someone who can jump into anything.

"A lot of the skillsets required to do that come from driving single-seaters and the technical demands that come from that.

"We approached Boyo [Anthony Hieatt, Double R team principal]; they were one of the teams on our list given their pedigree from last year and before that. We had a conversation, and quickly it all fitted between the parties involved. He's got a great manner about him and the team run a great outfit based on how I'm working.

"It's going to be a tough season – we're looking at a two-year plan. It's a big transition and actually a step up from what I've been doing, so the target is to learn as much as possible. Hopefully I can be in the top 10 as often as possible, but we're not going to put too much pressure on results."

Double R boss Hieatt said: "Jamie's achievements in British GT speak volumes, and while the F3 car is an entirely different animal to the Aston Martin GT cars she has been racing the past couple of years, she's adapted to the driving style very impressively."

DOUGLAS SNAPS UP FLORESCU AFTER TESTS

PETRU FLORESCU WILL dovetail Euroformula Open commitments with a part-season in the BRDC British Formula 3 Championship with Douglas Motorsport this season.

Florescu, 18, won five races on his way to sixth in British F4 last year and had announced a move to the Euroformula series for F3 machinery with Campos.

But having tested with Douglas on several occasions over the past month, the Romanian has now added a five-round programme in British F3 with Wayne Douglas's squad.

"I love racing in the UK; the tracks here and the level of competition in British Formula 3 really separate the top drivers from the average ones," said Florescu. "I'm very happy to be able to add five rounds of the British F3 Championship to my programme this season and I'm excited to be working with Wayne Douglas and his team.

"They're all very focused and good at their job. We just clicked instantly and I'm sure we'll do well together this year."

● Aaron di Comberti has been announced as Lanan's first driver for British F3. In 2016 he raced in one round of each of the French and Italian F4 Championships and has tested with Lanan, which last year ran Toby Sowery to third in British F3.

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Kristensen to make Members debut

NINE-TIME LE MANS 24 HOURS WINNER Tom Kristensen will race at the Goodwood Members' Meeting for the first time next month in a Rover SD1.

The veteran of five Goodwood Revivals will drive the ex-Patrick Motorsport Rover in the Gerry Marshall Trophy for Group 1 touring cars on Saturday March 18.

Kristensen, 49, who called time on his professional racing career at the end of 2014, will team up with sportscar racer Stuart Hall in the two-driver segment of the GMT.

"I've been invited by Lord March, and I've said yes, so this year I will be doing all three Goodwood events: the Members' Meeting, the Festival of Speed and the

Revival," said Kristensen.

"I'm doing it for my love of the heritage of the sport and because I enjoy trying different cars. I've driven so many great cars at Goodwood, but this time I will be racing one that I can remember racing rather than something built before I was born."

The V8-powered Rover, owned by Martin Thomas, is a sister machine to the Patrick car run by JD Classics that won last year's GMT with Gordon Shedden (pictured above) and Chris Ward driving.

It was raced by Rex Greenslade in the 1981 British Touring Car Championship and then run by Dennis Leech after being converted to Group A specification.

Thomas, whose SRG team prepared the Patrick BTCC entries in period, subsequently reacquired the car and has returned it to Group 1 spec.

● Kristensen is among the guests at this weekend's Race Retro show at Stoneleigh Park. The Dane joins Mike Costin – co-founder of Cosworth Engineering – and rallying legends Markku Alen and Ari Vatanen on the show's stage. The event also features a live rally stage with Group B machinery, plus a number of the major racing clubs will have stands in the main hall. Race Retro runs from tomorrow (Friday) until Sunday. For tickets visit raceretro.com.

FORMULA RENAULT EURO CUP

Fewtrell wins place as Renault F1 junior



REIGNING BRITISH Formula 4 champion Max Fewtrell has been given a place on the Renault Formula 1 squad's four-driver junior programme.

Fewtrell, 17, joins fellow Brit and GP3 Series racer Jack Aitken, SMP Formula 4 runner-up Jarno Opmeer and Chinese karting graduate Sun Yue Yang on the Renault Sport Academy.

Fewtrell, who is part of the same Infinity

Sports Management stable as new Mercedes F1 development driver George Russell and Red Bull Junior Dan Ticktum, had already had his graduation to the Formula Renault Eurocup with French squad Tech 1 Racing (left) confirmed.

Dutchman Opmeer and Yang will also compete in the Renault Eurocup, with Opmeer joining the returning MP Motorsport squad and Yang lining up with JD Motorsport.

RENAULT UK CLIO CUP

Fiesta champion moves into Clios

FORMER FIESTA JUNIOR CHAMPION Aaron Thompson will switch to the Renault UK Clio Cup for this season.

Thompson, who won his Fiesta Junior crown with Jamsport in 2015 and stayed with the team for his move to the 'senior' Fiesta championship last year, remains with the squad for his move into the BTCC-support series.

"I ticked off most boxes in the Fiestas," said Thompson. "I won the Junior title with a record number of wins, and won races last year, and thought the next step would be Clios."

Meanwhile, ex-Ginetta Junior ace Dan Zelos stays in Clios for a second year, with a switch to WDE Motorsport. Team boss Wayne Eason said: "At the first round last year he was on the front row and at Thruxton he was quick, so he's got a massive amount of potential."



VW CUP

BTCC test prize for VW top three

THE TOP THREE DRIVERS IN THIS season's Volkswagen Racing Cup will receive a test in a British Touring Car Championship Ford Focus ST.

The trio will get a chance to drive the Focus owned by Maximum Motorsport, which promotes both the VW Cup and VAG Trophy series.

"The first three drivers in the championship will all get a test," said Volkswagen Racing series director

Stewart Lines. "It costs the same to turn the touring car out for one as it does for three [and] it'll be in our Ford Focus, which is now being run by Team Parker Racing.

"Everyone seems to have aspirations to have a go in [a BTCC car] at some stage, so this is a great chance."

The series joins the UK Legends Championship, BRSCC Fiestas and JCW Mini Challenge in offering BTCC prizes this year.



WARREN TO BE REBUILT LIVE AT STONELEIGH

A groundbreaking car from the history of the 750 Motor Club will be rebuilt live on the club's stand at Race Retro. The Warren was designed for the 750 Formula by Jerry Evershed and won the 1973 title in the hands of Robyn Smith (above). The 750F dates back to '49.

CLUB ENDURO UP TO 40 IN SECOND YEAR

The 750MC's Club Enduro series, which was launched last year with the aim of offering endurance racing to drivers on a budget, is enjoying bumper entry registrations for 2017. "We have 40 registrations for Club Enduro and over 20 entries for the first race," said 750MC competition manager Giles Groombridge.

FABBY TO RACE SEAT IN ENDURANCE SERIES

Michelin Clio Cup Road Series champion Jack Fabby will switch to the Creventic Touring Car Endurance Series this year, driving a Kinetic Racing SEAT Leon Supercopa. The 17-year-old will take part in the Silverstone 24 Hours as part of his campaign after winning the Clio title in his first full season of car racing.

WAKEFIELD JOINS EXCELR8 FOR JCW

Mini Challenge returnee Mark Wakefield is aiming for a championship top-three this year after joining Excelr8 Motorsport for his second season in the JCW class. Wakefield, 19, finished third overall in the Cooper class in 2015 before graduating into the JCW division. He is the third driver signed to Excelr8, alongside Sunoco Challenge winner Max Bladon and Reece Barr.

CLARK LOTUS 33 ON SHOW AT RACE RETRO

The Lotus 33 that Jim Clark used in the 1965 Formula 1 season to win four grands prix and his second world title will be on display for the first time in nearly four decades at Race Retro this weekend. Chassis R11 (below) was last raced in Seattle in 1969 and is now ready for a sympathetic restoration by Classic Team Lotus.



OSS

Sherrington up for OSS 'challenge'

DOUBLE SPORTS 2000 champion Patrick Sherrington will compete in the Open Sportscar Series this season with a new MCR Sports 1600 Turbo car.

Ex-Formula Vee racer Sherrington, who won the Sports 2000 Duratec title in 2014 and '15, said: "Having worked with MCR to develop

their successful Sports 2000 car into a multiple title-winning package, the time seemed right to take on the challenge of the OSS machines."

"I'm looking forward to the extra power matched to extra downforce, and of course the added fun of racing against my old school friend Mike Jenvey [2015 OSS champion,

who had previously also raced in Sports 2000]."

OSS coordinator Alan Jenkins added: "MCR is the 13th manufacturer to register this year, demonstrating the benefit of open regulations. We offer drivers an almost unrestricted ability to work on and improve their cars, race by race."



FORMULA FORD 1600

F1 exhaust builder to FF1600

A KARTER WHOSE DAY JOB INVOLVES building exhausts for the Mercedes and McLaren-Honda Formula 1 teams will make his Formula Ford 1600 debut this year.

Luke Stark, who works for SST Technology, plans to complete the full national calendar in his Van Diemen RF99 with Linton Stutely's Enigma Motorsport team.

"I've been racing since I was eight

years old, but I'm 6ft2in so karting was always a bit difficult with my weight," said Stark. "My dad used to race FF1600 and had his own team."

Stark says seat time is key as he looks to get up to speed in his first year: "We want to do the whole national [schedule], but with my lack of experience we want to be getting as much track time as possible."

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Chassis produced until 2016 will now be allowed in the F3 Cup



EBREY

F3 CUP

Current-gen cars into F3 Cup

THE F3 CUP WILL PERMIT CHASSIS BUILT UP TO and including 2016 this season, and has arranged a prize drive in an LMP3 car for its champion.

Since the 2015 season the F3 Cup has allowed cars manufactured up to and including 2011 to race, having previously only permitted machinery constructed between 1981 and 2005.

But for 2017, the current generation of cars, first produced in '12, have been written into the regulations.

Newer cars will be required to run Formula 3 engines homologated for 2012 or earlier, but will start the season on the same weight as the '08-11 cars.

Organisers have also decided against permitting Dallara's new 2017-spec aero kits, which will be used in the F3 European Championship this year.

"We changed the regulations the year before last to allow in 2008 and '11 cars, but we've moved things

forwards again," said championship coordinator Simon Davey. "Essentially, we wanted to increase the available pool of cars and also give the drivers an opportunity to drive more recent F3 machinery.

"At the moment, we're starting the season with the 2008-11s and the '12-16s running at the same weight. We'll be monitoring that very carefully to see how it goes.

"Euroformula Open [which also uses the current F3 chassis] tested the 2017 aero packs, but we're specifically not going to be allowing those. It's back to performance levelling; our current view is that the '16 cars shouldn't need that to be competitive against the '08s to '11s."

The F3 Cup will also offer its title winner a 200-kilometre test in a Ligier JSP3 as part of a link-up with the new LMP3 Cup Championship. "It's a great prize – it's not just a couple of laps," added Davey. "It should be very attractive to the spectrum of drivers we have."

SSANGYONG CHALLENGE

VEE ROOKIE ACE WEBB GETS INTO SSANGYONG

FORMULA VEE RACER Harry Webb has been announced as the first driver to have signed up for the new-for-2017 SsangYong Racing Challenge.

Webb, a Rotax Max European, Winter and Challenge Grand Final junior karting champion, moved into car racing last year in the 750MC's FVee Championship. He finished sixth overall in the points and highest-placed rookie, with a best race finish of fourth.

The 19-year-old has now agreed to race one of the Korando Pickup trucks for Team Walero in the SsangYong Challenge.

"I am really happy to be joining the SsangYong Challenge in partnership with Walero Base Layers," said Webb. "This challenge is earning its respect in the world of motorsport, and I am honoured to be involved."

Webb has also assisted Richardson Racing with the shakedown of its British Formula 4 Championship car, and drove for the team during last Thursday's F4 test at Brands Hatch.

MSVR

New MSVR Deutsche Fest event added to Brands Hatch calendar

MOTORSPORT VISION RACING will add a themed festival in celebration of Germany's motorsport culture to its 2017 Brands Hatch programme.

The group has run an American SpeedFest event at Brands since 2013, featuring the NASCAR Whelen Euroseries, and last year added the Festival Italia to its events list.

This year a new Deutsche Fest event will be held at the Kent venue on the August 19-20 weekend, and will feature

racing from the club's German-branded series. Certain car club members will also be allowed to drive their own vehicles on the circuit.

"It's going to be headlined by the Volkswagen Racing Cup and the VAG Trophy, [and feature] the new Z Cars series and Production BMWs, and hopefully we'll be joined by the Kumho BMWs as well," said motorsport events manager and MSVR club secretary David Willey. "It's not just

about having the MSVR championships, but also trying to attract other series.

"What will make this event different is on the Saturday we're offering two or three hours for public track time – so anyone who's part of [one of the] German car clubs can sign on and drive their car around the circuit in anger."

MSVR also runs Mini Festivals at Brands and Oulton Park and has added a third such event for 2017 at Snetterton on May 13-14.



MSVR already organises a similar Festival Italia

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Choice of shows for historic sports fans

By Marcus Pye, the voice of club racing

[@Autosport](#)

LESS THAN A MONTH BEFORE GOODWOOD'S 75TH Members' Meeting kicks another bumper European historic racing season off in style, with all the action streamed live into homes around the world, not one but two dedicated UK-based motorsport shows this weekend will further whet fans' appetites for seven months of wall-to-wall action ahead, after a cold winter has recharged their batteries.

Since oil-industry executive Eian Williamson founded Race Retro in 2003, the promotion has drawn enthusiasts of every motorsporting genre to the National Agricultural Centre at Stoneleigh, near Kenilworth.

Two owners on, its latest evolution – which runs from tomorrow (Friday) to Sunday – will continue to provide a valuable platform in the Midlands for racewear and equipment suppliers, event organisers and myriad specialist traders, plus Silverstone Auctions, which is staging another of its themed sales that attract buyers from around the globe on Friday.

Debutant Historic Motorsport International, a bolt-on to the established London Classic Car Show at ExCeL, meanwhile gives motorsport's fastest-expanding sector a window on one of the planet's greatest and most-vibrant cities from 1500 today (Thursday), with full days from tomorrow until Sunday.

Yes, it's unfortunate that the events clash – doubtless precluding many from attending both – but they surely won't eclipse again in 2018... With former Autosport staffers Ian France and Fergus Campbell 'growing' HMI, it's sure to be a strong contender.

Race Retro features such sporting superstars as nine-times Le Mans 24 Hours winner Tom Kristensen and motorcycle world champion Freddie Spencer, plus Ari Vatanen and Markku Alen, who will take to the live rally stage, showcasing Group B

to national cars. At the opposite end of the age spectrum HSCC prospects James Clarke, Ed Thurston and Benn Tilley will flag up their racing aspirations. All are worthy of backing; indeed, Tilley's and Thurston's impressive Historic FF1600 programmes defied shoestring budgets last year.

Le Mans legends Jacky Ickx, Derek Bell, Jackie Oliver, Jurgen Barth and Emanuele Pirro are among the sport's icons being celebrated at HMI. BTCC champion and historic nut Andrew Jordan plus Nick Padmore (FIA Masters Historic F1 title winner and Goodwood's modern lap-record holder) will take part too.

A panoply of top event organisers including the HSCC (covering both shows), Motor Racing Legends, Masters Historic Racing, Peter Auto, the Classic Sports Car Club, Historic Grand Prix Cars Association and the Endurance Rally Association join the pioneers.

Ever wanted to experience a classic car? For the first time at Race Retro it's possible – for £35-£50, on a first-come first-served basis – to enjoy short drives in event partner Historic Endurance Rally Organisation's Arrive & Drive fleet, spanning MGA, MGB, Triumph TR4 and Ford Cortina GT to Porsche 911s and Jaguar E-types. Live action at HMI comes more sedately in the form of 50 priceless classic cars parading down 'Grand Avenue', an automotive catwalk through the central boulevard within the main hall, each day.

Which event will you visit? It's entirely subjective – different strokes for different folks, and maybe influenced by location and accessibility – but both Race Retro and Historic Motorsport International have a lot to offer. If it's pure sporting immersion you seek, head to the Midlands, but I've not been inside ExCeL, thus am looking forward to taking a look at HMI on Friday, then gauging reaction from both sides. 🏁



PORSCHE POWER MOVES INTO COOPER'S OLD HOME

The former police garage in Hollyfield Road, Surbiton, where the Cooper Car Company was based when it won F1 world championships in 1959 and '60 with Jack Brabham, has a new motorsport connection as a service outlet of Charles Ivey Specialist Cars – an entrant of Porsches at Le Mans and other international events. Cooper had a marque connection, having supplied chassis to the US, which were converted to Porsche power and dubbed 'Poopers' in the '50s.



BMW WINS VSCC POMEROY TROPHY AT SILVERSTONE

Silverstone's Historic GP circuit hosted the Vintage Sports-Car Club's annual Pomeroy Trophy competition, designed to determine the best touring car of any age over a series of tests, last Saturday. Overall winner was the 1974 BMW 2002 of David Wylie. Andrew Smith (1926/29 Frazer Nash Super Sports) claimed the Densham Trophy for best vintage car, while Rebecca Smith earned the Edwardian Trophy in Dr Alasdair Lockhart's 1911-12 Vauxhall Prince Henry replica.

The disabled servicemen on the way to Le Mans

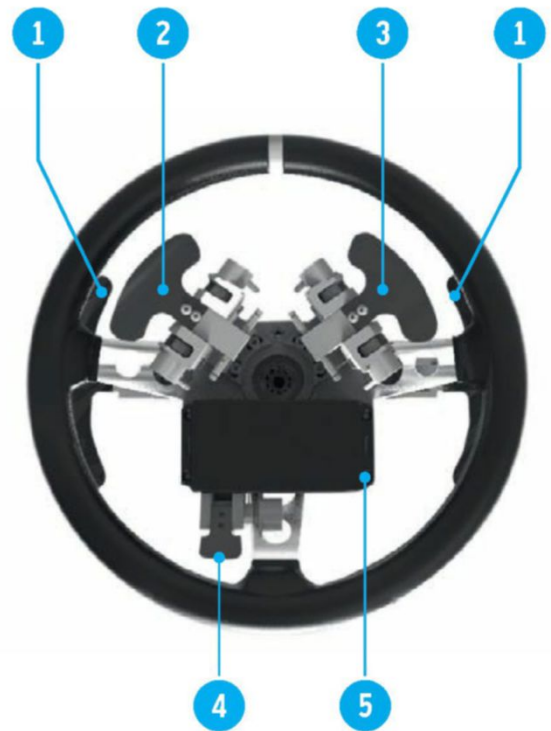
Team BRIT is a two-car Fun Cup squad set up to prepare four injured racers to achieve their ambitions of racing in the 24 Hours

By Jack Benyon, Group National Editor

🐦 @jackbenyon



HAND CONTROLS



- ① Shift paddle ② Brake paddle ③ Throttle paddle
④ Clutch paddle ⑤ Display & diagnostics

“We’re a racing team and if they want to race they have to be competitive,” says Dave Player. He’s the creator of the charity KartForce, which in turn has founded Team BRIT.

“We have a top crew and bills to pay. It all costs money.”

Doesn’t sound like your average charity, does it? Fighting for your seat and being competitive is for most motorsport teams what racing is all about – and that’s what Player wants.

After founding KartForce in 2010, he now has aspirations to race at Le Mans, and kicking off that programme will be a two-car team in the Fun Cup this year backed by insurance firm BRIT. It’s a fitting name for a patriotic team, filled with four servicemen using motorsport to rehabilitate. Warren McKinlay, Jimmy Hill, Andy Searle and Tony Williams are the team’s drivers, and all of them arrived at the team in some way or another through KartForce.

“The whole idea of KartForce is to offer injured troops team endurance racing and karting,” says Player. “We’ve got lads with all sorts of injuries, from double amputees to PTSD [post-traumatic stress disorder]. We all get together and they enter anything from two hours to 24 hours in the UK and abroad.

“These guys are thrill-seekers. There are other guys who’ve been in the army and love darts or football; these are guys who love pushing themselves to the limit. They can’t find a sport that will thrill and will push them to the edge, and that’s what motorsport can do. Guys with injuries or disabilities can race on a level playing field against able-bodied drivers.”

The idea for turning KartForce from a bit of fun and a rehabilitation programme to dreams of competition and Le Mans came through the inspiration of the son of a Formula 1 world champion, himself an accomplished racer. »





Andy Searle

FROM Torquay
AGE 24
INJURY Lost both legs in an improvised explosive device attack

IT'S A STORY WE HEAR ALL TOO often in the news: a soldier losing limbs to the savage effects of bombs set by guerilla forces.

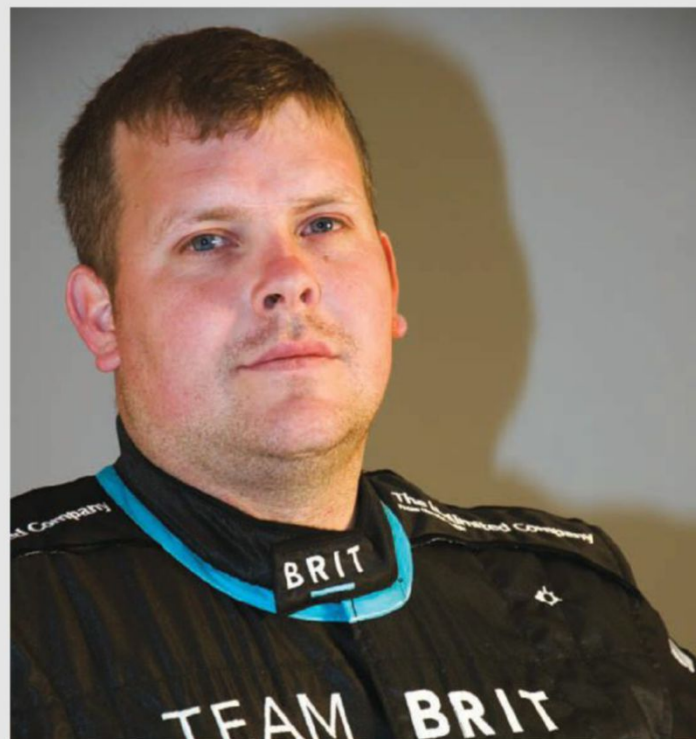
Andy Searle has undergone over 50 medical procedures in his life after an operation to provide outer-perimeter protection during the search of a village in Afghanistan fell foul of an improvised explosive device. He lost two fingers, his right hip and both legs as a result of injuries sustained in the blast.

Karting presented its own challenges for Searle, which means he's doubly keen to get going in a car.

"I didn't really do much with KartForce," he says. "Because of my injury the [kart] seats aren't good for me. I have trouble staying stable. With the racing seats they keep you locked in one place so it makes it easier for me."

The scheme will also help him to maintain the camaraderie of serving.

"I've just come out of the armed forces in December and it's given me plenty to do now, I'm loving it," he adds. "It's good to get out and see army lads again. It's a boyhood dream to do something like this so I'm really excited about it."



Tony Williams

FROM St Helens, Lancashire
AGE 32
INJURY Suffered broken hip and spine after being shot six times

IF YOU'RE AFTER AN INSPIRATIONAL story, and there are many on these four pages, then Tony Williams is in contention for victory. While administering life-saving treatment to an injured soldier, he was shot six times resulting in torn bowels, and a broken spine and hip.

Williams was diagnosed with paraplegia. But in his typical fashion, he fought until he could walk.

He was told he wouldn't have children. Now he has three. Williams is a fighter and there's no doubt he'll take that attitude to the track.

"Having children was my priority back then [after the injury]," says Williams. "But after that I said I need

to show them that you don't just give up and sit back after you've been injured. You keep pushing and make something of yourself. I'd never thought of motorsport, but I got an email from Dave Player to come to a KartForce taster day.

"I went and had a laugh, got penalised for being too aggressive, but I really enjoyed it, being around like-minded individuals.

"On the third time I went I got a podium and thought I may have a knack for it. I started outdoor karting but struggled, since you need more bottle. At that time I got scared by adrenalin. I don't like to sit back from a challenge. I kept pursuing it and I found that I was benefiting mentally and physically.

"Now I'm an adrenalin junkie. I did a skydive last year for a charity that helps me. This is the next fix and I'm really excited to get started."

"When we first started it, I thought we'd be doing it on karting tracks just for fun," recalls Player. "It was actually Damon Hill's son Josh who gave the lads their first coaching session and that's when we realised the lads had skills. That's when we started entering more events and that was the turning point, when Josh gave the first coaching session. It changed the whole objective from fun races among ourselves to aiming for the Le Mans 24 Hours."

It's a progressive programme that aims to help the drivers progress from the Fun Cup to British GT4 and British GT3 before taking on the big one: Le Mans. Player is already looking at cars for the forthcoming steps in the programme.

"Next month we'll start looking for a car for next year," he says. "It could be an Aston Martin, Ginetta or a Porsche, and we're in talks with another manufacturer too. As soon as we

get our next car we should be testing by August. It could be that by December we're doing the Dubai 12 Hours."

Player has invested huge amounts into the KartForce scheme. Not only his time, but his brain too. He's created hand controls for his drivers that get rid of the push-pull controls common in karts. The gearchange, clutch, accelerator and brake mechanisms are all on the steering wheel to allow drivers to keep their hands on it. That way they aren't disadvantaged by not having enough hands to operate all the controls. Therefore they're no longer losing time to able-bodied drivers.

The Fun Cup is a perfect place for the troops to learn and to compete in their first season of a proper racing championship. The relaxed and friendly paddock environment should enable the drivers to settle in nicely.

But, as Player has hammered home, the drivers have to



Jimmy Hill

FROM Bournemouth
AGE 34
INJURY Semi-paralysed foot

A CORPORAL IN THE ROYAL MARINES, Jimmy Hill was shot five times while serving in Afghanistan. While he made a relatively strong recovery, his foot remains partially paralysed.

"I have damage to my right hip," says Hill. "I took three rounds in the right leg, two in the left. The two in my left hit my thoracic nerve so I have no feeling from the knee down. The right lost a bit of length."

He's hoping that, despite his injuries, he'll be able to use the pedals on the car, rather than the hand controls.

"I reckon I'll be able to use the pedals but we're all going to be taught how to use the hand controls," he adds. "I want to try and stick to the pedals – I think this will be the last year with a clutch to start so I'm looking forward to it."

Hill is the latest member of Team BRIT and, while there's a chance he may miss races through surgery, he's hoping that's not the case.

"I'm still at [the rehabilitation centre at] Headley [Court] but I will be leaving this year and I'm still recovering," says Hill. "There's a possibility of some more surgery, but hopefully that will be at the end of the season since I'd like to move to GT4 next year."



Warren McKinlay

FROM Braintree, Essex
AGE 35
INJURY Brain

WALKING-CORPSE SYNDROME IS as terrifying as it sounds. Warren McKinlay was a recovery mechanic in the Royal Electrical and Mechanical Engineers before a motorcycle incident in 2005 left him with severe brain and spinal injuries, leading him to believe that he was dead and living in purgatory.

But now, thanks to KartForce and Team BRIT, McKinlay has found a new avenue to recovery. Every time he gets in his car, many of his day-to-day difficulties melt away.

"My injury is a brain injury, and I do struggle with day-to-day life," he says. "I get easily overloaded and find it hard to concentrate on a single task."

"Once you pull the crash helmet on and jump in the car or kart,

everything goes away. I wish I could carry that into everyday life as it would be really helpful!"

McKinlay got into the team through the KartForce programme and can scarcely credit the rate of progression he's achieved over the past two years.

"One day in 2015 Dave Player sent me an invitation to a rookie day. I'd been out of the army at that point for 10 years. I wanted to go and meet some new lads and I haven't looked back from there."

"If you went back to the year before last, when I first started karting, and told me that in 2017 I'd be ready for the Fun Cup, I wouldn't have believed you," McKinlay adds. "The way Dave Player does things is he makes things happen. If he says we're going to be racing GT cars he'll find a way to do it. And I want to be there every step of the way."

perform. In true motorsport fashion, Team BRIT isn't charitable in the performance of its race team: "First of all, they have to be able to drive. They've got to have proved themselves in karting and want to take it to the next level."

"They have to commit themselves to work as well. The whole philosophy behind Team BRIT is to teach the guys valuable life skills in business – presentations, looking after sponsors, organising events. Whether they stay with us for one year or four years, what they learn here is valuable for them in their working lives."

"It's trying to break this mould that many injured troops feel a sense of entitlement where if they ask, they get. No. That's fine with some things, but we're a racing team and if they want to race they have to be competitive."

The drivers acknowledge this and are happy to get the

benefits of rehabilitation through motorsport while replacing the adrenalin they had while serving Britain in the armed forces abroad.

The road to Le Mans is underway for Team BRIT. As we saw with Frederic Sausset – the quadruple amputee who completed the 24 Hours last year – achievements for people with disabilities at Le Mans are possible. British club racing should prepare the team for what's to come in one of the most ambitious but achievable stories for some time. 🏆



Fun Cup is the team's entry point to proper racing

WHAT'S ON

Sparsely populated tracks are a common sight during testing



Why Formula 1 testing doesn't need to be seen

PEOPLE OFTEN ASK WHY THERE IS no live television coverage of F1 testing.

Given the hours of live coverage dedicated to a race weekend, from Friday practice through to the race, as well as to modern-day sport as a whole, the expectation that testing should get equal treatment is understandable.

But the answer is simple. Only a

handful of people would actually watch it. And of those who did, it's unlikely they will find it very interesting.

The reality of pre-season testing is that it involves four eight-hour days of the cars driving around. Often, the track is empty for long periods or, when a car stops out on track, the action is halted. There are very rarely any incidents.

A test session simply does not have the drama of a race weekend. Come the end of the test, you do not have a winner. Of course, the test is very important to the teams, but each is carrying out their own individual programmes, running different fuel loads, tyres and run plans, rendering the times largely meaningless.

While a pecking order will emerge, that

Media coverage from Barcelona is unlikely to be in short supply



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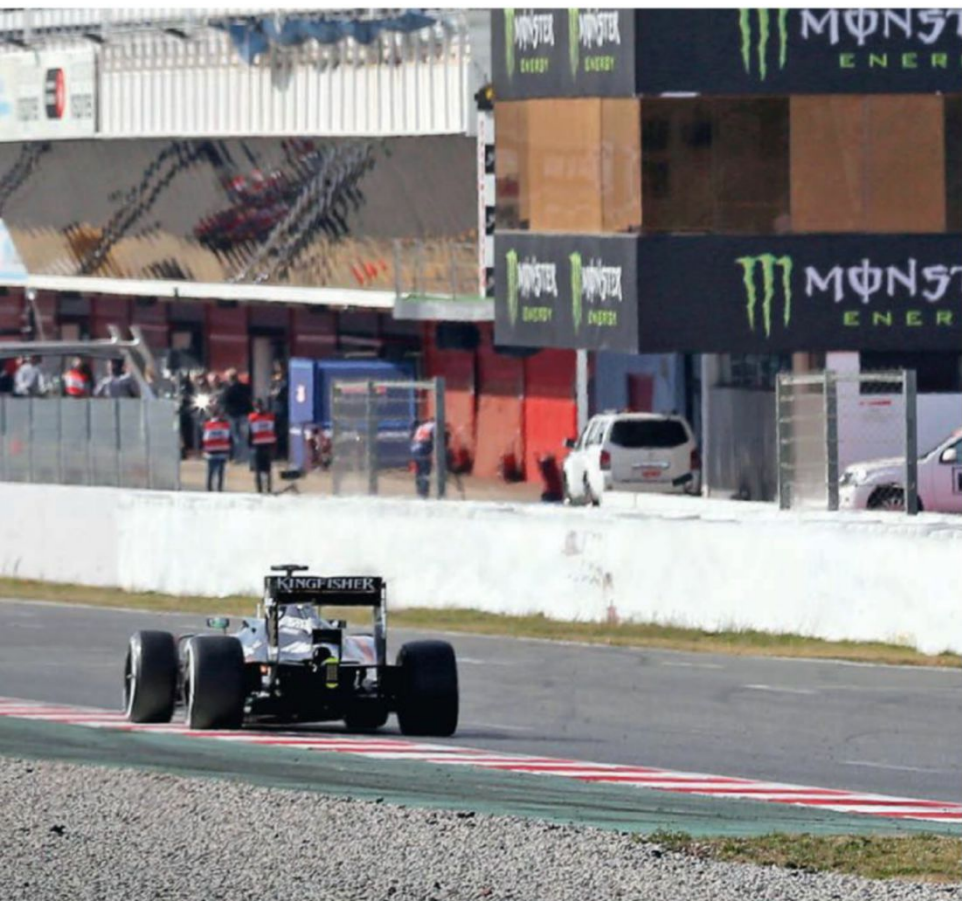


HOT ON THE WEB THIS WEEK

You Tube AUSSIE STAR'S MUSCLE RIPPER

Search for: F1 Driver Daniel Ricciardo Off-Season Training in Los Angeles

Red Bull's Daniel Ricciardo enjoys the Californian location of his team's fitness facility (plus a sponsor's freebie footwear!), but not necessarily all the elements of the rigorous workouts he's put through – the rope 'waving' looks particularly torturous.



XPB IMAGES

will likely come from analysis of the data at the end of the day, and indeed test, rather than from watching the action live.

A few years ago, Sky Sports F1 trialled running a few hours of testing live each day. The broadcaster subsequently dropped it, courtesy of low viewing figures, and replaced it with an end-of-day highlights show and updates by Sky Sports News HQ. But this does not mean testing is not worth following.

Journalists from around the world head to the pre-season tests and there will be more interest than ever this year with the new technical regulations.

It could be argued that the introduction of new-look cars is an even greater reason to televise testing, but once the cars break cover and the initial excitement is over, there would likely be a sharp drop off in viewing figures. Eight hours of cars going round a track, and not racing each other, is not gripping TV, no matter how much you consider yourself a devotee of motorsport.

Instead, you can get a much better idea of what is going on by following live text

commentary feeds, such as Autosport Live, which will deliver minute-by-minute text updates of all the track action, with input and analysis from its on-site reporters and a flurry of images of the new cars.

There will be plenty of content from teams via their social media channels and the plethora of online journalists in the media centre will report the major events of the day. Reporters on the ground will do the hard work, sifting through all the interview material, including end-of-day reactions from the drivers, and presenting it in a clear and digestible way.

Then there will be the analysis in magazines such as Autosport after the test, which will give a rounded picture of what the hundreds of laps translate to. That will help build up a picture as to the state of play ahead of the new season.

While it may not be the same as following a grand prix on television, the nature of testing means that the way it is covered is actually a positive, rather than a negative.

LAWRENCE BARRETTO

KINRADE/LAT



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PREMIER SPORTS

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In a week short on international racing, it seems only sensible that NASCAR's flagship event makes it as TV pick of the week. Last year's race produced the closest finish in the history of the Daytona 500, and, with format changes aplenty ahead of this season, expect the 2017 edition to be just as entertaining.

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WHEN DRIVERS
CROP UP IN
UNEXPECTED
PLACES



BRYAN HERTA

BRYAN HERTA'S "RIDE OF A LIFETIME" in a Minardi PS01 Formula 1 car at Donington Park in 2002 only happened thanks to the efforts of a former Autosport editor. "It came about with some cajoling from Andy Hallbery and a few others at Racer magazine," Herta says. "It was a time in my career where

I was at a little bit of a crossroads. I guess the idea was let's go and drive the car and if it goes well maybe somehow we can find a way to get in the car for the last couple of races of the year."

Hallbery had some contacts at Minardi and was able to arrange the test. Herta's performance was strong enough that flamboyant team owner Paul Stoddart considered putting the American into a race seat at the end of 2002.

"Paul Stoddart was great," Herta remembers. "He's a swashbuckling guy. I think he did get excited and we were really close to getting in the car, but at that time they had a Malaysian kid named Alex Yoong driving the car. In the end I think there was some kind of contractual commitment that prevented them from putting me in."

In 2002 Herta wasn't competing in either CART or the Indy Racing League. He was a full-time participant in the American Le Mans Series that season, so had ample time to head to England for the test.

"The car was amazing. It was so much different from the Indycars I drove in that era. It was so much lighter and more nimble. The weight was the biggest difference, and the downforce.

"When I first went out of the pits it was a drying track and I was on rain tyres. I was immediately shocked by how much grip the car had even in the wet. The downforce was overwhelming. That was really neat.

"Even though I had been driving in the ALMS and was in reasonable shape, I remember my neck getting tired under braking. I was starting to struggle a little bit with the gs. It was fun to experience that.

"The track dried and I got a fair number of laps that day. I felt I was able to push the car and push hard. I ran some really good lap times. I was really pleased with the times I was able to do with the car relative to the other guys that were testing that day."

BRUCE MARTIN



ALL PICS: SPINNEY/LAT

Herta loved
his taste of F1,
and reckons
he came close
to securing
a race seat
at Minardi

AUTOSPORT

Autosport Network UK Ltd, 1 Eton Street, Richmond, TW9 1EF
Tel +44 (0) 20 3405 8100 Email autosport@autosport.com
Individual email firstname.surname@motorsport.com
Website www.autosport.com

Editorial

Editor-in-Chief **Edd Straw**
Editor **Kevin Turner**
Deputy Editor **Marcus Simmons**
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Editor **Glenn Freeman**
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Photography: LAT Images

Steven Tee, Glenn Dunbar, Sam Bloxham, Zack Mauger

Special Contributors

Gary Anderson, Jack Cozens, Alan Eldridge, Mark Glendenning, Stephen Lickorish, Marcus Pye, Dieter Rencken, Nigel Roebuck, Caroline Stammers, Gary Watkins

Correspondents

Argentina Tony Watson **Australia** Phil Branagan **Austria** Gerhard Kuntschik **Belgium** Gordon McKay **Brazil** Lito Cavalcanti **Finland** Esa Illoinen **Germany** Rene de Boer **Greece** Dimitris Papadopoulos **Italy** Roberto Chinchero **Japan** Jiro Takahashi **New Zealand** Bernard Carpinter **Russia** Gregory Golyshov **Spain** Raimon Duran **Sweden** Tege Tornvall **USA** Bruce Martin, Jeremy Shaw **UK & Ireland** Pete Allen, Lee Bonham, Stephen Brunsdon, Jonathan Crawford, Dom D'Angelillo, Kerry Dunlop, Tom Errington, Charlie Eustice, Jake Jones, Alex Kalinauckas, Samarth Kanal, Lewis Larkam, Mark Libbeter, Dan Mason, Damian Meaden, Rory Mitchell, Lucy Morson, James Newbold, Jason Noble, Brian Phillips, Graham Read, Hal Ridge, Peter Scherer, Ian Sowman, Oliver Timson, Ian Titchmarsh, Eddie Walder, Richard Young

Advertising

Tel +44 (0) 20 3405 8106 Email autosport.ads@motorsport.com
Sales Manager **James Robinson**
Display Advertising **Don Rupal, Karen Reilly, Jamie Brooker**
Classified Advertising **Fran Hall, Ben Kavanagh**
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Advertising Production

Tel +44 (0) 20 3405 8131
Production Controller **Abbey Gunner** abbey.gunner@motorsport.com

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Stuart Williams

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Managing Director **Tim Bulley**
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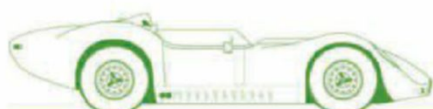
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FITNESS IS NOT A NEW TOPIC TO

Autosport Performance, but it is one that is pleasingly gaining momentum in motorsport. Formula 1's new regulations and the conversation around how tough it will be for the class of 2017 are playing a key part in that.

That meant that the opportunity to send our Grand Prix Editor Ben Anderson on a crash course in F1 fitness was too good to pass up. Who better to experience it than the man who spends most of his weekends critiquing the guys on the grid? And who better to learn from than McLaren, which is investing a lot of time and money into exploring the human side of grand prix racing?

In addition to the cover feature, which also includes details of how Carlos Sainz has been attacking the off-season, this issue of Performance features expert contributions from Rob Wilson, Gordon Shedden and Sam Bird. Between them they tackle how you rescue a race, how you tame Thruxton, and how you can stop agonising over your image and focus on what counts.

Thanks, as ever, go to our partners and the professionals who have taken the time to help us put this together. We hope you find it valuable.

SCOTT MITCHELL PERFORMANCE EDITOR

scott.mitchell@haymarket.com

Twitter: @ScottAutosport



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ART EDITOR Michael Cavalli; CHIEF SUB-EDITOR Peter Hodges; SUB-EDITORS Stuart Codling, Caroline Stammers;
COVER IMAGE MAUGER/LAT ADVERTISING ENQUIRIES Don Rupal email don.rupal@haymarket.com or call 020 8267 5244



MASTERCLASS

WITH ROB WILSON

HOW TO STAY FOCUSED TO TURN AROUND A BAD RACE AND PUT PRESSURE ON A RIVAL – EVEN ON THREE WHEELS!

Raikkonen, here chasing Nico Hulkenberg, is patient while pressuring rivals



HONE/LAT

R

acing drivers exist to win, but even top racing drivers can find their best-laid plans frustrated, watching a race they should be winning slowly slipping from their grasp.

The first thing to do in this scenario is ask yourself why you are falling back – what are *you* doing wrong? Assuming parity of equipment (which will likely be the case given the proliferation of single-make categories in modern motorsport), you must assume that the driver in front is making fewer mistakes than you are.

You would already have a sense from qualifying whether this rival is fundamentally faster than you but, assuming you are capable of matching them in qualifying, and that there is no fundamental reason why you cannot beat them ordinarily, you must realise the fault most likely lies with you.

You may have outqualified this driver, but he's beaten you off the start line. Suddenly, your rival is pulling away from you by a tenth or so every lap. What's going on?

What's happening is he is driving your car for you, and within a few laps you'll see clear daylight between his rear diffuser and your nose. The first mistake, usually, is to try to make time up under braking. That usually leads to braking a bit harder, a loss of downforce (if your car has wings and

you're in the slipstream of the car ahead), then a lock-up of your wheel as you turn into the corner, a little bit of understeer, running wide, a worse exit, and before you know it a tenth per lap has become a tenth and a half.

The next thing that usually happens in this downward spiral is that you try to get back on the throttle a bit sooner, to get a better exit. But that leads to some understeer (if the car has a surfeit of rear grip), or some oversteer (if it doesn't), or even the entire car running wide. A tenth and a half per lap is now three tenths...

The survival instinct will also have kicked in twice by now, making you less confident in another braking zone, and less firm on the throttle the next time you need to plant your right foot.

Sometime later your attention will turn elsewhere – 'I'll carry a bit more speed into the corner that's *almost* flat.' But no matter what, you just doesn't seem to gain anything, because doing this means a bit too much lateral g for a bit too long, which means you end up driving a longer corner than the guy in front, negating the potential benefit of your bravery. Three tenths per lap is now four tenths, and the driver ahead is looking in his mirrors, growing rapidly in confidence.

I spend so much time telling drivers 'you've got to drive

two cars at once – your own and the one behind'. You have got to appear impregnable to your opposition. You don't ever want to look like you're trying too hard, or show signs of vulnerability.

Managing your car's body language is vital, because other drivers will take cues from that. Jackie Stewart was a master of this – he would slow down after building a big lead, knowing the rest of the field would also slow in sympathy. Stirling Moss used to throw his car around unnecessarily in very wet conditions, to make it look like driving as fast as he did was tougher than it actually was! He knew it wasn't the quickest way, but he also knew he could discourage rivals by showboating. 'If Moss is on the limit here I better be careful...' Sometimes, reputation is enough.

All these problems occur and now we're halfway through the race, eight tenths down and dropping out of the slipstream. You need to be a very structured driver to deal with this. You need to ignore the fact that you are being pulled away from. You must drive in your own bubble, going through all the things you've (hopefully) learned: the need to move your body correctly, giving the car minuscule advance warnings of the rate you transfer weight, introducing the brake pedal properly, transferring

Jenson Button closes on Sebastian Vettel in Canada in 2011 before forcing the Red Bull driver into a last-lap error



Stewart recovered from a puncture to clinch the 1973 title in the Italian GP

“I spend so much time telling drivers ‘you’ve got to drive two cars at once – your own and the one behind’”



Graham Hill charged back brilliantly from a delay to win 1965 Monaco GP

weight to the nose in a progressive way, creating a harmony with the track surface. No snaking under braking, or locking up.

By doing this we avoid giving ourselves any frights. This allows us to fractionally ease off the brake pedal, transfer some weight through the steering with a minuscule turn, and suddenly the car will start following its nose. This prepares the car for what's coming, and helps minimise the effect of further mistakes. If you make your corners shorter, you will also reduce tyre degradation, which will bestow advantage on you the longer the race, or stint, wears on. Don't be obsessed with being the fastest through every corner; with a straighter approach you'll find you can save tyres without losing time to your rivals.

By this method we will begin to circulate closer to the way in which we produced our qualifying lap. Lo and behold, you will probably start closing back up on the car ahead.

Your plan now has to be to start driving your rival's car, as well as your own. You can occasionally distract them by moving around in their mirrors. This may look like a waste of energy, but any form of distraction will slow a driver down. It's about making your rival think about what you're doing, rather than what they are doing. You don't want

to be doing it all the time, but an elephant occasionally swinging its trunk in the rear-view mirror will have its uses.

You need to avoid getting into 'kill' mode – 'I'm going to get this driver!' You need to go into 'art-and-craft mode'. If you simply concentrate on the elements of driving that are important, you can hunt the other driver down without making mistakes yourself.

There will be drivers who go better in the race, but those are usually the drivers who have yet to maximise their car on their own in qualifying. In the heat of battle they see someone else do something and gain the extra confidence to do the same. Top drivers can usually do their absolute fastest lap in qualifying. What you have to do in a race that's getting away from you is rediscover that qualifying mode.

It may take four or five laps, but eventually the other guy will crack and give it to you. Kimi Raikkonen is very good at this. He won't often outbrake people, but he will get nearer and nearer and nearer, and in a certain percentage of races someone may give it to him. That didn't happen with Max Verstappen at the 2016 Spanish Grand Prix, but that's what Kimi was aiming for. A lesser driver may well have folded under the pressure.

Lewis Hamilton made this approach work for him in

Austria last year, pressuring Nico Rosberg until the leading Mercedes clouded the inside kerb too heavily at Turn 1 on the final lap, giving Hamilton the run he needed to attack at Turn 3. Hamilton's relentless pace provoked a costly mistake from Rosberg. Lewis began to drive Nico's car for him.

It's all about making fewer errors than the guy ahead. Even if your car suffers a serious mechanical problem you should never, ever give up – unless compelled. I once lost a wheel at Tampa, Florida. I dropped to the back of the field, but still finished ninth. The circuit was mostly right-handers and I passed people on the pit straight. Davy Jones, who was driving the Tom Walkinshaw Racing Jaguar at the time, was watching from the pitlane. He said he would have given up racing at the end of the lap if that happened to him! No-one wants to be overtaken by someone with three wheels on their wagon...

Every race is a sum of imperfections. Your job is to be closer to perfect than anyone else. Staying within your own bubble and concentrating only on circulating as fast as you can, while realising you have the power to influence the race of other drivers as well as your own, is the most effective way to turn a bad race around, and perhaps snatch victory from the jaws of defeat.

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INSIDE LINE

SAM BIRD

THE 30-YEAR-OLD IS ONE OF BRITAIN'S MOST SUCCESSFUL RACERS OUTSIDE F1. BUT SUCCESS HAS BEEN A LONG TIME COMING

CAREER Highlights

- 2016-17** 6th Formula E (DS Virgin Racing) 1 podium*
- 2016** 2nd GTE Pro WEC (Ferrari) 2 wins, 5 podiums
- 2015-16** 4th Formula E (DS Virgin Racing) 1 win, 2 podiums
- 2015** Champion LMP2 WEC (G-Drive) 4 wins, 7 podiums
- 2014-15** 5th Formula E (Virgin Racing) 2 wins, 3 podiums
- 2014** Le Mans 24 Hrs debut (Ferrari) in GTE-Am; Daytona 24 Hrs and Sebring 12 Hrs
- 2013** 2nd GP2 (Russian Time) 5 wins, 6 podiums
- 2012** 3rd FR 3.5 (ISR) 2 wins, 7 podiums
- 2011** 6th GP2 (iSport) 3 podiums
- 2010** 5th GP2 (ART) 1 win, 5 podiums
- 2009** 8th European F3 (Mücke) 4 podiums; 3rd Macau GP (ART)
- 2007** 4th British F3 (Carlin) 2 wins, 10 podiums
- 2006** 3rd FR 2.0 UK (Fortec) 4 wins, 8 podiums
- 2005** 2nd FBMW UK (Fortec) 6 wins, 11 podiums

A

fter 2013 I felt very disillusioned with everybody's perception of me. What more did I need to do to get a chance? I felt like I was, in a lot of people's eyes, a reasonably good British driver but

there were plenty of other international drivers who people perceived were better than me because they were 'a name'. I don't think anybody ever saw me as a big name, which annoyed me a bit.

Now it doesn't bother me anymore. If people don't consider me a big name, fine, I'm not going to worry about it. I don't mind being an underdog, who people don't expect to see up there. If we continue to work hard, if the car is there to win, I believe I can take it to win races and win titles. I've got no doubt about that.

I continue to grow as a driver. I didn't make it to F1 – fine, whatever. I continue to learn: I might learn new things from every new engineer I work with, and I evolve from new experiences in my WEC and FE career.

I was always an arm's length from getting a race seat in Formula 1. Mercedes treated me brilliantly, I loved my work there and they treated my work seriously when I was in the car. I like to think they valued the work I did. When it boiled down to getting a race seat, it would have meant taking a lot of money to a team. I wasn't going to get a free drive – I'm not a Stoffel Vandoorne or a Max Verstappen. They



When we're qualifying at 200kW and you've got one chance to do it – it is so much more difficult than any qualifying I ever did in GP2 or World Series. With other series you have more chances. Two sets of tyres, two laps on each set. At worst you'll have one lap and one lap. This is one chance. If you don't do it, if you make a small mistake, you'll be 15th and your weekend is done. I think I did two laps last year where I extracted the maximum out of the car – only two laps where I can hold my hands up and say 'Yeah, I got the most out of that'.

I no longer feel like I need to go out and impress other people. I go out there to race for myself. Which is a much nicer feeling – there's not worrying or looking over my shoulder and asking 'Have I done the right thing?' or, if I'm three tenths off, 'Oh are they looking at that? Is my job over?'. I get the maximum out of it and I know if I've dug 100% out of the package I can, I can hold my head high

"I don't mind being an underdog. If the car is there to win, I believe I can take it to win races and titles. I've no doubt about that"

don't come around very often. I wasn't one of them. I've had to work to get to where I am and I wasn't going to be given a n opportunity in a Mercedes-powered car.

So we were exploring new opportunities, lots of names had been bashed around FE, and it was new and the press were hyping it up a bit. I was excited about it, but I

didn't know what it was going to be. In that respect it was a bit of a risk, but I'm so glad I took it now.

Coming from an F1 and GP2 background, the speed was quite a bit lower but it never disappointed. When you're driving at the maximum, its grip will allow it still feels quick and tests your ability as a driver.

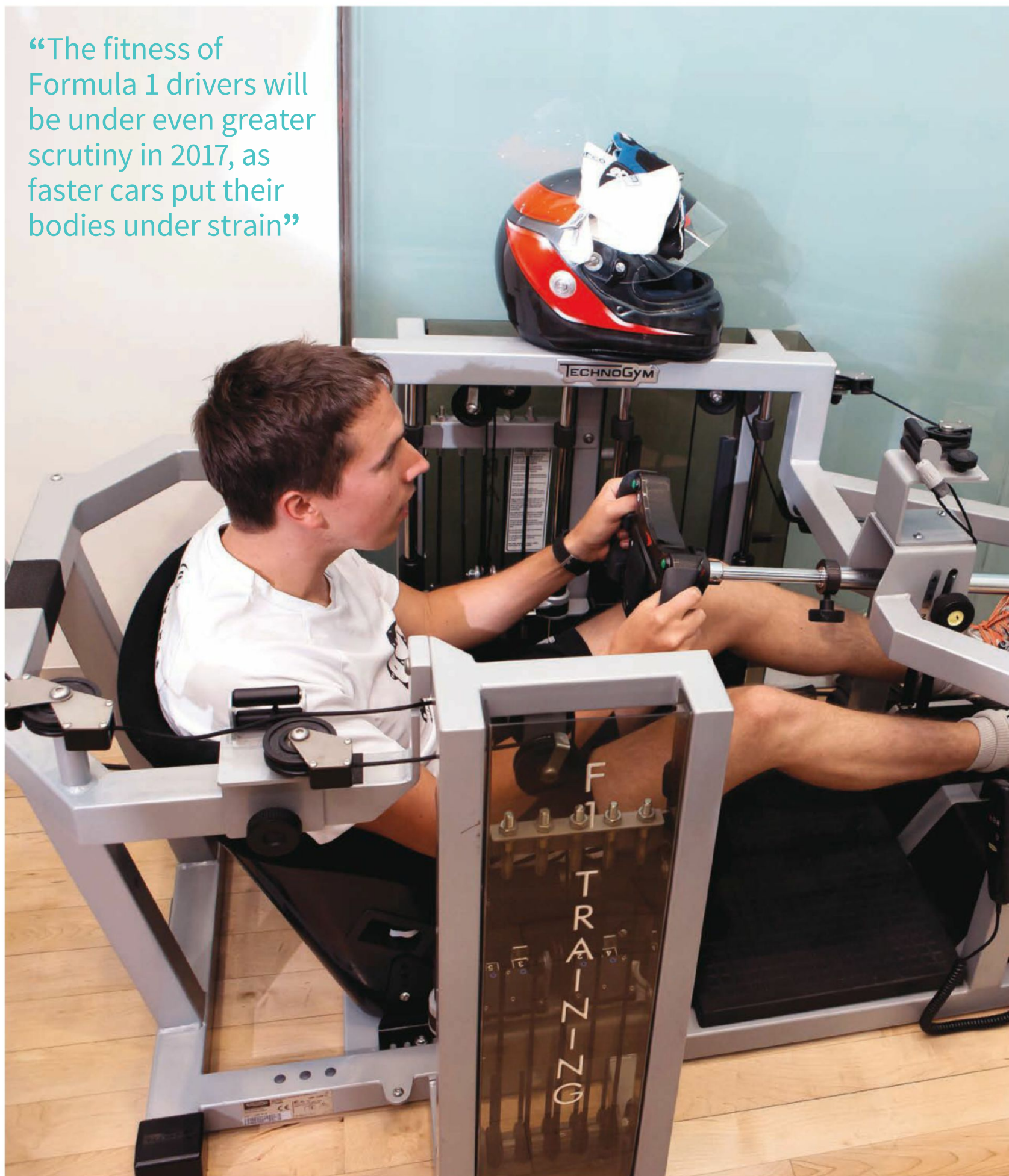
and be happy. Fortunately the maximum I can do at the moment is a reasonable standard! I'm 30 years old now and I'm mature, I know how it works – I can bring the car home in the points and keep the team happy.

The things I've learned are small but can be crucial to turning third on the grid to first. The cars are adapting and I need to adapt with those techniques and procedures and learn and improve with the team. I feel like I've got a few more things to learn in the GT world than I do in the FE world. GT is still kind of fresh to me, I'm racing against guys who have been doing it for years.

It is different, very different – the weight transition and things like that. But the easiest way of thinking about it I've found is to think it's just another car. I just told myself, 'Sam, you've driven everything you could have in Europe...'. Now it's second nature to drive it and there's no worrying, but in the beginning, I thought, 'What if I don't get on or it's not for me?'

But I love it. I'm extremely happy with GT with Ferrari. I wouldn't want to change that for the world, and I'm very happy with DS Virgin Racing as well. I've got two mega jobs and long may that continue – it's a good position to be in.

“The fitness of Formula 1 drivers will be under even greater scrutiny in 2017, as faster cars put their bodies under strain”





HOW TO BECOME...

F1
FIT

FORMULA 1 CARS ARE EXPECTED TO BE UP TO FIVE SECONDS A LAP FASTER THIS SEASON, ADDING GREATLY TO THE PHYSICAL DEMANDS ON DRIVERS. BEN ANDERSON PUTS HIMSELF THROUGH THE TRAINING REGIME

Professional racing drivers are super-fit; that's par for the course in modern motorsport. But the fitness of Formula 1 drivers will be under even greater scrutiny in 2017, as faster cars with enhanced aerodynamics and bigger tyres put their bodies under much greater strain than they've grown accustomed to in recent years.

Force India's Sergio Perez predicts that F1 drivers will be "destroyed" when they begin pre-season testing on February 27, while they adjust to the extra demand placed on them by higher g-forces.

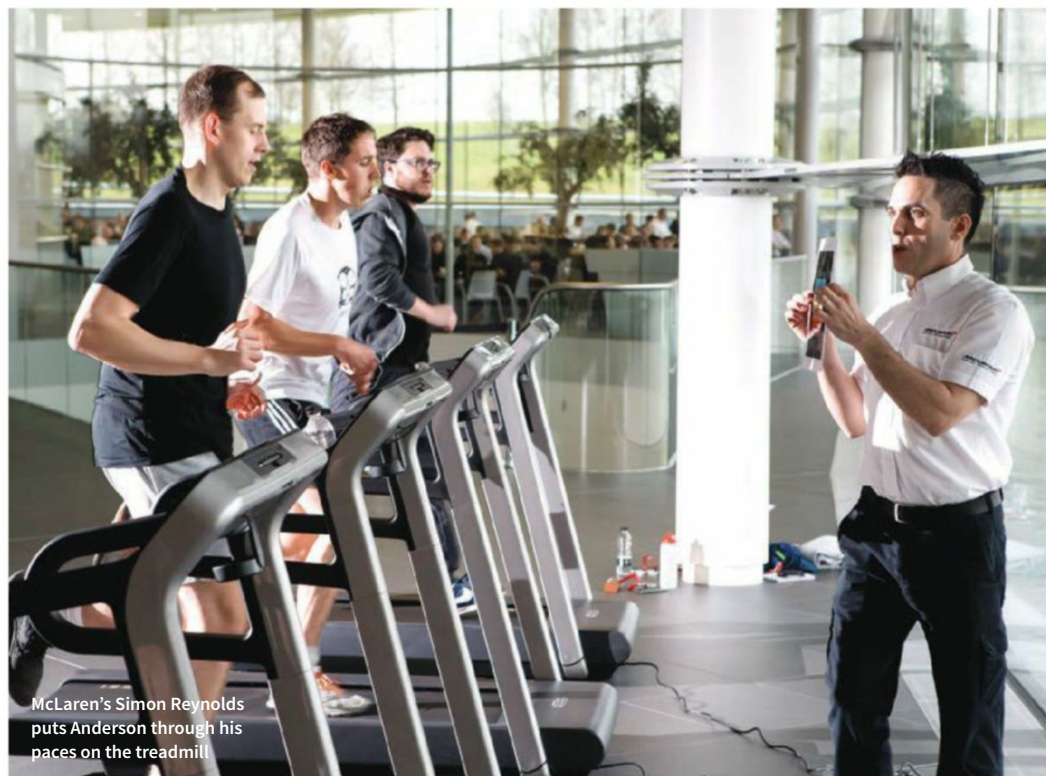
Haas newcomer Kevin Magnussen skipped his winter holiday to stay at home in Denmark and complete extra training, while Toro Rosso's Carlos Sainz Jr has also been following an expanded fitness programme.

"The cars will be harder to drive, so the training we've been doing up to late last season won't be useful," says Sainz, who has boosted his weight by four kilograms to 70kg over the winter. "Instead of the usual 50 minutes [crossfit sessions], we now do between 90 and 120 minutes, the same [duration] as a grand prix.

"So I work out for longer times at around 180-190 beats per minute. I also include boxing and cardio work in those sessions, which all in all means I work my physical endurance more by doing stuff all the time."

Sainz's performance coach, Rupert Manwaring, has put a particular focus on strengthening the neck and shoulder muscles. "We work out the neck in two ways," adds Sainz. "Firstly, we pull and hold weights with it in the gym, which is very similar to what we will do on the track – resisting g-forces – and secondly we are doing specific go-karting, which I do two or three times a week." ►

ROB COOPER/RWCF PHOTO



When karting, Sainz uses a helmet that has greater ballast in certain areas to help work the neck muscles harder: "Those weights make my helmet around 1.5 to two kilos heavier, which translates into similar g-forces I'll have to withstand in my F1 car."

Perez's new team-mate Esteban Ocon also increased his winter training camp from two weeks to two months, to prepare for the expected increase in physical demand. "It's from 9am to 9pm, double the intensity of the work," Ocon says. "It's to put muscle on, to put weight on."

The need to run V6 hybrid engines and their associated Energy Recovery Systems means Formula 1 cars have grown fat in recent seasons, putting extra pressure on drivers to be as lean as possible.

That pressure will increase this year, even though F1's minimum weight limit has increased to 728kg to accommodate the cars' enhanced dimensions and Pirelli's wider tyres. These new elements mean that this year's F1 cars will be almost 100kg heavier than they were in 2013, before hybrid engines were adopted.

For taller drivers in particular, increasing strength while trying to keep weight off will be a major challenge. In any form of racing, excess weight is the sworn enemy.

"This is the most challenging part of devising a [training] programme, to enable them to be all of those things," explains McLaren driver performance manager Simon Reynolds, who has trained ex-McLaren F1 drivers Heikki Kovalainen and Kevin Magnussen, as well as newcomer Stoffel Vandoorne.

"And they must have that balance between being strong and robust, while having the endurance capacity to last two hours in those hostile environments.

"If you're taller you still have to maintain that lean weight, and ideally be lighter. When you're a very tall driver, like [Mark] Webber, Jenson [Button] or [Nico] Hulkenberg, compared with someone like Lewis [Hamilton] or Heikki – much shorter in stature – it's easier for the shorter guys to get away with extra muscle mass.

"But size isn't always about being strong – you can be strong and be smaller. It's all about the density and compactness of the muscles. Low-repetition, heavier-strength training won't necessarily have the adaptations of growing big muscles.

"That's really important for the drivers. Somebody like Stoffel is very, very lean, which helps with thermoregulation of body temperature in hot environments such as Malaysia.

"It's all about the periodisation of the training. In laying the initial foundation you will always get some muscle-mass increase, then you eventually move into the end of the off-season, where you're looking to peak the driver and work on endurance.

"With more endurance training you're able to remove some of that [muscle-mass] gain but still maintain the strength, because you maintain the strength in the background – maybe once or twice a week to stimulate

"Racing drivers need to operate at a high level in a range of athletic endeavours to build strength and endurance"

the muscles. But your main focus will move to the more sport-specific element of it, which is endurance-based training with higher repetition."

Unlike some athletes, who focus intently on particular disciplines, such as running sprints, Reynolds says racing drivers need to operate at a high level in a range of different athletic endeavours, in order to build up the necessary strength and endurance to be successful. Essentially, they must be Jacks of all trades.

"Rather than sticking to one type of training, like running, where you have a higher chance of injury, drivers will do biking, running, swimming, rowing, even cross-country skiing – if you're Kimi or Bottas!" ►





Running is just one of the cardio exercises drivers undertake while training

NUTRITION

WHY WHAT YOU EAT MATTERS IN RACING



NATASHA GODFREY McLaren nutritionist

Currently there's little information on specific nutrition for motorsport athletes, so we need to go about this from a different angle. In every sport there are physiological and mental-performance variables – VO2 Max is a key physiological factor for long-distance endurance runners; core strength and flexibility for gymnasts. What might a driver need?

PHYSICAL ENERGY

With physical energy, for blood flow to the body, hands and feet, and to provide strength and endurance capacity, what we want is oxygen, glucose and specific nutrients. We can get glucose from citrus fruits and dried apricots; antioxidants are also important.

MUSCULAR STRENGTH

In a contraction we have sodium, calcium, potassium, magnesium and iron, so we need to get that from our diet in some way. Protein is a good source – beef, salmon, tuna and supplements.

PREVENTING FATIGUE

Wholegrains [are good] for fatigue preventions – things such as fibre, brown rice and oats.

CONCENTRATION

Caffeine we know is a stimulant, and is really important to maintain concentration – for that we could imbibe green tea or dark chocolate. For mental energy we know it's about cerebral blood flow. Cocoas, green tea and blueberries are among the most potent polyphenols. These release antioxidants, which increase basic dilation and blood flow. We can also get Vitamin C and Vitamin E from citrus fruits, kale, almonds, broccoli. When it comes to concentration we've got a neural transmitter called dopamine. We want to be able to be calm, and be able to concentrate. Tyrosine, a protein found in soya beans and parmesan cheese, is able to synthesise these compounds.



BRAIN FUNCTION AND REACTIONS

For optimal brain function and reaction time: Omega-3 fatty acids found in oily fish (such as salmon, mackerel and sardines). Fish is an important source, but if you're a vegetarian you don't have to miss out. They're also found in flat seeds and walnuts. A few B vitamins – B6, B9 and B12 – are the critical ones in maintaining brain health. You can find them in pork and poultry, broccoli, spinach, shellfish, cod and eggs. Vitamin A, found in liver, sweet potatoes and peppers, is good for memory.



REYNOLDS'S TOP 5 EXERCISES TO PREPARE FOR FORMULA 1 2017 SEASON

01 FRONT SQUAT

The front squat develops muscles that must produce tremendous force to slow the car from speeds exceeding 200mph. At this point, the pedal loading required can be as high as 150kg.

02 SHOULDER SHRUG

The best complement to neck conditioning and grip strength, as the muscles involved help prepare for the high g-load and steering efforts.

03 NECK HARNESS

One of the most effective methods of training the specific muscles of the neck musculature. This is the most essential tool for preparing the drivers for the possible 10-15% increase in g-force for 2017.

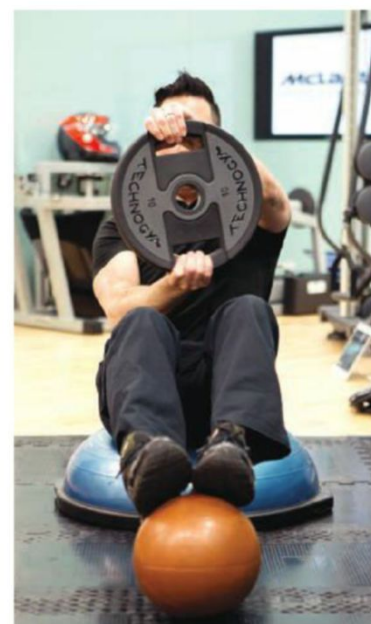
04 CYCLING

Endurance is the most vital physical component the drivers must develop. A combination of long slow distance, high-intensity intervals and tempo training will

help the drivers to develop their cardiovascular system to endure two hours of racing in temperatures exceeding 40 degrees.

05 PALLOF PRESS

Cornering at high speed in 2017 will be a major challenge. Counteracting these forces places huge load on the core muscles. The Pallof Press is one of a repertoire of exercises performed by drivers to build strength of muscles on the inside, as well as out.





"Strength and conditioning have become a much greater part of a driver's training. Before, it was all about going out for a run, doing loads of cardio and a few push-ups and pull-ups and things like that. Now we're developing programmes with more of an emphasis on strength and conditioning – even lifting very heavy loads at certain points of the season, if required by a driver to build up the robustness of their body.

"Robustness is an important aspect for any athlete, to endure stress and g-force. Once the driver is at ease with their physical makeup they can focus fully on the driving."

F1 drivers need the mental agility of chess players, the reactions of a tennis champion, the endurance of

"McLaren monitors its drivers' vital signs while they use the team's simulator"

marathon runners, and the balance and coordination of top surfers. Their bodies must be prepared to withstand the extreme and repeated stresses of g-forces and vibrations, as well as the draining effect of the adrenalin produced within them, and the heat of the cockpit, all while remaining mentally alert enough to deal with team radio and race strategy.

Reynolds says training will sometimes involve drivers solving mathematical equations while performing strenuous physical exercises, to test their ability to multi-task, which is a vital component of being a top racer.

"Formula 1 10 years ago was very [physically] challenging," says Reynolds. "Now, drivers have to manage energy and power-unit systems and settings, which is very mentally challenging. There's a lot more to think about, a lot more management during the race.

"Compared with 10 years ago, the car was more physically challenging but the capacity to keep the car on track and manage it – I'm not saying it was easy, it's never easy, but now it's extremely challenging. The last three or four years they've become more difficult to operate, because you have more technically advanced systems. I'm calling this year the 'new driver era'. Now we're

bringing the loads of 10 years ago into this era, it's going to be physically *and* mentally challenging."

McLaren trains its young drivers to such advanced levels that they could become personal trainers themselves. They are regularly subjected to extreme interval training, endurance testing, and strength and flexibility tests.

Much of the equipment used at the McLaren Technology Centre is akin to what you'd expect to find at most gyms: treadmills, spin-bikes, cross-trainers and weight machines. But some interesting driver-specific systems have also been developed, including a single-seater cockpit hooked up to weights, which is designed to simulate the steering load of a GP2 or Formula V8 3.5 car (reckoned to be the heaviest in modern motorsport).

This equipment is hooked up to a TV monitor, which displays onboard laps with Jenson Button's McLaren-Honda around Barcelona's Catalunya circuit. The driver steers in coordination with the video, and thus works the specific muscles they would use if driving a GP2 or Formula V8 car for real.

McLaren also monitors its drivers' vital signs while they use the team's simulator, to gather data on how their bodies perform and react while 'driving'. Real-life data acquisition of this kind is forbidden in F1, where only an in-ear accelerometer is allowed.

Of course, most racing drivers aren't professional and don't have access to the McLaren Technology Centre's gym, or its Technogym equipment and expert staff. Nor is it possible for most non-professionals, for whom the rigours of day-to-day life provide constant obstacles, to dedicate themselves to training in the same way.

But there are some important lessons. Better nutrition and higher levels of physical fitness won't make you a faster driver, but they will allow you to perform at your personal best for longer, which could make the difference between having a good race or an average one.

McLaren is so convinced by the benefits of good nutrition and fitness on productivity that it wants to roll out a wellness programme across the entire company.

"You want the same capacity at the end of a race as you do at the start and the middle," says Reynolds. "Otherwise fatigue will set in, which will affect your concentration levels, and that's going to be detrimental to performance."

Formula 1 drivers will need to be fitter than ever in 2017. You should aim to be too because, even if you're not a racing driver, it could still help you perform better when doing what you do. ■

TYPICAL TRAINING DAY DIET PLAN

0700 BREAKFAST 550 kcal

- 400ml water and a squeeze of lemon juice.
- Hydration
- Oat porridge with blueberries, honey and sunflower seeds. **Slow-release carbohydrate, polyphenols, glucose and Vitamin E**
- One medium slice of granary toast and almond butter. **Slow-release carbohydrate, fibre, protein and magnesium**
- Green tea. **Moderate caffeine, antioxidants**

0800 ENDURANCE TRAINING SESSION *Mineral water

1000 POST TRAINING SNACK ~285 kcal high-carbohydrate and medium-protein

- Cereal and peanut bar 140 kcal. **Wholegrains, protein, monounsaturated fat**
- Citrus fruit ~100 kcal. **Vitamin C**
- 250ml Coconut water 45 kcal. **Loads of essential minerals for working muscles (potassium, magnesium and calcium)**

1230 LUNCH 775 kcal

- Tofu stir-fry (**tyrosine**) with garlic (**anti-inflammatory**) mixed vegetables and wholegrain rice noodles 650 kcal
- 85-90% cocoa dark chocolate (2-3 squares) 90 kcal. **Polyphenols, iron (anti-oxidants, brain function)**
- Fresh coffee with soya milk (35kcal) or green tea. **Caffeine**

1300 PRE-ACTIVATION SESSION

- Banana 110 kcal and 225ml apple juice 105 kcal. **Potassium, fibre, glucose**

1630 STRENGTH TRAINING

*Mineral water

1800 PREHABILITATION WORK

1830 DINNER 750 kcal

high-protein and medium-carbohydrate

- Small baked sweet potato. **Vitamin A, C and B vitamins**
- Grilled mackerel. **Omega-3 fatty acids**
- Salad (spinach, rocket, red onion, tomatoes, avocado, cucumber). **Lots of vitamins and minerals**
- Yogurt and mixed berries. **Calcium, Vitamin B6 and B12, polyphenols**

2100 SNACK

- 3-4 wholewheat crackers with marmite and teaspoon grated parmesan 150 kcal. **B vitamins – esp. Vitamin B9, tyrosine**
- 1 portion of fruit 70 kcal
- Caffeine-free herbal tea

2200 BEDTIME

~2800kcal (2785kcal)



Photography by Jakob Ebrey



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HAVING PROPER INSURANCE COVER CAN MAKE OR BREAK YOUR SEASON, AS CHARLIE BUTLER-HENDERSON FOUND OUT



Club racing may not have the global gravitas of Formula 1, but the opportunity to race for a championship title can make any category, whatever its level, the most important thing in the world to those involved. And there's a much deeper personal connection with club racing for leading national drivers or 'weekend warriors' compared with paid professionals, because the racing, by its very nature, is a more personal effort. These people experience every aspect first-hand: buying the car, preparing the car, running the car... and repairing the car.

So, picture the scene. You've had some time on the sidelines because the day job and a lack of budget have conspired to stop you from racing as much as you want. But you've managed to put together a deal that means you're back on the ground in a competitive series – and,

what's more, you're in with a chance of the title. The season starts well, and you're feeling confident.

And then, at the penultimate round, you bin it. Big time. This is everything to you, and you've put everything into this season. There's not much time until the championship finale – what are you going to do?

"The first thought is, 'Thank God I'm OK, and ouch!'" says former British Touring Car racer Charlie Butler-Henderson, whose second season back racing in the Mini Challenge last year featured a ferocious accident at Oulton Park (pictured above). "The second thought was, 'Thank God I'm insured!'"

"After the shunt I worked closely with the team at Mini and Ryan Motorsport Insurance to get everything straightened out. I was on the phone on Tuesday morning and they arranged for the funding quickly, so I could get a second car sorted and get back on the grid."

Butler-Henderson, who won the Mini title in 2015, ultimately finished third last year, but even being in the title fight at the final round was only possible because his insurance covered the cost of repairing his car.

"I've always raced with insurance, because I've always raced on very tight budgets," he explains. "I do find it helps mentally because it takes an unknown variable out of the picture. It does cross my mind during races too."

"Single-make championships are so close and there can be a lot of rough-and-tumble stuff, so knowing that the worst it can cost you is your excess when weighing up a risky move on track does help."

"You need to push to the very last tenth in single-make racing, and I couldn't do that knowing I could risk ending my season at the first round owing to a huge damage bill. I wouldn't race without insurance at the level I am."

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RYANMI
+44 (0)1799 524202
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LATEST GEAR

WHY YOUR OWN SEAT MAKES A DIFFERENCE

IT'S EASY TO UNDERESTIMATE THE BENEFITS OF A PROPER SEAT-FITTING. THAT'S WHAT SCHROTH'S INDI SEAT AIMS TO FIX

You read about it all the time when there's a big driver move coming in the racing world. "Driver X has had a seat fitting for Team Y ahead of..." The seat fit is a key part of a driver's set-up, and that applies equally for someone who has access to a professional race facility or for a driver who is doing it privateer-style.

Regardless of who actually carries out the seat fit, the process should be taken very seriously. And it pays for a

driver to be aware of what they should be looking for. It's all too easy to underestimate the impact – positive or negative – the driver's attitude will have.

First, why does it matter? Chris Norton, a Schroth iNDi Seat expert, splits it into three categories – safety, performance and legality.

"The driver has to be positioned in the safest position, and the seat material must have energy absorbent performance to protect the body," he explains. "Some

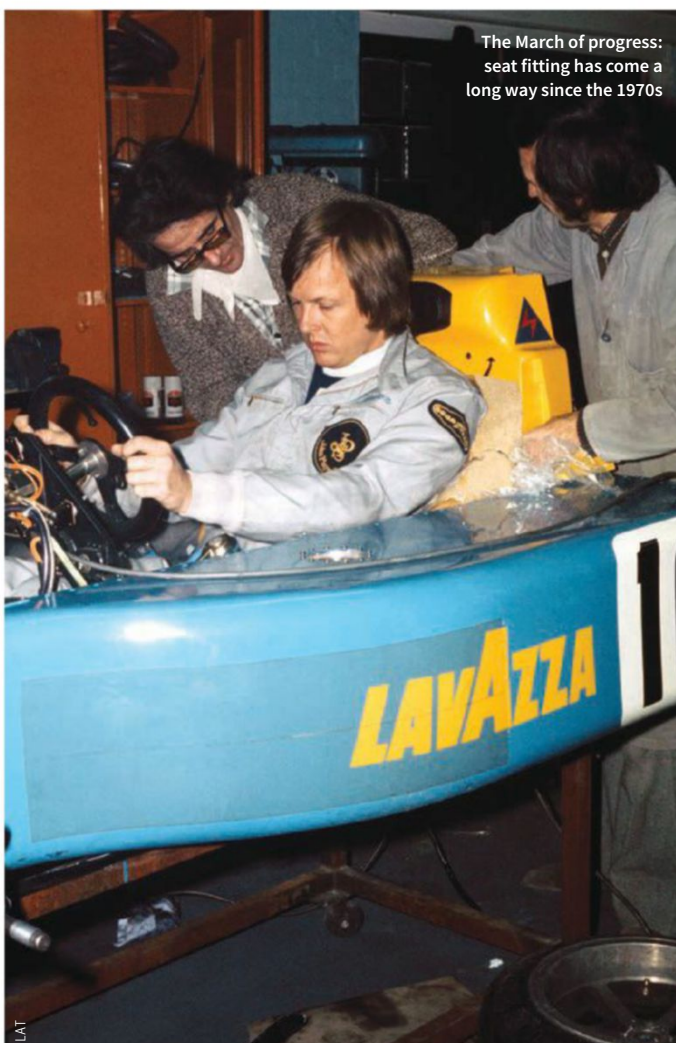
materials say they have energy-absorbing qualities but when you consider it, it's a head impact test that they meet. That is different to what the body needs in an accident.

"The driver needs to be held securely in the seat moulding, so during the fitting checks are made to ensure the driver is sitting straight and equal in the car. This means the pelvis, shoulders legs are all symmetrical."

While F1 is the pinnacle, most modern racing cars put the body through a lot of physical pressure. So that



Single-seater series have strict regulations covering the seating position



The March of progress: seat fitting has come a long way since the 1970s

symmetry will also reduce the risk of a driver developing a muscle injury through sitting in a slightly offset position. Norton also reckons "it can aid in reducing driver fatigue".

Of course, on-track performance is what drives everyone involved in racing. A correct seat fit will facilitate high performance, while a bad one can have a much bigger impact in the opposite direction.

Norton says a driver should make sure the "pedals, steering wheel and controls can all be reached naturally". This means no over-reaching on full lock, or stretching to apply full throttle. Efforts should also be made to make sure the driver can easily see without compromising their position, otherwise identifying apexes will become trickier.

The final element, legality, is of particular relevance to those carrying out their own seat fit since this is easily overlooked. Norton explains: "Most championships now have requirements on where the driver has to sit. For example, single-seater championships have a template that sits between the roll hoop and the front bulkhead. Most require a minimum measurement of 70mm."

Cramped cockpits and faster cars will always make being behind the wheel uncomfortable to a degree, but this only increases the need for each driver's fit to be the right one. That's why making the process universally professional, but simple at the same time, is at the heart of the Schroth iNDi Seat's design.

A BULLET POINT GUIDE

Schroth iNDi Seat expert
CHRIS NORTON

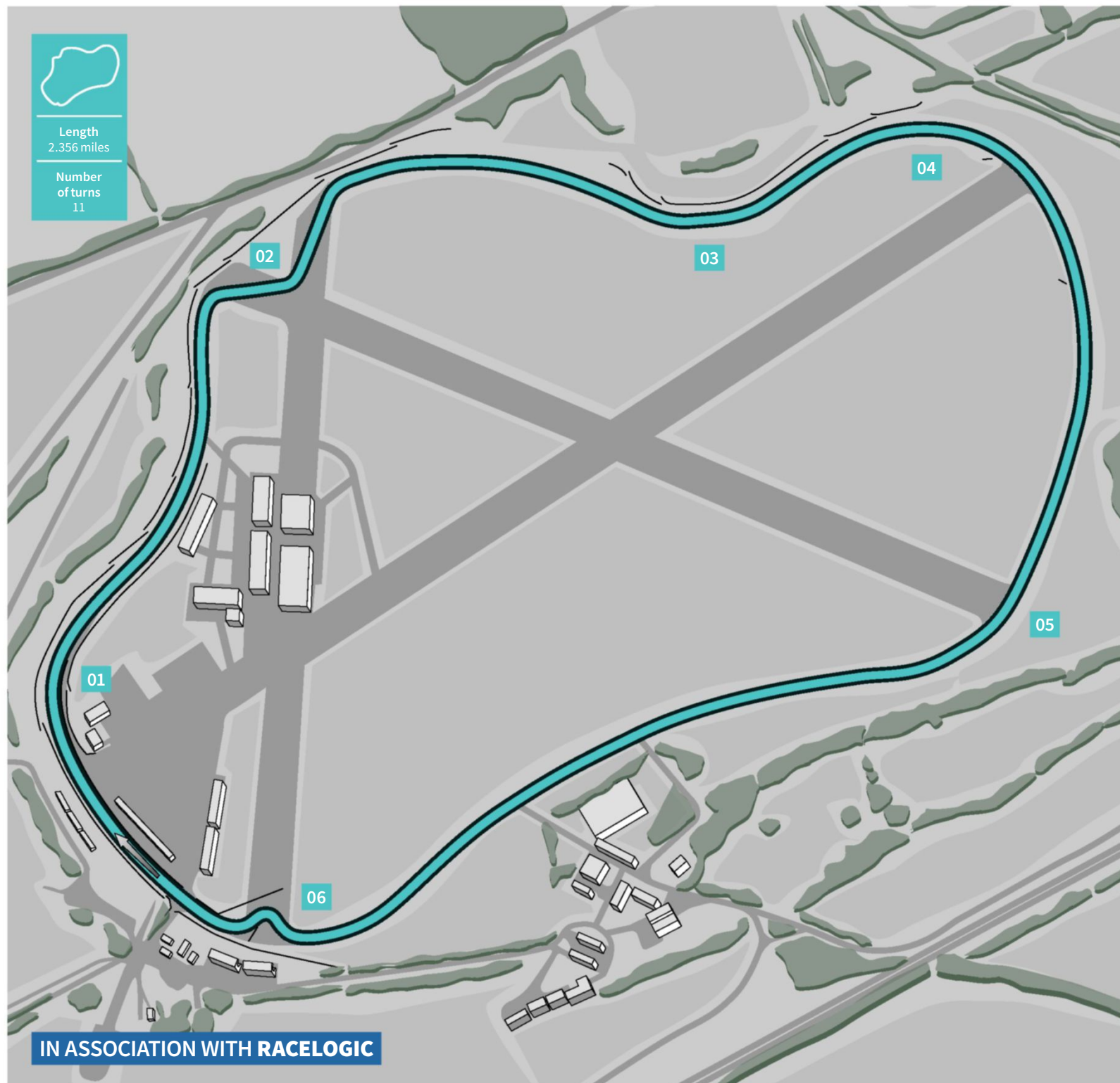
- Take your time, it's important
- Wear all your racing gear, race suit, boots, helmet and FHR
- Make sure the car is on the ground with bodywork on – if it has to be in the air, then make sure the front wheels and bodywork are on
- Get line-of-sight reference points so you know you are always in the right place
- Try all controls while you are working on the seat. Try lock to lock and make sure your knuckles clear your thighs. Make sure your elbows don't catch the seat when going through the steering input
- Make sure you can reach the pedals comfortably and instinctively
- Pedals and steering can be adjusted, but it's best to get them right before you commit to your seat position

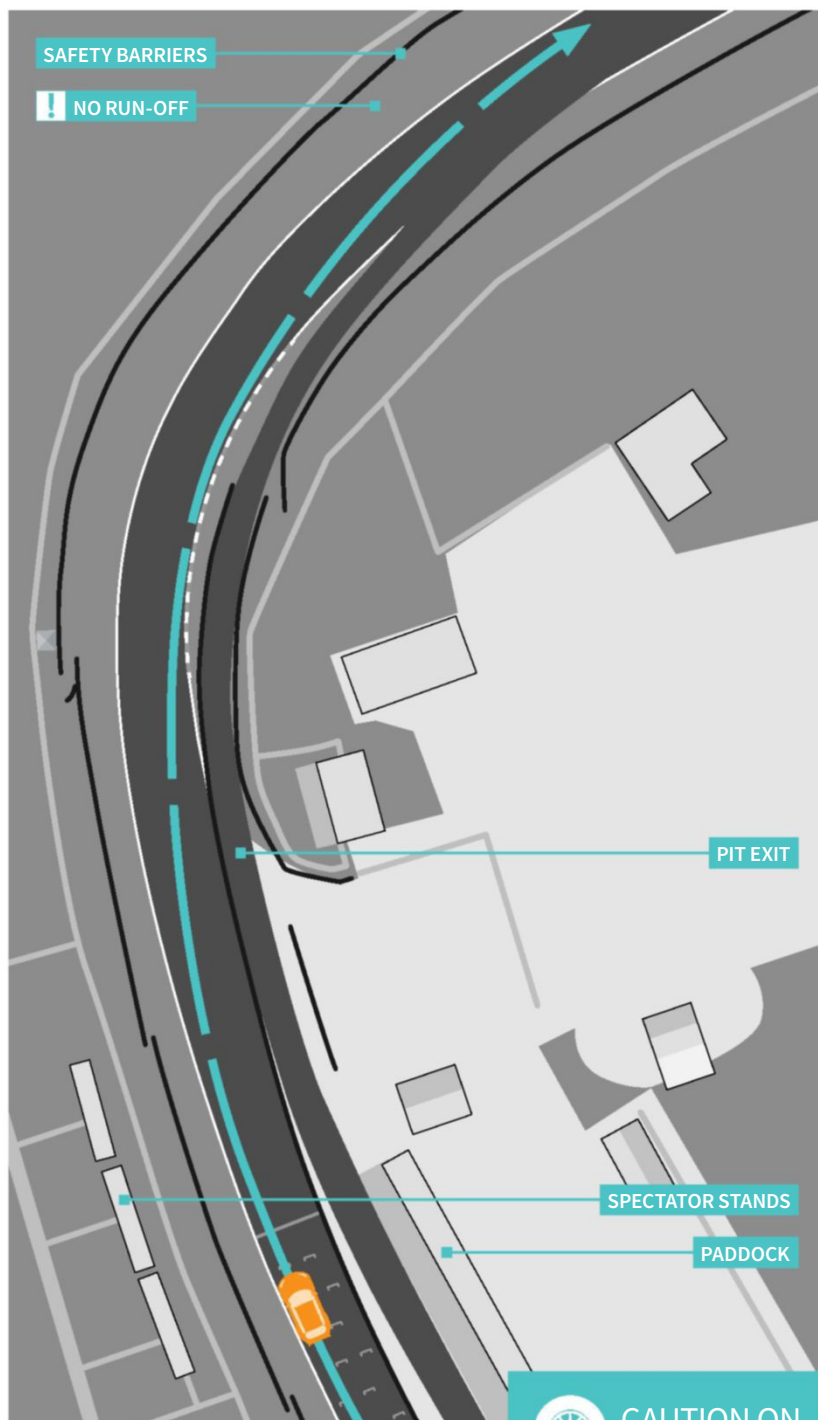


THRUXTON

GORDON SHEDDEN

THE THREE-TIME BRITISH TOURING CAR CHAMPION DESCRIBES A FAST LAP OF THE DEMANDING HAMPSHIRE SPEEDBOWL





01 ALLARD Turn 1

This is one of the most crucial corners, and it can make or break a lap right at the very beginning. You approach the corner in fifth gear and I have a little lift before I get there, just bleeding off the throttle.

It's one of the corners you have to have a lot of respect for and you build up to it across a race weekend. I certainly don't push it there right from the start. That's because if you run wide you'll either have a big accident on the outside of the corner, where there's an inviting tyre wall, or you'll be spat back into the barriers on the inside.

I will always turn in a little bit early for the apex, because I don't want too much rotation on the car mid-corner. That would scrub off too much speed, so I try to let the car find its rhythm around there. Then you blend back in to the throttle – but the drama isn't finished yet...



CAUTION ON COLD TYRES

Coming out of the corner and going down to the Complex, there's a little left-hander over a brow. That seems like a nothing curve – almost a non-event – and you would imagine it just to be nailed and that's it, but that is not the case in a BTCC car. With Thruxton, the left-rear tyre is used quite a lot but there isn't much demand on the rear-right – which is what you use in this section. If the tyres are cold, you can have the mother and father of all wiggles there.

02 CAMPBELL/COBB/SEGRAVE Turns 2,3,4

For this section, it's all about the exit speed of the last element: Segrave. That will determine your speed all around the back section, so it's vitally important. Having said that, Thruxton is the only track in the country without a defined entry, apex and exit point at any of the corners – you have to do what feels right for you. I've seen many drivers taking different approaches to this section, but when we get to the exit we're all doing the same speed. Clearly, there is no definitive answer.

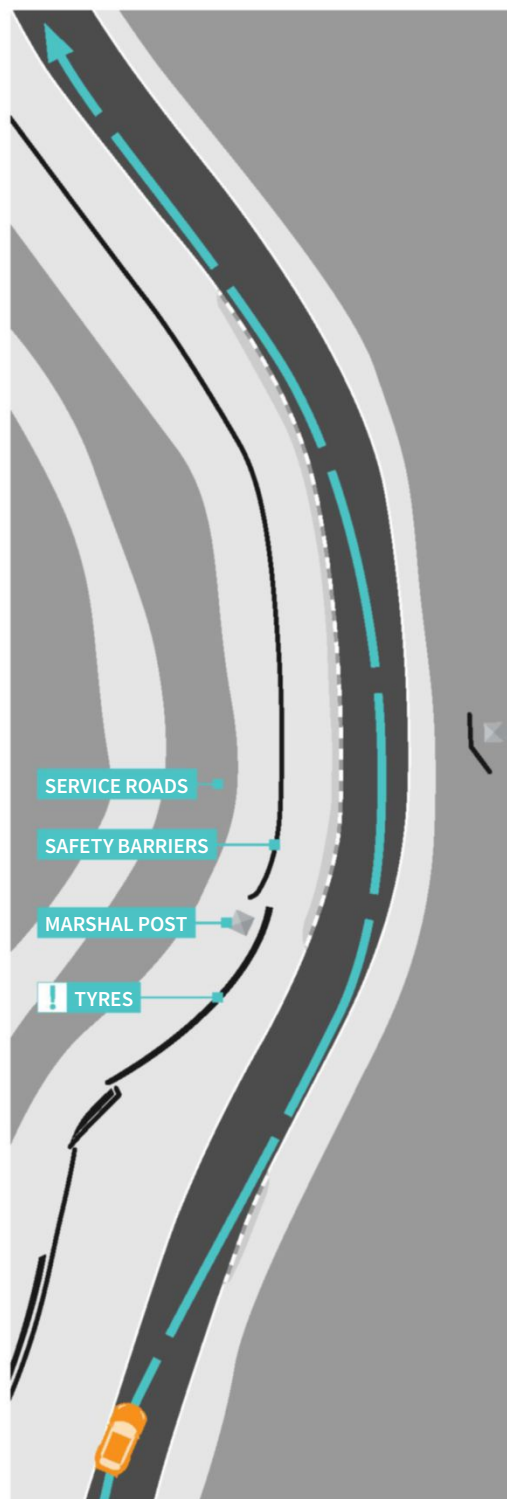
I try to keep the first element as neat and tidy as possible. You brake from sixth gear for the first right-hander. But this is tough because there's a slight downhill gradient as you approach it, so you feel like you're never going to

pull up in time. You want to be as clean as possible on the entry so that you can be on the power as soon as possible heading towards the left-hander.

Cobb is interesting because it's another compromise. The kerbs on the inside are vicious and you want to steer clear of them as much as you can, because they can cause tyre failures.

Segrave, which leads you onto the back part of the track, is real tiptoe stuff. You're trying to use as much track as possible to limit the input of the steering. You teeter on the brink on the exit, and flirt with the grass. That helps because not only does it mean you're using less lock and are keeping the minimum speed up, but it also means you're saving tyre life.





03 NOBLE Turn 5

This is a really tricky corner. Again, this is another turn where you have to be wary of having a cold right-rear tyre. The car is lively through there, and it shudders and skips around. That's because of the lateral demands you're making on the suspension, the colder tyre gripping up, and also the bumps that are on the circuit.

It requires massive commitment, and you have to be wary of the exit too. You're trying to let the car take the strain without washing too wide on the exit because of what comes next – another turn. If it was followed by a big straight, you'd have a completely different approach.

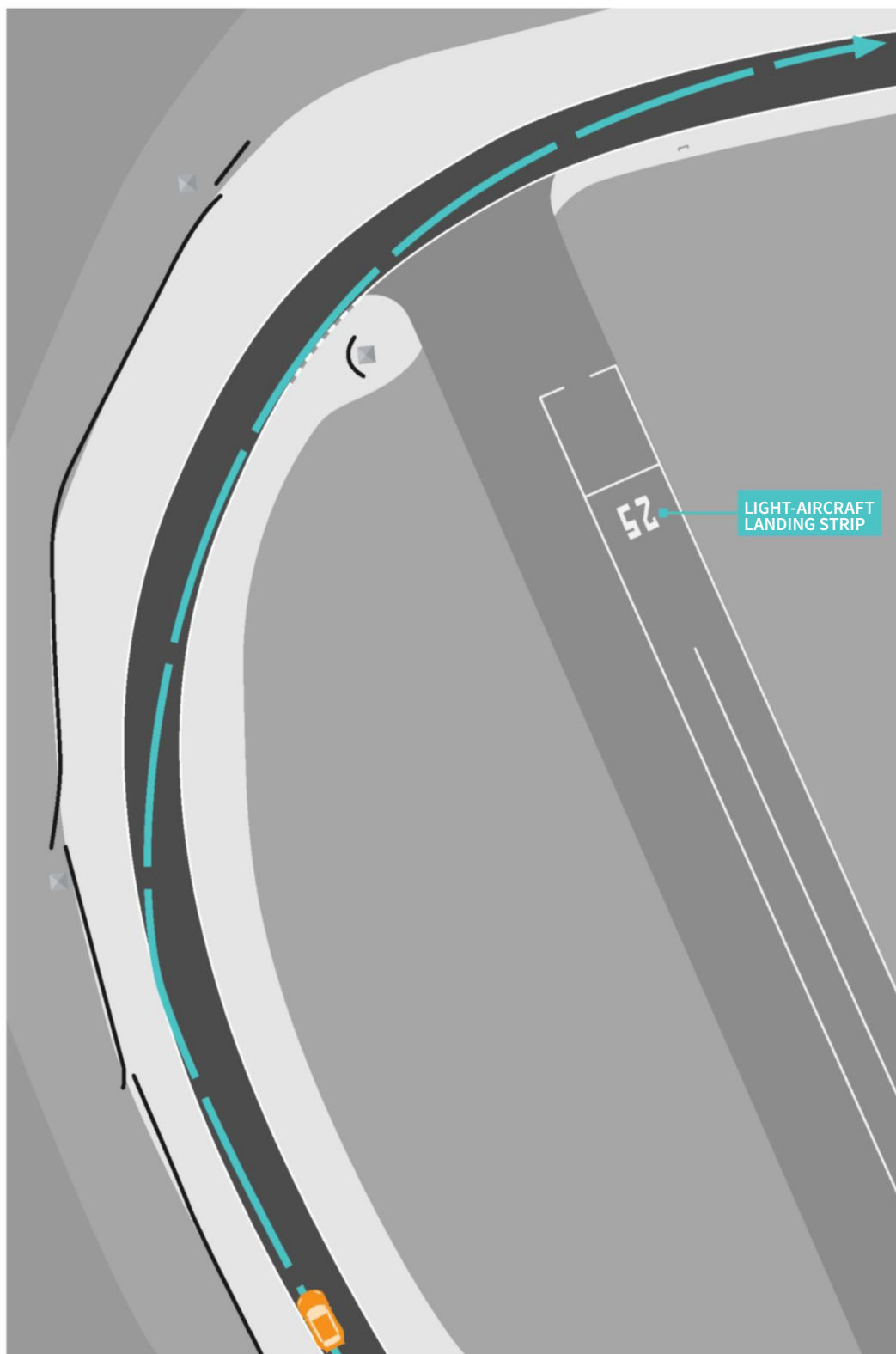
Although there's nothing really to hit if you go off, you're in for a wild ride across the infield – I've seen cars that have gone off there come back with their sumps ripped off.

04 GOODWOOD/VILLAGE Turns 6,7

From the exit of Noble, you have to stabilise the car as you approach Goodwood. There are so many different ways to approach the corner, and this really depends on whether you're going for the ultimate time in qualifying or teeing someone up to overtake. It's about your interpretation. You lift slightly and that can help with the turn-in, but from then on you're letting the car do the work.

It bumps and bucks around so much that the car can almost take itself through the corner, which is what you want. You try to have as little steering input as possible when you go through there and let the car rotate itself. That means you're taking the strain out of the tyres and being gentle with them.

It's tiptoe on the exit here too, since there's an inviting bit of grass on the exit before you are into the long, gentle right-hander that is Village.

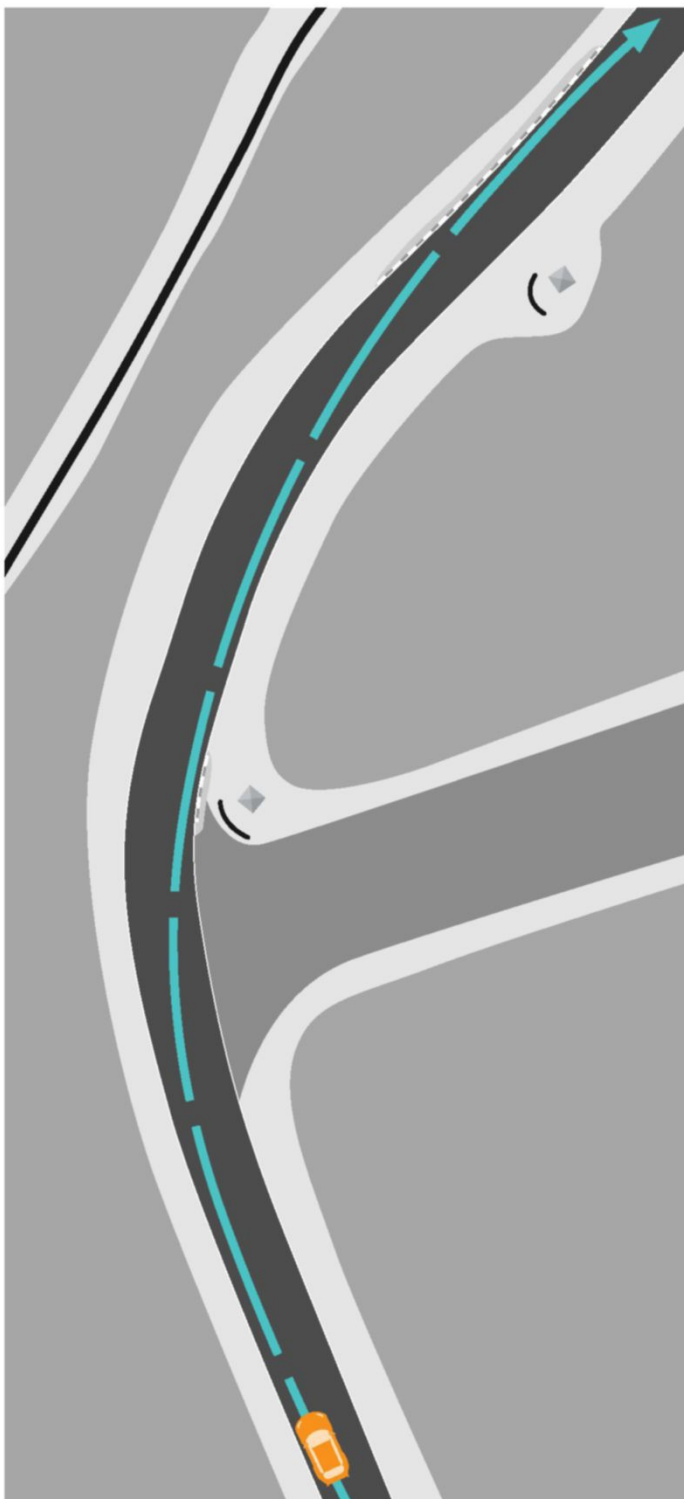


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The right lines and references are a great starting point, but driver improvement can yield the biggest performance gains. Combine these tips with Racelogic's variety of motorsport equipment to help maximise your development.

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05 CHURCH

Turn 8

When you approach Church, you're nailed in sixth gear and it's a lift or brake, depending upon how brave you're feeling. Because you sit so low in the car, you can't really see the apex. You almost have to second-guess where you turn-in and pick a line. Once you're on it, you're committed and you could be on the way to the scene of your own accident!

There's a bump in the middle of the corner, which means you have to hang on. You can take quite a lot of the apex kerb because that's the side of the car that is unloaded. You aim to clip that – but, like I said, you can still be on the way to a shunt because you can't see all the way round the corner.

You have to ride the bumps – it really undulates and is like being on a bucking bronco. There are some serious kerbs on the exit too, and I always try to avoid them, whether it's during a race or even on a qualifying lap. I see cars and drivers in front of me using them and I just think, 'good luck'. They're severe and can damage the tyres, or even the car, so I steer clear of them.

06 CLUB CHICANE

Turns 9, 10, 11

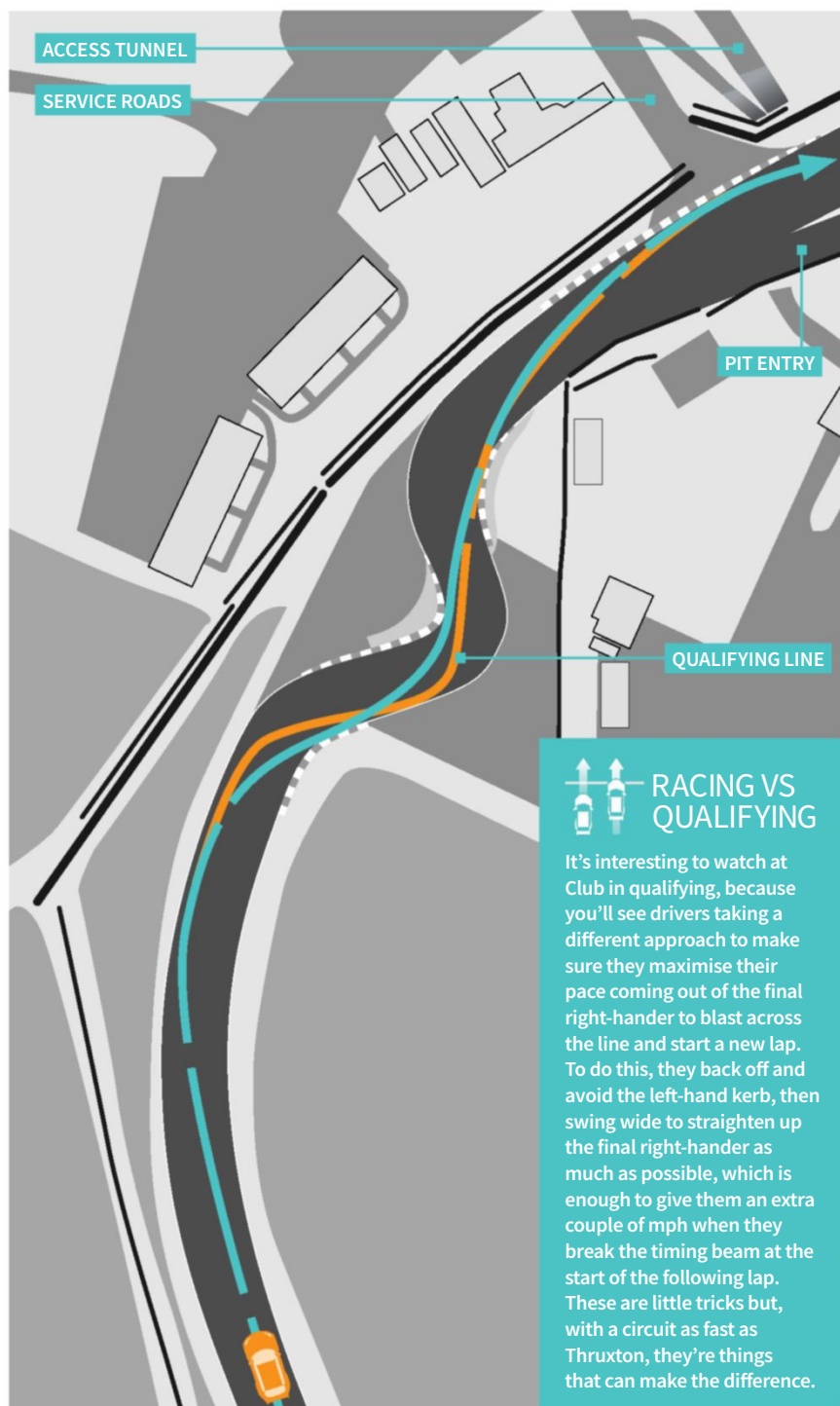
You're going as fast as a BTCC car can go when you drag up the hill and get to the Club chicane. You slam on the anchors at or just after the 100m board. It's tricky, though, because the track curves gently at that point, just when you want the car to be settled – although there's an uphill gradient, which gives more confidence.

I actually use the slight turn to help me get the car slowed down for the entry to the first right-hander. At the chicane it's all about making it the shortest line possible, so you do use plenty of the kerbs all the way through the three elements of it.

These days, with track-limits rules, you have to be careful that you don't use too much because they have a camera pointed at this

bit of the circuit. It's very easy to lose a lap time here. You have to make sure that your suspension is working well enough to cope with the demands of crashing over the kerbs throughout this section. It can save you fractions – but often, in the BTCC, it's the minutiae that can make the difference.

The exit of the Club chicane is important as well, because you want a good run to the finish line, which is just around the corner. If the car is unsettled as you go through the first two elements, then you'll crash down on the kerb on the inside of the final right-hander, which can drag the pace out of the car. You want to be as neat as you can, while keeping the momentum that you've built up.



RACING VS QUALIFYING

It's interesting to watch at Club in qualifying, because you'll see drivers taking a different approach to make sure they maximise their pace coming out of the final right-hander to blast across the line and start a new lap. To do this, they back off and avoid the left-hand kerb, then swing wide to straighten up the final right-hander as much as possible, which is enough to give them an extra couple of mph when they break the timing beam at the start of the following lap. These are little tricks but, with a circuit as fast as Thruxton, they're things that can make the difference.

PRODUCT SHOWCASE

CARTEK: WIRELESS CONTROLS SYSTEM

The newly revised Wireless Control System from CARTEK is the quickest and easiest way to install push-button controls to a detachable racing steering wheel. The system has eight push-button switches that are wirelessly linked to eight 10-amp relays. These relays are microprocessor controlled and individually configurable to provide a choice of functions, including momentary, latching and flashing modes for uses such as PTT radio, pitlane limiter, dash menus, lights, indicators, etc.

BENEFITS

- Eight push-button channels (or six plus two gearshift paddles)
- Wireless link between steering wheel and dashboard – 360 degrees
- Compatible with any make and type of quick-release hub
- Eight independent relay channels (10A rated contacts)
- Configurable relay functions including:
 - Momentary action
 - Latching (with memory)
 - Latching (without memory)
 - Flashing (slow speed – minimum five seconds)
 - Flashing (slow speed – latching. For indicators or hazards, etc)
 - Flashing (fast speed – minimum three flashes. For flashing headlights, etc)
- Fast response time, suitable for electronic gear shifting
- Two label sheets allowing for full customisation
- Battery powered – long life with battery condition indicator

FOR MORE INFORMATION AND PRICES PLEASE GO TO
www.cartekmotorsport.com



KIT INCLUDES:

- Eight sealed push-button switches
- Infra-red transmitter
- Relay control module
- Multi-coloured label sheet
- UV fluorescent label sheet (glow-in-dark under UV light)

RACELOGIC VBOX HD2

The Racelogic VBOX HD2 is a top-of-the-range data-analysis tool that allows drivers to develop their skills behind the wheel.

Using global positioning systems accurate to just a few centimetres, it can give real-time information about speed, lap time and (often more crucially) technique. The system uses side-by-side video comparisons to make it easy to spot where improvements can be made. It also automatically recognises and plots 500 circuits around the world.

The VBOX Video HD2 is Racelogic's top-of-the-range product, although more than 8500 examples across its comprehensive range have been sold to date.

As well as giving you simple indicators such as top speed, which gives a clear picture of how swiftly you are exiting a corner, it also helps you to analyse lines and car positioning. So if you are attempting to resolve whether you should take the exact geometric racing line, or compromise, this is the tool that will allow you to assess definitely which way of taking a corner is fastest. Test out multiple lines, and it will help you work out the best option.

The basic VBOX Video HD2 consists of a single main data box, an aerial and two 1080p cameras, making it easy to install or move between cars. That allows the driver plenty of time to focus on what really matters – maximum performance.

TO FIND YOUR NEAREST STOCKIST VISIT THE WEBSITE www.vboxmotorsport.co.uk



FEATURES

- Dual-camera 1080p system
- 10Hz GPS data logging
- Records to SD card or USB
- Predictive lap timing (with OLED display)
- Real-time, high-definition graphic overlay
- MP4 video and audio recording
- Internal power back-up for reliable recording
- Powerful data-analysis software
- Up to 32 CAN channel inputs
- USB 2.0 host interface (for recording to USB flash drive)
- Camera preview over wifi
- Bluetooth LE connectivity

VALETPRO TOP TIP: DECAL PREPARATION

GREG SPINK, VALETPRO MANAGING DIRECTOR

"Sometimes people really struggle getting stickers off. It surprises me that a lot of people don't realise that when you put heat on, it softens the glue up behind. One of my tricks was to use a steamer – it would soften everything up and you could pull a whole sticker off. Sometimes I'd try to use a razor blade or something to get the glue off, but you're bound to put a bit of a scratch or a graze in the bodywork. That's why steaming is a much better way – you can get an edge up and are pretty much able to peel it off.

"Once you've got the stickers off there's normally some glue in patches, and that's when you use a tar and glue remover and wipe it away with a cloth.

"The other thing I would add is that there might be sun block in the colours. A red panel, for example, could leave a slight fade on the outside when you take the sticker off. You need to give the panel a polish; we have a product for that called Purple Passion. It revives paintwork and makes it look brand new again. Then you can wax it and put the new stickers on, or apply the new stickers and then wax it.

"Everyone has to do this at some point, even for a process as simple as changing a number or putting a new driver name on the door. It's like so many aspects of this – it sounds obvious, and when you've done it once you think, 'Why have I never done this before?'"

TO FIND YOUR NEAREST STOCKIST LOG ON TO THE WEBSITE www.valetpro.eu AND POP IN YOUR POSTCODE, OR CALL US ON 01323 287980



WALERO RACING DIARY

AIDEN MOFFAT: FROM DUBAI TO DONINGTON



Walero base layers use NASA-inspired technology to give drivers maximum comfort in all race conditions. The company has picked a number of racing ambassadors, among whom is British Touring Car Championship youngster Aiden Moffat. Moffat made his endurance-racing debut in Dubai in January, putting his new Walero gear to the test in a 24-hour race in hotter conditions than the Scot is used to.

"It was brilliant," he says of his GT debut in a Century Motorsport Ginetta GT4. "I'm used to front-wheel drive where you brake hard, stop and get it rotated, but this was totally different. It was more about carrying speed through the corner, and I was driving for two hours at a time. I loved every minute of it.

"It's a little bit hotter out there! Dealing with that is what the Walero gear is designed to do and it definitely helped."

Moffat was reviewing his racewear options for 2017 when a chat with Corbeau's Vic Lee led to an introduction to Walero.

"I needed new stuff and taking the time to speak to them, and learn about the material,



made it quite an easy choice," he says. "Being an ambassador is a bonus on top of that. I didn't even consider anything else. It's proven to work for me already."

This year Moffat's main programme is the continuation of his BTCC career. He says a first win is in his sights.

"That's the main aim," he insists. "And to be more consistently up there. We had a bit of a dip last year in the middle of the season and then made changes to the car and finished in the top 10 in eight of the last nine races, including second in the final race. So doing that more regularly, and making the most out of qualifying, is the target."

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FACILITATING THE DREAM

HOW FF CORSE IS STREAMLINING THE PATH FROM TRACKDAY NOVICE TO INTERNATIONAL RACER



ALL PICS: MAUGER/LAT

There is a case to be made for saying that we are in the midst of an age in which motorsport is more accessible than ever before. To qualify that statement, motorsport remains a highly expensive pastime out of reach for the vast majority yet, paradoxically, for the total novice, the hazy vision of emulating their racing heroes has never been clearer.

Trackday events can be a daunting experience for the uninitiated, but it's not all TV presenters larking about in £1000 Alfas and teenaged hot-hatch drivers sporting DIY body kits. The increasing demand for high-quality events run by industry professionals, tailored to deliver maximum enjoyment in a safe and carefully managed environment, has brought with it an increasingly streamlined path to the heady world of competitive motorsport.

One of the big movers in this growing market is FF Corse, "more than just a race team and more than just a trackday company," according to boss Anthony Cheshire.

Based out of the former AIGP headquarters at Silverstone, Cheshire has been working with Ferrari customers for almost two decades and overseen the growth of the biggest Ferrari management service in the country, from four full-time clients in 2009 to around 40 GT3 and Challenge cars when Autosport dropped by.

"Thirty years ago, this market didn't exist," says Cheshire. "People would maybe go and sponsor a car and turn up at a few meetings, but they might get bored of it. Now these guys are actually getting involved. There's a lot more interest, a lot more people wanting to get their

"We're not worried about being fastest. We want to make sure that in 15 minutes we're still on the track, not in the barriers"

hands dirty and get driving themselves. And why not?"

Days are structured to be as inclusive as possible, even to the point where attendees can hire a 458 Challenge car before committing to ownership. FF Corse provides all the ingredients, including tyre heaters, driver coaches and Racelogic datalogging systems, leaving the client to concentrate purely on improving their driving.

"Previously it tended to be that people had to take a leap of faith and buy a car," Cheshire explains. "For someone who is new to it, we will recommend hiring a car on one of the more gentle trackdays and always provide a driver coach to handhold them in to the process. We will never just put them in the car and go out driving."

Cheshire has a sizeable pool of coaches on the books, including British GT drivers Jamie Stanley and Charlie Hollings. It sounds obvious, but listening to their expertise is vital for making the most of the day, even down to apparently small details such as which tyres to use in changeable conditions.

"It's quite a fine art," Cheshire agrees. "On a trackday activity, you're not worried about whether in 15 minutes you'll be the fastest car. We want to make sure that in 15

minutes we're still on the track, not in the gravel or the barriers.

"You get far more out of this game working with a driver coach than you do trying to work it out yourself. There seems to be a reluctance in motorsport to use their skills, especially in the lower levels. There's an element of naivety in terms of 'hang on, I drove to the circuit, I'm sure I know how to drive round the circuit'.

"But if they knew what they were doing and knew how to do it themselves, then they wouldn't need us.

"It makes a huge difference having the right team there giving you advice and, once guys have had a bit of coaching, they then start to see the benefits and want to work with coaches all the time."

Not everyone is willing to put up with the stress, financial pressures and time commitments that come with stepping up to a competitive level, but for those who are there is another problem. Most will have a clear end goal in mind but, with such a dizzying array of options on the UK club scene, haven't the first idea how to achieve it.

However ambitious, these goals are attainable with the right guidance. FF Corse takes aspiring racers through the entire process, from organising their race licence, taking



FF Corse can take you from road car to racer

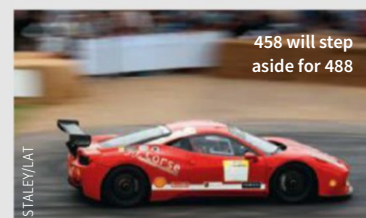
FERRARI CHALLENGE HIDDEN GEM

The single-make Ferrari Challenge is set for a radical shakeup in 2017, as the new 488 Challenge replaces the outgoing 458.

Although it has a production-spec engine and gearbox to minimise maintenance costs, the 488 Challenge comes equipped with the same safety equipment as its thoroughbred GT cousins. A full racing seat and harness, safety cage, fire-suppression system and safety fuel cell all come as standard. Reassuring in the month of a double fatality in a road car at a SpeedVegas trackday event.

The car has initially been made available only for customers planning to contest the full European championship, with a second production run planned for later in the year.

FF Corse boss Anthony Cheshire is a big supporter of the Challenge series, which is split between the Trofeo Pirelli for under 50s and Coppa Shell for over 50s. Monza, Paul Ricard, Valencia and Imola are among the circuits on this year's calendar, while Le Mans and Daytona were ticked off in 2016.



458 will step aside for 488



Cheshire has built up FF Corse considerably over the past decade

them testing, then gently easing them into the Pro-Am arena, with GT Cup and Britcar both popular destinations.

Then, once they have enough signatures for an international licence, clients can pursue the Ferrari Challenge route (see right) or continue climbing the GT ladder to chase the Le Mans dream, a programme FF regulars Ivor Dunbar and Bonamy Grimes are following with experienced sportscar racer Johnny Mowlem.

"Johnny realises that we are out there doing a very good job from the ground up," adds Cheshire. "He basically finds the guys, develops a plan for them and uses us as a facilitator to make that happen."

"Bonamy Grimes is a good example – he's a very driven person and will be at Le Mans in a relatively short period of time. I'm convinced of that."

JAMES NEWBOLD

"The Challenge is the hidden gem of Ferrari and I'm desperately trying to beat the drum to make people more aware," says Cheshire.

"The format of it is brilliant. Challenge is the main activity, so you aren't a bit-part player on somebody else's race card. They have a lot of track time during a weekend and Ferrari does a really good job in the way you'd expect them to do it."

FF runs a bespoke 'Road to Challenge' initiative to get prospective entrants the necessary signatures to attain an international competition licence, while Ferrari has introduced the Club Challenge for 458 Challenge owners, who can partake in private test sessions on Thursdays at five of the eight rounds.

Cheshire is confident that the revamped championship will be a hit, but does he foresee interest in a UK-based offshoot in the near future?

"The UK is the only market where that could happen," he says. "We're at this unique place in the world from such a small market with so much racing activity and I know that excites everyone within Ferrari, but it has to be right."



CIRCUITS AND CLUBS

KEY CONTACTS

THE PLACES TO GO TO FOR INFORMATION ON EVERYTHING FROM GETTING YOUR LICENCE TO FINDING A SERIES

CIRCUITS

ANGLESEY
angleseycircuit.com



LYDDEN HILL
lyddenhill.co.uk



BRANDS HATCH
brandshatch.co.uk



MALLORY PARK
mallorypark.co.uk



CADWELL PARK
cadwellpark.co.uk



MONDELLO PARK
mondello.ie



CASTLE COMBE
castlecombecircuit.co.uk



OULTON PARK
oultonpark.co.uk



CROFT
croftcircuit.co.uk



PEMBREY
barc.net/pembrey



DONINGTON PARK
donington-park.co.uk



ROCKINGHAM
rockingham.co.uk



GOODWOOD
goodwood.co.uk



SILVERSTONE
silverstone.co.uk



KIRKISTOWN
kirkistown.com



SNETTERTON
snetterton.co.uk



KNOCKHILL
knockhill.com



THRUXTON
thruxtonracing.co.uk



GOVERNING BODIES

NATIONAL SANCTIONING AUTHORITIES

Motor Sports Association
msauk.org

MOTORSPORT IRELAND
motorsportireland.com



UK RACE ORGANISERS

CAR CLUBS AND SERIES PROMOTERS

Aston Martin Owners
Club Racing
amocracing.org

Masters Historic Racing
themastersseries.com

British Automobile
Racing Club
barc.net

MG Car Club
mgcc.co.uk

British Racing &
Sports Car Club
brscc.co.uk

MotorSport Vision Racing
msvracing.co.uk

Castle Combe Racing Club
castlecombecircuit.co.uk

Scottish Motor Racing Club
scottishmotorracingclub.co.uk

Classic Sports Car Club
classicsportscarclub.co.uk

South East Motor Sport
Enthusiasts Club
semsec.org.uk

Darlington and District
Motor Club
darlington-motor-club.org.uk

Vintage Sports-Car Club
vscc.co.uk

Historic Sports Car Club
hssc.org.uk

750 Motor Club
750mc.co.uk

500 Motor Racing Club of Ireland
kirkistown.com



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