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Why Ferrari still has
work to do despite
Australian victory



PLUS
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PREVIEW**
10-PAGE
GUIDE

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E100°C, % volume	56
E150°C, % volume	100
Final Boiling Point	132
Unleaded	
Colour	Light Green
Oxygen, Wt. %	3.7



Specific Gravity	0.736
RON	101
MON	90
Reid Vapour Pressure, psi	9
Distillation, °C	
Initial Boiling Point	38
E70, % volume	40
E100, % volume	65
E150, % volume	95
Final Boiling Point	180
Lead, g/l	0.10
Colour	Light Blue
Oxygen, Wt. %	1.8



Specific Gravity	0.743
RON	102
MON	90
Reid Vapour Pressure, psi	9
Distillation, °C	
Initial boiling point	33
E70 °C, % volume	31
E100 °C, % volume	49
E150 °C, % volume	100
Final Boiling Point	124
Unleaded	
Colour	Clear
Oxygen, Wt. %	3.7

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THE FLAWS FERRARI HAS TO SOLVE TO BEAT HAMILTON

What does Ferrari need to do to challenge Mercedes in Formula 1 this year? The team in silver is unlikely to make the sort of blunder that cost Lewis Hamilton victory in the Australian Grand Prix last month very often, so the famous Italian squad has to raise its game.

In our cover story on page 18, Edd Straw identifies six key areas that Ferrari needs to address to defeat Mercedes this year, while our technical expert Gary Anderson takes a closer look at the concept of the SF71H. Does it have enough potential and can that be unlocked?

We also celebrate a driver who did his fair share of Ferrari-beating. Fifty years ago this week, Jim Clark was killed at Hockenheim. His death shocked the sport and left a vacuum at the top of Formula 1. We remember the great Scot by picking out his finest drives (p26).

As well as his single-seater successes, Clark was also a winner in tin-tops. The championship he won in 1964 kicks off at Brands Hatch this weekend and our 10-page British Touring Car preview (p36) looks at Honda's new challenge, the return of Alfa Romeo, and assesses the chances of those looking to topple reigning champion Ash Sutton.

Three-time BTCC champion Gordon Shedden has boldly stepped onto the world stage this year and Jack Cozens investigates the state of play in the freshly named World Touring Car Cup ahead of its Moroccan opener. There'll be plenty of competition for Shedden.

The Formula 2 field, complete with new car, will also line up for the first time in 2018 this weekend, in Bahrain. Three Britons will be fighting to prove they belong in F1 and we speak to all three in our preview (p32), as well as to the team they have to beat.

Finally, the remarkable story of Billy Monger continued last weekend at Oulton Park, with the double amputee taking a popular podium on his return to racing. We were there to see it happen (p70).



KEVIN TURNER
EDITOR

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LAT Images, Gorla/Sutton Images

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FREE INSIDE

PERFORMANCE SUPPLEMENT



How to master the important challenge of qualifying is the focus for our experts in the latest issue of Autosport Performance.



SUBARU STRUGGLING AS

BRITISH TOURING CARS

Reigning British Touring Car champion Ash Sutton says his Team BMR Subaru could struggle to get on the pace in the opening round of the series at Brands Hatch this weekend after a truncated pre-season build up.

The 24-year old, along with team-mates Jason Plato and Josh Price, essentially shook down their Levorg estates at the official championship media day at Donington Park on Tuesday of last week, following tweaks over the winter. It was Sutton's first time in the machine since he lifted the crown at Brands Hatch last October.

Sutton set the 20th fastest time at Donington, while Plato was 29th and Price 30th of the 32 runners present.

The team then moved to Brands Hatch for further official testing last Thursday, where all but two of the championship regulars were running. Sutton was 23rd quickest of the 30 cars, while Plato was 22nd and Price 27th.

"All we have really done is shake the cars down and make sure I'm happy with it – making sure the seating position is right and things like that," said Sutton. "We have

not gone out to set the world alight, we have only made our initial steps with the car. We are finding our feet but there is work to be done. I am feeling confident as a driver though."

There have been some significant changes in the background at the Hertfordshire team too. For development of the boxer-style four-cylinder engine, BMR has swapped from Mountune and allied itself to Swindon Racing Engines for 2018. Meanwhile, technical director Carl Faux has left the squad to join the Walkinshaw Andretti United Australian Supercars team.

Plato was more concerned about the likely performance of the cars. "It was the first time in the car at the media day at Donington Park: it was our shakedown," said the 50-year-old two-time BTCC champion. "We've had some problems, but we were starting to make inroads in

"EVERYONE ELSE HAS BEEN OUT TESTING, BUT WE HAVEN'T. THAT IS NOT IDEAL"



‘Thommo’ gets latest comeback

WORLD TOURING CARS

There was one final tin-top great to add to the field for the new World Touring Car Cup last week, as two-time British Touring Car champion James Thompson signed up for an initial five-race programme with Munnich Motorsport.

Thompson, who has not raced since driving for the team in the World Touring Car Championship in 2016, has taken the third seat at the squad, which is running Honda Civics.

The 43-year-old Briton’s deal currently covers the first five rounds in place of team owner Rene Munnich, whose clashing business and World Rallycross commitments have forced him to miss the start of the year.

“I was sat at home when Rene called and asked if I fancy doing a few races,” said Thompson, who raced Honda machinery in the BTCC, and was also the first driver to win a WTCC race in a Honda at Imola in 2008. It’s great and a real surprise. I remember it being a great team atmosphere from 2016. Everything is a little new but hopefully my experience and a little grey hair will pull me through.”

Thompson was one of two drivers, alongside Zengo Motorsport’s Zsolt David Szabo (who joins Norbert Nagy), to be announced for the new World Cup at a launch event near Barcelona last week, completing the field.

The series had initially assigned 26 permanent entry spaces, but has dropped that to 25 – although it is understood it will offer three wildcard entry slots at each round after this weekend’s Marrakech opener, where no additional cars will be present.

JACK COZENS

P46 WTCR PREVIEW



LAT IMAGES

GRIFFITHS/LAT

HONDA FLIES IN TEST

understanding some of the changes that have been made over the winter.

“Despite that, we are down on miles, which is not good enough. Everyone else has been out testing but we haven’t. That is not an ideal start, but we’ll just have to work a bit harder and play catch up. We have got some work to do.”

While the Subaru team has struggled, the brand new Team Dynamics Honda Civic Type Rs of Matt Neal and Dan Cammish have found form. While Neal admitted that there were refinements to be made to the hatchback, he and BTCC rookie Cammish topped the times at Brands. That has given him a boost ahead of this weekend’s three races.

“It’s a great car,” said the three-time champion. “It’s a quantum leap forward, but it’s not about making a race car just go fast, we need to work out what makes it dance. We’ve got to figure out the tune. We’ve had two good tests and two where we have struggled, but this was always going to be a journey. We’ve had some mileage now and we are beginning to unlock its secrets.”

Rob Austin was fastest of the 32 runners at the four-hour media-day test at Donington in his brand-new HMS Racing

Alfa Romeo Giulietta. It was only the car’s third time on track and the three-time race winner said that he had only just begun development work on the Italian hatchback.

“We’re still learning about the balance of the car and how to get the most from it,” said Austin. “It’s also hard to know at the media day who is running which levels of ballast, but we are encouraged.”

MATT JAMES

P36 BTCC PREVIEW

TOP 10 TIMES – BRANDS HATCH		
POS	DRIVER (CAR)	TIME
1	Matt Neal (Honda)	48.408s
2	Dan Cammish (Honda)	48.459s
3	Jack Goff (Honda)	48.569s
4	Colin Turkington (BMW)	48.586s
5	James Cole (Ford)	48.731s
6	Andrew Jordan (BMW)	48.760s
7	Mike Bushell (Volkswagen)	48.793s
8	Rory Butcher (MG)	48.805s
9	Adam Morgan (Mercedes)	48.831s
10	Tom Ingram (Toyota)	48.841s



Davidson to join Maldonado in LMP2

WORLD ENDURANCE

Toyota driver Anthony Davidson will return to race duties in the World Endurance Championship after the Le Mans 24 Hours in June. The Briton, who has been moved to a test-and-reserve role with the Japanese manufacturer, will drive for DragonSpeed in the LMP2 class for the remainder of the 2018-19 superseason.

The 38-year-old will join up with fellow ex-Formula 1 driver Pastor Maldonado and Roberto Gonzalez in the American entrant's ORECA-Gibson 07 from the Silverstone WEC round in August. P2 regular Nathanael Berthon will fill the seat at Spa and Le Mans.

Davidson explained that he was looking forward to racing in the secondary prototype division. "I'm ready for the challenge of P2; it looks like pure racing and that's what I like," he said. "I can't wait to get stuck into some frantic racing in a category where all the cars are pretty much on a level playing field."

"I wasn't really thinking of doing a full championship, or a full series bar two races, but this is good for me because I get back racing, and it's good for Toyota because it will keep me sharp in case they need me."

MONTOYA, DI RESTA JOIN UNITED

The Anglo-American United Autosports squad had filled the vacancies in its pair of LMP2



Ligier-Gibson JSP217s for Le Mans. Mercedes DTM driver Paul di Resta will continue with the team after his IMSA SportsCar outings in the Daytona and Sebring enduros, while two-time Indianapolis 500 winner Juan Pablo Montoya (above) has been brought in for what will be his Le Mans debut.

Montoya, who is racing for the Penske Acura team in IMSA this season, caught the eye of United co-owner Richard Dean at the Daytona 24 Hours in January. "I watched Juan Pablo race against us at Daytona this year and was so impressed by him through the traffic; he definitely hasn't lost any of his speed or determination," he said. "He's a great character, so I have no doubt that he will fit into the team well at Le Mans."

Seven-time grand prix winner Montoya revealed that he had "always watched" Le Mans and was now "very happy to finally be part of it".

Montoya will drive with Hugo de Sadeleer and Will Owen; di Resta will line up with Filipe Albuquerque and Phil Hanson.

GARY WATKINS

Mercedes explains Oz GP blunder

FORMULA 1

A bug in an offline tool used by Mercedes was responsible for the miscalculation that led to Sebastian Vettel jumping Lewis Hamilton in the pits under the virtual safety car in last month's Australian Grand Prix.

Hamilton was on course for victory, having led from pole position before pitting to cover the stop made by second-placed Kimi Raikkonen. Vettel stayed out, and later pitted under the VSC triggered by Haas driver Romain Grosjean stopping on track after a pitstop blunder.

Mercedes incorrectly calculated the advantage Vettel required to make a stop under neutralised conditions and retain the lead, meaning it did not tell Hamilton to push harder to close the gap. This led to Vettel retaining the lead when he emerged from the pits and going on to win.

"The issue isn't really with the race strategy software that we use," said Mercedes trackside engineering director Andrew Shovlin in the latest episode of the Mercedes Pure Pitwall race debrief, available on YouTube.

"It was an offline tool that we create these delta lap times with, and we found a bug in that tool that meant that it gave us the wrong number. The number that we were calculating was around 15 seconds, and in reality the number was slightly short of 13 seconds, so that was what created our delta. That is why we thought we were safe. We thought we had a bit of margin and then you saw the result."

"We dropped out, we were in second place and it is very difficult to overtake and we couldn't get through."

Hamilton was 11.614s behind Vettel when the virtual safety car was deployed. This suggests that, on top of the miscalculation, Vettel was also quicker than expected in the blast from the safety-car line at the exit of Turn 15 to the pit-entry line that is not regulated by a speed limit under the VSC.

"It's never quite an exact science because you don't know how fast a car is going to be able to come through that pit entry," said Shovlin.

He added that Mercedes will review its methodology for calculating the required gaps to engineer in "more margin" to cover off variables such as fast pitstops or quick runs through the pit entry.

EDD STRAW





Schumacher's big step

FORMULA 3

We're two tests into the Formula 3 European Championship pre-season build-up, and Mick Schumacher has set the overall fastest time at both.

Two weeks ago, the son of seven-time world champion Michael Schumacher set the pace at the Hungaroring, and last week his Prema Powerteam Dallara-Mercedes also sat atop the times at the Red Bull Ring. But can he win races in 2018 after a solitary podium in his rookie F3 season?

Prema boss Rene Rosin thinks so, and believes that the 19-year old (above) turned a corner before last November's Macau Grand Prix, where he set a blistering fastest lap of the race. "For a rookie he did an excellent job in Macau," says Rosin. "That was like a new start for him. He followed everything we asked him to do. If he did not go straight on at Lisboa [in the final], I would not be surprised to see him on the podium."

While Schumacher's racecraft was strong in 2017, his big weak point was qualifying. "We worked in the winter testing with that in mind," adds Rosin, "but as well he has matured a lot and he is ready now. But he should just be concentrating race by race, session by session, without putting pressure on himself. He doesn't need to think about the championship."

Rosin labels Motopark's McLaren

Autosport BRDC Award winner Dan Ticktum, Carlin pair Sacha Fenestraz and Ferdinand Habsburg, and Hitech GP's Alex Palou as the biggest threats to his team this year, and counsels not to pay too much attention to the test times. Just because Schumacher was quickest, it doesn't mean that the other Prema drivers aren't at least equally strong. "With all drivers we had different tests and different stuff to understand better and improve where we were missing last year. In all cases we fulfilled what we were expecting to do."

Palou, Ticktum and Habsburg all topped one each of the four sessions at the Red Bull Ring, and Schumacher the other.

MARCUS SIMMONS

TOP 10 TIMES - RED BULL RING

POS	DRIVER (TEAM)	TIME
1	Mick Schumacher (Prema)	1m22.828s
2	Ferdinand Habsburg (Carlin)	1m22.928s
3	Dan Ticktum (Motopark)	1m23.037s
4	Sacha Fenestraz (Carlin)	1m23.078s
5	Alex Palou (Hitech)	1m23.087s
6	Sebastian Fernandez (Motopark)	1m23.120s
7	Enaam Ahmed (Hitech)	1m23.130s
8	Guan Yu Zhou (Prema)	1m23.173s
9	Robert Shwartzman (Prema)	1m23.173s
10	Marcus Armstrong (Prema)	1m23.204s

IN THE HEADLINES

RENAULT WANTS FREEZE

Renault has called for a freeze on Formula 1 engine development in 2019-20 before new regulations are introduced. It believes such a move would allow the four current suppliers to focus fully on preparing for the new F1 regulations, and not hand an advantage to any new entrants who can devote all their resources to '21 projects. "The one thing we will not want to do is to have the burden of developing two engines in parallel," team boss Cyril Abiteboul told Autosport.

KUBICA RULES OUT WEC

Williams F1 reserve Robert Kubica has ruled himself out of competing in the World Endurance Championship with Manor. Kubica drove the team's LMP1 Ginetta-Mecachrome in two tests at Motorland Aragon. "The tests went quite well, but the problem is time," he said. "I will have very little [time], so I decided not to compete in the WEC. I will focus on my role at Williams."

NEUVILLE FALLS IN RIVER

Thierry Neuville's preparations for back-to-back Tour de Corse wins were interrupted when he landed his Hyundai i20 Coupe WRC in a river, prematurely ending his day-long test on the French island last week. The Belgian dropped the car on the outside of a long left-hander, slid down a bank and into the water. Neuville starts this week's Bastia-based event four points behind series leader Sebastien Ogier.

MILLS TO CO-DRIVE EVANS

Phil Mills, who co-drove Petter Solberg to the 2003 World Rally Championship, will return to top-flight rallying alongside M-Sport Ford's Elfyn Evans on the Tour de Corse. Mills is standing in for Dan Barritt, who has been given more time to recover from the sixth-gear roll that ruled him and Evans out of Rally Mexico. Mills hasn't competed in the WRC since 2012.

YE PIPS FEWTRELL IN TEST

Chinese talent Yifei Ye topped last week's two-day Formula Renault Eurocup test at Paul Ricard. Ye, run by Josef Kaufmann Racing, headed British Renault F1 junior Max Fewtrell (R-ace GP) by 0.075s on the second day. Another Renault protege, MP Motorsport-run Christian Lundgaard, pipped Arden's Oscar Piastri by 0.001s on day one.

LECLERC WINS ON DEBUT

Charles Leclerc's younger brother Arthur took a win on his debut car-racing weekend in the French Formula 4 opener at Nogaro. Leclerc triumphed in a hotly contested reversed-grid race. The other winners were Ugo de Wilde and Adam Eteki.



Teams test new Formula E cars, but glitch forces BMW out

FORMULA E

Seven Formula E manufacturers completed a two-day test of their season-five cars at Monteban in southern Spain last week.

Audi, DS (above, in Versailles), Jaguar, Venturi, Mahindra, Penske (Dragon) and Nissan all experimented with their new Gen2 cars. The test was split across three days, with Tuesday acting as a rest day, and was conducted under closely private conditions with few details released.

BMW was also set to take part in the test ahead of its debut as a works FE entry for the 2018-19 season, but withdrew before the action got under way on Monday.

“During our final preparations before loading the car, an unexpected malfunction occurred,” read a BMW statement. “We [therefore] decided to continue working on the car in Munich.”

The ninth season five manufacturer, NIO, also missed the test as it was out of kilter with its 2018-19 preparation plan. “When we

laid out our engineering timing plan for the designing and manufacturing and testing of the season-five Gen2 powertrain and chassis, the tests weren’t actually even scheduled,” explained NIO team boss Gerry Hughes. “There is no engineering matter behind it, there’s no design matter, there’s no other reason. The fact is the timing plan is just slightly out for us in terms of this first test.”

A second group test is scheduled to take place at Calafat in Catalonia later this month.

ALEX KALINAUCKAS

Fittipaldi gets last Japanese seat

SUPER FORMULA

Part-time IndyCar rookie Pietro Fittipaldi has secured the last seat in Japan’s Super Formula series.

The 21-year-old grandson of Emerson Fittipaldi will drive for the Toyota-powered Team Le Mans in place of Felix Rosenqvist, who was third in his rookie SF season last year (right).

Fittipaldi, winner of last season’s World Series

Formula V8 3.5 title, will partner Kazuya Oshima, who stays on for a second year at the squad.

“I’m very happy and honoured to have been signed by Team Le Mans to race in Super Formula,” said Fittipaldi. “It’s a fantastic car and an extremely competitive championship. I’m looking forward to the first round at Suzuka [which is on April 22].”

Fittipaldi will have to

miss the Autopolis and Sugo rounds due to clashes with his seven-race IndyCar schedule. It is unclear who will replace him, although Oliver Rowland has tested for the Le Mans squad.

Honda-engined B-Max Racing filled its seat not long earlier, with GT ace Katsumasa Chiyo getting his SF debut. Jann Mardenborough had also tested for the team.

MARCUS SIMMONS



F1 BAHRAIN GRAND PRIX PREVIEW



UK START TIMES

FRIDAY

FP1 1200 FP2 1600

SATURDAY

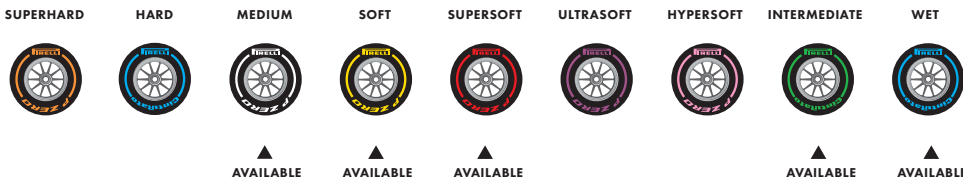
FP3 1300 QUALIFYING 1600

SUNDAY

RACE 1610
LIVE ON SKY SPORTS F1
& CHANNEL 4

**LIVE BBC RADIO 5 LIVE
SPORTS EXTRA**

TYRE ALLOCATION



THEMES TO WATCH

THE EMPIRE SHOULD STRIKE BACK

Mercedes and Lewis Hamilton should have won the Australian Grand Prix, and if the performance advantage carries over to Bahrain then they will be short-odds favourites. But remember, Bahrain was a tricky weekend for Hamilton in 2017.

FERRARI V RED BULL

Australia was inconclusive in deciding which of Red Bull or Ferrari will be the leading challenger to Mercedes this season. The Bahrain track should favour Ferrari and its stronger engine, but if Red Bull can get ahead in the desert with its Renault power then it could be very significant.

WILL THE DARK HAAS KEEP ROLLING?

Haas has been very strong in Australia before and not been able to sustain that form, so amid questions raised over the legitimacy of its Ferrari relationship it will be fascinating to see if this year's dark horse can keep the pace up and deliver the kind of result it should have achieved in Melbourne.

TRACK STATS

- LENGTH** 3.363 miles
- NUMBER OF LAPS** 57
- 2017 POLE POSITION**
Valtteri Bottas 1m28.769s
- POLE LAP RECORD**
Valtteri Bottas 1m28.769s (2017)
- RACE LAP RECORD**
Pedro de la Rosa 1m31.447s (2005)

- PREVIOUS WINNERS**
- | | | |
|-------------|------------------|-----------------|
| 2017 | Sebastian Vettel | Ferrari |
| 2016 | Nico Rosberg | Mercedes |
| 2015 | Lewis Hamilton | Mercedes |
| 2014 | Lewis Hamilton | Mercedes |
| 2013 | Sebastian Vettel | Red Bull |
| 2012 | Sebastian Vettel | Red Bull |
| 2010 | Fernando Alonso | Ferrari |
| 2009 | Jenson Button | Brawn |
| 2008 | Felipe Massa | Ferrari |
| 2007 | Felipe Massa | Ferrari |





DANIEL LLOYD LEADS TCR UK CHAMPIONSHIP AFTER WINNING BOTH OPENING ROUNDS AT SILVERSTONE

Daniel Lloyd proved to be the man to beat in his one-off outing at Silverstone, winning both TCR UK opening rounds. Daniel is hoping to be at more TCR UK events this year and the support so far has been incredible. To be part of a winning team, please visit:



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daniellloyd racing.com

“There are so many positives coming out of the weekend, and I’d love to carry that momentum into a full season programme with WestCoast Racing,” explained Lloyd. “We’re working hard on making that happen and the TCR UK coverage online and across TV and traditional media is fantastic. The Championship already has a strong fan base and loyal following right across Europe and the world even so it offers excellent brand exposure, promotional opportunities and value for money for any companies looking to get into motorsport.”





THE CHALLENGE OF CHANGE

The preview of proposed changes to Formula 1's technical rules is awaited with anticipation – and concern as to whether they will go far enough

EDD STRAW

Momentum is building towards Formula 1's next rules revolution in 2021, with Ross Brawn giving a sneak preview of the blueprint that will be unveiled in Bahrain later this week by revealing that mitigating the 'force field' of turbulent air that makes it so hard to follow is high on the agenda.

It's a laudable and necessary objective but, in isolation, it is not something that will make the racing significantly better. Let's hope that Brawn has heeded his own warning from the past, and still recognises a weakness in himself – this, if not overcome, would mean that the overhaul he is charged with overseeing will not succeed.

To do so, Brawn must cast his mind back to one of F1's earlier, failed attempts to spice up the show. This sends us back to 2007, when Charlie Whiting formed the Overtaking Working Group to create regulations to improve the racing, resulting in the skinny aerodynamic rules of the '09 season.

The objectives of these rules were simple: to cut downforce by 50% (albeit with an acceptance that teams would claw some of that back), to make the cars less susceptible to turbulence, and to increase passing.

“LET'S HOPE THAT ROSS BRAWN HAS HEEDED HIS OWN WARNING FROM THE PAST”

Instead, teams cut back the sidepods to exploit unregulated areas to add aerodynamic components, the double diffuser was created and the downforce was clawed back at a surprising rate. And what was the difference in terms of overtaking from 2008 to '09? Negligible.

“The problem is that we all – and I'm just as guilty – are a bit shy in making draconian change,” said Brawn in 2013 of the '09 rules. “But we actually do need to make a draconian change because our engineers collectively are all so innovative and clever that, if you say we're going to make a 50% reduction in downforce, you do something that would make that difference on one day but six months down the line becomes a 20% reduction. I think we never really bite the bullet. What we needed was a 75% reduction in downforce, which eventually would end up as 50%. Then we might see some change.”

In this case, F1 really did deliver on its specified objective.

The downforce was cut, but it did not achieve the desired outcome of improving the racing because the reasoning was flawed. The 2017 regulations are another example. It was decided that the solution to all of F1's ills was to improve lap times by four to five seconds compared to '15, resulting in a ludicrous but single-minded determination to achieve just that. The result was cars that, based on a comparison of the fastest individual lap set at each circuit in '15 and '17, were as near as makes no difference bang on 4.5s quicker. But the racing was worse.

Eliminating what Brawn calls the turbulent wake 'force field' doesn't automatically create more overtaking of the type we want to see. The kind of overtaking, the kind of racing, we need is driven by variables. The problem is it is incredibly difficult to create, reliably and consistently, factors that vary the relative performance of cars over the course of a race.

It's also worth noting that, throughout the history of the world championship, it has overwhelmingly been the cars at the front of the grid that have done the winning. In 966 races (this data excludes the anomalous Indianapolis 500s of 1950-60), 84.4% of the races have been won from the top four on the grid. A total of 655 (67.8%) have been won from the front row when you also factor in races where there were three or four cars starting up front.

This brings us to another idea Brawn has hinted at – closing up the grid slots and considering alternative formations such as 3-2-3 or even 4-3-4. That is a change that will create more variables in race order, because your start will only need to be a tiny bit better than the car(s) alongside to bring about a change of position. Exactly what is needed.

But will there be more of the draconian changes Brawn mentioned? We don't know exactly how dramatic the changes that will be outlined are going to be, but it seems unlikely that it will represent a fundamental transformation in the look of the cars. After all, if anyone offers a vision that doesn't match the basic wing model that has been prevalent for most of the past half-century, it will lead to endless hand-wringing about the DNA of grand prix cars. But this is something F1 must be willing to consider.

Brawn has got a hell of a challenge on his hands, and given how difficult it is to produce a close, competitive field that will produce the kinds of unexpected results we all want, there's every chance he and his team will not get it right.

It will be understandable if he does fail despite being aggressive. But what won't be tolerable is if the changes are not extreme enough. Better to risk glorious failure than accept woolly half-measures. ✎

Congratulations!

to 2017 Fiesta Junior runner-up NICK REEVE who made a dream debut in the Renault UK Clio Cup Junior series at Silverstone last month by taking two poles and winning both races with the Specialized Motorsport team. Special thanks go to his sponsor Unique Office Solutions, Specialized team boss Simon Horrobin and his family for support - especially his Dad, who prepped the car



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CLIO CUP
RENAULT UK



A CRUCIAL WEEKEND

Formula 1 owner Liberty will present its ideas for the future of the category at this weekend's Bahrain Grand Prix – but how will the teams react?

ADAM COOPER

It's no exaggeration to say that this weekend's Bahrain Grand Prix will mark a watershed moment for Formula 1, and it's nothing to do with what may happen on track.

Liberty has chosen the second race weekend of 2018 to present the teams with its blueprint for the future of the sport, a little over 14 months after the management triumvirate of Chase Carey, Sean Bratches and Ross Brawn took over from Bernie Ecclestone.

Since last January, we've seen a lot of tinkering, but the mantra from the Liberty guys has always been that this is a long-term project. In other words, they should be judged on the post-2020 era, when revised commercial arrangements will come online, and a new engine formula and other revamped regulations will be introduced. This will be their F1, and not a hangover of the Ecclestone era – and thus there will be nowhere to hide.

We had our first taste of what may be coming on October 31 last year, when F1 and the FIA made a joint presentation on their vision of the 2021 engine regulations. In essence, they pitched a simplified version of what we have now, with no MGU-H and more generic technology employed to address costs and close

“BRAWN REMAINS ADAMANT THERE WON'T BE A TECHNICAL DUMBING DOWN OF F1”

the performance gap between the suppliers – and, in theory, to help encourage new entrants such as Porsche, who have hitherto been sitting on the fence, to finally commit.

Those proposals were met with a serious lack of enthusiasm from Ferrari and Mercedes, both of whom were quick to suggest that this was not the F1 they were currently signed up for. Ferrari president Sergio Marchionne was particularly vocal about what he saw as a dumbing down of the sport.

It was obvious that the engine proposals had been dragged into the wider political debate about the post-2020 commercial arrangements, with talk of a possible breakaway, and that Liberty's honeymoon was over. The tone of the reaction came as a shock to the new management, and in particular Brawn.

So what will Ross and his colleagues tell the teams this weekend, now that they've had a further five months to do their homework? The engine rules will clearly be a cornerstone, and

it will be intriguing to see what, if anything, has been refined since October. But there will be much more this time around, with an overall focus on creating a more competitive environment, and improving the show.

“We don't want to take away the incredible performance of these cars, and the technology, and the excitement,” Brawn said in a recent radio interview. “But we do want to increase the opportunity for all the teams to be competitive.”

“That needs changes on all fronts – technical regulations, sporting regulations, and the commercial revenues for the teams to cap off the amount that the top teams can spend and then bolster the amount that the smaller teams have to compete.”

We'll see how much detail Liberty reveals about its strategy for future income distribution and new Concorde arrangements, but teams are unlikely to be receptive to talk of spending caps and cost cutting without knowing the rest of the story.

“We have to be a little bit careful,” Renault Sport boss Cyril Abiteboul told Autosport. “There is no way that we are going to decide or approve a new engine regulation, until such time that we know the rest, the bigger picture of F1.”

“First of all we need to understand the direction that F1 are taking, in terms of cost, in terms of show, in terms of media platform, in terms of footprint, Concorde, stability, governance, money distribution – we need to understand all of that before being able to commit to anything in terms of engine regulations. That's the starting point. Then for the engine regulations we are open for discussion, we are pragmatic.”

Others take the view that it needs to be tackled in stages, and that income shouldn't be drawn into next weekend's rules debate.

“I think that's asking a bit much,” Force India deputy team principal Bob Fernley told us. “You need to have the engine and chassis regs before you can do the commercial rules. I think you're going to have lines in the sand of certain elements of it in place before you can get into the commercial discussions. I don't think you can solve it all in one go – it has to be bite-size chunks.”

Meanwhile, Brawn remains adamant that there won't be a technical dumbing down, despite the focus on spending. “A lot of the technical constraints are necessary to control the amount of spending that goes on,” he said. “But if you control the spending at source, and get it to a limit that's affordable for the majority of teams, then I think you can say why do we need to have such restrictions on the technical regulations? There's a balance there.”

The inevitable question is: will that balance be enough to satisfy the likes of Ferrari and Mercedes? You can be sure that Marchionne won't be slow to tell us. ❦

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YOUR SAY

To see drivers struggling with car control over the bumps at Sebring was fantastic. They won't like it, but it highlighted how good most of them are

ALEX SINCLAIR

Give F1 the bumps – just like Sebring

I have been thinking about why the recent Sebring 12 Hours was so interesting (and exciting) compared to what we are likely to be served up by Formula 1 this year. We have already touched on the ludicrous front wings on F1 cars, but maybe there is another element at Sebring that we need to think about. That is bumps. Yes, you heard me – bumps!

This was highlighted to me by a story last week in your sister publication, *Motorsport News*, when it reported that F1 cars are likely to be one second a lap faster at Silverstone this year as a result of resurfacing work. Frankly, do we care? To see drivers struggling with car control over the bumps at Sebring was fantastic – especially Turn 17. The drivers won't like it, but from a spectacle point of view it really did highlight how good most of them are. Could we not consider Sebring-like surfaces for Grand Prix venues? It could also result in the front wings as presently designed being made redundant. Now there's a plan!

Alex Sinclair

Bray, County Wicklow

Breakaway men should learn from Indycars

I read with increasing ire Mr Wolff's comments that Mr Marchionne's threats to quit F1 should be taken seriously. There is also a hint of a breakaway series, although isn't there always? I could rant and rave about the latter possibility but there would seem little point so instead, I'll draw Mr Wolff and Marchionne's attention to two words: Tony George.

In the creation of the IRL and splitting of the old Indycar, one of the most exciting forms of motorsport ever seen was destroyed, left split, floundering and irrelevant. Grandstanding, puffed chests and self-interest took precedence over the greater good. It has taken until now, 22 years later, for American open-wheel racing to finally begin to approach anything like rude health. Everyone lost. This should serve as a salutary lesson to all. Mercedes has been and gone before. It will again, as any big corporate does when there is a scandal or change at board level. F1 continued without them and thrived. As for Ferrari, they've made these threats continuously.



Mr Marchionne, it's time to finally do it. Pull the trigger. Do it. Leave. Perhaps Mr Wolff will follow. But be careful what you wish for, lest your name be spoken in the same breath as Mr George.

Will Thorling

By email

Come on F1, have a look at NASCAR

If the intention of the virtual safety car is to have the cars hold station during a track emergency, then why are pitstops allowed during a VSC period? I know it's easy for the F1 establishment to look down its nose at NASCAR, but at least they have taken the time to think through this very rudimentary concept.

David C Berkey

New York, US

Computer love is boring craftwork in sport

So Toto Wolff's quote on why they lost the Aussie GP was: "The gap that we needed was wrongly calculated by the system, the way the algorithms are set up, the way the computers are programmed..." Jeez – if that's F1 they can keep it!

Robert Toy

By email

HAVE YOUR SAY, GET IN TOUCH

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The race is always a highlight of the season; a great city, which looks really spectacular under the lights, with the tricky street circuit below — my favourite kind of track to drive.

*Lewis Hamilton, four-time
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INSIGHT

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HOW DID WE PULL *THAT ONE OFF?*

Sebastian Vettel and Ferrari lead the Formula 1 world championship after the Australian Grand Prix. But the team has a lot of hard work ahead to be a consistent match for Mercedes

EDD STRAW

Victory in the season-opening Australian Grand Prix and an early lead in the world championship standings should represent the perfect start to 2018 for Sebastian Vettel and Ferrari. But sometimes a race result doesn't tell the full story, and the reality is that the Ferrari SF71H has yet to show it is capable of sustaining a title challenge against the might of Mercedes.

That's not simply because good fortune played a massive part in Vettel's win – he would never have gained a track-position advantage over Lewis Hamilton without the virtual safety car's intervention and Mercedes getting its timing calculations wrong. But rather because the 2018 car does not yet look the part. It's reasonably brisk but, even though Kimi Raikkonen and Vettel outqualified the Red Bulls in Australia, it's doubtful whether it is even the second best car on the grid.

Vettel has described the car, which features some big changes from the 2017 machine that had the pace but not the reliability to challenge for the championship, as having "huge potential". But he's not happy with it, and was disappointed with the performance and feel in Australia, having been confident going into the weekend that the problems of testing were behind Ferrari.

"At the moment, we're a bit worse off," he said after winning in Melbourne. "Last year, we had more pace at this point. If you look at the gaps the whole weekend, we're not yet a true match. If you are fair, then Lewis was fastest whereas last year we were. We know we are not yet where we want to be, because we want to be fastest."

This doesn't mean Ferrari is doomed in 2018, far from it. But there are problems it needs to solve and potential weaknesses it must address to deliver victories on a consistent enough basis to overcome Hamilton and Mercedes.



1 THE CAR ISN'T FAST ENOUGH

Albert Park isn't the most representative of circuits, and the gaps for the Australian Grand Prix can often be bigger than those at more conventional venues. But even so, Ferrari's speed was a concern.

Kimi Raikkonen's qualifying lap was 0.664 seconds slower than Hamilton's, compared with a gap of 0.268s last year. Even if you compensate for Vettel making an error at Turn 13, and perhaps costing himself the chance to be a tenth or more faster than his team-mate, it paints a concerning picture.

Vettel and Ferrari were surprised at this lack of pace, which is odd given it was in line with what testing suggested. This indicated that the team had perhaps assumed the pre-season pace deficit could be explained away by the unrepresentative track conditions.

The race-pace deficit is, naturally, smaller, although the extent to which Mercedes and Hamilton controlled the race in Melbourne – before making a catastrophic blunder in calculating how close Hamilton needed to be to Vettel to cover a safety car – suggests it has performance in the bag. But even so, perhaps the biggest concern for Ferrari is that the perceived advantage of Mercedes' so-called 'party-mode' Q3 engine settings is not what it seemed. Instead, the Ferrari was gaining around three tenths of a second on the straights, meaning the deficit was down to the chassis. Even if you allow for the fact that the Ferrari was running less wing than the Mercedes, that's concerning.

The bottom line is that work needs to be done.



Vettel isn't happy with his new car's behaviour yet

SUTTON

2 IT ISN'T ON TOP OF ITS NEW CONCEPT

Mercedes opted for evolution with its 2018 car, whereas Ferrari has been more adventurous if not completely revolutionary. Its technical team, led by Mattia Binotto, has opted to make two big changes, one plundered from Mercedes and one from Red Bull.

First, Ferrari now has a longer wheelbase, an increase of 28mm from 2017 to '18, achieved by moving the front axle forward and the rear back. Secondly it has gone for a high-rake concept, whereby the rear of the car is higher than the front for aerodynamic gains.

There are sound reasons for going down either or both of these routes, but doing so just because your rivals are is not one of them. That's not to say Ferrari is wrong to have taken this approach, but on the evidence so far it has not understood how to extract the best from the car in this configuration. It was concerning to see Raikkonen sent out with a late-season 2017 Ferrari front wing for

a back-to-back test during Friday practice in Australia.

Specifically, this was the wing that appeared at the United States Grand Prix, with an additional lip below the tunnel under the base of the outboard section. Most likely, this is to evaluate the airflow separation you encounter when the wing gets close to the ground – perhaps Ferrari is struggling to manage this with its high-rake concept... Whatever the reason, it's not positive to see a team running experiments with a year-old front wing, and we can be reasonably certain it doesn't understand something about the performance of its 2018 specification.

The concern is that, in making these changes, it has engineered out of the car some of the strengths from last year. It still has plenty of time to make this car work, and it may well do so – certainly, those inside the team remain confident. But if it doesn't, it's indicative of some muddy thinking.

Last year, Mercedes technical director James Allison explained the trade-offs implicit in a move to high-rake. "It's a potential route to help with that stability at low speed, instability at high speed," he said. "It's a helpful tool for that, but everything you work on has an opportunity cost. If you spend too much time working on that you're not working on something else, so you just try and cut your cloth to give you the best dress at the end of it."

Given that the high-rake approach changes the angle of attack for many of the aero components on the car, and requires greater work to master the platform owing to the increased rear-suspension travel needed, it's not unreasonable to suggest that the high-rake change has created the biggest problems. And what was the opportunity cost in other areas?

In Australia, both Ferraris seemed to struggle with understeer. It's possible that this was a result of failing to adapt to the extended wheelbase and the high-rake, which require a big change to the way the car operates.

"The car has huge potential, but I'm still struggling a bit," said Vettel. "When you talk about something that you miss as a driver, the car doesn't respond the way you like and it's still sliding in places you don't want it to slide. I want the car to be spot-on when I hit the brakes and turn in, and in that window I'm not yet happy."

3 RELIABILITY REMAINS A DOUBT

Ferrari hasn't had any noticeable reliability problems so far this year, either in testing or during the Australian Grand Prix weekend. But it's early days yet, and the combination of the reduction in power units to three and the memory of the late-season problems Ferrari endured last year make this a concern.

The engine package is an evolution of last year's, and over the winter dyno work suggested mileage targets had been met, both in terms of reliability and a modest power gain of 10bhp. Modifications to the cylinder head proved successful on the endurance front and in the evolution of the pre-combustion phase. It also seems that fuel efficiency has been improved, something that could help Ferrari's race pace. That's all positive, but we won't have a clear idea until later in the season about whether the reliability gremlins have been genuinely banished.

Given Mercedes has a formidable reliability record in the V6 turbo hybrid era, Ferrari needs to avoid power-unit-related grid penalties to maximise its hopes.

Engine failure in Q1 at Sepang last year meant Vettel had to fight through the pack



LAT IMAGES

DUNBAR/LAT

4 THE MANAGEMENT IS PILING ON THE PRESSURE

At regular intervals during its history, Ferrari's race team has had to divert too much time and energy into servicing the whims of senior management. One example was in 2013, a season in which Ferrari was not likely to win the championship, but in spite of this the team felt it had to demonstrate progress by developing that season's car, as a consequence of which it neglected the '14 hybrid project.

There's a different management in place at Ferrari now, but it is clearly not one entirely comfortable with its place in the world. Ferrari chairman Sergio Marchionne has a habit of cropping up to put pressure on the team in public, and you can bet that's nothing compared with what's going on internally.

Team principal Maurizio Arrivabene has taken the approach of minimising Ferrari's interaction with the media and fans, which suggests a certain insecurity about the direction the team is going in. The key is whether he is successful in insulating those further down the food chain against pressures from above so they can do their jobs – something that hasn't always been easy at Ferrari.

If things are going well, this pressure isn't such a big problem. But if there's some work to do, it can make it harder to recover.



Team principal Arrivabene is under pressure from above

6 RAIKKONEN MAY NOT BE CONSISTENT ENOUGH

You can't really fault Raikkonen's performance in the Australian Grand Prix. He finished third, having outqualified Vettel, and his presence at the front of the field while his opposite number at Mercedes – Valtteri Bottas – was nowhere thanks to a qualifying crash gave Ferrari the strategic advantage of two bullets in the chamber. But this has to become the norm in 2018.

Too many times in his second Ferrari career, qualifying errors and periods of races where Raikkonen has not delivered the performance level he should be capable of have compromised his results. This has reduced his potential to take points off Vettel's rivals.

But he could also be a significant asset in terms of trying to get the best out of the car. While he's overly sensitive to car characteristics, he has plenty of experience in trying to improve an understeering car to be better on corner energy, and will give the team high-fidelity feedback.



RAIKKONEN WAS SOLID IN AUSTRALIA, BUT NEEDS TO SUSTAIN THAT LEVEL



Vettel caused the spectacular startline shunt in Singapore

5 VETTEL'S RED MIST

In 2017, Vettel's title bid was blunted by two incidents. One was unquestionably a case of red mist, as he reacted badly to Hamilton playing (legitimate) games under the safety car before the restart in the Azerbaijan Grand Prix and deliberately swiped the Mercedes.

The second was the Singapore Grand Prix start, when, after starting in second gear, Vettel got a poor launch and had to defend his position. Amid supreme pressure to capitalise on the car's pace on a weekend when Ferrari was supreme, did that play a part in his aggressive defence and the ensuing collision? He argues it wasn't a serious error on his part, just a racing incident, and perhaps it was.

But it hinted at a lack of composure under pressure, something that wasn't so evident in his Red Bull pomp – perhaps reflecting the tumultuous nature of the Ferrari environment. We know he's plenty fast enough to be world champion, but against strong opposition he must keep his head.

None of these factors, even combined, mean definitively that Ferrari will be beaten this year. It's a cliché that there's a long way to go, and Ferrari has started in a reasonable position – it's just not yet good enough to vanquish Mercedes. It needs to make big strides, and quickly, to give Vettel and Raikkonen the car to compete for race wins without relying on luck.

From here it can go one of two ways: either Ferrari gets on top of its new concept and unlocks the potential it believes is there; or it endures a frustrating season with a car from which it cannot quite extract the best.



Rival midfield teams claimed that Haas's car is a 2017 Ferrari clone

LAT IMAGES

HONE/LAT

THE HAAS STORM IN A TEACUP

To butcher a popular maxim, criticism is the sincerest form of flattery in Formula 1. So Haas should be pleased that its rivals are questioning its Ferrari technical relationship and demand answers on whether the restriction on what is allowed in the production of aerodynamic parts is being adhered to.

Haas and Ferrari working together in F1 is nothing new. Ferrari supplies Haas with many components the Anglo-American team does not need to build itself and also allows Dallara, Haas's chassis partner, to use its windtunnel. The third season of this arrangement is threatening to produce its biggest yield so far, on the evidence of Haas's strong showing in the season-opening Australian Grand Prix.

Haas locked out the third row of the grid in Melbourne and ran fourth and fifth, ahead of both Red Bull drivers, before pitstop mistakes condemned Kevin Magnussen and Romain Grosjean to retirement. It was similar to last season, when Grosjean qualified

sixth but failed to finish owing to a water leak.

But this performance triggered fresh questions over the Haas/Ferrari tie-up. Force India chief operating officer Otmar Szafnauer asked if the team is performing by magic. It isn't. It's a carefully

thought-out, multi-facet arrangement extracting the maximum support allowed within the F1 regulations to ensure as big a return on as small an investment as possible.

Supposedly the matter will be discussed in F1's next Strategy Group

meeting, while Haas team boss Gunther Steiner has encouraged its rivals to lodge an official protest if they are so concerned. But that's not the point.

Haas has started each of its three seasons in F1 well, and wasn't any closer to the front of the field in Australia this year than it was 12 months ago. So the onus isn't on F1 to prove that Haas and Dallara are doing anything untoward, it's on Haas and Dallara to produce quality upgrades more efficiently to prove its place at the head of the midfield is real and can be sustained.

Then we'll see if the latest strong start from Haas isn't just another false dawn – and that's a more tangible issue for F1 2018 to focus on.

SCOTT MITCHELL



Team boss Gunther Steiner has batted off rivals' criticism

LAT IMAGES

ANDRE/SUTTON IMAGES



FERRARI

GARY ANDERSON'S VERDICT

Has Ferrari produced an integrated title contender, or has it just thrown a bunch of random ideas purloined from other top teams at its 2018 weapon?

GARY ANDERSON

At the beginning of 2017, Ferrari produced a car with a very different concept to the rest in terms of how it went about optimising certain areas for the new aerodynamic regulations. At the time, I said that if it worked well, others would have difficulty copying it quickly.

Ferrari found a way to move the leading edge of the sidepods rearwards while still complying with the side-impact regulations – this mandatory structure is now in front of the sidepods. That allowed more room to manage the turbulent airflow coming off the trailing edge of the wider front tyres and allowed Ferrari to introduce a different bargeboard concept.

Airflow used for cooling is wasted in terms of it not being able to produce downforce, so this is another area Ferrari focused on. You can't push the airflow through the radiator cores; you have to suck it through, so that means having an inlet in an area that has good, consistent flow and an exit in a low-pressure area. If you get the locations correct, you can then start to reduce the inlet size and use the excess airflow that is not going through the radiator to produce downforce. You will also get more consistent downforce and cooling.

The **AIRBOX INLET** is used to feed the turbo, and some of that airflow is also used to serve some of the many power-unit cooling requirements. For 2018 Ferrari has increased the inlet size. As long as the airflow to this inlet is consistent, which it is, then this is in

“FERRARI HAS MADE SOME BIG CHANGES TO THE CONCEPT”

an area that won't do much harm to the downforce levels, and it probably allows Ferrari to have slightly smaller sidepod inlets.

If the **SIDEPOD INLET** is too big or the exit too small, then as the car increases in speed the airflow that you would like to go through the radiator will just spill into that undercut sidepod area. It's not uncommon to get reverse airflow in this area at high speed since basically the radiator core just blocks off and can't take that amount of mass flow. If this happens it can cause all sorts of aerodynamic dramas, including loss of downforce and overheating.

Having smaller and higher sidepod inlets allows the undercut sidepod and the **BARGEBOARD** area to work more efficiently. There is less blockage behind the bargeboards, so they can pull more mass flow out from under the raised section of the front of the chassis.

Ferrari's vertical turning vanes at the outer corner of the sidepod area are bigger and bolder than most, but maybe not as intricate as some. These vanes are to manage and tidy up the turbulent

airflow coming off the trailing edge of the front tyre.

The innovative radiator inlets are the interesting part, and they even take airflow in from the sidepods' top surface. The rear-view mirrors actually help as a small turning vane to assist the airflow into this top opening. If Ferrari does get any radiator-inlet airflow spillage, then it will probably spill over the top surface of the sidepods, which will do a lot less harm than if it went downwards into the undercut. This would then affect the Coke-bottle area and, in turn, the diffuser performance.

When I first saw last year's Ferrari I was impressed, and I said at the time that by going in a different direction from all the other teams, it had placed the onus on itself to gain a deep understanding of how the car was working in order to find a development direction. I think Ferrari achieved that and kept in touch with Mercedes for the duration of the season on pace.

But when Ferrari unveiled the SF71H for 2018, I wasn't so sure I saw the aerodynamic step that I believed it needed to put together a stronger championship challenge. Watching the car in pre-season testing confirmed that impression to me. It looked good and generally well-balanced, but when the driver tried to push that little bit harder they just ran out of grip.

This year, rather than taking the more evolutionary approach of Mercedes, it has made some big changes on top of last year's concept. It has increased the **WHEELBASE** from 3550mm to 3678mm, which makes it very similar to Mercedes. Following the lead of Red Bull it has gone to a higher-rake platform, which from what I saw in testing Ferrari was struggling to understand.

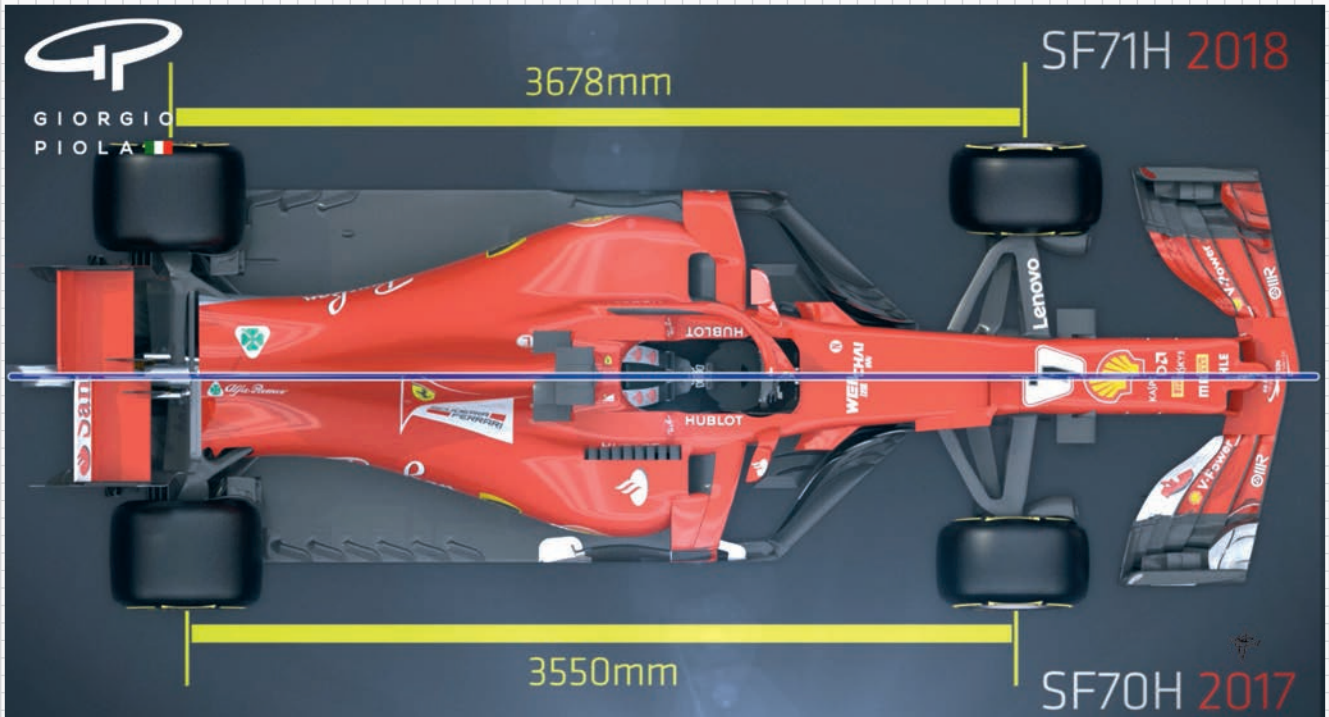
I would say Ferrari's downforce levels are a few per cent down on what Mercedes can produce, and that is why Ferrari has gone from being behind Mercedes by 0.2% on lap time over the 2017 season to 0.8% at the beginning of 2018.

Building a successful Formula 1 car is about making everything work together rather than just taking the most popular concepts of other teams and sticking them all together. Ferrari, by changing its wheelbase and adopting the high rake on top of other chances, has certainly been aggressive.

But so far it looks as though it may have gone aggressive for its own sake rather than for sound technical reasons based on good understanding. Sometimes it's too easy to do that for the wrong reasons, especially when there's lots of pressure from the top of the company to deliver results quickly.

Based on testing and the Australian Grand Prix, the car is not only slower than hoped, but also not handling like it should. Ferrari has a lot of work to do to show the direction it has taken is the right one. And every fan of F1 needs it to get the most out of its car and give Mercedes a run for its money. ❄

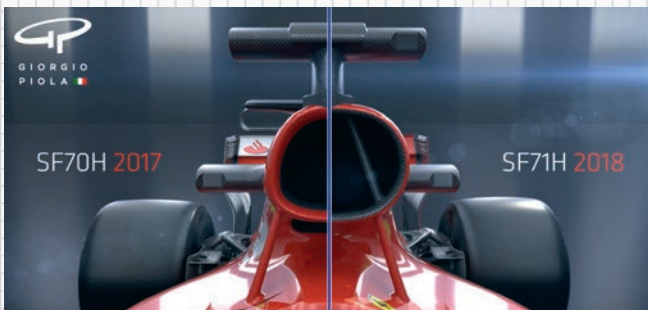
WHEELBASE



WING MIRROR/SIDEPOD INLET



AIRBOX INLET



BARGEBOARD



Jim Clark's 10 greatest drives

Fifty years ago this week, Formula 1 lost its benchmark driver in a Formula 2 race at Hockenheim. It seems a fitting time to look back at his finest moments

KEVIN TURNER



10

1961 SOUTH AFRICAN GP

EAST LONDON
LOTUS 21 (1ST)

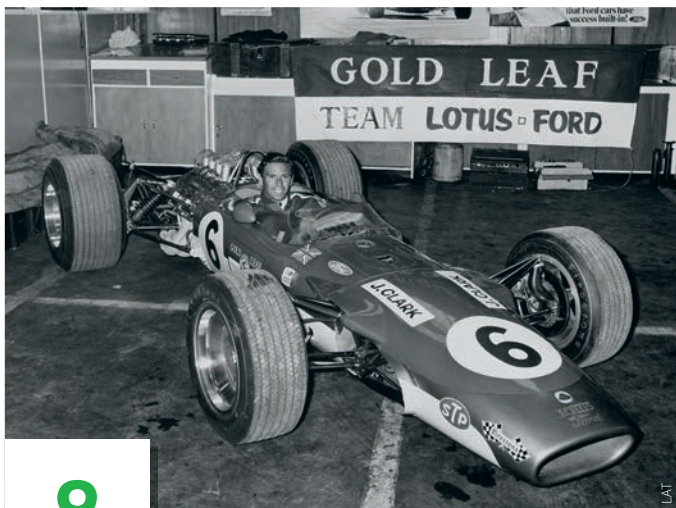
Stirling Moss was the undisputed world's best in 1961, pulling off some famous victories in inferior equipment, but Clark's performances at the end of the season showed that things were changing. Clark's Lotus 21 had beaten the older 18/21 model of Moss in the Natal GP earlier in the month, but the East London race stepped things up a notch.

Poleman Clark and team-mate Trevor Taylor led away, but Moss was soon into second and took the lead when Clark spun avoiding another car. Now Clark charged, despite damage to the gearbox, lapping faster than his pole time, and Moss

was powerless to stop him coming through to win by 15.7 seconds.

"Moss pulled in behind Clark and tried to stay in his slipstream but could not keep up with Clark's fast and furious driving," said Autosport's report. "Clark demonstrated that the world championship is no pipe-dream for him."

Clark was a little more circumspect, though beating Moss was clearly a watershed: "I had the satisfaction of beating Stirling twice in two weeks, although, in all fairness, my car was newer than his," he wrote in his 1964 book, *Jim Clark - At the wheel*.



9

1968 AUSTRALIAN GP

SANDOWN PARK
LOTUS 49T (1ST)

Clark demonstrated an ability to withstand intense pressure from a potentially faster car in the 1968 Australian GP. It was a round of the Tasman Series, essentially a winter world championship in Australia and New Zealand.

Clark had given the newly branded Gold Leaf Team Lotus (his Lotus 49T, pictured left, sporting the red, gold and white livery later seen in F1) a win on its debut at the Lady Wigram Trophy the month before, and arrived leading Ferrari's Chris Amon by just three points in the standings.

Running the same DFW engine (the 2.5-litre version of the Cosworth DFV) he had already used in five Tasman races, Clark qualified third, behind Jack Brabham and Amon. It was a small field, but just 0.6s covered the top five around the 1.9-mile circuit.

Crucially, Clark grabbed the lead at the start and immediately had to

defend from Amon. Brabham briefly joined them before retiring, but the pressure on Clark remained.

"Amon tried again and again but, although he repeatedly drew alongside the Lotus, he was unable to get past," said Autosport's report, which pointed out that Amon actually had his nose in front when they crossed the line on lap 33 of 55. "Clark could brake 20 yards or so after the Dino, and this always kept the Lotus in front."

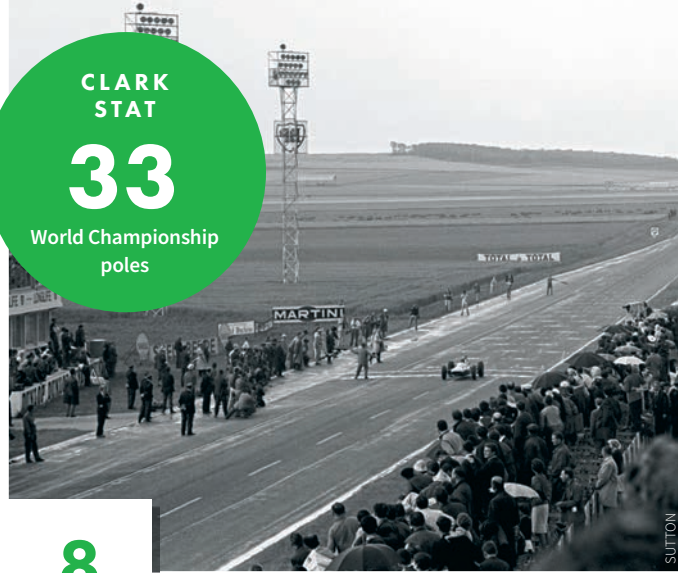
Clark did open some breathing space, but Amon closed in towards the end, setting up a grandstand finish. "They crossed the line with the Ferrari's front wheels level with the Lotus's rears," described Autosport. "A more exciting finish has seldom been seen in Australia."

The final margin was 0.1s. Clark had absorbed enormous pressure for over an hour, and all but secured his third Tasman crown.

CLARK
STAT

33

World Championship
poles



8

1963 FRENCH GP

REIMS
LOTUS 25 (1ST)

SUTTON

Clark still has more ‘grand slams’ – win, pole, fastest lap and led every lap – than any other driver in world championship history. The 1963 French GP was his third, but that fact hides a challenging event for the Scot.

As was the norm that season, Clark took pole comfortably and pulled away from the field. He led by 3s after lap one, but on lap 14 his Coventry Climax engine began to misfire, cutting his revs by an estimated 1500rpm.

“I suddenly felt the engine falter at high rpm,” said Clark in his book. “I soon found that by drastically reducing my revs I could still maintain a reasonable lap time, but behind me Jack Brabham and Dan Gurney were steadily whittling down my lead.

“As if in answer to a prayer, it suddenly started to rain. On the damp track I now found that once again my lead began to increase, but the engine sounded so rough I still had doubts about finishing the race.

“The rain became heavier, and at this point turned into a liability instead of an asset, as my tyres were getting pretty bald – this was the fourth GP I had run with the same set and I was getting no tread drainage from them.

“Brabham began to catch up again but fortunately for me an ignition lead fell off and delayed him. This gave me the breather I needed to bring the ailing car home in first.”

Two broken valve springs were found to be the cause, but Clark had still taken victory by over a minute.



7

1963 AINTREE 200

LOTUS 25 (3RD)

LAT

This non-championship event was the scene of one of Clark’s great comeback drives, after his polesitting fuel-injected Lotus 25 suffered battery failure at the start. Clark eventually got going, but the car was not right, so he took over team-mate Trevor Taylor’s fifth-placed sister 25 (running on Weber carburettors), a move that was no longer allowed in points-paying races.

Taylor took over Clark’s car to finish seventh, but his team leader was on a mission. Clark rejoined 1m38s behind leader

Graham Hill, but he charged to third, finishing 28.6s behind the victorious BRM driver. He also left the lap record 3.2s quicker than his fastest lap from the previous July’s British GP, which he had dominated.

“The remarkable driving of Clark was something seldom seen since Moss left the arena,” said Autosport’s report. It was also an event Clark picked out in *Jim Clark – At the wheel*: “I really enjoyed this race, more than a number of the grand prix events I was to drive in during the season.”



6

1965 BRITISH GP

SILVERSTONE
LOTUS 33 (1ST)

LAT

Interestingly, Autosport described this as a “somewhat fortunate victory”, although it also conceded Clark nursed “his sick motor round with great skill”.

One of Clark’s strengths was how easy he was on the machinery, which enabled him to coax results from Lotus boss Colin Chapman’s fast-but-fragile cars. The 1965 British GP at Silverstone was a fine example.

Although Richie Ginther’s Honda jumped ahead at the start, Clark was in front by the end of lap one and headed off into what looked like another decisive lead. He was 36s ahead with 18 of the 80 laps to go,

despite a small misfire, when his oil pressure started to drop dangerously low. Graham Hill closed in, though he too was having difficulty with his BRM’s brakes.

“Assessing the state of his engine and the overall race picture perfectly, Clark drove on the ignition switch, coasting through some corners in order to prevent oil surge ruining the bearings, while holding Hill at arm’s length,” wrote Graham Gauld in his book, *Jim Clark – Portrait of a Great Driver*.

Clark held on to win by 3.2s, despite a lap record from Hill on the final tour.



5

1965 INDIANAPOLIS 500

LOTUS 38 (1ST)

Clark's stunning 1963 Indy 500 debut, where he was controversially beaten when the oil-leaking roadster of Parnelli Jones was not black-flagged, could have made this list. But it's arguably Clark's biggest win that gets the nod. Even he described it as: "Perfect, just as we planned it."

Although most of the runners were now rear-engined, the Len Terry/Colin Chapman-penned Lotus-Ford 38 was still cutting edge. And Clark always had an advantage over team-mate Gurney, who battled with Jones (now in Clark's 1964 Lotus 34, known as the Agajanian Hurst Special) before retiring.

Clark led lap one, was overtaken by poleman AJ Foyt in a modified Lotus 34 (Sheraton Thompson Special) on lap two and retook control on lap three. Thereafter, apart from pitstops, Clark dominated the race, pulling clear of the rest.

Foyt retired after 115 laps with transmission trouble, but was nearly a lap behind by then.

Clark only made two stops (19.8s and 24.7s – among the fastest of the race), aided by a new and more efficient fuel-injection system.

Second man Jones was hobbled by a lack of fuel in the closing stages, only just staving off Mario Andretti, leaving Clark to win by almost two minutes. The Scot smashed the race record, becoming the first to average over 150mph for the 500, and the first to win in a rear-engined machine.

"Clark was by far and away the best driver present," said Autosport's Michael Kettlewell. "Even the rather staid *New York Times* compared his driving talent with that of Stirling Moss and Juan Manuel Fangio."

The performance also earned Clark over \$150,000, far more than he earned in F1. Perfect indeed.



4

1967 ITALIAN GP

MONZA
LOTUS 49 (3RD)

This is often cited as Clark's finest drive – indeed, some have suggested it as the greatest F1 drive ever.

Clark took pole and engaged in a classic slipstreaming battle with Lotus team-mate Graham Hill and the Brabhams of Denny Hulme and Jack Brabham early on. Then, on lap 13 of 68, he pitted with a puncture and resumed just over a lap behind the lead fight.

Clark caught the lead trio and made his way through to unlap himself, giving Hill a helpful tow as he did so. Both then raced clear and, when Hill retired with 10 laps to go, Clark had victory in his sights. He overtook Brabham and seemed destined to take a remarkable win when the Lotus spluttered with fuel starvation in the closing miles, dropping Clark back to third.

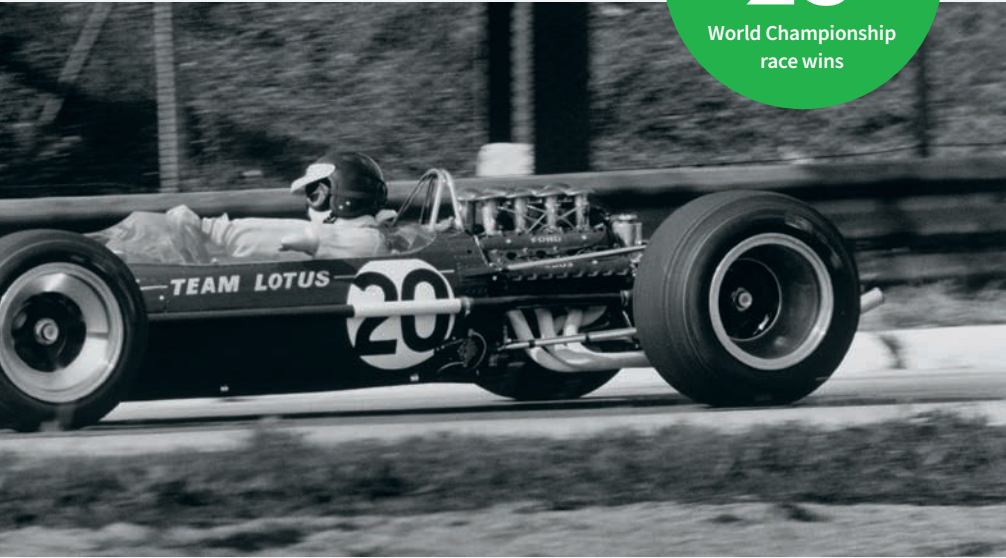
Autosport called it an "amazing drive" and Colin Chapman was later to pick it out as one of Clark's best. It was clearly a great performance, so why isn't it number one here? A bit more delving into this race explains its position.

Firstly, the Lotus 49 was *much* faster than everything else once it arrived in 1967. From its debut at the Dutch GP, the 49 was on pole for every round. At high-speed Spa, Clark qualified 3.1s faster than the next car.

Looking at supertimes (based on the fastest single lap of each car at each race weekend, expressed as a percentage of the fastest lap overall and averaged over the season), the gap between the 49 and the second-fastest car was 1.217%

**"HE WAS HAILED AS THE WORLD'S
GREATEST AFTER MONZA, BUT IN
CLARK'S MIND HE HAD DONE
NOTHING EXCEPTIONAL"**

CLARK
STAT
25
World Championship
race wins



across 1967. To put that into perspective, the margin between Mercedes and Ferrari in 2017 was 0.178%, with third-placed Red Bull 0.873% behind the Silver Arrows. In 2009, the entire field was covered by 1.241%.

On raw pace, the 49 was the most dominant car of the 1960s and the 10th most dominant in the history of the world championship. And the 400bhp Cosworth DFV gave the Lotus a useful power advantage when it came to overtaking.

At Monza, only the Brabham-Repco could get close and Hill's race underlines the 49's true form that weekend. Hill was one of the few top-level team-mates Clark had during his Lotus career. Having run in the leading group during the early stages, Hill took control after Clark's pitstop.

He overtook Hulme, whose Repco was beginning to show the signs of engine trouble, for the lead on lap 28 and finally broke the tow, with the just-unlapped Clark's help. Now the lead went up remarkably quickly (see graph, below). From 2.4s at the end of lap 29, Hill's lead read as follows for the next 10 successive laps: 5.2s, 9.7s

(boosted by problems for Hulme), 12.2s, 14.8s, 16.7s, 18.1s, 20.8s, 22.2s, 24.3s, 26.1s.

More important is Hill's gap over Clark once he hit the front (see graph, below right). At the end of lap 28, Hill's advantage over Clark was 1m27.5s. Clark had already taken 10s back while Hill battled Hulme and Brabham, but thereafter the pace of the two 49s was very similar.

By the end of lap 58 – the final one before Hill's engine failed – Clark was 1m25.3s behind the leader. Admittedly Clark had needed to overtake cars for position, but the advantage of the 49 made that relatively straightforward and Hill had been working his way through backmarkers too. The fact that Clark towed Hill along for some of the distance also shows he was the pacesetter, but Hill kept up. Over those 30 laps after Hill took the lead, Clark had gained just 2.2s on his team-mate, an average of less than 0.1s per lap.

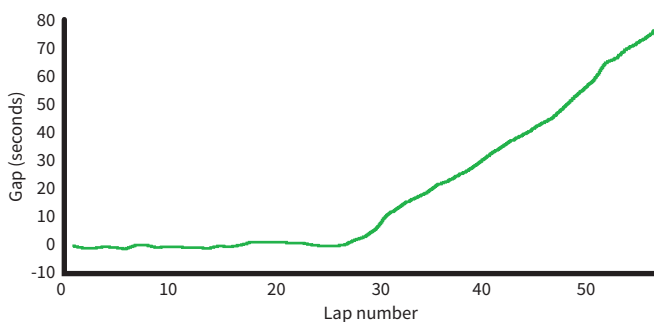
Hulme, the closest challenger to Lotus, was already out. So when Hill retired, Clark crossed the line at the end of lap 59 just 3.7s behind new leader Brabham, having overtaken John Surtees (Honda).

Clark was on Brabham's tail the next time through and was 1.5s ahead at the end of lap 61, apparently on his way to a famous win before being cruelly denied.

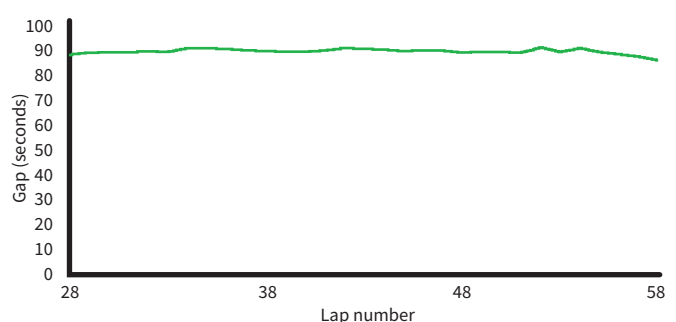
Finally, Clark himself did not believe the drive was his best. In *Jim Clark – Portrait of a Great Driver* by Graham Gauld, journalist Gerard Crombac, who was a close friend of Clark's, even suggested the Scot was irritated that the race was reversed so much.

"One thing which upset him was all the fuss, and the praise he got, after his fruitless 1967 Italian GP," said Crombac. "He was hailed as the world's greatest then, but in his mind he had done nothing exceptional. He did not think that Monza is a driver's circuit; if his team-mate hadn't blown up he could not have caught up with him, and in any case, he knew he just had a better car than anybody else."

The 1967 Italian GP certainly stands as testament to Clark's determination, and any time someone comes from a lap down to lead a GP is remarkable. But this particular race says more about the way the Lotus 49 moved the goalposts in F1 than it does about Clark's exceptional ability.



Gap between Hill and closest rival



Gap between Hill and Clark

3

1966 DUTCH GP

ZANDVOORT
LOTUS 33 (3RD)

Thanks to Colin Chapman, Clark didn't often get the chance to demonstrate his ability to lift inferior machinery up the field, at least in F1. But the switch to three-litre regulations left Lotus in a bit of trouble when it came to engines.

Clark spent 1966 battling with two-litre Climax or unreliable BRM H16 power. His win in the United States GP with the BRM-engined Lotus 43 is well-known, but did require some misfortune of others. This race at Zandvoort was different.

At a circuit where he often impressed, Clark took the fight to the more powerful Brabham-Repco of Jack Brabham. After qualifying third, Clark battled the soon-to-be triple world champion and the second Brabham of Denny Hulme in the early stages (below), with Graham Hill's BRM also in the mix.

"The struggle for the lead was making this the best Formula 1 race of the year," said Autosport's report, but Hulme soon dropped

out with ignition problems and Hill started to fall back.

Still Brabham couldn't shake off Clark. "With a track made slippery by oil and rubber, the two-litre machine and Clark's inspired driving were more than a match for the three litres of Brabham-Repco," said our report. "The world champion was driving impeccably and it was difficult to realise that he was giving away a litre of engine capacity."

Then Clark grabbed the lead at Tarzan on lap 27 of 90 and started to edge away. At one stage the Lotus was 10s ahead, but the Brabham closed in again going into the final third of the race.

On lap 76 Brabham took the lead as Clark pitted with steam pouring from the radiator. A crankshaft vibration damper had broken and fouled a water line. Water was added and Clark still finished third, scoring the first of his two 1966 world championship podiums, but hopes of a dramatic upset had gone.



2

1963 BELGIAN GP

SPA
LOTUS 25 (1ST)

Clark was one of the all-time rainmasters and this was one of F1's greatest wet-weather performances. Following several fatalities on his early visits to Spa, Clark didn't like the fast 8.8-mile circuit, but he invariably excelled there and ultimately won four Belgian GPs. This second came despite qualifying only eighth thanks to oversteer and gearbox problems, and more issues in the race.

Initially, things went well. Clark made a sensational getaway to grab the lead before Eau Rouge. "Clark made one of those picture starts: from the third row he was in first spot long before the end of the pits," said Gregor Grant in Autosport's report.

Graham Hill's BRM initially stayed with Clark, but the Lotus soon started to edge away in the damp conditions. After five laps he was eight seconds ahead. When gearbox troubles ended Hill's race just after half-distance of the 32-lapper, Clark's lead became a minute and a half.

On lap 24 of 32 the Belgian GP became a fully wet race when the heavens opened, complete with lightning. Lap times went from four minutes to more than six minutes and Clark's lead grew yet further. Conditions were so bad that Colin Chapman and BRM's Tony Rudd called for the race to be stopped. Their request was refused.

At one stage, Clark lapped second-placed Bruce McLaren, but the Cooper got back ahead so the winning margin was 'only' 4m54s.

"I enjoy driving in the wet, but this

was Spa and I kept well within my limits," said Clark in his 1964 book. "It started dropping out of top [gear] and at Spa this is not funny."

This made the challenging Masta kink, which the Lotus 25 was taking at around 150mph, even more perilous: "As I approached the kink I would be holding the gear lever in place with my right hand and moving my left hand down to the bottom of the steering wheel. I did this because the car has a tendency on this kink to move from one side of the road to the other and I often needed correction. By keeping my hand low on the wheel I could twirl the steering round with one hand and hold the slide."

Cedric Selzer, one of Clark's mechanics, reckoned the effort one of the Scot's best. "Jimmy had driven a fair bit of the race one-handed, while holding the gear lever in top with the other," he said in *If You Have Come Second You Have Lost*. "This was an amazing effort and probably one of the all-time great GP drives."

To put the conditions into perspective, Clark's winning speed was just 116mph, the slowest Belgian GP since 1953, when the world championship was run to F2 rules.

Autosport was not impressed: "To continue the race in conditions which were not only appalling but highly dangerous was a vexing problem for the organisers. The sight of the unfortunate survivors touring round almost blinded by spray and vanishing in the murky mists was not our idea of a sporting contest."

**1**

1962 GERMAN GP

**NURBURGRING
LOTUS 25 (4TH)**

Clark did not even finish on the podium in the race that snatches top spot, but it did take place on the world's greatest circuit. The 14.2-mile Nurburgring was one of Clark's favourites, and the drive he singled out as his best began with a mistake there.

Clark qualified on the front row, behind Dan Gurney's Porsche and the BRM of Graham Hill, but forgot to switch his fuel pumps on at the start and was swamped. In tricky wet conditions he began a fightback in which he pushed his own limits.

"I felt so annoyed sitting there in a silent car as the rest of the field roared away," said Clark in *Jim Clark - At the wheel*. "I realised my mistake immediately and, having corrected it, I set off in hot pursuit determined to make amends for my unforgivable blunder.

"I was well behind, but passed about 10 cars on the opening lap. I got up to fourth and within sight of the leaders, before a

serious slide made me realise I was stepping too near the limit, and I decided that I would have to be content with fourth."

Clark had got to within 14s of leader Hill – himself putting in one of his best drives in a battle with Gurney and John Surtees – before backing off and the Lotus started suffering from fuel-feed trouble anyway.

He eventually finished 42.1s behind Hill, but in Graham Gauld's book *Jim Clark - Portrait of a Great Driver*, Clark's friend Gerard Crombac said: "In Jimmy's mind, the best race he ever did was the 1962 German GP. This was probably the only race when he drove at ten-tenths throughout, and the fact that he hadn't been praised for it was a severe criticism of most journalists."

Colin Chapman, who masterminded all of Clark's GP successes, agreed: "He felt, rightly or wrongly, that he had made a mistake and it was up to him to put it right. He drove fantastically well that day."

CLARK
STAT**2**

F1 world titles

AND NOT FORGETTING

Unsurprisingly, there were many other candidates for this list. Arguably Clark's greatest sportscar outing also came at the Nurburgring in 1962.

According to Autosport, Clark and the Lotus 23 (below) provided the "sensation of the race" in the opening stages of the classic 1000Km. Up against cars with more than twice the Lotus's 1500cc engine capacity, Clark grabbed the lead on the first lap and came through 27s clear of the field.

Although Willy Mairesse's four-litre Ferrari eventually started cutting into Clark's lead, the Lotus was still 54s clear after 10 laps. Sadly, the David-and-Goliath battle failed to materialise. Overcome by fumes from a broken exhaust, Clark crashed before he could hand over to Trevor Taylor.

Time and again, Clark showed he could handle the pressure of a title fight. He arrived at the 1962 United States GP needing to win to keep his championship chances alive and took pole by 0.8s, 0.9s quicker than BRM man and rival Graham Hill.

The Lotus 25 led early on and was edging away when Clark was delayed in traffic and the BRM slipped ahead. Clark responded and retook the lead on lap 19 of 100, going on to win by 9.2s after backing off in the closing stages. Everyone else was lapped.

Clark was getting the job done at the subsequent South African GP finale too when an oil leak handed the crown to Hill.

It was a similar story in Mexico in 1964. On pole by 0.86s in a three-way title fight with Hill and John Surtees (Ferrari), Clark had to win and hope Surtees wasn't second and Hill wasn't third. Dan Gurney's Brabham made a great start, but Clark was ahead by the end of lap one. He looked set to retain his crown, but his engine failed as he was about to start the penultimate lap.

In Indycars, Clark underlined the point that rear-engined cars were going to make the traditional front-engined roadsters obsolete with a dominant victory in the 1963 Milwaukee 200. His Lotus 29 took pole, led all the way and lapped all but second man AJ Foyt, while Gurney took third in the other Lotus. Despite retiring from the lead at Trenton, Clark's three outings were enough to secure him sixth place in the 12-round USAC standings!



**"HE FELT, RIGHTLY OR WRONGLY,
THAT HE HAD MADE A MISTAKE
AND IT WAS UP TO HIM
TO PUT IT RIGHT"**

The battle to be Britain's next F1 star

The Formula 2 season kicks off in Bahrain this weekend and there are three Britons who should be in the fight at the front

ALEX KALINAUCKAS



LAT IMAGES

A MERCEDES DRIVER FIGHTING A McLAREN RACER AND a Renault star for glory, all the while battling a host of opponents each with an excellent chance of victory. It would make pretty good viewing at a grand prix event.

And that's exactly what we're going to get this year – just not in Formula 1, if the tedium of the recent Australian Grand Prix is anything to go by. No, once again we must look to F1's supporting cast in Formula 2 for the best thrills and spills on a grand prix weekend, and in 2018 there is added interest for British fans as a trio of highly rated drivers has reached the final step on the

“THIS IS PROBABLY ONE OF THE MOST COMPETITIVE FIELDS IN TERMS OF QUANTITY OF QUALITY”

junior single-seater ladder.

Mercedes part-time F1 reserve and reigning GP3 champion George Russell steps up to the second tier alongside 2018 McLaren reserve and last year's European Formula 3 champion Lando

Norris, with Renault standby and '17 GP3 runner-up Jack Aitken joining them on the F2 grid. Russell and Aitken will transfer to F2 with category stalwart ART Grand Prix (with which they both competed in the third tier last term), while Norris steps up with the returning Carlin team.

In addition to this trio and scattered among the rest of the field are nine other drivers with links to F1 teams or engine suppliers.

Category veteran Artem Markelov – now a Renault junior – heads the experience stakes, with proven race winners Nicolas Latifi (Force India test and reserve driver), Sergio Sette Camara, Antonio Fuoco (Ferrari Academy) and Nyck de Vries (McLaren junior) all returning.



Russell (below left) joins ART after winning 2017 GP3 championship



Last year's Euro F3 champ Norris (below) will race for Carlin

ALL PICS: GRIFFITHS/LAT

The last-named heads the line-up of Prema Racing, the team to beat in the past two years after running current F1 rookies Pierre Gasly and Charles Leclerc to GP2/F2 titles.

This mix points to an explosively exciting and unpredictable championship. "It really is the highest level of junior series and across the board this is probably one of the most competitive fields in terms of the sheer quantity of quality," says Russell.

Further adding to the complexity of the season is the 2018 F2 Dallara, the category's first new car since 2011. The haloed, 3.4-litre turbocharged V6-powered car has been modelled on the aggressive

"EVERYONE IS TRYING TO GET ON TOP OF THE TURBO. IT DOES AFFECT THE HANDLING QUITE A BIT"

styling of the current generation of F1 machinery and has been fitted with the highest level of single-seater safety measures. The car is a step forward in terms of downforce compared to the GP2/11, but the added features mean a 32kg weight increase.

"It's got a lot of mechanical grip and in the high-speed it's pretty good as well," says Aitken. "It doesn't seem to be too affected by having that little bit of extra weight, which is good to see."

The powertrain changes mean the drivers have had to work hard to adapt their styles, as well as learn the famously fragile Pirelli rubber, which returns with the new machine.

"The biggest thing, which everyone is trying to be on top of, is the turbo because it does affect the handling quite a bit," explains Norris. "And the power delivery and the downshifts and everything are very different, and it does take a bit of time to get used to. And because the power delivery changed, it does have an impact on how you wear the tyres – you need to learn how to save them."

Several teams and drivers reported 'problems' throughout the six days of winter testing that took place at the Paul Ricard and Bahrain circuits in March, although teething issues are to be expected with a new car. But the "chance that reliability plays a factor in the season", as one driver put it, adds to the sense of unpredictability surrounding the campaign. >>





THE MAN THEY HAVE TO BEAT

SINCE IT JOINED GP2/Formula 2 in 2016, Prema Racing has been the dominant force in the championship. This year, its line-up consists of second-year F2 driver Nyck de Vries and Sean Gelael, who drove in four F1 practice sessions for Toro Rosso last season.

McLaren-backed de Vries is already an F2 race winner after triumphing in the Monaco sprint race in 2017, and he was the top rookie driver (other than dominant title winner Charles Leclerc) in the final standings. Last year, he shone in qualifying but was unable to make the crucial feature-race breakthrough – but he did well to cope with switching teams mid-year, from the Rapax squad to Racing



Nyck de Vries is working hard with Prema team to be ready for 2018

Engineering, which have now both left the category. “I must say, he’s a very good driver,” says Prema team boss Rene Rosin. “He’s trying to focus on every single detail, trying

to optimise everything. He’s working very hard with his engineer and with the team, so he’s well prepared.

“For sure, every driver is different – at this time last

year, nobody was expecting Charles to be the Charles that we know. We knew that he was a very good one, but if you asked outside, nobody was expecting Charles to be so

dominant. So, it’s quite early still to say something about Nyck, but I think he has great potential. He needs to work hard, as he is doing together with the team, and I think that the results will be OK.”

Prema’s success means its rivals are targeting it, and the new car presents a chance for the competitive order to be reset. But the Italian squad is refusing to change its mindset for 2018.

“It’s a reshuffle of everything, absolutely,” says Rosin. “But I don’t want to think we’re the team to be beaten. I want to just continue focusing the best we can and trying to do the best job to the maximum we can. Try to focus on every minimum detail and from there we’ll see where we are.”

CALENDAR	
DATE	EVENT
April 7-8	Bahrain (BRN)
April 28-29	Baku (AZ)
May 12-13	Barcelona (E)
May 25-26	Monte Carlo (MC)
June 23-24	Paul Ricard (F)
June 30-July 1	Red Bull Ring (A)
July 7-8	Silverstone (GB)
July 28-29	Hungaroring (H)
August 25-26	Spa (B)
September 1-2	Monza (I)
September 29-30	Sochi (RUS)
November 24-25	Yas Marina (UAE)

F2 ENTRY LIST	
DRIVER	TEAM
1 Artem Markelov	Russian Time
2 Tadasuke Makino	Russian Time
3 Sean Gelael	Prema Racing
4 Nyck de Vries	Prema Racing
5 Nicholas Latifi*	DAMS
6 Alexander Albon*	DAMS
7 Jack Aitken	ART Grand Prix
8 George Russell	ART Grand Prix
9 Roberto Merhi*	MP Motorsport
10 Ralph Boschung	MP Motorsport
11 Maximilian Gunther	Arden
12 Nirei Fukuzumi	Arden

DRIVER	TEAM
14 Luca Ghiotto	Campos Racing
15 Roy Nissany	Campos Racing
16 Arjun Maini	Trident
17 Santino Ferrucci	Trident
18 Sergio Sette Camara	Carlin
19 Lando Norris	Carlin
20 Louis Deletraz	Charouz Racing System
21 Antonio Fuoco	Charouz Racing System

* Not officially confirmed as went to press

Norris, Russell and Aitken completed pre-season testing with their respective squads – plus the post-2017-series tests in Abu Dhabi (Norris drove for Campos ahead of Carlin’s return with the new car). But their experience differs coming into the new season.

Russell and Aitken join the series from GP3, although as Aitken points out: “It’s the same family of [Pirelli] tyre as GP3, but it’s not the same characteristics entirely. There’s definitely more degradation in F2. GP3, particularly last year, was quite conservative in terms of deg, so you just had to drive up to the limit and make sure that you were not wrecking the tyre. But in F2, it’s a bit more of a subtle art.”

Norris, meanwhile, took part in the 2017 season finale in Abu Dhabi, where he raced for Campos. Although he retired from the feature race with an engine problem, “that helped me compared to some of the other rookies”.

Backing from F1 giants naturally brings pressure to succeed alongside the assistance of such close associations. But all three British rookies, knowing that there can of course be only one winner at the end of the year, have explained that other factors are at play when it comes to how their benefactors will assess their seasons in F2.

Russell is “here to win the championship – but Mercedes will be judging me on performance rather than results.” Aitken says he and Renault feel “there’s no point saying ‘You need to be in this position by X; when we’ve got a bit of history together and we know what we expect.’” And Norris, highlighting that McLaren want him to use this year to fully prepare for F1, explains that the team “wants me to win the championship, but it’s not the end of the world if I don’t. But that doesn’t mean that I’m not going to push as hard to win and take the risks I need to win the championship.”

It’s no surprise that the trio are united in their desire to win the title and make the final step up to the biggest stage of all, but, as all three are level-headed and well aware of the volatile nature of the category, expectation management is understandable.

“This year is a big learning year for me,” says Norris. “I have the role of McLaren test and reserve driver for 2018, so a lot of it is trying to make sure that if the opportunity arises, I’ve made the most of F2, and I’ve tried to improve in the areas that I need to improve so I’m a bit more ready for the step up into F1. Of course, I would like to win F2 this year, always the goal is to win, even with Carlin maybe not being in as good a position as some of the other teams.”

But first, all three have their sights on Bahrain this weekend. It’s arguably F2’s toughest test, thanks to the hot conditions and high-degradation track surface. Last season Markelov won the opener as Leclerc struggled with tyre management in the first feature event. But that race didn’t set the tone for the season, which was really established by the new Sauber F1 driver’s charge in the sprint race.

“It’s a very tricky circuit,” says Russell. “And you can very easily overdo it and drop off big-style. It’s going to be very tricky, but over the course of the season I’m feeling very confident.”

The field encountered significantly less tyre degradation and different handling characteristics in the colder conditions they tested in at Paul Ricard, so it well may be that the Bahrain event proves to be an outlier once again.

But once the season gets into full swing – and thanks to Leclerc re-establishing what rookie drivers can achieve in F2 – it would surprise few observers to see Russell, Aitken and Norris battling it out on-track and in the standings. Nothing is guaranteed, of course, especially with Prema’s recent dominance of the category (see panel, left), but such a fight is something all three are relishing.

“I see it as a good thing because there’s a lot of hype around Lando in particular, and George as well, and a bit for myself,” says Aitken. “I’ve got no issue with going up against them, it’s far more the opposite – it’s a good thing and I’m not too worried for the moment.”

“I’m here to prove myself to be the best, or work towards being the best driver out there, to try and fulfil my place in an F1 seat next season,” is Russell’s take. “And I have the approach that I’m going to have to beat everyone at

“I’VE GOT NO ISSUE GOING UP AGAINST LANDO AND GEORGE”

some point in my career and if I want to be the best, that’s what you have to do.”

“It’s good for our sport and it’s good to have some British drivers so close to F1,” says Norris. “But it’s a good opportunity for me to prove hopefully that I can beat them. It’s a good thing that I’m going up against them – especially George, who won GP3. It’s a good opportunity to see what I can do, and at the same time have some great battles throughout the year.”

Fine words indeed, and fitting for what could well be one of the most unpredictable and exciting seasons in F2’s history – and one that F1 can only wish for. ❄



CAN HONDA TAKE BACK THE CROWN WITHOUT SHEDDEN?

A star driver has departed, but veteran Matt Neal reckons he's got another title in him and new boy Dan Cammish is ready to shine

MATT JAMES

The 2017 British Touring Car Championship campaign was a rarity for the Team Dynamics Honda squad. For the first time in three years, it didn't lift a single piece of championship silverware at the end of the 30-race season.

For a group that has so consistently been at the forefront of the British tin-top category, it was an unusual feeling.

Since Honda joined up with Team Dynamics to become an official manufacturer entry back in 2010, the team has been on the attack. In that time, it has lifted five manufacturer crowns, four teams' titles and, most importantly of all, four drivers' championships, split between team co-owner and driver Matt Neal and the now departed Gordon Shedden.

There are some big changes happening at the team, which has just moved into new premises in Droitwich. Not only has the team's three-time champion Shedden moved on, it also has the latest generation Civic to get to grips with.

The upside of being one of the four manufacturer entries on the grid is that Dynamics benefits from factory support. The flipside of that is the demand on the squad to make sure that its hardware is the very latest kit.

The FK8 model of the road-going Civic Type R was introduced to a huge fanfare in the middle of 2017, but the boffins at Dynamics couldn't get to work on its upgraded racer until much later in the year.

"The demand for the car was huge in the United States," explains Neal. "All of the cars that were being built in Honda's Swindon plant were going straight out to America. We didn't pick up ours until late September, so we didn't get to work on it until after the 2017 season had finished. That meant it was a pretty tight turnaround.

"Once we were into the build of the car, we had another setback. Something we wanted to do in the car did not meet the approval of the scrutineers, so we had to go back to the drawing board and start again. That cost us about a month in terms of the preparation. There were a lot of hours spent on the car."

The new racer is longer than the older-spec Civic and Neal and new team-mate Dan Cammish have already run it at Donington Park, Brands Hatch, Rockingham and Parcmotor Castelloli in Spain as they aim to prepare the two-litre turbocharged machine ahead of the 2018 season opener at Brands this weekend. >>







Loss of Shedden means lion's share of car fettling is on Neal's shoulders

HAWKINS

The pressure is on, too. Last season's threat from the Team BMR Subarus and WSR BMWs ultimately put Honda in the shade – and losing the drivers' title to another Japanese firm (Ash Sutton and the Subaru Levorg) would have hurt.

"For sure, we want the trophy back," says Neal. "But we have a lot of work to do first. When we first ran the new car in Spain, I could feel it was already an improvement over what we had before. I didn't want to get back in the old one once I had tried the FK8 and the whole programme is very exciting.

"It's been a weird preparation period, really. At some tracks we have been to so far, the car has been superb. It was ballistic at Rockingham, it felt really planted, but then there are others where we have scratched our heads a little bit.

"For example, because it's a longer car, there are some inherent issues with understeer that I'm not sure we'll be able to get around, particularly when we are at Brands Hatch. We have a lot of learning to do, but there is one thing I do know: if people thought we were good at the high-speed circuits like Thruxton before, they ain't seen nothing yet...

"We have struggled a bit with the rear-steer that we had developed on the previous Civics. It worked well in those cars, but we're having to relearn the way it works on our new car because the dimensions are different and that alters a whole lot of other things. The rear of the car is tending to dominate the front at the moment at some tracks, and that's something we have to work on."

The machine has been designed by the team co-owner and technical director Barry Plowman and engineers Eddie Hinckley and Tom Hunt. New cars are something that Dynamics is used to working with, and the brains trust at the team is strong.

Even so, the challenge can't be understated. How long Dynamics takes to get the car to the top step of the podium is a moot point. "That's the \$50million question, isn't it?" says Neal. "I think we can find our feet quite quickly, but there are lots of teams out there with established packages, such as the BMW and the

"DAN IS UNREAL. YOU SHOULD SEE THE DATA FROM TESTING. HE HAS REAL COMMITMENT AND BRAVERY"



High demand for Civic in US meant super-tight turnaround for new racer

HAWKINS

Fords, and they have been quick. Even Rob Austin in that new little Alfa Romeo has been fast – he could be a real threat (see page 44).

"I think with the way the boost has been set out, the WSR BMW 125i M Sports have to start the season as favourites, but it's not only them. There are attacks coming from all angles."

And one of the attacks could be coming from within. Double Porsche Carrera Cup GB champion Cammish was picked by Neal and the team bosses to take Shedden's seat and has already turned heads.

"I haven't lost my bottle – I still push to get the maximum from the car, but Dan is unreal. You should see his data from the testing he has done so far. He has real commitment and bravery when it comes to the quick stuff, and he hangs on to the car all the way through the corners," says Neal. "He sure has big *cojones*. He has worked well with the team too, and the guys like him. I also think we have a similar sense of humour, so that's going to help. We've already been through the standard new-boy wind-ups. But, in all seriousness, we have uncovered another very quick driver. There will be nowhere for me to hide this year – again!"

Having a rookie in the other Team Dynamics Honda also places more pressure on 51-year-old Neal. He's been through many new-car programmes, but has usually had Shedden by his side. Shedden grew up with the team and knew how it worked intimately. For Cammish it's a new environment and that means the leadership and direction – particularly in hitting the sweet spot with the new hatchback – will mostly come from Neal himself.

THE RISING STAR IN THE 'OTHER' JAPANESE RACER

Momentum has been gathering behind Tom Ingram's career in the British Touring Car Championship. The Speedworks Toyota Avensis driver conquered the podium in his second season in the top flight, won races in his third and lifted the Independents Trophy in 2017.

There can only be one target for this season, surely?

"In 2017 we set out to win the Independents,

but after three meetings we were leading the drivers' standings overall," says Ingram. "In a way, last year was a bit of a letdown in the end. We had a tough couple of meetings in the middle of the year and that knocked us off course.

"You can't underestimate what we achieved by winning the Independents. That was massive, but I was just as eager to finish in the top three of

the championship.

"That was a measure of where we were against the others, and it was a real credit to us that we managed to achieve it."

What has been evident in Ingram's progress over his four-year journey is the development in his driving. In 2016, he won the opening round of the campaign at Brands Hatch before tripping up with contact in the second race in Kent. The same pattern was repeated

at Donington Park – the consistency was missing, and the hunger was cancelling out what could have been some big points-paying weekends.

That changed in 2017. He added a maturity to his armoury and that reaped rewards. The barren spell in the middle of the season was down to nothing more than poor fortune. A run of six races in June yielded just nine points and that might have crushed a younger Ingram.

However, he picked himself up and won at Knockhill and Silverstone to climb up to third in the standings.

"Even to maintain the level that we got to in 2017 is going to be hard this year," says Ingram. "Look at Eurotech Racing with Jack Goff in the Honda Civic Type R, Sam Tordoff and Tom Chilton in the Ford Focus RSs at Motorbase, the threats are everywhere.

"To retain the Independents is hard enough, but we have got to be looking higher than that. We have got to set our sights on the overall title."

The Avensis has already been in Portugal, with Ingram conducting intensive testing at

Portimao. While there are no dramatic changes to the car aesthetically, there has been a lot of work under the skin and weight has been moved inside the car to keep it as low as possible.

"We knew the parts of the car that worked well, and we knew there were areas where we could improve," says Ingram. "We have looked at each of those and made the changes that we needed to."

As well as the refinements to the car, there are new faces in the background too. Engineer Geoff Kingston has left the team and he has been replaced by Spencer Aldridge, who has been promoted from within the squad. He has been with Speedworks since he left school and knows the car as intimately as Ingram himself.

"He has brought a fresh enthusiasm to the whole thing, and there is no doubting his work ethic. It's going to be a strong partnership – I'm probably going to have to up my game," jokes the driver.

After his results last year, upping his game could spell trouble for the rest of the grid.



Neal and Cammish have good rapport; pressure will be on the veteran

To win the BTCC, drivers have to average around 30 points per race weekend. That means three solid top-six finishes in each of the 30 races, which is no mean feat. If the development of the Civic Type R takes too long, then precious ground can be lost at the start of the season.

The development work is a role Neal professes to enjoy – which is just as well. And he knows that the groundwork the squad puts in ahead of the fresh campaign will be vital as he chases a fourth drivers' crown for himself. He's now the second most successful driver in the BTCC's history in terms of race wins. He took his 61st at Silverstone last term, meaning he overtook Andy Rouse's record of 60, and he is only behind Jason Plato (97) in terms of glory.

"I still feel that I'm quick, and I think I've been fast for the past couple of seasons, but I just haven't had the luck, which means that the results haven't been there either. A lot of it is to do with fate – and I do really believe in that," says Neal. "I'm fired up though, and the motivation is still strong to go out there and perform to my maximum for myself and for Honda too. Is there another drivers' championship left in me? I reckon so."

Whether that happens this year will be down to how quickly the team can get to grips with its new toy. The Civic is a proven car in the BTCC, and this new one certainly looks aggressive enough. The engineering skill of Team Dynamics is unquestioned too, so the ingredients are there. Shedden or not, there's a feeling of optimism around the Honda programme ahead of the 2018 campaign. ✨



Ingram has huge career momentum, and sights are now on overall title

STORIES TO WATCH IN 2018

Who's going to be making the headlines this season?

MATT JAMES



Sutton believes his
Levorg will be better
than ever this year

JEP

TEAM BMR

SUBARU ON THE DEFENCE

Not much has changed at Team BMR for the 2018 season just looking at the bare facts. The Hertfordshire squad has kept hold of the BTCC's hottest young charger, Ash Sutton, whom it took to the drivers' title last season, and it has also retained Jason Plato in one of the estate-shaped Subaru Levorg cars.

It has, however, slimmed down to a three-car team for this fresh campaign, with Josh Price remaining in the line-up alongside his

illustrious team partners.

There are some changes in the background though. One of the most significant could be the switch from Mountune to a Swindon Racing Engines-tuned powerplant. The team will also be affected by the loss of its technical director Carl Faux, who has landed a job in the Australian Supercars series.

Despite that, Sutton is eager to come out on the front foot. "I hadn't driven the car [between] the final rounds of 2017 [and] the

media day at Donington Park last week," says the 24-year-old. "There has been work done back at base and we had a great package last season, so I don't see why we can't be looking to retain the title. There weren't any areas where we really struggled last year, but there were things that we could brush up on and we've done that. The car will be even better this year."

Plato has extra motivation this season after a dreadful couple of years by his

standards. He has only taken two wins over the past two campaigns, and he has been working hard over the closed season to remedy that in 2018.

"We have been through the car, looked at all the data and tried to find any areas where we can improve" says Plato. "I am keen to get started again because last year I was crap."

"I haven't forgotten how to drive a race car and seasons like the one we had last year really hurt. They'd hurt any

professional sportsman. That is a hunger that can drive me on."

Those last words should strike fear into the hearts of the opposition. A wounded animal is at its most dangerous.

Price built up his knowledge last season and showed flashes of pace, but needs to deliver on a more consistent basis. He is, however, in just the right place to learn about that from two of the best in the business.

WSR

BMW READY TO MOUNT A CHALLENGE

Other teams are worried about BMW in 2018. The WSR-run factory programme was new last season, yet Rob Collard and Colin Turkington scooped five wins, while a further three were delivered by the Pirtek-backed 125i M Sport of Andrew Jordan.

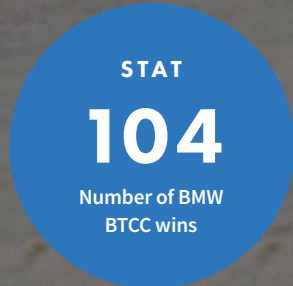
All that was with a new engine in the car too, and team boss Dick Bennetts admitted that the team was on the back foot going into 2017.

The teething problems – and there weren’t many – are now firmly put to bed and WSR has retained all three drivers for another attack. Just weeks after the season finale – where Turkington was the only driver left in with a shout of the overall crown – the team was out trying upgrades on the car and its initial sessions filled

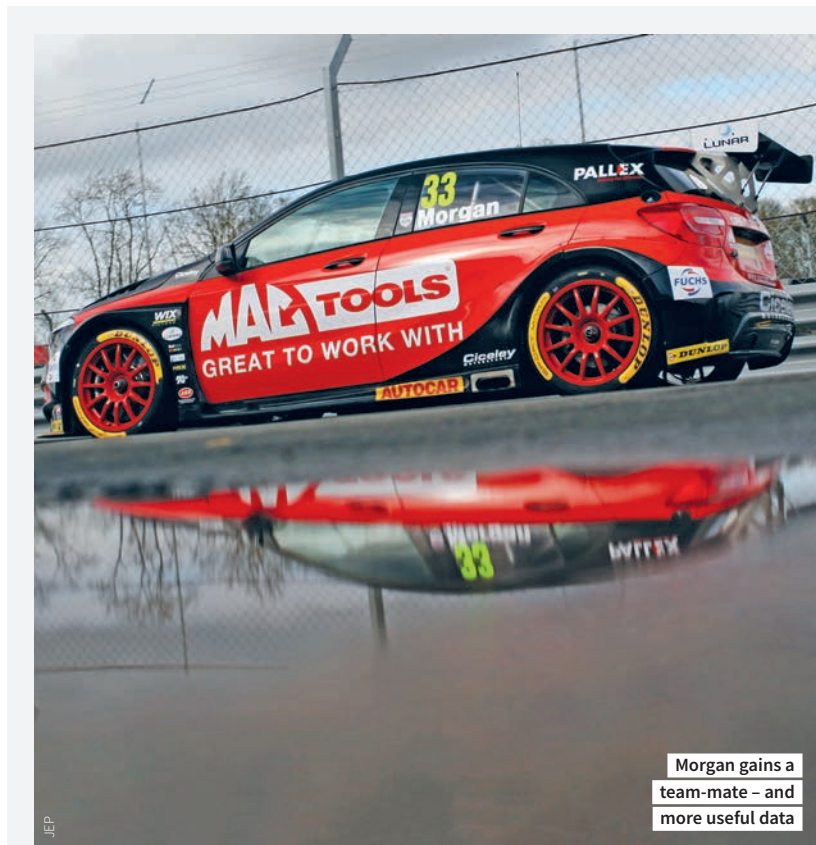
the team with confidence.

“We have worked on the dampers,” explains Bennetts. “Although they are controlled parts, there are little tweaks we can make – although you have to be careful, because any time you come up with a good solution it seems like the regulations will change to eradicate it. Also, we have looked at the geometry of the car. We were down some avenues last year that we wanted to explore, but there is no time in a race season so we have looked again at those to try to see what the benefits are.”

Jordan was probably the unluckiest driver in the 2017 season, but has pace to spare and will be a title threat this year, while Collard, again, needs to rid himself of his qualifying bogey if he is to mount a serious attack.



Expect BMW to come out fighting in 2018



Morgan gains a team-mate – and more useful data

CICELEY MOTORSPORT

TWO-CAR TEAM AIMS TO TAKE NEXT STEP

This is a big year for Ciceley Motorsport as it expands to run a two-car team for the first time. It has previously helped out with the operation of Aiden Moffat’s Mercedes-Benz A-Class, but the addition of ex-Porsche Carrera Cup GB exponent Tom Oliphant in a sister car will be a real step up.

Morgan’s pace is not in question, but last season was again one where he lacked the consistency to put himself in the heart of the title fight. There are certain tracks where the German hatchback flies: it has always been strong at Brands Hatch

and Thruxton, but the team needs to understand how to make it work elsewhere for Morgan to be able to take a step forwards.

Team boss Russell Morgan says that multiple wins were again the aim: “We are taking a step forward, no doubt, by adding a second car. We have done lots to it over the winter in terms of aerodynamics and some reworking of the installation, but it is a good car. Having twice the amount of data in the team will help too so we are looking for a real step forward.”

POWER MAXED RACING

WINS ON THE HORIZON FOR VAUXHALL TEAM

The Power Maxed Racing team, which will run Josh Cook and Senna Proctor this season, is expecting more performance from its Vauxhall Astra in its second year.

The team built the cars with the help of Colin Turkington's ace engineer Kevin Berry in 2017 and it has learned the lessons from its initial campaign – and taken them even further.

Team boss Adam Weaver says: “We have been to the shaker rig over the winter to try to understand the balance of the cars a little bit more, and we have Josh Cook back in the

line-up too. He was motivated and hungry when he with us before [in the Chevrolet Cruze in 2015], but he is hungrier and more committed than ever now. He is really going to push us on, and Senna has learned extremely well after his initial campaign in the BTCC when he won the Jack Sears Trophy.”

The team finished fourth of the five manufacturer constructor entries in 2017, but were still encouraged for the machine's debut season. The Astra showed flashes of pace last year – Tom Chilton took a podium at Brands Hatch and Rob Huff



Returnee Cook is “hungrier and more committed than ever”

collected one at Silverstone – but Weaver knows they weren't genuine results.

“We had our success, but they were both from reversed-grid races,”

adds Weaver. “This year, I think we need to get results on genuine pace and I would be disappointed if we don't win a couple of races on that basis.”

STAT
2012
The last season in which a Vauxhall won a BTCC race



Eurotech's chassis fettling will pay off, reckons Goff

EUROTECH RACING

OVERALL TITLE IS THE AIM FOR GOFF

Runner up in the Independents points last season, Eurotech Racing's Jack Goff will return with the team in 2018 and has higher achievements on his mind.

He took one overall race win and finished sixth in main table. This year, he's looking at the very top step: “As we start out the season, I have to think that we can win it overall. That's

the aim. And I think, with the lessons learned, we can do that.”

The Eurotech team, which will also run Brett Smith and Matt Simpson, has switched to the ex-factory Honda engines, tuned by Neil Brown Engineering.

“There were some people at the end of last year, when we were getting poles and winning, who said we were only doing that

because we had the [bespoke BTCC TOCA] Swindon engine in the car,” says Goff.

“They overlooked the engineering we had done to the chassis, and there really wasn't that much difference in the powerplant. We hope to put them right this year. The team has looked closely at it and they would not have done it if they didn't think it was at least as good.”



'Like-new' quartet of VW CCs part of ramped-up effort

TEAM HARD

ENGINEERING STEP FORWARD FOR TEAM HARD

Ambitions are always high at Team Hard, and it's grown yet again in 2018. The squad has been a stalwart of the BTCC for seven seasons and is making steady progress up the pecking order.

The Kent-based outfit has a high-calibre line-up too, with podium threat Jake Hill joined by Clio Cup pacesetter Mike Bushell, former British GT champion Michael Caine and reigning Volkswagen Cup title holder Bobby Thompson. All four VW CC machines

have been heavily revised over the winter, and early running at Croft filled team boss Tony Gilham with optimism. The squad has also added experienced engineer Geoff Kingston to its staff.

“The cars have been almost totally rebuilt,” says Gilham. “They are like new cars, and we've ramped up the level of staffing and engineering expertise within the team. We'll arrive at the start of the season in the best shape we've ever been.”

AND NOT FORGETTING...

DUNLOP'S COLOUR CHANGE

Control tyre supplier Dunlop has changed the colourings of the rubber for the 2018 season to help fans clearly identify which compound the drivers are using. Previously, the standard tyres have run with yellow sidewalls while the option rubber – either harder or softer – has had white sidewalls. However, the wet tyres also had white sidewalls. For 2018, the wet tyres will have blue sidewall markings, which will make it easier for fans to work out which tyres are in use.

SWETNAM'S RETURN

Renowned engineer Malcolm Swetnam is back in the British Touring Car Championship paddock with Motorbase Performance. He's worked with the team before, and was also involved with title-winning programmes at Prodrive with Frank Sytner (1988) and Robb Gravett in '90 in the Trackstar Ford Sierra Cosworth RS500. Swetnam will work solely on Sam Tordoff's car, alongside Oly Collins, who will look after the sister cars of Tom Chilton and James Cole.

POLE DRAW EXPANDED

The rules have been tweaked for the reversed-grid race three on a British Touring Car Championship weekend. Previously, any driver who finished between sixth and 10th in race two would have their name put in a bowl for the chance to start on pole, but that has been expanded by two this season. Now, any driver who places between sixth and 12th in race two will get the opportunity to start from the front of the grid.

CALENDAR

DATE	CIRCUIT
April 8	Brands Hatch Indy
April 29	Donington Park National
May 20	Thruxton
June 10	Oulton Park Island
June 24	Croft
July 29	Snetterton 300
August 12	Rockingham
August 26	Knockhill
September 16	Silverstone National
September 30	Brands Hatch Grand Prix



ENTRY LIST

Team BMR Subaru Levorg

1	Ashley Sutton
28	Josh Price
99	Jason Plato

WSR BMW 125i M Sport

2	Colin Turkington
5	Rob Collard
77	Andrew Jordan

Motorbase Performance Ford Focus RS

3	Tom Chilton
20	James Cole
600	Sam Tordoff

AmD Tuning MG6

6	Rory Butcher
12	Tom Boardman

HMS Racing Alfa Romeo Giulietta

11	Rob Austin
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BTC Norlin Honda Civic Type R

14	James Nash
22	Chris Smiley

Ciceley Motorsport Mercedes-Benz A-Class

15	Tom Oliphant
33	Adam Morgan

Laser Tools Racing Mercedes-Benz A-Class

16	Aiden Moffat
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Power Maxed Racing Vauxhall Astra

18	Senna Proctor
66	Josh Cook

Team Hard VW CC

19	Bobby Thompson
21	Mike Bushell
24	Jake Hill
44	Michael Caine

AmD Tuning Audi S3

23	Sam Smelt
48	Ollie Jackson

Team Dynamics Honda Civic Type R

25	Matt Neal
27	Dan Cammish

Eurotech Racing Honda Civic Type R

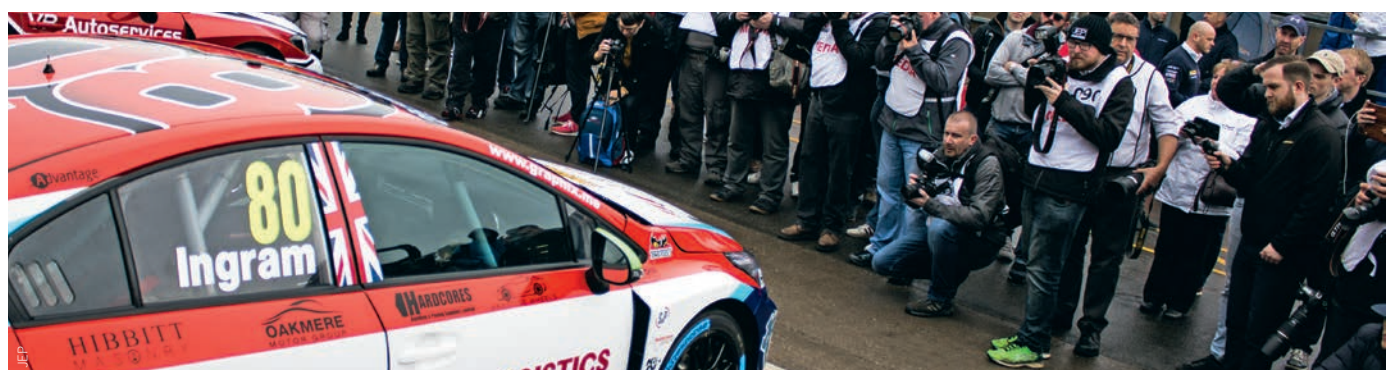
31	Jack Goff
39	Brett Smith
303	Matt Simpson

Team Parker Racing BMW 125i M Sport

60	Stephen Jelley
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Speedworks Toyota Avensis

80	Tom Ingram
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THE RETURN OF ALFA ROMEO

A famous name is on the grid again in a single-car entry for HMS Racing. It's already shown its speed, and Rob Austin believes there's more to come...

MATT JAMES

THE BRITISH TOURING CAR CHAMPIONSHIP IS A SERIES that cannot only help the drivers progress and steal their share of the limelight. It can also be a fertile environment for teams and engineers to take a step forward too. Perhaps the biggest stride in 2018 has been taken by HMS Racing, which will field an Alfa Romeo Giulietta in the 30-race contest.

HMS Racing was formerly known as Handy Motorsport, which entered the championship in 2014 as a single-car team with Renault Clio Cup graduate Simon Belcher. Just four years later it retains race winner Rob Austin in the driver's seat after joining forces with Austin's team in '16 and taking an outright victory last year.

That is progress, but for 2018 it's built a brand new car. The Giulietta topped the timesheets at the official pre-season test at Donington Park last week too and there is a feeling of quiet confidence among the squad. Austin knows that this year's attack represents another step for him and for the team.

"Becoming a constructor with HMS is the next stage for us, but this is where we wanted to go," he says. "I have never done things the easy way in the BTCC. Instead of taking a lump of sponsorship and joining a top team, we decided to create our own operation. Instead of going and buying an off-the-peg car to start with when I joined the BTCC in 2011, we built our own car. And now, with HMS Racing, we are starting again with a brand new project – but this is

the way we like to go racing. We have a real tight-knit crew, and we win together and lose together. It makes the success really special."

The car has been designed by the driver in conjunction with his engineer Matt Taylor. That's another sign that Austin has done things slightly differently. Taylor joined the team as an apprentice, climbed through the ranks and became Austin's full-time engineer in 2014. The alliance shows the commitment in the group.

"Since Matt and I started thinking about the future – even when we had the Audi – we wanted to start again with a car," says Austin. "We knew the things we wanted to re-engineer and the areas we could improve on. We already had loads of ideas.

"When I joined forces with Simon at the end of 2015, we knew the Alfa plan was coming together. We knew he had a bigger programme in the offing and we were able to apply our ideas to that. This is not a car that has been pulled together over one winter – it's the product of several seasons of thought and refinement."

While Austin is pleased with the pace, he admits that the team has yet to unlock all of the secrets from the Italian hatchback, and that's the cause for optimism.

"There might have been a little underestimation on my part of just what a step this is," he says. "After all, there are common components in the BTCC such as the subframe and we know how to get the most from these cars.

“But the difference in the Alfa is big, and that’s down to the size and the dynamics of the chassis itself. We have baselines for things like tyres and dampers and we know how to make a front-wheel-drive car work, but there’s so much more to it than that. We have had four pre-season test days, and we’re taking steps in every one.”

The blessing from Alfa Romeo, which has already shown considerable enthusiasm for the programme, is yet another staging post for the team that will give it a firm footing for the longer term. “We are only half way along that path to where we want to be as a team,” says team boss Belcher. “Becoming a constructor is a big step towards that, as is having the recognition from a brand such as Alfa.”

There will only be one HMS Alfa on the grid this year, and that is for a very clear reason, according to Belcher. “People are always asking if we will expand, but we are working perfectly the way we are: we have the right people in the right places. If you run two cars, it can only work if you have two drivers on the same level and who have the same driving style. If you don’t, you can have information going in different directions which doesn’t help anyone.”

For 2018 campaign, the focus will be solely on Austin and his attempt to land more silverware. “We have created a car, and we are very pleased with the results initially, even though we still have a long way to go,” says Belcher. “This year, we are going to take this one step at a time. We will concentrate on every qualifying session and every race. We will do the best that we possibly can, and if you do that often enough, then the championship title comes free of charge...”



THREE RACE WINNERS HAPPY TO BE BACK

Sam Tordoff’s return to the British Touring Car Championship this season caught most people by surprise. The 2016 championship runner-up went off to British GT and the Blancpain GT Series Endurance Cup last term.

He’d had his fill of tin-tops after a mentally exhausting title chase, which he narrowly lost to Gordon Shedden’s Team Dynamics Honda Civic.

“I just needed to recharge a bit,” says

Tordoff (above, top), who will drive one of Motorbase Performance’s Ford Focus RS cars. “I was always going to come back, and even I didn’t think it would happen so quickly. But [Motorbase Performance] boss David Bartrum got in touch, and it went from there. I didn’t know an awful lot about the team before – they pretty much kept themselves to themselves – but I’ve been really impressed and I feel very at home

in the car already.”

Also coming back is James Nash (above, middle), a one-time winner in 2011 with Triple Eight Race Engineering in a Vauxhall Vectra on his way to the Independents Trophy.

He had been racing in the TCR International Series, but was tempted by a return with the BTC Norlin team. “I needed to be closer to home for personal commitments – travelling to places like China wasn’t the most

convenient thing – and I have always loved the BTCC,” says Nash. “I also have the chance to help lead the line for Norlin and use my experience, which will be a good challenge for me personally. I really think there is potential here. The Hondas are a proven package and the team is eager to move forward.”

The third returning race winner is Lancastrian Tom Boardman, who has signed up to compete with the AMD Tuning

MG operation.

Due to a lack of funding, the 34-year-old (above, bottom) has been out of action since a one-off race meeting at Monza in the TCR International Series in 2015. “I wanted to come back, and when the TCR UK series was announced I started looking at it,” says Boardman. “I spoke to AMD, and they started mentioning a return to the BTCC instead. I have always loved it, and I am thrilled to be back.”



HONDAEUROPE/DAVID NOELS



ALL CHANGE FOR WORLD TIN-TOPS

Hankook

HONDAEUROPE/DAVID NOELS

WTCR

World touring cars' latest new dawn

The sheer expense of TC1 machinery bled the World Touring Car Championship dry. After an enforced merger with TCR, the top tier of touring car racing looks set to flourish once again on the eve of this weekend's opening round in Marrakech

JACK COZENS

"TOURING CARS IS LIKE A WAVE. WE HAVE A PERIOD of big success, then the costs become too much and we have to drop to a different car."

There's nothing incorrect about what Alessandro Mariani, the boss of Honda's long-standing partner JAS Motorsport, has to say. We've been down this road before. Group A, Super Touring in particular, and Super 2000 have all come and gone. So should the latest enforced change in regulations (from TC1 to TCR) at the top of the touring car tree come as a surprise?

When the World Touring Car Championship introduced its TC1 regulations in 2014, it marked a significant shift away from the S2000 era that had preceded it, but it was no more dramatic a change than the most recent revamp of the World Rally Championship, or Formula 1's swap to more downforce-driven machinery in 2017. There should have been no cause for concern.

But the concept never properly took off. TC1 numbers never rose above 19 (even with the arrival of Volvo in 2016), costs were astronomical for privateers, and the WTCC became an easy target for derision. Even when the racing improved in '16 and '17, it came too late to change opinions that had become entrenched by the preceding two years of Citroen dominance and frequently professional racing between aero-dependent cars. Citroen's announcement in late 2015 that the following season would be its

"IT'S SOMEWHAT FORTUITOUS THAT THERE'S A CONTINUATION OF A 'WORLD' SERIES"

last as a factory entity gave hope that the championship's fortunes would improve, but Lada's decision to withdraw at the end of '16 came with no advance notice. Although the series carried on for a further year, Lada's departure was the death knell for the WTCC.

And so, by the start of 2018, the WTCC was no more. Gone with a third of its minimum planned life cycle still to run. It's that very reason, the near-unprecedented nature of its demise, that makes the latest change in World Touring Cars so surprising. It's somewhat fortuitous that there is even the continuation of a 'world' series, and that owes plenty of thanks to the rapid expansion of the TCR framework on which the new World Cup is based.

At the same time, the stagnation then slow decline of the WTCC, and the contrasting fortunes of TCR, meant there was an air of inevitability about this situation. TCR was introduced for the start of 2015 and, designed for lower-tech touring cars based closely on their road-going counterparts with a cost cap of €130,000, took off instantly. Competitor numbers say it all. While around 30 cars were built for TC1, the number of TCR cars available worldwide is more than 20 times that figure. With TC1 becoming more expensive and less attractive, something needed to change.

"I was worried it was not going to happen," says long-time world-level tin-top competitor Tom Coronel. "I knew they were talking, but it's about money and egos. You only make the deal if it's interesting for both parties. To be honest, they have been too long without each other. They should have been at least two years earlier working with each other."

It may have taken longer than some hoped, but it has *finally* happened. One glimpse at the 2018 entry list gives a resounding answer about whether the TCR switch was the correct decision.

That's not to say it was an easy process, even after the TCR deal was agreed in December last year. That meant making three parties – Marcello Lotti's WSC Group, Eurosport Events and the FIA – happy. And although that finally happened, there were then just four months to set everything in place for 2018.

"I think the sentence I have heard the most since December 6 when we announced [WTCR] is, 'Why didn't you announce the agreement in early September instead of early December?'" says Francois Ribeiro, head of WTCR promoter Eurosport Events.

"When you do something with someone and you have only two people to decide, it's already very complex. When you have three people to decide, it's 50% more complex.

"To make it work, we had to put exactly on the same page three different organisations. Was it easy? No. Was it common sense? Yes. Was there a strong will from everyone to make it happen? Yes."

Are there drawbacks to the new series? Of course. Adopting TCR rules in their purest form meant a wholesale ban on manufacturers, and with that the series waved goodbye to its world championship status. While the majority saw past that, there were some, like WTCC race winner Tom Chilton (who described WTCR as "valueless" without that status), to whom the new format just didn't appeal.

The technical complexity of the cars and, by extension, their speed is an area in which TCR is inferior to the TC1 machines that came before them. While there was little circuit crossover between the WTCC and TCR International Series, the fastest qualifying >>

PREVIEW WORLD TOURING CAR CUP

lap times from both of the series' visits to Monza – held just two weeks apart and in similar conditions – exposed a six-second deficit between the TCR cars and the TC1 machines they have effectively replaced. Opinions differ on just how important that is, but there's still an overwhelming feeling among drivers that the move to TCR rules is a good thing.

"I would love to see us in the world championship racing a TCR-plus, shall we say, because I think as a World Cup it needs to be that bit better, faster, that much higher a standard," says Rob Huff, who will drive for Sebastien Loeb Racing in a Volkswagen Golf GTI with technical support from Volkswagen Motorsport.

Four-time WTCC champion Yvan Muller, who will race his own team's Hyundai, adds: "It's a good move to be back under these rules. It's economically good. The cost of the car is three times less than the TC1. Of course, it was fantastic to drive this kind of car, TC1, but it was too expensive. I would not do my own WTCC team. I was incapable of doing it before."

The success of the World Cup will also hinge on how effective the Balance of Performance system, carried over from the TCR International Series, is at levelling out the field. The common consensus is that the Hyundai, which walked its first TCR race in the hands of Gabriele Tarquini, the Honda – if the new Civic has similar characteristics to the first-generation TCR model – and the Audi are fairly well sorted, while the rest need to be brought to their level. With the potential for upwards of 20 cars to be fighting in the same bracket, officials have a tough job in hand to make sure the balance is struck this season.

"Am I afraid potentially with BoP? Of course," says Ribeiro. "You put the success of the championship in the capacity of the regulator to deliver a good BoP. When the BoP is good... look at GTE BoP at Le Mans. When you see in the last years you have three brands fighting after 24 Hours within half a lap, it's just phenomenal.

"We hope we have reached the same level of performance on the BoP, that would be great. We've worked very hard on this to make sure it is not artificial and it does not become too complex, because the worst thing is to have a system you don't understand."

But will it matter that much? This is, after all, a measure for the interim, to cover what was supposed to be the remaining two years



Muller (right) says the TC1 formula made it too expensive to field his own team

of the TC1 deal. If that's all the time TCR proves to have in the sun, then on the evidence we currently have it's attracted the star names needed to build its profile, and allowed the young drivers who would previously have struggled to make the grade a shot at the big time.

Look up and down the pitlane and it's fair to say there are similarities between the first years of the WTCC's rebirth in 2005 and '06. There are Cupras (really SEATs), Hondas and Alfa Romeos, plus a whole host of familiar names from the lesser-spotted James Thompson to the 'new' kid on the block, three-time British Touring Car champion Gordon Shedden. In total, the 25 drivers on the grid have seven WTCC titles between them and 15 drivers have won races in either the WTCC or the TCR International Series. That's necessary to put the World Cup in the spotlight.

Those in charge are rightly riding the crest of the wave thanks to the entry list they have put together for the new World Cup, but they also have everything they need now to develop the base for a sustainable, entertaining category for years to come. ❄

Three-time BTCC champion Gordon Shedden will race a WRT-entered Audi



FLAMAND/DPPI

ENTRY LIST

Yvan Muller Racing Hyundai	
11	Theo Bjork
48	Yvan Muller
WRT Audi	
52	Gordon Shedden
69	Jean-Karl Vernay
Comtoyou Racing Audi	
20	Denis Dupont
21	Aurelien Panis
22	Frederic Verwisch
23	Nathanael Berthon
Munnich Motorsport Honda	
15	James Thompson
68	Yann Ehrlacher
86	Esteban Guerrieri

Boutsen Ginion Racing Honda	
9	Tom Coronel
63	Benjamin Lessennes*
BRC Racing Hyundai	
5	Norbert Michelisz
30	Gabriele Tarquini
Zengo Motorsport SEAT	
8	Norbert Nagy
66	Zsolt David Szabo
Team Mulsanne Alfa Romeo	
10	Gianni Morbidelli
88	Fabrizio Giovanardi
DG Sport Peugeot	
7	Aurelien Comte
70	Mato Homola

Campos Racing SEAT	
27	John Filippi
74	Pepe Oriola
Sebastien Loeb Racing Volkswagen	
12	Rob Huff
25	Mehdi Bennani

*Lessennes will stand in for Tiago Monteiro, who has stepped down from driving duties to continue his recovery from a testing crash last year

CALENDAR

DATE	EVENT
April 8	Marrakech (MA)
April 29	Hungaroring (H)
May 12	Nurburgring Nordschleife (D)
May 21	Zandvoort (NL)
June 24	Vila Real (P)
August 5	Rio Hondo (RA)
September 30	Ningbo (PRC)
October 14	Wuhan (PRC)
October 28	Suzuka (J)
November 17-18	Macau (PRC)



Tarquini showed ominous form in first Hyundai outing

WHO TO WATCH IN 2018

It's fair to say that the depth of quality in the World Touring Car Championship declined steadily in its latter years. In contrast, cramming the list of WTCR drivers to watch into a half-page box is a genuine challenge.

The pair of two-car Hyundai teams are likely to be in the mix. BRC Racing and Gabriele Tarquini worked by the side of the manufacturer's customer-racing division throughout the development of the car. With Norbert Michelisz completing the attack, the squad has a motivated line-up with experience of working together.

In the other two i30 Ns, Yvan Muller and Theo Bjork's combined five world titles make them the most-decorated pairing. Muller admitted he wasn't

originally supposed to return from his short-lived retirement, and what role he plays alongside Bjork – whom Muller said was the first choice for his YMR team – remains to be seen.

The Muller bloodline runs further down the grid; the four-time WTCC champion's nephew Yann Ehrlacher has a spot at Munnich Motorsport. He

lines up alongside Esteban Guerrieri, who earned a Honda factory contract after his spell standing in for Tiago Monteiro in 2017, and James Thompson, who had "30 seconds" to say yes to a deal for the first five rounds.

Munnich is one of two teams that will run Honda's new Civic, alongside Boutsen Ginion. Veteran

Tom Coronel will lead the line-up, but watch out for new team-mate Benjamin Lessennes, who won the 2017 TCR Benelux title and starts the season in place of the recovering Monteiro.

Rob Huff's past couple of seasons have flattered to deceive, but for the first time since 2012 he starts the year with familiarity with the car he's driving,

having previously raced a Volkswagen Golf in the TCR International Series. He's one of three Brits on the grid, with Gordon Shedden trading the comfort of his British Touring Car Honda for a WTCR Audi RS3 LMS. Charting the three-time BTCC champion's progress in 2018 will be fascinating, particularly as he's paired alongside TCR International champ Jean-Karl Vernay.

Then there's the oldest line-up. Fabrizio Giovanardi and Gianni Morbidelli may have a combined age of 101, but also have the experience and success to justify their involvement. Since they're at the wheel of a pair of Alfa Romeos, there's a particularly Italian feel about the Team Mulsanne squad too.



Giovanardi and Morbidelli: both eligible for Saga holidays

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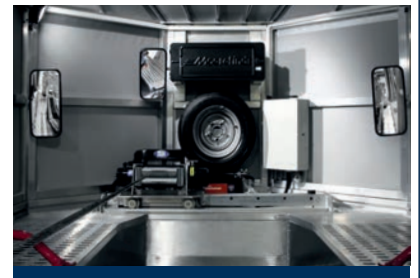
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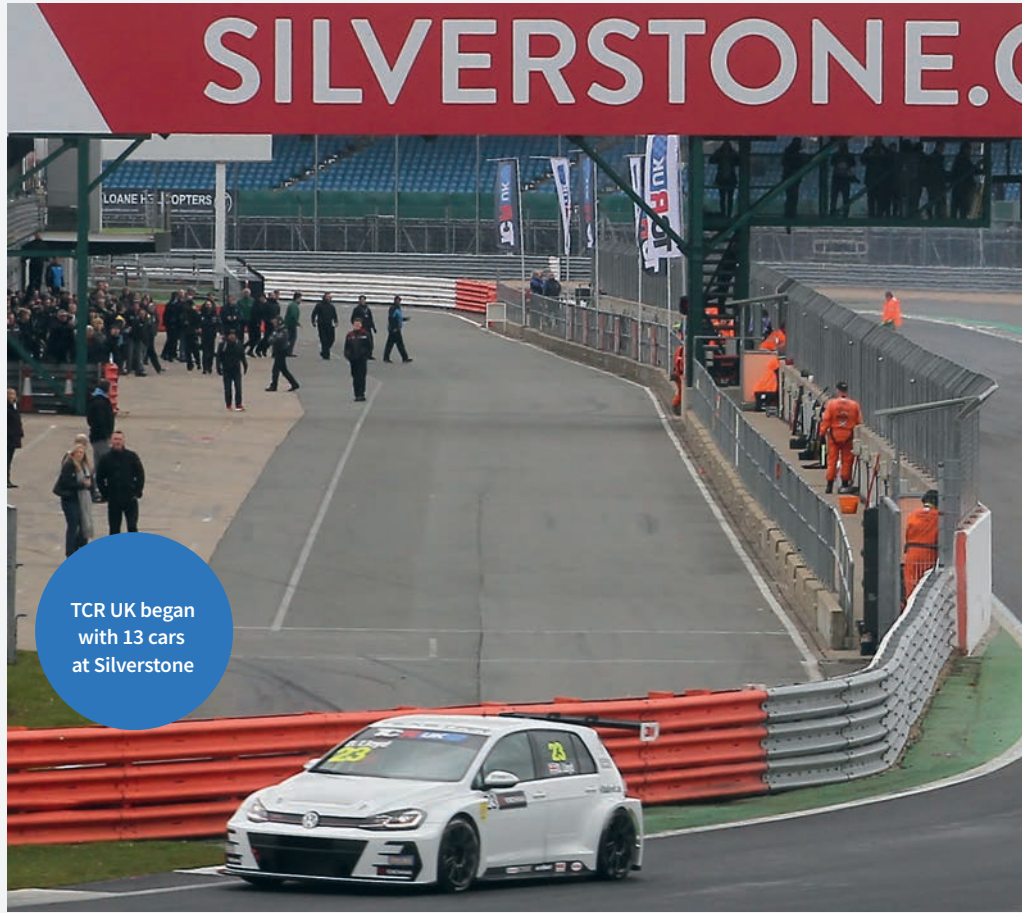
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DRIVERS PRAISE FIRST

TCR UK

Dan Lloyd is hoping to secure more outings in TCR UK this year after winning the inaugural races at Silverstone as the championship received praise for a strong opening weekend.

Lloyd, who has completed balance of performance testing for the TCR formula and appeared in its International series in 2017, qualified on pole and took victories aboard a WestCoast Racing Volkswagen Golf GTI. He endorsed the championship and is hopeful of a deal to return.

“TCR UK is only going to go one way, and that’s upwards,” said the ex-British Touring Car and British GT driver. “It has had a tough birth because it’s up against the strongest domestic touring car championship in the world in the BTCC, but it certainly warrants its place as a feeder formula to it. It was well organised by the BRSCC, it was a great meeting and there was lots of interest in it.

“Winning has helped and discussions have already started about remaining in TCR UK. Motor racing is hard, but when you win that can help to open doors for you. I’m optimistic about the rest of the year and I would love to continue. We’ll see where it goes from here.”

Aiden Moffat – who took second in the

opener and was on course for another podium before running out of fuel in race two – was the only current BTCC driver to compete in TCR UK at Silverstone, and is slated to complete the season in an Alfa Romeo Giulietta.

“The series got off to a really strong start and you can tell it’s going to be a success – especially as you can go and use the car anywhere in Europe or in the world that you want to,” said the Scot. “The next round at Knockhill, in front of my home crowd, is going to be special too.”

The races were streamed live on various platforms, with the 13-car grid providing bouts of entertaining racing. While Lloyd and Moffat were a cut above in terms of pace, battles further down the field were thrilling. The series is just lacking more talent at the top end to give Lloyd and Moffat more of a challenge. But a number of the drivers showed great potential, notably Ollie Taylor, who scored a podium on his front-wheel-drive debut in a Team

“TCR UK IS ONLY GOING TO GO ONE WAY, AND THAT’S UPWARDS”



Junior ace wins VW Cup prize

VW RACING CUP

Junior Saloon Championship runner-up Ethan Hammerton competed in the Volkswagen Racing Cup at Silverstone last weekend after winning the Team Hard scholarship.

Hammerton topped a group of 15 finalists at Snetterton after around 100 drivers were assessed in areas such as media and fitness.

"I didn't think we'd be doing anything this year due to lack of sponsorship," said Hammerton.

Tony Gilham, the boss of Team Hard, added: "We're looking for a complete package. We believe we have that in Ethan."

Hammerton finished 12th in race one but retired from race two after his Golf got caught up in a first-lap accident.

Also racing in the series was British Touring Car Championship regular Martin Depper.

EVER TCR UK EVENT

Pyro Honda Civic having stepped up from the Kumho BMW Championship.

Taylor had been awarded second place in race one, but there was trouble with track-limits penalties. Moffat was awarded a penalty that dropped him from second to fourth, but the penalty was rescinded when it became clear that Moffat wasn't given a warning flag. Clerk of the course David Pierre confirmed the incident was being investigated and a radio system could help the situation in the future.

"It was rescinded because we didn't have enough time to show him the flag," said Pierre. "We give them a warning before we issue the penalty, but because we had one or two track-limits issues the information didn't get communicated [to the flag post] quick enough. I felt it was only fair under the circumstances."

On the issue of radios, Pierre added: "Communication between teams is one of the things we want to look at because at the moment we don't have any. A radio, which TCR are looking at, so that when there's that kind of scenario where we can go direct to the team [is being investigated]."

The series faces an interesting transition towards Knockhill. The signs are positive that TCR UK should retain a double-figure entry, with nine entries confirmed for the

year and a possible further three from WestCoast Racing – Lloyd and his Silverstone team-mates Andreas and Jessica Backman.

One issue that will be sorted before the next round is related to balance of performance. As the official global BoP TCR figures were delayed and not released before Silverstone, a TCR bulletin was all the series had to go on, and some drivers with newer cars felt their machinery was restrained. But with the start of WTCR this weekend in Marrakech, the figures will definitely be available for the next round of the UK variant.

After much debate over whether the championship would happen, allied to a lot of entries not being confirmed until the week before the series started, the championship's debut was a positive one. The challenges now will revolve around fixing the teething issues and maintaining grid numbers, and the quality of drivers on that grid.

Knockhill isn't likely to be high on the list of circuits most continental teams want to visit, but interest from Swedish squad WestCoast shows it's not out of the question. The entry at that round will give a real indicator as to what to expect for the rest of the season.

JACK BENYON AND MATT JAMES

BTCC Volvo estate to Silverstone

SILVERSTONE CLASSIC

One of the rare Tom Walkinshaw Racing-built Volvo 850 Estate cars used in the 1994 British Touring Car Championship is currently being rebuilt by Jason Minshaw.

Minshaw is taking the car back to period specification, but does not plan to race it due to a lack of spares.

"I will run it in demonstrations," said Minshaw. "I'd like to have it as a rolling shell to be on display at the Silverstone Classic."

The car – bought from the Netherlands – was raced exclusively in the BTCC by Rickard Rydell and Jan Lammers in the 1994 standings.





Eaton Sr raced the Holden at Silverstone in Thundersaloons

Eaton to race V8 Holden

HSCC SUPER TOURING

Abbie Eaton will race a 1983 Holden Commodore in the Historic Sports Car Club's Super Touring series in 2018.

Eaton, the 2014 Mazda MX-5 Supercup champion and now test driver on the Amazon Prime TV show *The Grand Tour*, starring Jeremy Clarkson, will race in the invitational class in a car built by her father Paul. She'll use the season to stay sharp as she hunts a seat in a GT3 car or in the Porsche Carrera Cup UK for 2019.

"It's such a beast to drive and it's a big V8 in it – it takes a lot of taming," said Eaton. "We're changing lots of bits on it.

It's a new challenge and it's interesting every time you get in it.

"We can't win the [Super Touring] championship [as the car is in the invitational class] but it's just about getting the car out there. It will be nice battling with the other guys, it will be a lot of fun."

Eaton's father Paul raced gearbox karts and then Eurocars in the late 1990s but retired to support his daughter's career. He bought the Holden – which was used as a trackday car – from Australia. It has a Holden V8 engine, and has been built as close as possible to the spec of the early-1980s Australian Touring Car racers.

"I fancied something different," said Eaton

Sr. "The Australian cars back in the '70s, '80s and '90s are iconic. I thought it would be nice to do a replica of the Holden Dealer Team Marlboro cars, to race over here.

"I retired at the end of 1999 and I've been supporting Abbie since then up until I drove a Rover Vitesse in 2015. That was enough for me to catch the bug and want another go."

Eaton Sr (pictured below, with his daughter) will race the car in more Thundersaloons races later in the season, and also plans to do three races abroad. He finished 19th and 11th in the category's races at Silverstone last month, in what were his first drives in the wet for 20 years.

JACK BENYON



ACTON

Caterham drivers get Laguna Seca race

CATERHAM CHALLENGE CUP

Caterham club racers will get the chance to race at the famous Laguna Seca track later this year.

The British manufacturer has organised an end-of-season Caterham Challenge Cup event that is open to drivers in all of Caterham's UK championships.

The Motor Sports Association has worked with the Sports Car Club of America and Automobile

Competition Committee for the United States to enable UK regulations to be used for the December 1-2 event.

Former Olympic cyclist and sometime Caterham racer Sir Chris Hoy is the first competitor to sign up.

Caterham motorsport director Simon Lambert said: "If we were to put a sporting analogy to the Caterham Challenge Cup, this is our World Cup Final for

Caterham Motorsport.

"It will be the pinnacle, the climax to our racing season. It's a huge deal to us and we want it to be for our drivers too.

"The only thing I'm disappointed about is we have to wait to December to take part."

Hoy added: "When the race was announced I signed up instantly. What an adventure it will be and what a way to finish off the 2018 racing calendar."

STEPHEN LICKORISH



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Cane makes late F3 return

BRDC BRITISH F3

Jordan Cane was a late call-up to the Douglas Motorsport BRDC British F3 team last weekend, replacing the injured Alexandra Mohnhaupt.

Cane, a three-time winner with Douglas last season, rejoined the team for the opening round of the season at Oulton Park after Mexican Formula 4 star Alexandra Mohnhaupt suffered minor concussion and bruising in a testing accident at Spa.

The team was also forced to buy and prepare a former Chris Dittmann Racing car just days before the event after Mohnhaupt's car was destroyed.

"It was a last-minute phone call, really,"

said Cane, who has signed up to contest the Formula Renault Eurocup with Fortec Motorsports this season.

"He [team boss Wayne Douglas] contacted me earlier in the week with the offer and I couldn't turn him down. I actually missed this round last year so it's good to be able to contest the season opener."

- Several teams confirmed last-minute signings before the first event. Clement Novalak will race with Carlin in five rounds as well as doing the FR Eurocup. Arvin Esmaili was announced as Douglas's third driver, Thai driver Sasakorn Chaimongkol will race for Hillspeed, while Chia Wing Hoong joins Chris Dittmann Racing.

DOM D'ANGELILLO

Pasma joins Arden for F4

BRITISH F4

British Formula 4 racer Patrik Pasma will switch to Arden for this season.

The 18-year-old Finn competed with the Carlin squad during his rookie season in the series last year, but the team has taken a sabbatical in 2018.

Pasma finished eighth in the points last year, taking four podiums, but his season suffered a setback when it was his car that Billy Monger crashed into at Donington Park and led to Monger having both of his legs amputated.

Pasma was uninjured but, after taking top-six finishes in all five races before the crash, he only managed to achieve another six in the rest of the year.

"The early races I was really fast and after the crash with Billy I was struggling

a little bit," admitted Pasma. "Then at the end of the year we got quicker."

Pasma now completes Arden's four-car F4 line-up, partnering Seb Priaulx and karting graduates Jack Doohan and Dennis Hauger.

"I'm learning something new every day [in testing] and I'm learning with the team," Pasma added.

STEPHEN LICKORISH



IN THE HEADLINES

SIM RACER DOES THE JOB

Sim racer Sebastian Job made his Formula Ford debut at Silverstone last weekend after securing a fully funded drive for the season via a sim-racing competition. Job, whose only previous racing experience was as a child in indoor karting, won a drive with BM Racing through the JMR Scholarship, which uses the *Project Cars* platform. Job made rapid progress over the weekend, finishing race three in 13th position with a fastest lap 0.4 seconds slower than race winner Niall Murray.

MONDELLO FUNDRAISER

The Irish Motorsport Support Fund is planning a fundraising event to celebrate 50 years of Mondello Park in May. The May 12-13 event is set to feature 13 different motorsport disciplines in various areas around the circuit, along with static displays, trade stands and a gala dinner. The IMSF was set up last year to help safeguard the future of motorsport in Ireland in the face of rising insurance costs, and consists of nine members.

NEW LMP3 CLASS ENTRIES

After opening up its class structure, the LMP3 Cup will have at least two trackday-spec prototypes on the grid this year, as United Autosports has entered a pair of Ligier JSP4s. The machine is powered by a 3.7-litre Ford engine, and has the capability to be turned into a two-seater for tuition purposes. The car will be classified in the PT4 class, which is also open to the Radical RXC.

WILLIAMS JOINS BRITCAR

Formula Ford stalwart Luke Williams will switch to the Britcar Endurance Championship and race a Ginetta G55 GT4 with Black Mamba Motorsport in 2018. Williams won the BRSCC National FF1600 title last season. He had planned to return to the series this year before his late offer to compete in Britcar. He will team up with Andy Papageorgiou, while the sister car will be driven by Papageorgiou's brother Chris and South African Jayde Kruger, the 2014 British Formula Ford champion.

WHITE MOVES TO MX-5

Toyota MR2 frontrunner Kristian White has switched to the Mazda MX-5 SuperCup for 2018. White, who had a best finish of 12th among the 37-car entry in the season opener at Silverstone last weekend, said: "We got everything out of that series [MR2s] we think we ever could, and decided to go for a higher-profile championship. We know it's got some very good drivers here and we want the challenge."



PROFILE

AGE 15
NATIONALITY British

RESULTS

- 2018** Ginetta Junior
- 2017** IAME European Series Senior X30 and British Super One Senior X30
- 2016** PFi Club Junior X30 (third) and LGM Series Junior X30
- 2015** Buckmore Park Rotax Mini Max (champion). East Anglia Cup Rotax Mini Max (champion). London Cup Rotax Mini Max (vice-champion)
- 2014** PFi Club Rotax Mini Max (rookie champion)



Patrick Kibble

Being tall in motorsport brings with it a number of challenges. And one discipline where tall drivers are particularly on the back foot is karting. So it's no wonder that Patrick Kibble is looking forward to graduating to cars this season.

"Being six foot tall at 14 years-old is quite a disadvantage, so at every opportunity I had to move up into the next level [on the karting ladder]," says Kibble. "I was at a disadvantage but I think it was useful because I really improved my racecraft."

A perfect example of that was last year. Kibble moved into the Senior X30 class and was therefore racing against significantly older and more experienced drivers. But the experience proved valuable – especially since it was his first year in major championships both in the UK and Europe, after spending several seasons racing at club level.

"Last year was very tough, racing at the highest level," he says. "Running as privateers at this level meant I didn't reach my full potential in the championships, but after joining a team late in the karting season the consistency improved."

Now Kibble is leaving the world of karting behind and will instead compete in Ginetta Junior with the returning Total Control Racing team, after securing the necessary support from his sponsors.

"I was first interested in Ginettas in 2016 but I wanted to use 2017 to really fine-tune my racing skills," he says. "Watching the races on TV, the close racing is something I really enjoy and it's a level playing field because everyone's in the same car. I've done some testing and been to a few different tracks to learn them, and I think I'll be going to some more later in the year."

"It's been going really well and I've made a lot of improvements. My main target is to win the rookie championship and any [overall] podiums or wins would be a great bonus."

That's certainly a realistic target considering there are very few second-year drivers in the category this year, meaning rookies such as Kibble stand a good chance of challenging for overall honours.

Longer-term, Kibble is eyeing a move into endurance racing. "I really like the look of GT racing, so British GT is something I would aspire to be a part of," he says. "I've always enjoyed longer races – I would always be good at the end of races in karting."

But right now, Kibble's focus is on the opening Ginetta Junior race at Brands Hatch – a local circuit for the Kent teenager. He's set himself a target of finishing in at least the top six and there's every chance Kibble will be one to watch this weekend.

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Brabham F1 car to Monaco Historique

MONACO HISTORIQUE

One of Gordon Murray's iconic Brabham BT49s – used by 1980 Formula 1 World Championship runner-up Nelson Piquet during practice for the US GP West, British GP and Dutch GP that season – is to be raced by Joaquin Folch in May's Monaco GP Historique.

Part of former F1 owner Bernie Ecclestone's Heritage Collection, BT49/7 was raced only twice, by Piquet's Argentinian team-mate Ricardo Zunino, in 1979 and '80.

Rebuilt by Colin Bennett's CGA Race Engineering, it has been reconfigured to the spec of BT49/3 – shorter wheelbase, wider rear track and larger, lower, wing – in which Piquet finished third at Monaco in 1980. James Hanson shook it and Christophe d'Ansembourg's McLaren M26 down at the Masters Brands Hatch test day last month.

Spaniard Folch, who races the '81 spec Brabham BT49/10 in the FIA Historic F1 series, has also entered his McLaren M19 for the early three-litre F1 plateau at Monaco.

MARCUS PYE



ORECA to Masters series

MASTERS ENDURANCE LEGENDS

Aaron Scott's Akron Sport team is expanding to field a pair of Chevrolet-powered ORECA 09 prototypes in the Masters Endurance Legends series in 2018, after testing the car at Brands Hatch last month.

Historic sportscar and Formula 1 racers Keith Frieser and Tommy Dreelan will compete in the championship for Le Mans cars from 1995-2002, driving a car each.

ELMS GT class winner Scott, who has raced Dreelan's F1 March 761 and Williams FWo8, and co-driven Dreelan's Spice and Porsche 962, will continue to share with the Celtic Speed boss in historic.

Also at Brands was Le Mans podium finisher Nicolas Minassian, who was reunited with a V12 version of the

Peugeot 908 he drove in period.

Minassian drove a V8 variant of the car at the prologue event for the new series at Spa last year, and completed sub-42s laps around Brands Indy in the V12 car at the test last month.

He was shaking down the car, which will race at the same circuit later in the year with David Porter at the wheel. Porter has driven a Pescarolo-Judd 01 in events in the USA.

Bob Berrige, owner of the team that runs the 908s – Chamberlain-Synergy – will drive chassis #8 at the season opener at Imola on April 20-22.

Christophe d'Ansembourg's Lola-Aston Martin DBR1-2 has been rebuilt over the winter to compete in the seven-round series. It visits Imola, Brands, Paul Ricard, Silverstone, Nurburgring, Spa and Dijon.

MARCUS PYE AND GARY WATKINS



Sullivan returns to Minis

MASTERS PRE-66 TOURING CARS

Liam Sullivan is targeting one-off outings in British GT and the Creventic 24 Hour Series this year, after confirming a deal to race a Mini in Masters Historic Racing Pre-66 Touring Cars.

Sullivan arrived in the UK from Australia in 2015, and won the Mighty Mini Championship in his first season racing in this country.

"There's some other stuff in the pipeline, but I'm committed to the whole Masters

season," said Sullivan. "I'm looking to do some endurance races, British GT or the Endurance Series. Just some one-offs."

Sullivan will race the Mini that won last year's Pre-66 Touring Car Championship, sharing with reigning champion Jonathan Lewis.

"When I first got to England I was in the [Mighty] Mini to start with," added Sullivan. "I met Jonathan Lewis, I raced for him in 2015. I caught up with him at a kart track recently and we put the deal together. The aim is to go and win the title again with him."

JACK BENYON



Adam takes the flag as Haigh becomes first female British GT winner

LAT IMAGES

Haigh and Adam draw first blood at Oulton

OULTON PARK
BRITISH GT
APRIL 2

Flick Haigh created British GT Championship history as the first female driver to claim an overall race victory, while inclement weather later curtailed race two of the Oulton Park season opener.

Teamed with double champion Jonny Adam, Haigh stole the headlines for Optimum Motorsport with pole and a win in the weekend's sole race.

A coating of sleet met drivers on Easter

Monday, Haigh utilising a safety car start to romp over six seconds clear in the early stages of the race while last year's double Oulton winner Jon Minshaw began a determined charge from seventh.

The Barwell Motorsport driver survived first-corner contact that sent Mark Farmer's Aston Martin spinning, quickly passing the two Team Parker Racing Bentleys to take second and proceeding to trim four seconds out of Haigh's lead cushion by the time pitstops began to cycle through. Adam and Phil Keen, Minshaw's partner, resumed the lead fight, the latter closing the

deficit to nothing within three laps.

The scrap that loomed ended prematurely when the pair encountered traffic. Keen's attempts to squeeze by the GT4 Ginetta of Callum Hawkins-Row at Druids resulted in contact, damaging a wheel rim of the second-place Lamborghini Huracan, which dropped to fifth with a puncture. Adam was untroubled for a 28s victory, ensuring success for Haigh on her series debut.

"The last time I was here I was airlifted to hospital," said the 33-year-old, referring to a previous Caterham accident at the circuit.

"I think I was napping a bit out front, but it helps that it is such a narrow circuit. Jonny is a complete driver and, after a lot of testing, I've got that base confidence."

Returning to Oulton Park for the first time since 2008, Darren Turner ensured an Aston Martin one-two after a gritty defence of second from former single-seater racer Yelmer Buurman in the ERC Sport Mercedes he shared with Lee Mowle.

Turner inherited second place after team-mate Andrew Howard climbed to third from fifth on the grid in the Beechdean Vantage during his opening stint. Buurman followed closely but was unable to find an opening, despite a traffic-littered final lap. Keen came home fourth ahead of Barwell team-mates Leo Machitski and Jonny Cocker, sharing their Huracans with Patrick Kujala and Sam De Haan respectively. "Weirdly, I thought my chance would come in traffic," bemoaned Keen. "I was maybe a bit impatient."

Barwell would not get the chance to



Haigh (l) and Adam (r) start season in style

LAT IMAGES

avenge the situation in the afternoon, with race two called off after four laps in inclement conditions behind the safety car.

The matter of whether or not to award full championship points has been referred to the championship stewards to decide. Technically, British GT regulations say a result can be declared after just two laps. However, the sticking point arises as part one of the race ended under a red flag, not a chequered flag, and part two never happened. So it is up to the stewards to decide whether or not the outing actually constituted a race.

Keen supported the decision to end the race, adding: "Personally, I wanted to race on [but] I would say that as I had a clear track; I think it's the sensible call. It's a shame we haven't won today, but the plus side is that it means we don't now carry a penalty into Rockingham." The stoppage acted as a bizarre lifeline for the Optimum squad, after Adam aquaplaned into the barriers heading to the dummy grid. Rear suspension damage cost them four laps, but the cancellation handed the experienced Scot and Haigh the early championship lead.

Reigning champion Rick Parfitt Jr and Team Parker Racing were instantly on the back foot in conditions not suited to the Bentley Continental's strengths, Parfitt admitting he was lucky to race after pain induced by his Crohn's disease. "My illness is flaring up again; I was in so much pain on Friday night," he said, finishing a lapped 13th with co-driver Ryan Ratcliffe. Team-mates Callum MacLeod and Ian Loggie did manage to salvage seventh place in the sister Bentley, both cars struggling for tyre temperatures.

Balfe Motorsport's McLaren finished eighth ahead of TF Sport's Derek Johnston and Marco Sorensen, with Jetstream's Graham Davidson and Maxime Martin rounding out the top 10.

DAN MASON

RESULTS

BRITISH GT

GT3 (31 LAPS) 1 Flick Haigh/Jonny Adam (Aston Martin Vantage GT3); 2 Andrew Howard/Darren Turner (Aston Martin) +28.243s; 3 Lee Mowle/Yelmer Buurman (Mercedes-AMG); 4 Jon Minshaw/Phil Keen (Lamborghini Huracan); 5 Leo Machitski/Patrick Kujala (Lamborghini); 6 Sam De Haan/Jonny Cocker (Lamborghini). **Fastest lap** Keen 1m44.032s (93.15mph). **Pole** Haigh/Adam. **Starters** 13.

GT4 (29 LAPS) 1 Adam Balon/Ben Barnicoat (McLaren 570S); 2 Michael O'Brien/Charlie Fagg (McLaren) +10.431s; 3 Ricky Collard/Jack Mitchell (BMW M4); 4 Graham Johnson/Mike Robinson (McLaren); 5 David Pattison/Joe Osborne (McLaren); 6 Lewis Proctor/Jordan Albert (McLaren). **FL** Scott Malvern (Mercedes-AMG) 1m52.999s (86.10mph). **P** Callum Pointon (Ginetta G55). **S** 22.

Barnicoat masterclass gives Track-Club GT4 win



Barnicoat (middle left) and Balon (middle right) topped field on debut outing

Adam Balon and Ben Barnicoat fought from 10th to win the only British GT4 outing of the day with their Track-Club McLaren.

Equipe Verschuur earned early bragging rights when silver-rated drivers Finlay Hutchison and Daniel McKay grabbed the class pole position for both races, but an admin error meant they were excluded from qualifying, having sent out the wrong drivers for each session.

First beneficiary of the mix-up was HHC Motorsport, with Callum Pointon's Ginetta G55 heading the 22-strong field behind the safety car. He soon lost his narrow advantage over Michael O'Brien as a result of a slower stop for the HHC car, with Patrik Matthiesen dropping back to ninth by the flag.

O'Brien handed the class-leading McLaren over to Charlie Fagg, but he was soon also usurped by the similar 570S GT4 of Barnicoat – despite ECU problems almost curtailing the team's entry before Friday.

Taking over from last year's Oulton winner Balon, a rapid string of laps on cold tyres were Barnicoat's ticket to securing the first victory of the season, overtaking Ben Green's BMW and disposing of Fagg in quick succession.

"Not bad for my first ever laps in the wet around here," said Barnicoat. "Conditions were difficult but I had some great early laps."

Green also got the better of Fagg in the closing minutes, ensuring second place for Century Motorsport, much to the "surprise" of fellow silver-rated driver, Ben Tuck.

The result would be premature for

the BMW duo, however – a short pitstop earning them a 30s penalty after the race. The team's sister M4 of Ricky Collard and Jack Mitchell moved up to third behind Fagg and O'Brien's Tolman McLaren, Collard surviving contact that sent Will Moore's Aston Martin into the barriers at Lodge on lap one.

Balfe Motorsport's Graham Johnson/Mike Robinson inherited fourth ahead of a further brace of Tolman McLarens, Joe Osborne and David Pattison climbing from 15th on the grid to fifth ahead of Lewis Proctor and Jordan Albert.

Back in a GT car after the trials and tribulations of a year in touring cars, Will Burns cut a much more enthusiastic figure, but retired late in the race in the second HHC Ginetta.

"Bad luck follows me around" were the words of Nick Jones as locked front brakes left him stranded on the grid and a lap down in the Team Parker Racing Mercedes, the team only picking the car up two weeks prior to the event.

The theme of poor fortune continued into the second race when Scott Malvern was denied the chance to convert pole position into a class victory in the new AMG as torrential rain ended the race early. Malvern was left disappointed with pole and race one's fastest lap being the only accolades, saying: "It's a little bit unnecessary. It's just rain at the end of the day, and we know to be a bit more careful. It's a shame because we had good pace and a reasonable chance of a podium. I wasn't even pushing really in the first race."

DAN MASON



Monger took a best finish of third, and a fastest lap, on his first weekend back in racing

Monger claims podium finish on racing return

**OULTON PARK
BRITISH F3
MARCH 31 / APRIL 2**

Almost exactly a year ago, Billy Monger's life changed forever. In April 2017, Monger had both legs amputated after a crash in a British Formula 4 race at Donington Park. Since that dramatic day, Monger has become a source of inspiration for many within and without the world of motorsport; his positive attitude and courage in the face of unbelievable adversity is something to be admired.

It's perhaps not surprising, then, but certainly no less remarkable, that Monger was on the grid for the opening round of the BRDC British F3 Championship at Oulton Park last weekend for his first competitive race since his accident.

He'd conducted a programme of testing with Carlin using hand controls and essentially learned how to drive again. But what about racing? It's one thing to circulate on a track setting times against the clock, but what about the rigours of a race weekend, launching off the grid, battling for position, attacking, defending?

"Yeah I'm pretty nervous but I'm excited; it's been a lot of build-up and anticipation getting to this stage and getting out," said Monger before qualifying began.

"So, yeah, for the first race finally being here – pretty cool."

His nerves hadn't shown. In two days of testing at Oulton he was comfortably in the top 10 and, despite a minor crash in one of the sessions, he certainly hadn't looked out of place after a year on the sidelines.

Into qualifying and he nailed his goal of reaching the top five straight away: fifth place on the starting grid on his return, and only 0.548 seconds off polesitter and Carlin team-mate Clement Novalak.

Monger proclaimed there was still more pace in him, and his race engineer Neil Hoddinott – who has moved to the role this year – didn't seem surprised.

"Very quickly we went from working on how to adapt a car and get a system that he could drive, to just developing his pace," he said. "Very quickly it was just like working with any other driver trying to find pace."

"So for me it's been quite easy making the step into race engineering alongside him, because in terms of me working with him it's just like working with any other driver."

Perhaps the biggest question mark going into the race would be how Monger would

get off the line. His hand controls mean that as he modulates the throttle with his left hand, he uses his right to pull then push a lever that operates the hand clutch and launches him off the grid.

As Hoddinott said: "The biggest challenge we've had has just been over the course of winter testing, not being able to do as many practice starts as we would have liked."

There proved to be little to worry about, though, because Monger got a good start and maintained his place as the cars jockeyed for position on the first lap.

Then the decisive moment of the opening race occurred at Hislops chicane as Novalak, after making a poor start, lunged up the inside of Double R Racing's Krish Mahadik.

There was a collective gasp before cheers from the crowd as Novalak and Mahadik spun, and Monger neatly threaded his way



by – dodging past Mahadik as he rejoined the track – to move up into third place.

The remainder of the race was a nervous affair as Monger managed his pace and tyres. He wasn't quite quick enough to keep up with the eventual winner, Double R-run Swede Linus Lundqvist, or Carlin team-mate Nicolai Kjaergaard, but he was able to manage the gap to 2017 Ginetta Junior champion Tom Gamble behind him.

"I'm a little bit in disbelief," said Monger after the race. "If you had said last year that in race one of this season I'd be in third position in British F3, I would have told you that you were lying.

"It's a bit overwhelming, especially to see all the support while standing on the podium, to look around and see the faces I know had put in the hours and worked hard.

"It's not only me that's had to put in the work, it's all the guys from Carlin and everyone that has been part of the journey. Family, friends, to have them all here with me when I've had this amazing result is awesome."

Yes, Monger benefited from a collision ahead of him – but make no mistake, this result wasn't a fluke. He was towards the front of the field on pure pace all weekend, backed up by a ninth-place finish – after starting 14th – and fastest lap in the reversed-grid second race. He finished eighth in race three.

Long-term sponsors are now being sought to allow Monger to do the full season, but as team boss Trevor Carlin put it: "It's quite remarkable, you couldn't really write a script like this."

STEFAN MACKLEY

WEEKEND WINNERS

BRDC BRITISH F3 CHAMPIONSHIP

Race 1 Linus Lundqvist (Double R Racing)
Race 2 Manuel Maldonado (Fortec Motorsports)
Race 3 Nicolai Kjaergaard (Carlin)

GINETTA G40 CUP

Race 1 Tom Golding
Race 2 Tom Golding
Race 3 Tom Golding

GINETTA GT5 CHALLENGE

Race 1 Shane Stoney
Race 2 Shane Stoney
Race 3 POSTPONED DUE TO WEATHER

MINI CHALLENGE – JCW

Race 1 Ant Whorton-Eales
Race 2 POSTPONED DUE TO WEATHER

NORTHERN SALOON & SPORTSCAR CHAMPIONSHIP

Race 1 Andrew Morrison (SEAT Leon TCR)
Race 2 POSTPONED DUE TO WEATHER

RADICAL SR1 CUP

Race 1 James Pinkerton (SR1 Gen 1)
Race 2 James Pinkerton (SR1 Gen 1)

MEETING SHORTENED AND RACES CANCELLED AS RAIN DAMPENS OULTON PARK AFFAIR



THERE WAS A SPECIAL ATMOSPHERE throughout the BRDC Formula 3 paddock over the course of the Easter weekend meeting. While that's usually the case for any season opener, the remarkable return of Billy Monger to competitive racing after his dreadful crash last year was enough to fire up the coldest of dormant engines (see opposite).

Double R's Linus Lundqvist won the opening race after beating the polesitter, Clement Novalak, off the line and then holding Nicolai Kjaergaard at bay for the duration of the race. Despite lapping faster than Lundqvist, Carlin racer Kjaergaard couldn't quite find the pace to pass, admitting that he "didn't want to take too many risks this early in the season".

It was that level-headed attitude that ensured the Dane concluded round one on top of the championship, having added to his points haul with two further calm performances in the treacherous conditions of Monday's two races.

Starting from 15th in the reversed-grid race two, Kjaergaard battled through to fourth, finishing only 2.469s behind third place. Manuel Maldonado (Fortec Motorsports) earned the win with a blistering start and a composed drive to the flag. He deemed it "my best ever" and "perfect" after keeping team-mate Tristan Charpentier and third-placed Jamie Chadwick (Douglas Motorsport) at bay.

Kjaergaard then went on to comfortably take the race-three victory, laying his claim as a 2018 title contender.

"It's a great way to start the season and build confidence," he said, after holding off Fortec man Tom Gamble and Lanar Racing's Kush Maini for the top spot.

"It wasn't the easiest of conditions but big thanks to the team. We've got a great car."

Race three was the last racing action on track before the meeting was cancelled because persistent rainfall had left huge quantities of standing water.

Race two of the Mini Challenge was therefore postponed. Nathan Harrison had been crowned the winner of race one on the road, but the 2016 runner-up was judged to have passed under yellow flags, earning himself a 30-second time penalty that relegated him to 18th. This promoted 2017 BTCC driver Ant Whorton-Eales to victory ahead of debutant Jordan Collard and guest driver Paul O'Neill.

The Radical SR1 Cup was fortunate enough to contest both scheduled races on Saturday. Ryan Harper-Ellam was expected to be the man to beat this season, but despite this the 2017 shoot-out winner could only manage a second place after suffering startline issues.

In race one, Harper-Ellam snapped his chain after "trying a heavy start on the green-flag lap and then again on the start". That forced him to retire, then in race two the opposite happened, and he stalled on the line. Nevertheless he raced back to secure second. Both wins fell to 2017 runner-up James Pinkerton, who was "ecstatic, especially as I'm slightly limited in the Gen 1 [older-spec] car".

There was only one winner in the Ginetta G40 Cup on Saturday, reigning GRDC champion Tom Golding. Likewise, on the wet and short-lived Monday, Shane Stoney, second in the championship in 2017, took both Ginetta GT5 Challenge races ahead of James Kellett.

DOM D'ANGELILLO



Lloyd (centre) was the class of the TCR UK field at Silverstone last weekend

Lloyd banks a double win as TCR UK begins

SILVERSTONE (BRSCC)
TCR UK
MARCH 31-APRIL 1

Late entrant Daniel Lloyd proved the man to beat at TCR UK's inaugural weekend of racing. The Volkswagen driver took pole position and both wins, leaving Silverstone with a healthy championship lead, although his participation in further rounds is currently unconfirmed.

Lloyd's closest challenger on pace was Laser Tools Racing's Aiden Moffat. The Scotsman looked set to snatch pole when he fired in two quick laps at the end of a wet session on Saturday, lifting him from fifth to first. But Moffat's Alfa Romeo Giulietta was baulked on his final lap, while Lloyd made the most of the improving conditions to post the session benchmark.

The pair eased clear in Sunday afternoon's first race, but Moffat was unable to mount a serious challenge for victory. He struggled with the handling of the car, which the team had collected from Italy during the week. With Friday and Saturday both wet, there had been little opportunity to dial the car in.

"It's a very soft chassis with a lot of roll in it," Moffat explained, adding he was losing time in the National Circuit's slower corners.

Pushing hard to keep up, Moffat had tested the track's boundaries, and was issued a five-second penalty that dropped him to fourth on the final lap. But he'd received no warning so it was rescinded,

albeit only as the champagne was being sprayed without him.

"I was using all the track plus some, waiting for a warning flag, which is an indication to rein it in a bit," Moffat said.

Behind the leading duo, Ollie Taylor and Lloyd's WestCoast Racing team-mate Andreas Backman were best of the rest. Taylor qualified his Pyro Motorsport Honda Civic fifth, but took advantage of fellow Honda driver Howard Fuller's sluggish start, then passed Lewis Kent (Hyundai i30 N) at Brooklands on the first lap before holding station. Backman, who competed in the RX2 category of World Rallycross last season, was making his car racing debut. Fourth

fastest in free practice, he could manage only eighth in qualifying, struggling in the changeable conditions. He made quick progress to fourth and briefly stood on the podium until Moffat's position was restored.

The Swede secured a trophy to keep in the second race, the grid for which reverses the order of the top 10 drivers' second best qualifying times.

From third, Backman jumped into the lead. But Lloyd, starting ninth, had rocketed off the line. Sixth by the first corner, he picked off Moffat, polesitter Stewart Lines and Taylor in the remainder of the lap, and Finn Olli Kangas (SEAT) second time around. Lloyd then reeled in Backman and,



Moffat had a good battle with Backman in race two, until the Alfa ran out of fuel late on

getting a run out of Luffield, took the lead after only five of the 31 laps.

Moffat made similar progress from 10th and passed Backman on the run to Becketts a few laps later. His second position evaporated with two-and-a-half laps remaining, along with the last of his fuel, leaving team members scratching their heads.

That promoted Backman to second, with Taylor again completing the podium despite struggling for front-end grip.

Fuller, fifth in race one, improved to fourth in race two after poor starts in both. "The procedure is completely different to what I'm used to," explained Fuller, who hopes to adapt team boss Sean Walkinshaw's base set-up to better suit his style.

Kangas managed fifth in race two, while Finlay Crocker took the new FK7 Civic to a best finish of sixth, ruing a delay to the 2018 TCR Balance of Performance regulations that he felt left his car under-powered.

Sole Hyundai runner Kent suffered a mysterious lack of power on his way to a pair of 11th-place finishes, while Moffat's team-mate Derek Palmer had a weekend to forget. After brake problems, a misfire prevented any running on Saturday. Despite sourcing a fuel injector from a road car, the issue returned in race one, then a spin and a loose boost hose accounted for his 12th in race two, despite setting top-six lap times.

MARK PAULSON

WEEKEND WINNERS

SILVERSTONE

ALFA ROMEO

Race 1 Paul Webster (156 GTA)

Race 2 Paul Webster (156 GTA)

CIVIC CUP

Race 1 Daniel Reason (Civic FN2)

Race 2 Danny Hobson (Civic EP3)

HRDC ALLSTARS

John Spiers (TVR Griffith)

HRDC COYS TROPHY

Pete Chambers (Lotus Ford Cortina Mk1)

NATIONAL FORMULA FORD

Race 1 Joey Foster (Ray GR08)

Race 2 Luke Cooper (Swift SC16)

Race 3 Niall Murray (Van Diemen RF99)

MAZDA MX-5 SUPERCUP

Race 1 Will Stacey

Race 2 Jack Harding

Race 3 James Blake-Baldwin

TCR UK

Race 1 Daniel Lloyd (Volkswagen Golf GTI TCR)

Race 2 Daniel Lloyd (Volkswagen Golf GTI TCR)

VOLKSWAGEN RACING CUP

Race 1 Dennis Strandberg (VW Scirocco)

Race 2 Dennis Strandberg (VW Scirocco)

MURRAY HEADS THE FORMULA FORD POINTS AFTER NATIONAL RETURN

Returning champion Niall Murray provided an overtaking masterclass on his way to winning at Silverstone in the opening round of the Formula Ford National Championship. The three races were full of frenetic action but Murray kept a cool head to secure third, second and first-place finishes to head the points.

From seventh on the reversed-grid race three, Murray's Van Diemen RF99 jumped to fifth, then passed Jack Wolfenden and Matt Round-Garrido in one move on the outside at Becketts. Murray repeated the trick on race one winner Joey Foster, then used the outside line at Brooklands to overtake polesitter Stuart Gough. The leader was aided by second-placed Foster spinning after being run into by Wolfenden, with the squabble for second settled in Round-Garrido's favour, from Luke Cooper and Gough.

Foster's race one win had come after trading places with Murray, following race leader Josh Fisher's spin at Brooklands. Michael Moyers secured second place after passing Murray into Copse on the final lap.

Cooper took his Swift to a narrow victory in race two after a classic slipstreaming battle involving at least six cars at a time. Murray had hurt his aerodynamics by nudging the back of Fisher's Van Diemen, and was passed for the lead by Cooper and Moyers at Brooklands with a lap to go. Murray retook second on the run to Becketts but Cooper was able to repel his last-gasp attack.

Lotus Cup champion Will Stacey experienced the highs and lows of motorsport when he took a convincing win in the opening Mazda MX-5 Supercup race, then suffered a heavy crash in the next. Stacey and Rob Boston Racing

team-mate Steve Roberts took their new cars to a one-two finish, with third-placed Jon Greensmith also in the mix.

Jumping the kerbs while running in the lower reaches of the top 10 knocked Stacey's brake pads out in race two, and he collected the unfortunate Richard Wicklen at Becketts. Following an overnight engine change, Jack Harding took the win after on-the-road victor Luke Herbert was given a track limits penalty. James Blake-Baldwin inherited second, with Aidan Hills claiming a maiden podium after a thrilling slipstreamer of a contest.

Reigning champion Herbert had earlier blown his chances in race one, stopping on the way to the grid to fix an air filter that he had incorrectly fitted, and forfeiting pole position in the process. From the back, he rose to seventh. Herbert was second to Blake-Baldwin in race three.

Dennis Strandberg won twice in the Volkswagen Racing Cup. Turbo problems left him sixth on the grid but he breezed through to take the opener from Jamie Bond. A puncture denied Bond victory in race two, while Tom Walker also lost a likely podium to an electrical failure. Martin Depper was excluded from second for passing under yellow flags. Owen Walton inherited the place.

Danny Hobson scored a maiden Civic Cup win from fourth on the reversed grid. He'd qualified 11th after being hampered by traffic, then rose to seventh in the opener, which was won convincingly by Daniel Reason.

Pete Chambers just held on to defeat Andrew Jordan, driving the similar Lotus Cortina Mk1 started by Take That's Howard Donald, in a thrilling finish to the HRDC Coys Trophy.

MARK PAULSON



Oliver heads Truck points but doesn't have it all his own way



Oliver took four podiums in the season-opener, including a win

BRANDS HATCH BARC APRIL 1-2

Winning honours were shared when the 2018 British Truck Racing Championship started at a chaotic and sometimes wild Easter race meeting.

Multiple champion Stuart Oliver grabbed the early points lead with a win and three more podium visits before the final, and there were popular victories for Ryan Smith and David Jenkins.

A smaller than expected entry was boosted by the late addition of four-time champion Mat Summerfield and Smith, the latter the current title holder, but with zero preparation time neither was fully up to speed.

Oliver took the opening Division 1 honours after a duel with Jenkins in a restarted race, with Summerfield and Smith next. Summerfield missed Monday morning's race after reporting of blurred vision, and Richard Collett caused a red flag when he crashed for the second

time in less than 24 hours. Jenkins won the restarted race.

The classes combined for wet third and fourth outings, where Smith rewarded the team's supporters with a brilliantly executed win in the first, with Simon Reid and Oliver rounding out the podium. Smith did it again ahead of his recovering team-mate Summerfield in their fourth race, which lacked Jenkins and Reid after they beached and caused another stoppage.

Oliver plunged off at Paddock Hill on the first flying lap of the final, leaving the way

New winners top the large swarm of Locosts at Combe

CASTLE COMBE CCRC APRIL 2

In a season-opener that started an hour late due to overnight flooding, leaving the circuit more like a scene from the TV boating drama *Howard's Way* than its Howard's Day billing, breathtaking Locost and Formula Vee races as the tide subsided warmed loyal Easter Monday spectators.

The Locost thrillers resulted in memorable first time wins for Greg Smith (pictured right) and Mark Burton. The latter was particularly special, with Louis Wall erasing Alex von Ehrheim's eight-year-old lap record in a car patched up following a biff in the opener, and Tim Penstone-Smith

slipstreaming from 17th to third, his maiden podium placing.

After an incident at Folly that ended John Hughes and Danny Hands' challenges, Vee poleman James Harridge boldly won the damp opener from pole in his Maverick, after a splendid tussle with Ian Jordan. Ian Buxton finished a distant third having outbraked himself at the Esses.

The finale was stopped when Phil Waterhouse's Fallari Tasso rolled in a tangle at Quarry, but Hands made the restart after his car conked out. Harridge broke on lap one, leaving Craig Pollard, the rejuvenated Hands and Buxton to fight it out in GACs. Pollard led the first five laps over the line, having ceded the initiative to Hands into Quarry and regained it at Tower, but Buxton

outfoxed them both. Just 0.873s split him from Hands, Pollard and Steve Ough (AHS Dominator) at the chequer.

Best of the resident championship openers was the singleton Saloon round in which defending champion Simon Thornton-Norris's sizzling Mitsubishi Colt prevailed after Gary Prebble's SEAT Leon Cupra's throttle stuck open. Teenager Alex Kite graduated to the top class and finished a brilliant third in his new Grant Motorsport-built Audi TT in a battle which embroiled the leaders and Tony Hutchings' faithful TT, which wilted under the strain.

The GT double-headers were exciting. Steve Putt slithered his fearsome seven-litre Chevrolet LS7-powered Mazda RX-7 to victory in the first leg, as former Formula Ford champ Adam Higgins – who entered on the day and missed qualifying – shot his Ginetta G55 from the back to second, suppressing Bradley John's Mitsubishi Evo to third.

Race two was even better, Oliver Bull

clear for a hugely impressive Smith to lead Summerfield home in a fairytale end to a manic week for the Midland team-mates.

Miles Rudman and Ben Power were Legends heat winners on Sunday before Power won the final from 14th on the grid, fending off Jack Parker who arrived at Brands as leading points scorer following the Oulton Park season opener. On Monday, John Mickel and Rudman won the heats and Will Gibson the final, a fitting reward after driving a still-bent car repaired after a big impact with the pitwall earlier in the meeting.

Lea Wood won both Pickup Trucks races, making an early break to beat reigning champion Scott Bourne in race one. The second race was a more dramatic affair, Wood benefiting when Bourne and Mark Willis clashed while contesting the lead. Pickups rookie Dale Gent retired when his engine let go, spinning him in an eruption of fire on the top straight.

Malcolm Blackman fought his way to the front to launch his Intermarque title defence in winning style. Lewis Smith provided the main opposition, but after losing narrowly in race one he retired next time out after tagging a backmarker.

Five months almost to the day after a massive impact with the pitwall, Rod Birley and his refurbished Ford Escort returned to winning ways. Incidents on a wet and oily track caused a Modified Saloons and Tin Tops stoppage, and Birley made no mistakes in the rerun, beating Steve Rothery's Renault Clio to the flag. Birley's happy return didn't last, though, the Escort stopping in an oily cloud on Cooper



Birley marked Escort's return with a win - and an engine failure



Power (r) was among the Legends winners at Brands Hatch

Straight in race two, handing the win to novice driver Adrian Bradley in a BMW M3. Rothery, Andy Thompson and Paul Eve enjoyed a mighty battle for third.

First blood in the Kumho BMW Championship went to Colin Wells, who never looked like being overhauled on Sunday. He had to work much harder the next day, after starting on slicks on a damp but drying track. A long way back early on, he didn't overhaul the wet-shod car of Darren Fielding for the lead until lap 19 of 21.

BRIAN PHILLIPS



stalking Putt down, then smashing the lap record en route to victory in Jeremy Irwin's tubeframe Vauxhall Tigra. With oil leaking onto his rear tyres, Putt was powerless to resist Higgins' charge, but held on to second from John and 'Combe queen' Ilsa Cox's SEAT Leon Cupra. Sixth in exalted company was a fine result for Tony Bennett (Caterham R300).

On a high after a sensational Silverstone win the previous afternoon, Luke Cooper

completed an FF1600 hat-trick over a slim field. A broken ignition switch halted reigning champion Josh Fisher in the opener, but he bagged silver next time out. Michael Eastwell topped the Spectrum drivers both times, finishing second and third respectively ahead of David Vivian.

Going off yards into the Hot Hatch Challenge contest, third-place starter Josh Harvey rejoined last, but a multi-car bomb-burst brought a red flag and a birthday reprieve. Honda-mounted Harvey tore away from Craig Tomkinson's raucous Vauxhall Nova and Mark Wyatt's strangely sluggish Astra.

Under the 750MC banner, the promising new BMW Car Club Racing series began with Richard Marsh beating Michael Vitulli in the soggy opener for which the grid was formed by ballot. Former Formula First racer Vitulli trumped Dave Kempton in the sequel, the latter's E36 cutting out like pursuer Paul Travers' E46 due to under-fuelling.

MARCUS PYE

WEEKEND WINNERS

BRANDS HATCH

INTERMARQUE CHAMPIONSHIP

Race 1 Malcolm Blackman (Vauxhall Tigra)

Race 2 Malcolm Blackman (Vauxhall Tigra)

KUMHO BMW CHAMPIONSHIP

Race 1 Colin Wells (E46 M3)

Race 2 Colin Wells (E46 M3)

LEGENDS CHAMPIONSHIP SUNDAY

Heat 1 Miles Rudman

Heat 2 Ben Power

Final Ben Power

MONDAY

Heat 1 John Mickel

Heat 2 Miles Rudman

FINAL Will Gibson

MODIFIED SALOONS & TIN TOPS

Race 1 Rod Birley (Ford Escort WRC)

Race 2 Adrian Bradley (BMW M3)

PICKUP CHAMPIONSHIP

Race 1 Lea Wood

Race 2 Lea Wood

TRUCK CHAMPIONSHIP

DIVISION ONE

Race 1 Stuart Oliver (Volvo VNL)

Race 2 David Jenkins (MAN TGX)

Race 3 Ryan Smith (MAN TGA)

Race 4 Ryan Smith (MAN TGA)

FINAL Ryan Smith (MAN TGA)

DIVISION TWO

Race 1 Luke Garrett (MAN TGX)

Race 2 Luke Garrett (MAN TGX)

Race 3 Steve Powell (MAN TGS)

Race 4 John Powell (Volvo FL)

CASTLE COMBE

750MC FORMULA VEE

Race 1 James Harridge (Maverick Vee)

Race 2 Ian Buxton (GAC Daghorn)

750MC LOCOST CHAMPIONSHIP

Race 1 Gregory Smith

Race 2 Mark Burton

BMW CAR CLUB SERIES

Race 1 Richard Marsh (E36 M3)

Race 2 Michael Vitulli (E46 M3)

CCRC FF1600 CHAMPIONSHIP

Race 1 Luke Cooper (Swift SC16)

Race 2 Luke Cooper (Swift SC16)

CCRC GT CHAMPIONSHIP

Race 1 Steve Putt (Mazda RX-7)

Race 2 Oliver Bull (Vauxhall Tigra Silhouette)

CCRC HOT HATCH CHALLENGE

Josh Harvey (Honda EG)

CCRC SALOONS CHAMPIONSHIP

Simon Thornton-Norris (Mitsubishi Colt Ralliart)

Big changes, same thrills

New car, new engines, new drivers and a lot of teams departing. There are plenty of developments in the British Touring Car Championship's support series this year

STEPHEN LICKORISH



There's no doubting that this is a year of major changes among the British Touring Car Championship's support series. And that's even discounting the unprecedented fact that all five of last year's champions have moved away from the TOCA supports.

Perhaps the largest change across the five series is the new car that has been introduced for this year's Porsche Carrera Cup GB season. Although the second-generation "Type 991" 911 GT3 Cup car is more of an evolution of the old machine than a full-scale change, it's certainly a new variable. While there are minor cosmetic changes, the big difference comes in the engine, with its extra 25bhp.

"The drivers love it – the returning drivers say they can really feel the extra power that the new engine gives," says

Porsche GB motorsport manager James MacNaughton. "They say it feels a lot more refined than the old car. The old engine was getting long in the tooth when compared to the new one, which uses the latest direct-injection technology. There are some differences but the great thing is, because we got the car in its second year [of competition, after being used in the Supercup in 2017] and we also did some running with the car last year, we had a very good understanding of what the operational changes were, so it was very straightforward for us to guide the teams."

Last year's runner-up Dino Zamparelli says the car largely handles the same. "It's faster and you can feel the power of the engine more," he says. "The only potential question is in the summer time because we

"I THINK IT'S BEEN A HARD WINTER FOR THE WHOLE OF BRITISH MOTORSPORT"

don't know how hard it will be on its tyres, as it's going faster."

It's certainly proved popular with drivers, as 23 have signed up – the most of all the support series. But only a small proportion of those are Pros, with just seven in the main class. "There's been a big shuffle with a lot of the top Pro drivers leaving and all going on to bigger and better things," says

Porsche Carrera Cup GB

You can't get any closer to a title than tying on points with the driver who won the crown. But Dino Zamparelli is certainly not looking back at last year's disappointment in the Carrera Cup, and is instead fully focused on sealing the championship this time around.

Although 2018 will be his fourth season in the series, there's still plenty new for Zamparelli this year. Besides the new car, he is joining series dominator Redline Racing. "Last year is a separate thing for me now," says Zamparelli (left). "I'm not looking at last year thinking I want retribution – this year is a new challenge with a new team. I go in as probably the favourite from the fact I did finish so high up last year, but it's a new season, a new car and a new team. If it was last year's car I would be more of a favourite."

Among the small Pro driver entry, Zamparelli is most wary of his former JTR team-mates Lewis Plato and Tio Ellinas. Plato benefits from the continuity of sticking with the team, while Ellinas moves to DVF Racing, where he will be the undisputed top dog.

Another to watch in the Pro field is new Porsche Junior Dan Harper, this season's wildcard. He seriously impressed in the shootout last year and the German manufacturer entrusted him with the legendary 'Moby Dick' 935 for a demonstration at the Goodwood Members' Meeting. Fellow Junior finalist George Gamble will be out to prove Porsche made the wrong decision, while the Pro contingent is completed by 2016 GT4 Supercup champion Tom Wrigley and former BTCC regular James Kaye.



MacNaughton. "Dan Cammish and Tom Oliphant have entered touring cars, and Charlie Eastwood is doing the World Endurance Championship, Blancpain GT Series and VLN. Quite a few series have noticed it's been tougher for this year, but seven Pro drivers is still a decent number and more than enough to have a championship fight."

There are also changes to the rules, with rolling starts out and partially reversed race two grids in, with the series also making its first visit to Monza as its overseas round. But, while the new car has brought former frontrunners GT Marques and Motorbase Performance back into the Porsche fold, other series have lost frontrunning teams.

Foremost among these is British Formula 4's standard-bearer over the past three years

– Carlin – which is taking a sabbatical, leaving a gap at the front of the field and a small entry. The Challenge Cup (drivers doing seven of the 10 rounds) is also gone for this year, with the Rookie Cup back, and Neil Brown Engineering has been appointed as the new engine tuner to help resolve the engine-equality rumblings of recent years.

Talking of engines, every Ginetta Junior car has been handed a fresh motor for 2018 after the scandal of last year, when JHR Developments was accused of tampering with its units. This is another series that has lost frontrunning teams, with HHC Motorsport and Douglas Motorsport joining JHR in no longer running cars in the category.

It's a similar story in the Renault UK Clio Cup, where race-winning teams Jamsport and Ciceley Motorsport have withdrawn.

While there's still a quality entry of drivers, only four new racers have joined for 2018.

"We had quite a few drivers last year that were new so we've got a good young pool of drivers there," says championship manager Will Fewkes. "I think it's been a hard winter for the whole of British motorsport."

There are other minor changes to the Clio Cup, with the Masters Cup discarded, while dropped scores are back.

Finally, over in the Ginetta GT4 Supercup, most of the changes have come on the driver front. Out of last year's top 10, only three drivers are confirmed as being back in the series for this year.

But, despite all the changes and some of the grids looking thin, there's still plenty to look forward to in the BTCC supports this year. That, at least, doesn't change. >>

British Formula 4

There may only be 14 drivers currently signed up for F4 this year, but the quality of those 14 is high. It is certainly unlikely that someone will comfortably romp to the title like Jamie Caroline did last term.

With Carlin now out of the picture, Arden seems to have stepped up to the plate by fielding multiple championship contenders. All four of its drivers have strong credentials: Seb Priaulx (car #11, right) was a title challenger in Ginetta Junior last year; Patrik Pasma is back with a year's experience under his belt; and karting graduates Jack Doohan and Dennis Hauger are highly rated having secured Red Bull Junior backing.

Over at Fortec Motorsport are two podium challengers from last year aiming to launch title bids. Challenge Cup champion Hampus Ericsson is back, while podium finisher Johnathan Hoggard will contest a full season after focusing on his studies in 2017.

Add in impressive Ginetta Junior graduate Kiern Jewiss at Double R Racing, and Ayrton Simmons (inset, right) at JHR, and there really are plenty of candidates for the crown.

Simmons is the highest-placed driver from last season's standings to be back. After finishing seventh last year, he has one and a half years' experience under his belt, but his JHR deal was late to come together. "I did the group test at Donington Park [in March] and that was the first time I'd been in the car since the last race [of 2017]," Simmons admits. "I finished second [in the times] and I'm really settling in with the team."



"March test was my first time in the car since the last race"

Renault UK Clio Cup

Usual service was restored last year in the Clio Cup. Team Pyro was back on top, courtesy of Mike Bushell's domination. After a brief break when Ant Whorton-Eales took the glory with Jamsport, Pyro was able to add an eighth year in the past 10 seasons in which one of its drivers took the crown.

And it's got two of the favourites again this time around. The first is Dan Rowbottom – who Bushell has tipped as one to watch in 2018. After two seasons of competing with his own family-run squad, during which he has shown flashes of speed, Rowbottom will now benefit from Pyro's years of experience.

Joining him at Pyro is Max Coates (below) – someone who has shown plenty of potential, but hasn't quite been able to string a title bid together.

"From my side, we're now with the best team in the championship and I've got a brand new car so there isn't anything that's not right – maybe we haven't done as much testing as others but I don't think that's a problem," Coates says.

Pyro also has three youngsters who each demonstrated incredible speed in their rookie campaigns last year: Jack McCarthy, Bradley Burns and Zak Fulk.

And away from the Pyro fold? "James Dorlin and James Colburn are good, generally consistent drivers," Coates says. "And you can never discount Paul Rivett and Lee Pattison and the experience they've got."

Add in BTCC refugee Mike Epps and it's quite some entry the Clio Cup has assembled once again.



"We're now with the best team in the championship"

“Ginetta GT4 Supercup felt like the natural progression”



Ginetta GT4 Supercup

There has been a noticeable shift in the type of driver entering the GT4 Supercup this year. In the past, most were from further down the Ginetta ranks or other BTCC support series. For 2018, there's a considerable number of drivers out of club series joining the grid. These include M3 Cup title rivals Adam Shepherd and Carl Shield, Monoposto frontrunner Andrew Gordon-Colebrooke and former Kumho BMW drivers Lucky Kherra and Lee Frost.

“I think people have seen drivers come via that route and be very successful, such as Tom Wrigley [2016 champion and 2014 Kumho BMW title winner],” says Ginetta motorsport manager Ash Gallagher. “We reduced the number of rounds and implemented testing and tyre restrictions a few years ago, which in turn reduced the cost and made it more affordable.”

Shepherd (above) is targeting podiums and possibly wins after joining Team Hard for this year, and he believes the series is affordable for clubmen. “It's expensive, don't get me wrong, but it is accessible to people who can pick up a couple of sponsors,” he says. “I've always wanted to do something on the touring car package as it's the pinnacle of UK motorsport. After racing the M3 for the last couple of years, I felt the natural move should be rear-wheel drive. The Porsche budget was too large for us this year and I've always liked Ginettas, and it felt like the natural progression.”

Other contenders this year will include Ginetta Junior race winner Harry King, perennial Supercup frontrunners Tom Hibbert and Carl Boardley, and former Clio Cup man Charlie Ladell.



Ginetta Junior

Out of all the support series, Ginetta Junior is always the most unpredictable. And this year it is likely to be no different. Last season featured some truly incredible racing at the front of the field, but the majority of 2017's racers are no longer competing. In fact, there are just six who completed all of last season back on the grid.

Of those, Adam Smalley is the favourite. He is the only one to have claimed a podium last term and was also champion in the Winter Series. “A few people have said that I'm favourite but I don't want to jinx myself,” says Elite Motorsport driver Smalley. “I'm looking forward to the season, and with the new engines it should all be a bit fairer.”

“Winning the Winter Series was a big confidence boost, but it does add a bit of extra pressure because it does make me the favourite. I think I'm

in a good position; Elite were looking strong in winter testing. Now it's all down to me.”

Smalley (right) is certainly hoping for a more straightforward year than his rookie season, when he had to switch teams from JHR to HHC after JHR was suspended. “Last year was a bit of a messy year – I won the scholarship, which was great, but I didn't expect it to be how it was,” he admits. “It was a bit of a nightmare.”

Other sophomore drivers hoping to challenge at the front include Ruben del Sarte, Luke Browning, Greg Johnson and Fin Green. But the swathe of new karting graduates can't be discounted either.

“Winning the Winter Series was a big confidence boost”



FINISHING STRAIGHT

IN THE MEDIA • QUIZ



HOW GRAVEL FITS A GAM

Last year could easily be considered one of the best for the quality and realism of racing video games released across various platforms. *Project Cars 2* refined its irritating bugs from the first instalment, Codemasters stepped it up with *F1 2017*, and *Dirt 4* gave World Rallycross and rallying a superb simulator.

That's a lot for 2018 to live up to, and Milestone – the creator of the enjoyable-but-lacking *Sebastien Loeb Rally Evo* in '16 – has now released *Gravel* on PlayStation 4, Xbox One and PC.

In truth, *Gravel* is unlikely to be remembered as a classic, and it doesn't come close to the depth and the realism of *Project Cars* or *Dirt*. And while that may be a negative to an area of gaming that is increasingly embracing eSports and professional driver training, it fills a welcome gap.

The current trend now is to offer a racing game where many details such as set-up, weather, track conditions and your driving style make all the difference. That punishes the casual gamers or those without the

time and finesse to maximise it.

Considering how much-loved the *Colin McRae Rally* series is, or even the early Formula 1 games, and the litany of popular touring car games, there's clearly still space for a stripped-down, arcade racing game.

Gravel fits the bill nicely, even if it is probably too slanted towards American racing to make much impact on these shores. Starting the game, you're dropped into a beach race in a Toyota Celica Turbo 4WD in a frenetic, wild stage run in which a victory is topped up with points for a variety of skills such as lurid slides, running at high speed and going airborne.

Shame then that after that tease, you lose access to the car and end up in a monstrous truck in a stadium run. But bear with it, and you'll see there's enough traditional motorsport to fill an evening.

Rallycross venues Loheac and Hell are excellent additions, while the car roster includes rally legends such as the Alpine A110, the Ford Escort RS Cosworth, every imaginable iconic Lancia, Dakar's Mini X-Raid and Volkswagen's RX cars. There's



ING NICHE

also the option to buy added content, most significantly a Porsche pack.

Pair those cars with the variety of races – including off-road racing through checkpoints, rallycross laps dubbed ‘wild-rush’, high-speed sprints called speed cross and the stadium racing that mimics the US’s quirky truck racing – and you end up with a real arcade-game throwback.

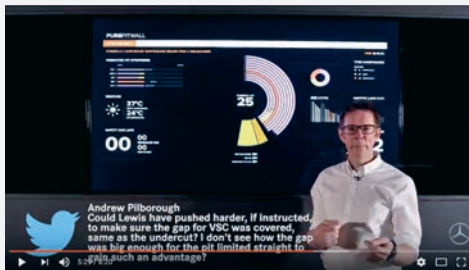
Which is also why its attempt at a career mode falls flat, although it’s hardly alone in the racing game world. The ‘Gravel Channel’ acts as a layer over the top of the game, with an overly excited commentator narrating constantly about how he’s never seen a race better than your latest, and that’s about it.

Like a traditional arcade game, you earn points (stars) to unlock more cars and venues, but once that novelty wears off there’s little reason to come back unless you’re a seasoned online gamer who enjoys a pick-up-and-drive evening on the console.

But what stops *Gravel* being the perfect party game is a thoroughly disappointing lack of offline two-player mode – an increasing trend in the latest video games. Everything about the short, sharp bursts of intense gameplay is set up so well to enjoy with friends, but you can’t unless it’s online.

Despite its flaws, *Gravel*’s willingness to throw off the shackles of seriousness and simulation means it’s the perfect antidote to established games and, at £29.99, it’s almost good value. Hopefully, the game does well enough to remind the industry that there’s room for fun as well as real-life racing imitations.

TOM ERRINGTON



HOT ON THE WEB THIS WEEK

2018 AUSTRALIAN GRAND PRIX F1 DEBRIEF

Search for Mercedes post race debrief for the 2018 Australian Grand Prix

Mercedes trackside engineering director Andrew Shovlin explains what went wrong for Lewis Hamilton in the Australian Grand Prix in this insightful video from the team in answer to questions from fans received from social media.

WHAT'S ON

INTERNATIONAL MOTORSPORT

BAHRAIN GRAND PRIX

Formula 1 World Championship
Rd 2/21
Bahrain International Circuit, Bahrain
April 8
TV Live Sky Sports F1, Sunday 1430. Channel 4, Sunday 1500. BBC Radio 5 Live Sports Extra, Sunday 1600. **Highlights** Sky Sports F1, Sunday 1940

FORMULA 2

Rd 1/12
Bahrain International Circuit, Bahrain
April 7-8
TV Live Sky Sports F1, Saturday 1110, Sunday 1215

TOUR DE CORSE

World Rally Championship
Rd 4/13
Bastia, France
April 5-8
TV Live BT Sport 1, Saturday 1000. BT Sport 2, Sunday 1100. Red Bull TV, Saturday 0945. Live coverage of every stage on wrc.com All Live service (available via WRC+). **Highlights** Motorsport.tv, Friday, Saturday and Sunday 2230

INDYCAR SERIES

Rd 2/16 Phoenix, Arizona, USA **April 7**
TV Live BT Sport 3, Sunday 0200

WORLD TOURING CAR CUP

Rd 1/9
Marrakech, Morocco
April 7-8
TV Live Eurosport 2, Sunday 1630, 1745

BLANCPAIN SPRINT CUP

Rd 1/5
Zolder, Belgium
April 7-8

SUPER GT

Rd 1/8
Okayama, Japan
April 8

AUSTRALIAN SUPERCARS

Rd 3/16
Symmons Plains, Tasmania, Australia
April 7-8

NASCAR CUP

Rd 7/36
Texas Motor Speedway, USA
April 8
TV Live Premier Sports, Sunday 1830

V8 STOCK CAR

Rd 2/10
Curitiba, Brazil
April 8

SUPER TC2000

Rd 2/12
Rosario, Argentina
April 8

MOTOGP

Rd 2/19
Rio Hondo, Argentina
April 8
TV Live BT Sport 2, Sunday 1830

UK MOTORSPORT

SILVERSTONE MGCC

April 7
MG Cup, MG Metro Cup, Midgets and Sprites, BCV8s, MG Trophy, Cockshoot Cup, Equipe GTS, Equipe Pre '63

OULTON PARK BRSCC

April 7 Production GTIs, Fun Cup

LYDDEN HILL LHMC

April 7 Sports/Saloons, Festival of Ford, Sprint

BRANDS HATCH BARC

April 7-8
BTCC, F4, Carrera Cup, Clio Cup, Ginetta GT4, Ginetta Junior
TV Live ITV4, Sunday 1015

DONINGTON PARK HSCC

April 7-8
Classic Formula 3/Classic FF2000, Historic Formula 3, Historic FF2000, Historic Touring Cars, Guards Trophy, Historic Road Sports, 70s Road Sports, Formula Junior

SNETTERTON CSCC

April 7-8
Morgans, Jaguar Saloons/GTs, Tin Tops, Swinging Sixties, Future Classics, Magnificent 7s, Modern Classics, Classic K, New Millennium, Open Series, Turbo Tin Tops

KNOCKHILL SMRC

April 8
Mini Coopers, Fiestas and Hot Hatches, FF1600, Classic Sports and Saloons, Legends Cars, Sports and Saloons, BMWs

TEST YOUR KNOWLEDGE

QUIZ



WHO, WHAT, WHERE, WHEN?

WHO IS THIS?

This Victorian had racing in his blood, but had to go a long way from home to achieve his dreams. After buying and selling his way onto the ladder he trod the boards to get a leg up, but a misfire cost him some early glory and he was forced to cross the pond.

He was trying his hand at the top of the domestic tree when he picked up a car from the landed gentry. This gave him a way to the top and was followed by the chance to race for a legend with unusual backing but their personalities clashed. A princely tragedy gave him a way back in, and through this penumbra he scored a breakthrough win.

This took him to a start-up with big ambitions, which he delivered in style. After calling time he was tempted back twice but with little distinction. He returned home to great affection and nearly soared to the title. He tried to master a return to single-seaters and had a crack at the world cup.

ON THIS DAY

1 Today is Alexandre Premat's birthday. Who were his team-mates during his two seasons of GP2?

2 Which F1 world champion scored his first fastest lap on this day in 2009?

3 On this day in 1999, Matt Neal became the first privateer to win a Super Touring BTCC race, but who was second?

4 Today is Tom Coronel's birthday. At which race did he make his WTCC debut?

5 Who won the BTCC opening round on this day in 1992?



NAME THE HELMET

LAST WEEK'S ANSWERS

Who, what, where, when Max Biaggi, Formula 1 Midland-Toyota, Silverstone, January 19 2006.

Who am I? Tom Walkinshaw. **On this day 1)** Ensign. **2)** Minardi, Williams, Ferrari. **3)** Al Holbert, Derek Bell, Al Unser Jr. **4)** Marcus Ericsson. **5)** Brawn. **Name the helmet** Carlos Pace.

IN NEXT WEEK'S ISSUE

BAHRAIN GP: ALL THE ACTION FROM THE DESERT KINGDOM



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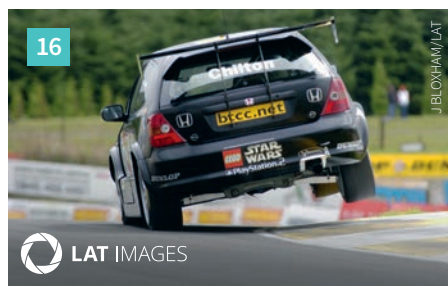
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POLE ISN'T EVERYTHING, BUT QUALIFYING IS KEY

It's an interesting footnote to Alex Zanardi's title-winning 1998 CART campaign, one of the most dominant in recent US open-wheel history, that the Italian never once qualified on pole position.

Zanardi is not alone in that statistic: Jimmy Bryan in 1956, Tony Bettenhausen in '58, AJ Foyt in '60 and '67, Rodger Ward in '62, Joe Leonard in '71 and '72, Roger McCluskey in '73, Al Unser in '83, Kenny Brack in the '98 IndyCar series and Dan Wheldon in 2005 all proved that pole position isn't everything on their way to the title. But that's not to say qualifying isn't important.

Although his performances in qualifying that year didn't exactly grab the headlines, as second-year driver Dario Franchitti scooped five poles, Zanardi still averaged a grid position of 6.84 over the 19 races, which was the fourth best in the field behind only Franchitti, Jimmy Vasser and the late Greg Moore.

As expert driver coach Rob Wilson points out (page 4), focusing on qualifying at the expense of everything else is a dangerous game to play, but there

are specific things that drivers can work on to improve their chances of a strong grid position.

Although his four grand prix pole positions only translated into one victory, at Monaco in 2004, Jarno Trulli is rightly held up as one of the quickest drivers of his generation over a single lap and is among the star-studded panel assembled for the cover feature (page 8) discussing their approach to qualifying, while DTM veteran Jamie Green – himself no slouch over a lap – also weighs in on the debate with his Driver's Eye column (page 7).

This issue also features an in-depth look at safety developments through the lens of the FIA's outgoing safety director Laurent Mekies (page 30), and 1978 world champion Mario Andretti's lengthy partnership with Bell Racing helmets (page 22). It's a part of our sport that normally exists in the background, but without it we would be far worse off.



James Newbold

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MASTERCLASS

WITH ROB WILSON

THE ESTEEMED DRIVER COACH EXPLAINS HOW FIXATION WITH QUALIFYING CAN BECOME A DISTRACTION



Stroll often struggled with qualifying in his rookie year

LAT IMAGES

DUNBAR/LAT

It's common to hear drivers say they are good on race pace, but qualifying is their main problem. Often it will be a driver relatively new to the sport saying it, but it can go right to the top – I recall David Coulthard asking how a qualifying lap can be so different to the fastest lap you'll drive in a race. He was making a good point, but often the focus is in the wrong place, because the process for getting the best out of qualifying is no different to being the best you can be in a more general sense.

There are of course differences between a qualifying lap and those done in race conditions when settled into a rhythm – the former is about turning on your ultimate pace in that precise moment while under huge pressure. But in the main, you should not think of qualifying as a separate skill. Become the best you can be and the proof will show more often than not in qualifying, so a driver's focus should be on how to do that. Piece things together as you would in any other session. You've got to take care of physics and join the dots for yourself.

The attitude of specialising in qualifying can be counterproductive. You should be careful not to kid yourself if you think qualifying is a specific area to improve relative to your race pace, because there are many moving parts

to a race. If you climb from your grid position, it might be down to bad luck for others. If you keep up with someone in a race who started on the front row, they might be pacing themselves.

That said, qualifying has grown in importance over time. Denny Hulme won eight grands prix and the 1967 world championship, but only ever took one pole position – at Kyalami in '73. 'The Bear' was known for only really working on his race set-up, and his championship season was based on achieving consistent finishes rather than winning from the front,

but things are different now.

In the old days, someone who could lap consistently over an entire race distance could benefit more. There was greater unreliability and the penalties were higher if you went too fast in a corner or took too many chances, because you'd be into a barrier or whatever was close to the track. Of course it's not such a factor these days because modern circuits have the equivalent of another track on the outside for you...

Saying 'I'm going to go for a race set-up'



LAT IMAGES

Hulme prioritised his race set-up, but times have changed



BELLANCA/LAT

LAT IMAGES

Confidence and feel are qualities that Senna (right) had in spades



COATES/LAT

LAT IMAGES

Webber hauled Jaguar onto the front row in Malaysia in 2004



Hamilton usurped Schuey's record pole tally last season

LAT IMAGES

DUNBAR/LAT

and decide that will do you for qualifying is all very well, but cars can't overtake as easily now, so you can qualify eighth and almost say that's defined your result. That's what made Lewis Hamilton's win in Singapore last year even more of a psychological blow for Ferrari, because he had only qualified fifth and was not expected to challenge in the race until Sebastian Vettel took out both red cars at the start.

With that in mind, there are specific things you can do to improve your chances in qualifying. Much of qualifying is not about having the best reflexes. Instead, it's about having a feel for the surface and manipulating the car in response to that. Anticipation through feel is key.

Confidence does make a difference too. Squeezing that last bit out of yourself is usually connected with taking a chance that you would not lap after lap in a race, and having the ability to get away with that. This could be not having quite such a big lift on a particular corner, and being confident that you've got the car control to deal with anything that goes wrong, or getting on the throttle a bit earlier, which could lead to a slightly higher minimum speed. Vettel is a master at this; you always know he's going to try that little bit more in qualifying and maybe do something he may not be able to get away with on every race lap.

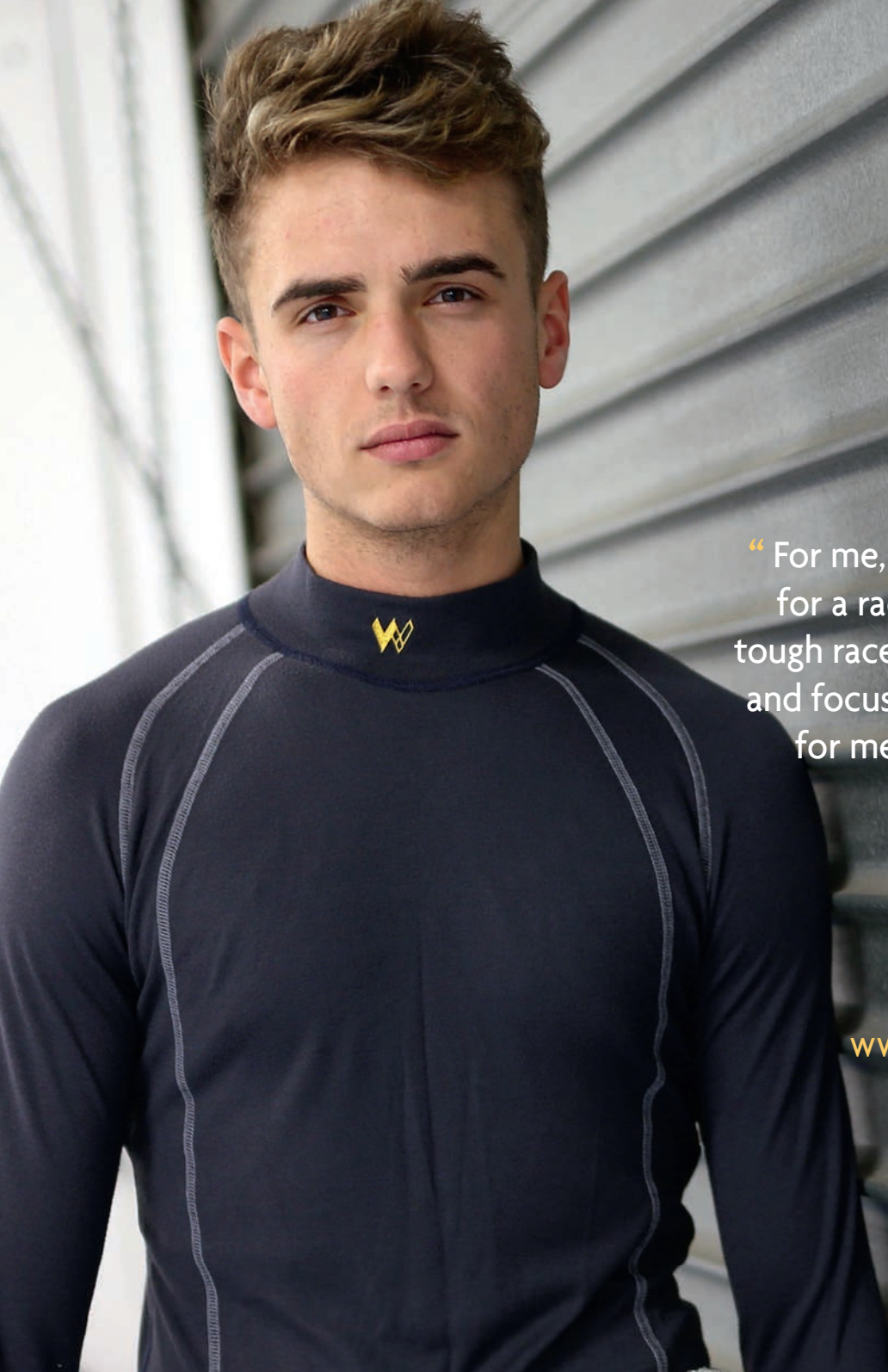
“The process for getting the best out of qualifying is no different to being the best you can be generally”

There are other modern drivers we think of as qualifying specialists, such as Jarno Trulli, or Mark Webber – particularly in his Jaguar days. But if someone is said to be a qualifying specialist, does that mean they're not a racing specialist? Was it the case they extracted a higher proportion of their car's potential on a qualifying lap and over a race they, or rather their car, would regress to the mean? You can say arguably that both over-delivered in qualifying and set themselves up for a fall, with people asking, 'Why can't you keep it up there?' But they would say, 'Try driving that car at that level lap after lap'. When a car and driver are on the absolute limit, they're using up every ounce of what's there, but if the car isn't a natural winner it can make it almost impossible to compete.

If you look at the best qualifiers through history, all of them were great drivers. Jim Clark

got an awful lot of pole positions (33), but he was a great racer as well. Then, as you go up the chart, you find Ayrton Senna (65), Michael Schumacher (68) and Hamilton (73), so as obvious as it sounds, being good in qualifying is absolutely connected to how well-rounded you are as a driver. If you just concentrate on all the techniques that are required to lap that circuit as fast as can possibly be done, then on average, when your car is working well, you will qualify well. And the better-equipped you are as a driver and the more in-tune you are with the car, the sooner you'll be able to get to that speed.

What I'm not doing is telling people, 'This is how to be physiologically prepared to do that one lap'. You must be on top of your game for all circumstances. That way, your opportunities for pole position will be enhanced. You don't need to be a different driver from Saturday afternoon to Sunday.



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INSIDE LINE

JAMIE GREEN

THE DTM ACE EXPLAINS HOW DRIVERS CAN GAIN A PSYCHOLOGICAL EDGE ON THEIR RIVALS IN QUALIFYING



CAREER highlights

- 2016-17** Twice 3rd in DTM (Team Rosberg Audi), 4 wins, 10 podiums; Blancpain GT Series with WRT Audi
- 2015** 2nd in DTM, 4 wins, 5 podiums
- 2013-14** DTM, 3 podiums
- 2012** 3rd in DTM (HWA Mercedes), 1 win, 3 podiums
- 2011** 5th in DTM, 1 win, 2 podiums
- 2010** 6th in DTM (Persson Mercedes), 1 win, 3 podiums
- 2009** 7th in DTM, 1 win
- 2007-08** Twice 4th in DTM (HWA), 4 wins, 6 podiums
- 2006** 5th in DTM, 3 podiums
- 2005** 6th in DTM (Persson), 2 podiums
- 2004** Champion in F3 Euro Series (ASM), 7 wins, 14 podiums
- 2003** 2nd in British F3 (Carlin), 4 wins, 12 podiums
- 2002** 2nd in Formula Renault UK (Fortec), 2 wins, 7 podiums



One of the biggest challenges of being a DTM driver is to consistently deliver a good lap in qualifying. The margins are closer than any other

series and since 2015 we've had 18 races per year, so it is key to giving yourself a chance of winning the championship.

Qualifying can be one of the most rewarding parts of the weekend if you nail the lap when everything is spot-on. It's the one opportunity when everybody has the same chance, so as long as you don't get traffic, it's a good comparison of raw pace. There are no excuses, either you deliver or you don't. Everyone is focused on the numbers and sometimes you can really damage the opposition by delivering a lap that they think isn't possible. They will see a time and think, 'How the hell did you do that?'

If you're outside the top 10 on the grid, you might take an element of risk on strategy for the race to try to get back to the front. We've had parc ferme since 2013, which starts in qualifying so you can't change the rollbars, springs or rideheights, only tyre pressures and

end, Rene Rast beat me by six points, so two pole positions compared to two fourth places would have made the difference. It is relevant now, but you still wouldn't set your car up any differently because you know that there's 25 points available in the race and only three in qualifying.

I had six poles before I got my first win in 2007. Now I've had 16 race wins and 13 poles, so overall you could say I'm more of a race winner than a pole man, but I'd rather it be that way around. If you wanted to set up your car for it, you could probably be the guy who is on pole more. But since we can't change the car between the qualifying and the race, that approach would reduce your chance of winning races because you've then got to run the same set-up. I remember at the Norisring in '09 I won from seventh on the grid, so I always think if I'm in the top seven I can still win.

In sportscars, it's a different challenge again. I did the qualifying at the Spa 24 Hour race last year and probably felt a little bit more nervous there than I would do for a DTM qualifying because if you have a bad qualifying, you've made it bad for your two team-mates as well who are in the same

“You can really damage the opposition by delivering a lap that they think isn't possible”

rear-wing angle. You're going into qualifying with the race set-up, or into the race with the qualifying set-up – that's the compromise.

Set-up did become a factor in the final round at Hockenheim when

I had a grid penalty, but

the points would still stand, so

we discussed whether to save our tyres for the race knowing

we had a penalty, or

use them and go for the

three points [for pole] but

start 11th.

In the

car. It's helpful if you've got a good relationship with the other drivers. The other factor is driving style, if you can both drive with a similar set-up and say 'that's neutral', or understeering or whatever. If one says it's understeering and the other says it's oversteering with the same set-up, then for the engineer it's difficult to know who to listen to.

The way I get the best performance from myself is to block everything else out. I'm not a very social person on a race weekend; I can't sit in the pitlane chatting to people five minutes before qualifying and then jump in and put it on pole. What I love about motor racing is trying to do my talking on the track, and there are a couple of times that have stood out in my mind. At Lausitzring in 2015 I was on pole and the margin between me and the second-placed driver was half a second. I remember Timo Scheider said to me once after qualifying at Zandvoort, 'Here he is, the man from the moon!' He couldn't comprehend it, and that to me is the most satisfying thing you can achieve.



HOW TO BECOME A

QUALIFYING MASTER



EXTRACTING THE BEST FROM A CAR IN QUALIFYING IS A KEY SKILL FOR ASPIRING PROFESSIONALS TO LEARN. JAMES NEWBOLD DELVES INTO THE GUIDING PRINCIPLES YOU NEED TO KNOW TO ACE A SINGLE FLYING LAP

The ‘Trulli train’ is a phrase that Jarno Trulli knows well. It was popular in the early noughties, used to describe the queue of frustrated drivers who would habitually form behind the Italian in the early laps of a grand prix after he had qualified midfield machinery higher than it had any right to stay in race trim. Yet the passing of time means such things take a lesser significance and Trulli, who scored four pole positions in 256 appearances in Formula 1, has come to adopt the expression as a badge of honour for his exploits in lesser cars.

“I’m truthfully not upset about what [his rivals] were saying, I’m sorry for them!” he chuckles. “The ‘Trulli train’ was happening just because the others were not good enough with better

cars than mine to qualify in front of me.

“I was not doing anything special. I was doing what the car was capable of while lots of drivers were not capable. It’s as simple as that.”

It’s an often-repeated trope that great drivers can transcend their machinery, but in reality, they can only optimise what they are given. That’s what qualifying is all about; how close a driver can get to accessing the full potential of their car, within the limitations of grip available, over a single lap.

“The main thing is to get the car at the best level possible and to push it to the limit, not over and not lower,” agrees Trulli, who twice put a Jordan on the front row in 2000. “The ones who were best in playing around the limit were the best in qualifying.”

A nuanced skill

Qualifying is a skill in its own right and a vital one at that. Aside from the obvious fact that a poor grid position will compromise race strategy, teams need a barometer of how well their car is performing and, unless a driver is capable of consistently extracting its full potential on Saturday afternoons, engineers will be in the dark.

Needless to say, there’s more to a standout lap than turning your brain off and trying to take Eau Rouge flat. While a committed approach can pay dividends at Monaco or Macau, BAR team-mates Jacques Villeneuve and Ricardo Zonta found out at Spa in 1999 that overdriving is one major impediment to a fast time – and can end in tears. Rather, a thinking driver will look to gain time



MAGIC MOMENTS

DRIVING IN A TRANCE

Ayrton Senna
Monaco Grand Prix 1988

The best F1 qualifying lap of all time? It's an old debate, but the bare facts do much of the talking. Although the 2.6-second gap to Gerhard Berger's third-placed Ferrari can be put down to the unparalleled dominance of the Steve Nichols/Gordon Murray-designed McLaren MP4/4, which took all but one pole position that year, it seems unthinkable that Ayrton Senna could annihilate his team-mate Alain Prost – himself no slouch – by 1.4s. "I was driving by instinct," Senna said later. "I was in a different dimension."



by fine-tuning set-up with their engineers, anticipating changes in the track conditions before everybody else – as Nico Hulkenberg did to secure pole for the 2010 Brazilian GP in a Williams – and judging when they can get away with taking risks. But developing that skillset is not the work of a moment.

Always one of the most spectacular drivers to watch from trackside, Callum Ilott scored more pole positions than anybody in European Formula 3 last year, but learned the hard way how to find the limit after an incident-filled first visit to Macau in 2015 confirmed his exit from Red Bull's junior programme. Now part of the Ferrari Driver Academy scheme, Ilott is a much-more-rounded individual than the 16-year-old karting graduate dropped straight into F3 by Helmut Marko, and the on-edge style that first marked him out as a prospect has been matched with a maturity that is reaping rewards.

"I probably learned more at Macau in 2015

than I had in the rest of that season!" he says. "When I first moved to cars I was late on the brakes and trying to get on the throttle as soon as I could, but over time I've changed that approach and now, rather than attacking one part of the corner, I look at the three elements in a more joined-up way and the effect each section has on the other. ▶



Hulkenberg took opportunistic pole in Brazil in 2010

LAT IMAGES

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MAGIC MOMENTS



A PLACE IN HISTORY

Stefan Bellof

Nurburgring 1000km 1983

Keke Rosberg's [unprintable] reaction told the story. The reigning F1 world champion headlined an all-star cast that had assembled for the final World Endurance Championship race on the old Nordschleife, but in Richard Lloyd's privateer Porsche 956 Rosberg was 28 seconds slower than Stefan Bellof's record-breaking run. At 6m11s, a full five seconds up on Jochen Mass in the second factory Porsche, Bellof's place in history is unlikely ever to be taken. "Nobody could understand it, he was just way, way quicker," remembers Lloyd's right-hand man Peter Stevens. "It was remarkable."

"Macau is a good reference for how my style is evolving. In 2015, I was attacking and that meant I was fast, but it brought risks and crashes. In my second year there, I didn't attack the entry to the same level, but I was more aggressive all the way through the corner and kept out of the walls all weekend. Last year I refined my approach further and went on to win on Saturday [in the qualifying race]. That was the culmination of listening and understanding that I had to build up gradually and just push when it matters."

As Ilott proves, the art of qualifying takes time to master and the first step to getting it right comes from looking inwards.

Get your head sorted

When a driver oversteps the mark in qualifying, it can often be tracked back to the immense pressure on their shoulders to perform. That's understandable, since it is the part of the weekend when they know they will be judged against their team-mates, and those all-important head-to-head stats at season's end don't lie.

To some extent that pressure will always be there but, while some drivers thrive on it, the nerves and adrenalin can equally become a distraction. Even the very best can be affected – how else to explain Michael Schumacher's antics in Monaco in 2006, when he clumsily parked on the exit of La Rascasse to bring out the yellow flags and deny title rival Fernando Alonso a chance of pole on his final run? While there is no right or wrong way to do it, keeping the emotions in check is crucial to achieving peak performance.



Schumacher's Monaco faux pas in 2006 drew scorn

LAT IMAGES

ETHERINGTON/LAT

"Qualifying is always the ultimate in terms of the acid test, it's a pressured environment and it's pressure that 99% of the time is self-inflicted," says former F1, CART and sportscar ace Mark Blundell, who took pole by six seconds in the 1000bhp Group C Nissan at Le Mans in 1990.

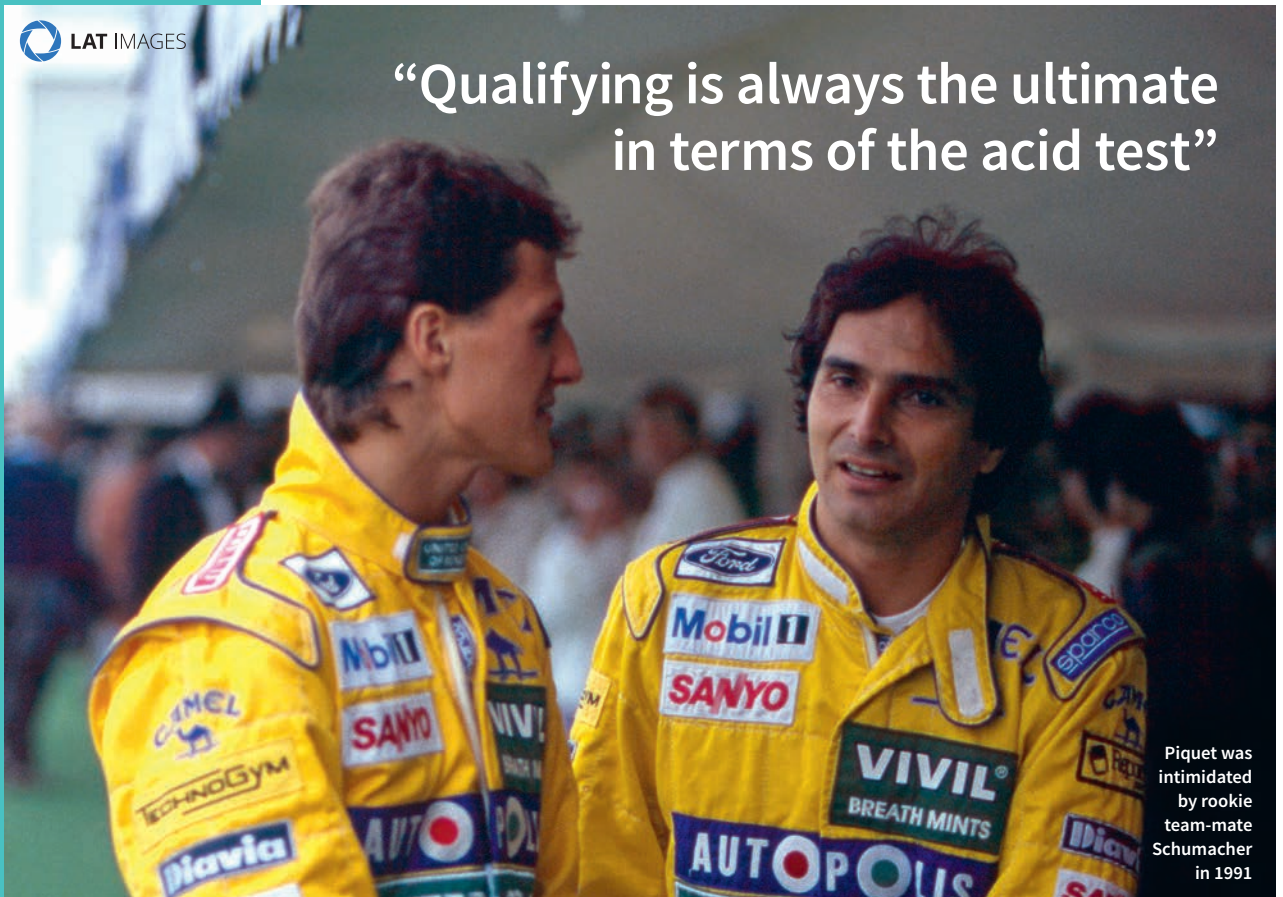
"A lot of drivers get quite tense behind the wheel and you see guys gripping a steering wheel with such intensity, it's never going to be a flowing driver inside the cockpit. It needs to be done with finesse.

"Overdriving is probably the most costly thing you can do on a set of new tyres. Although there is a physical element of having a certain amount of strength, if you're too aggressive at the wheel and overdemanding with it then you're just upsetting the car, which can cost you a tenth every time you go from entry to exit."

Nelson Piquet was so irked by being

LAT IMAGES

"Qualifying is always the ultimate in terms of the acid test"



Piquet was intimidated by rookie team-mate Schumacher in 1991



Ghinzani quit after disastrous 1989 mired in pre-qualifying



MAGIC MOMENTS

MIRACLES IN A 'TRUCK'

Gilles Villeneuve
Monaco Grand Prix 1981

Didier Pironi had been the man to beat in the principality in 1980, but on his return the following year in the cumbersome Ferrari 126C he crashed three times and could only manage a lowly 17th. On the other side of the garage, Gilles Villeneuve was having none of it. On a circuit desperately unsuited to a turbo car with poor downforce, Villeneuve wrestled the "big red Cadillac" to an improbable second on the grid, over a second quicker than the next best turbo car – Alain Prost's Renault – and just 0.078s short of poleman Nelson Piquet's vastly superior Brabham. The gulf to Pironi stood at a remarkable 2.478s.



Find the perfect set-up

Sebastian Vettel took a record 15 pole positions on his way to a second world title in 2011, while 1992 champion Nigel Mansell qualified on top spot for a staggering 88% of races (14/16) that year. Though it helped that each had an Adrian Newey-designed car (respectively the Red Bull RB7 and Williams FW14B) that was the class of the field in their respective seasons, they still had to get the best from it and keep capable teammates Mark Webber and Riccardo Patrese at bay.

The ability to drive around problems is an admirable trait, but won't result in optimal lap times. Find a set-up that works for you and everything that follows becomes much easier.

Small set-up tweaks made for a compelling shift in the intra-Mercedes dynamic last year, as Lewis Hamilton returned after the August break to overshadow team-mate Valtteri Bottas in the title run-in. Having devoted significant time over the summer to better understand the weaknesses of the W08, Hamilton turned what had been an evenly-matched qualifying battle (6-5 in Hamilton's favour after Hungary) into a 13-7 margin, reaffirming his position as the team number one.

Yet Hamilton's introspective approach doesn't work for every driver, and it was a back-to-basics approach that helped Scott McLaughlin emerge as Australian Supercars' qualifying king last year. The Kiwi may have missed out on the title, but managed 16 poles from 26 races (61%), including the fastest time ever recorded by a Supercar around Bathurst, evoking the 'Lap of the Gods' that put Greg Murphy on pole by over a second in 2003.

McLaughlin credits his prowess to race engineer Ludo Lacroix, whose insistence on a clear delineation of roles allowed him to focus solely on extracting the best possible lap time.

"There was a point in the season where I just clicked with it and I had that confidence before the session that we would be OK," the Penske-DJR man says. "It's a culmination of ▶

outqualified 4-0 by new Benetton team-mate Schumacher in 1991 that he eschewed all race set-up for his final grand prix in Adelaide in favour of maximising one-lap pace. He succeeded in beating Schumacher by a little over two tenths, albeit only after the rookie had lost the same amount of time having missed a gear...

It's important to keep qualifying in perspective because, unless a driver falls outside 107% of the pole time – a rule that has not been exercised since Australia 2012 – they will still get a chance at redemption in the race.

It was a different story in late-1980s F1, when as many as 39 cars would do battle for 26 places on the grid. Before qualifying proper, minnows such as AGS, Coloni, EuroBrun, Onyx, Rial and Zakspeed had to face the ordeal of an hour-long pre-qualifying session on a Friday morning, with the prospect of packing up there and then if they weren't in the top four. There really was nowhere to hide.

"We had so much that rested on getting the maximum out of qualifying," remembers Blundell, who failed to pre-qualify at Suzuka in 1991 in the recalcitrant Brabham. "It carried a huge amount of weight. In some teams, it defined drivers and where they went next career-wise."

Veteran Piercarlo Ghinzani called it a day after a trying 1989 campaign in which he failed to pre-qualify 13 times out of 16 with Osella.

"You had to wake up at 5am to get to the circuit for pre-qualifying at 7am," he says. "We only had one set of race tyres and one set of qualifying tyres for one lap because they were really soft. There were six or seven cars always on the circuit so all the time it was a battle."

"It was a really bad situation when I didn't get beyond pre-qualifying because the sponsor would not pay if the car was not on the circuit. It was a big responsibility for the driver because otherwise they couldn't pay the mechanics or the expenses of the team."

Compared to 30 years ago, the current crop has it good.

a lot of things, but it definitely comes down to me focusing on my driving instead of worrying about the car.

“At the start of the year, I was being a bit too technical with the car and not worrying enough about my driving, so he basically said to me, ‘You focus on the driving part, I’ll focus on the car, you just tell me what the car is doing and we’ll work on it.’ All he wanted was a five-minute chat after the practice session when it was fresh; I focus on the driving, tell Ludo exactly what I need, and he gives it to me.”

React to conditions

Once the set-up is in place, the next challenge is finding the limit of grip. Since qualifying doesn’t happen within a set of fixed parameters that can be predicted and simulated, a driver has to think on their feet and be able to quickly read changeable conditions.

This is especially true in IndyCar, with its diverse range of short ovals, superspeedways, road courses and street circuits. The differing properties of each has significant implications for how the track will evolve, when the tyres will peak and how long that peak will last, so being

responsive to these multiple factors is crucial for earning a spot in the Fast Six.

“It really comes down to understanding the conditions, because every time you go out they are a little bit different,” says Will Power, who is only three behind Helio Castroneves in the all-time pole stakes, having scored at least two every year since 2009. “We go to street courses where you can do your quickest time on your third or fourth lap, whereas a lot of these road courses you have one lap to get the lap out of the tyres, and on ovals it’s a two-lap average, so they’re all different.

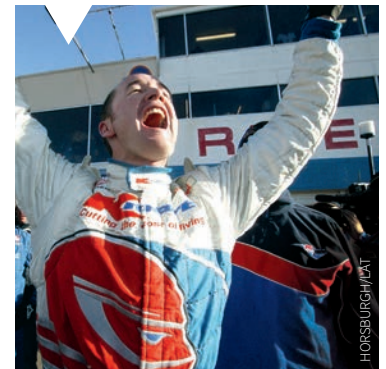
“That’s part of getting qualifying right, understanding when the tyre peaks and when you need to put everything together. On street courses, it always evolves quite a bit over the weekend and it’s just about getting all of those fine details right because you can’t leave anything on the table.”

Yet complex as IndyCar is, the task appears light by comparison to Formula E. With drivers given just six minutes to set a time on full power (200kW) – having had around 20 flat-out laps to get acquainted with the track and refine set-up before qualifying – the number of variables at

THE ‘LAP OF THE GODS’

Greg Murphy
Bathurst 1000 2003

Scott McLaughlin’s pole time last year broke new boundaries for Supercars around the Mountain, but Greg Murphy’s ‘Lap of the Gods’ prior to the track resurfacing remains the gold standard. Incumbent poleman John Bowe could only shake his head in disbelief as the K-Mart Commodore used every inch of the road, taking the top spot by just over a second as the first man ever to lap under 2m07s (despite missing a gear). Such was the impression it made that Murphy was given a guard of honour from rival teams when he returned to the pits – that’s something you don’t see often in the partisan Supercars paddock.



“It comes down to understanding the conditions. Every time you go out they are a little bit different”



play as drivers grapple with the bumpy road surface, while simultaneously adjusting the brake balance and managing the battery temperature, within the confines of unforgiving concrete walls makes adaptability a prized asset.

Karun Chandhok's only FE experience came with a spec-chassis Mahindra in season one, but he recalls it as being even tougher than trying to hustle the underdeveloped F1 HRT around Monaco with no spares in 2010.

"You have to do so much prep to get it right and the moment you start the lap, when you get to Turn 1 and hit the brakes, you have no idea if the car is going to lock up or if it's going to stop," he says. "That's the worst thing for a driver in qualifying – the not knowing. You've got to guesstimate your braking point, the speed you can carry through the corner, how much you can lean on the tyre, and you've also got to guesstimate the set-up as well.

"The Formula E car was so unpredictable. I drove in season one, but three seasons later you still see people having the big lock-ups."

Trulli also raced in the inaugural season of FE and scored a surprise pole in Berlin when his race engineer and several mechanics were absent due to illness. He agrees that the ability to judge track conditions was a huge help over the course of his F1 career, having spent a lot of time closely observing the behaviour of other cars – "the way they were braking, the way they were approaching the corner" – and practised using the warm-up lap to gauge how the track had changed.

"Actually I think I was the best in



Chandhok found FE qualifying the toughest of his career

understanding the limit already during the warm-up lap," he says. "We used to run at 11 o'clock [for third practice], then you would get back on track [for qualifying] three hours later, and the temperatures have changed, the rubber on track has changed, everything changed and you need to understand the track condition as quick as possible.

"Looking at the time, you are getting an idea of how good the condition is and whether you could push to the limit a little bit more, or drive slightly safer from the beginning. Then the warm-up lap helps you to investigate how the car feels, what the tyre condition is and the grip you get corner by corner." ▶

MAGIC MOMENTS



McLaughlin set a record pace at Bathurst with support from Lacroix



HANGING ON IN A 1000BHP MISSILE

Mark Blundell

Le Mans 24 Hours 1990

For good reason, Mark Blundell describes his day of days in 1990 as "the most reactive qualifying lap I've ever done". Repeated overboosting problems meant the Nissan R90CK had barely turned a wheel in anger prior to qualifying, when Blundell gave it the beans for the first time – ignoring a team request to return to the pits when another error message appeared on the telemetry. "When I crossed the start-finish line, the car was still spinning its rear wheels in fourth gear," he says. Blundell took pole – the first achieved by a Japanese manufacturer at Le Mans – by six seconds, but did not escape a dressing down from the team!

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- 7. May 2018 Monday
- 8. May 2018 Tuesday
- 5. June 2018 Tuesday
- 26. June 2018 Tuesday
- 9. July 2018 Monday
- 6. August 2018 Monday
- 4. September 2018 Tuesday
- 18. September 2018 Tuesday
- 20. October 2018 Saturday
- 3. November 2018 Saturday

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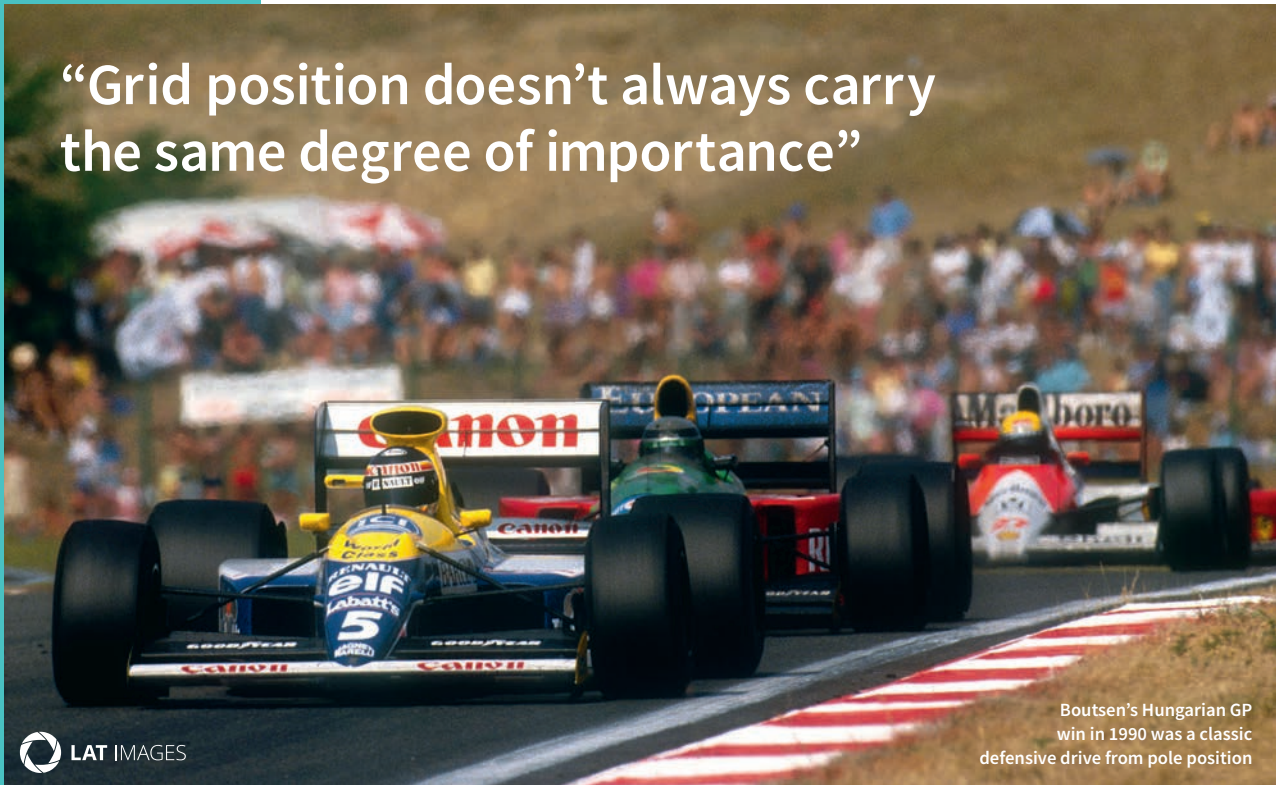
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“Grid position doesn’t always carry the same degree of importance”



LAT IMAGES

Boutsen’s Hungarian GP win in 1990 was a classic defensive drive from pole position

MAGIC MOMENTS



BUMP DAY DRAMA

Marco Andretti
Indy 500 2011

With Mike Conway already bumped from the field, Andretti Autosport team owner Michael Andretti faced the terrible dilemma of which of his two team-mates would join him. Ryan Hunter-Reay was on the bubble and Marco Andretti on the outside looking in. But with a brave final effort as the rain began to fall, Michael’s boy put it in the field and forced Hunter-Reay to find temporary solace in Bruno Junqueira’s already-qualified Foyt car. “That sticks out as one of the top three most stressful days of my career,” says Marco. “My dad had to buy Hunter-Reay into the race; can you imagine how bad the PR would have been if he’d had to buy me into the race?”

Managing risk

While qualifying is a crucial tool in a driver’s armoury, it comes with the caveat that grid position doesn’t always carry the same degree of importance, so weighing up risk versus reward is equally valuable.

Chasing pole position is incentivised with three points in FE and DTM, while the limited overtaking opportunities afforded at circuits such as the Hungaroring – where Thierry Boutsen led every lap from his one and only F1 pole without making a pitstop in 1990 – also puts a premium on a good starting slot.

But in oval racing, qualifying order has little bearing on the end result; Castroneves is the most recent Indianapolis 500 winner from pole in 2009, while Dale Jarrett in ’00 was the last to do so at the Daytona 500, where only the front row is decided by qualifying and the rest of the grid is set by the Duel races.

Although the expected return of bumping at Indy for the first time since 2011 will put pressure on the one-off entries, for those contesting the

full season there is far more to lose than gain – as Sebastien Bourdais discovered last year with a violent accident in the Top 9 shootout that forced him to miss most of the season.

“With oval qualifying there’s a lot more risk involved when you make a mistake because it’s never a small hit, so you’ve got to weigh that up,” says Power. “If you have a shot at pole maybe take more of a risk, if not then get it wherever you’re capable of without causing yourself an issue, because it’s all about racing on ovals. Qualifying rarely means much.”

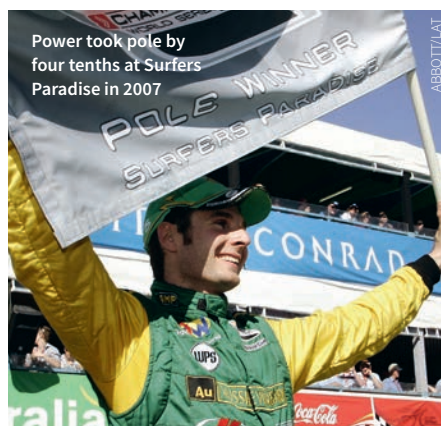
After swapping F1 for CART, Blundell knew the value of a consistent car in race trim would far outweigh a good starting position for the 500-mile superspeedway events, and it paid dividends when he won the Fontana season finale in 1997 from eighth on the grid.

“Guys who were going for the ultimate lap would get 100 miles into the race and they were nowhere,” he says. “I knew if I started in P8 or P9 that within 30 laps I would be in the hunt because we would have a workable car for 500 miles.”

If the time isn’t in the car, don’t force it. Bring it back to the garage and make set-up changes for the race, where the big points are won.

Ask 100 racing drivers if they would rather be a qualifying king or win a championship and you’ll get one universal reply. As if to demonstrate that success in qualifying doesn’t always translate into success, 1992 Indy 500 polesitter Roberto Guerrero inexplicably crashed on the warm-up lap, while Teo Fabi took three pole positions in F1 without ever leading a lap.

But master the skill and a driver will not only better their chances of a good result, but with a little piece of single-lap magic can carve their name into motorsport folklore. Now that’s something to aspire for... ■



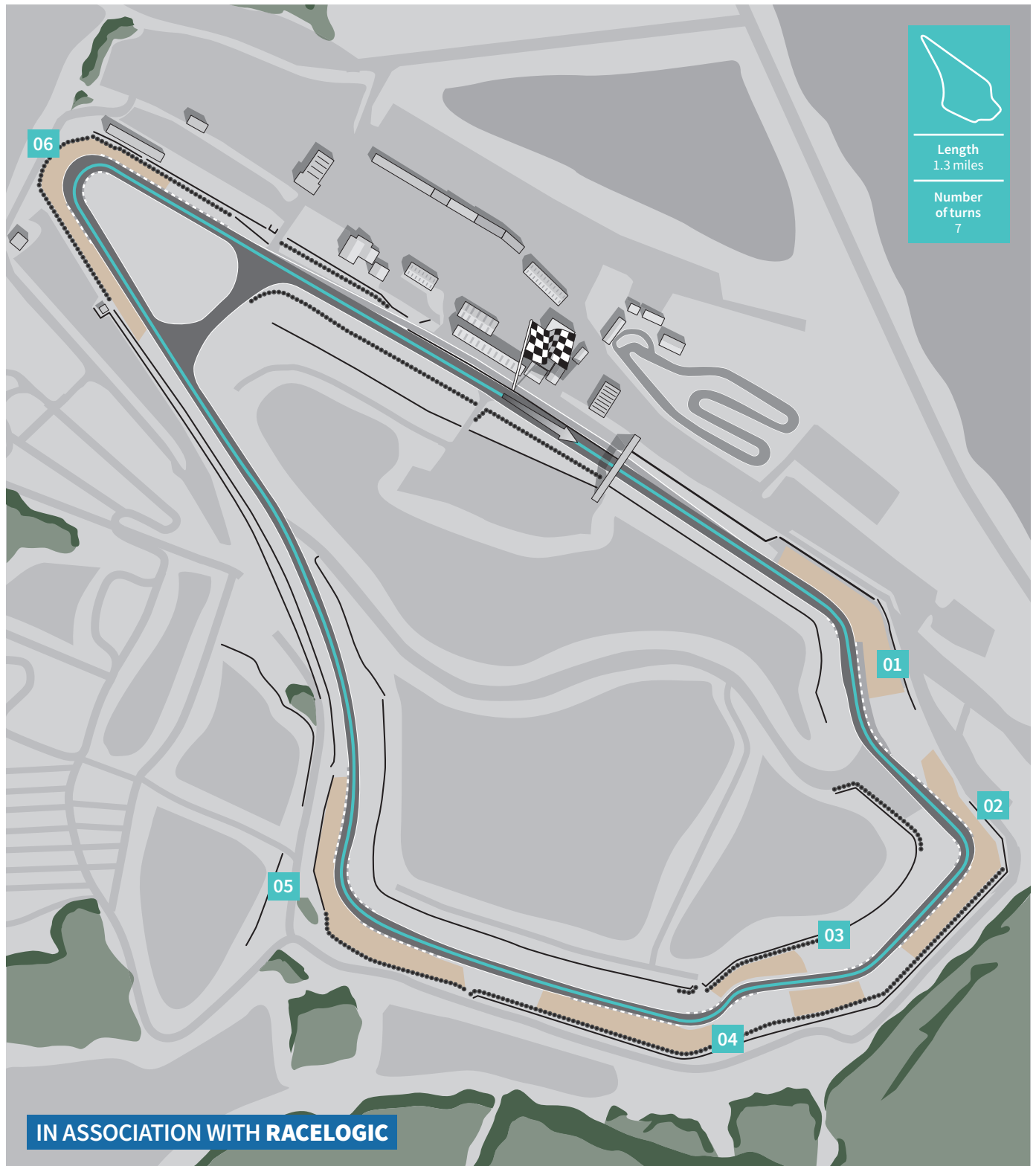
Power took pole by four tenths at Surfers Paradise in 2007

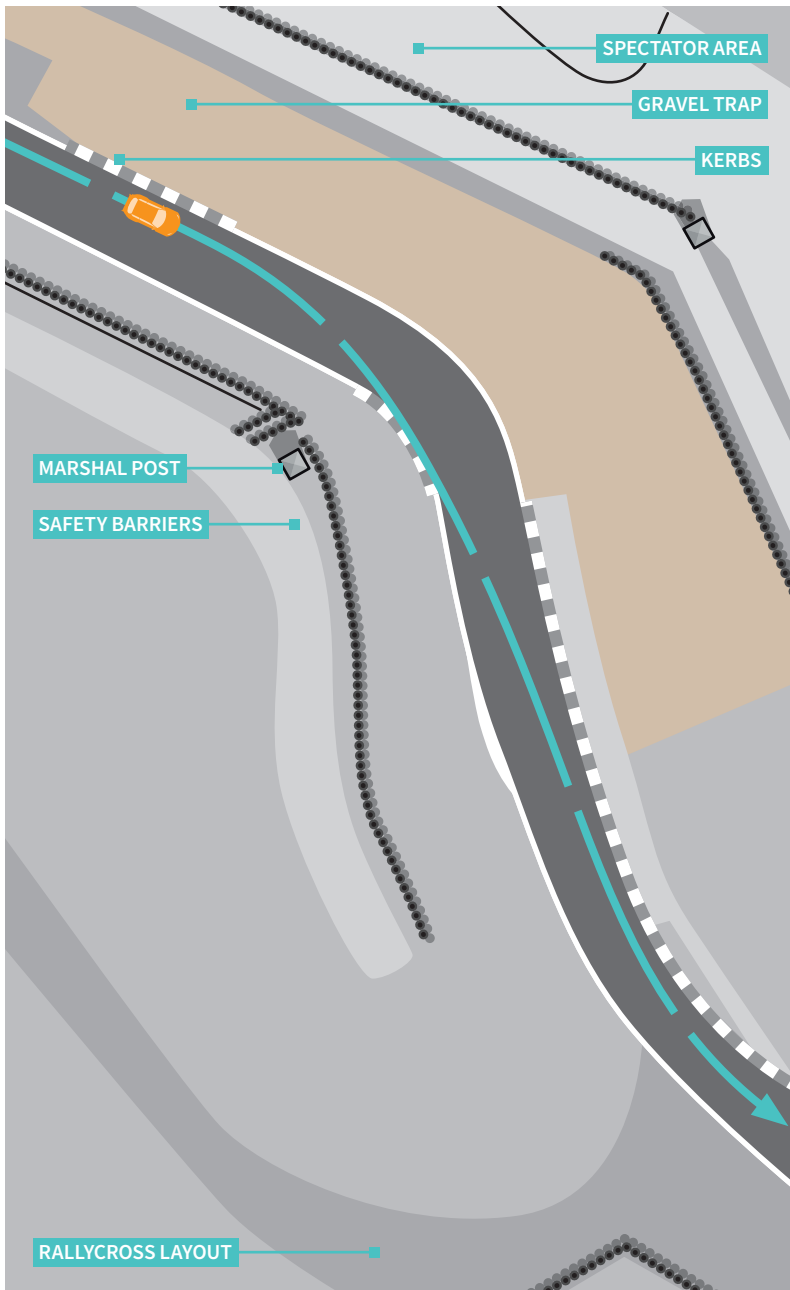


KNOCKHILL

RORY BUTCHER

THE LOCAL TOURING CAR ACE SHARES HIS TOP TIPS FOR SUCCESS AT THE UNDULATING SCOTTISH TRACK



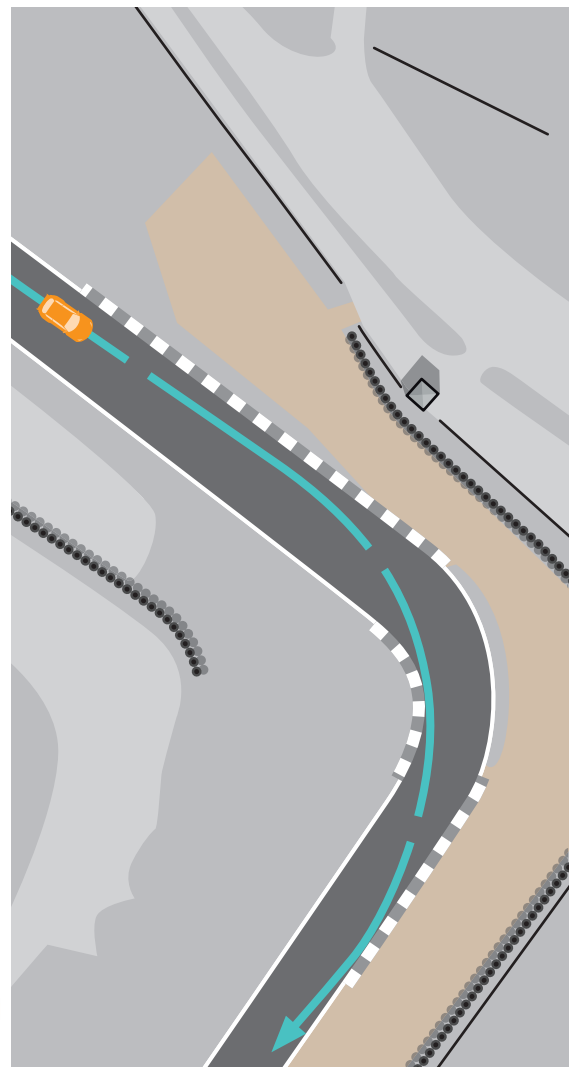


02 McINTYRE'S Turn 3

Carry speed down through the left-hander at Leslie's and then you've got a choice of dropping it either one or two gears for McIntyre's. It's somewhere that you can easily be caught off-guard so, if you brake early, the person behind you can make a last-second dive for the inside and make a block pass.

If you make a pass into there, you're really reliant on the person in front to know that you're coming and give you room. When I made my British Touring Car Championship debut, Mat Jackson made a fantastic move on me there. I saw him in my mirror make that move across to the right and I gave him space, but you can quite easily find yourself heading for the apex and the car in front turns in on you.

Run wide there and you're straight into the gravel. It's quite easy to rejoin, but at that point you will have lost a few places.



01 DUFFUS DIP & LESLIE'S Turns 1-2

The actual straight is on a slight curve; it's also blind because it comes over the top of the crest. Align yourself as you come out of the hairpin with the apostrophe between 'N' and 'S' on the Beatson's Building Supplies bridge and that will help you find your line.

It's natural for people to come dead centre up the middle of the straight because they can't see what's on the other side and, as they approach the corner, move across the white line on the pit exit. You'll see a lot of drivers doing that to open up the entry, but it can be a bit bumpy over there, so I would tend to just stick with the normal line.

It's a quick corner, which is usually taken in fourth gear. Any overtake has to be set up from the hairpin, so you'll likely have done a cutback and got a better drive out of the hairpin than your competitor. Unless you have your nose alongside their rear wheel, there is no chance of making the move stick because the braking zone is so small.

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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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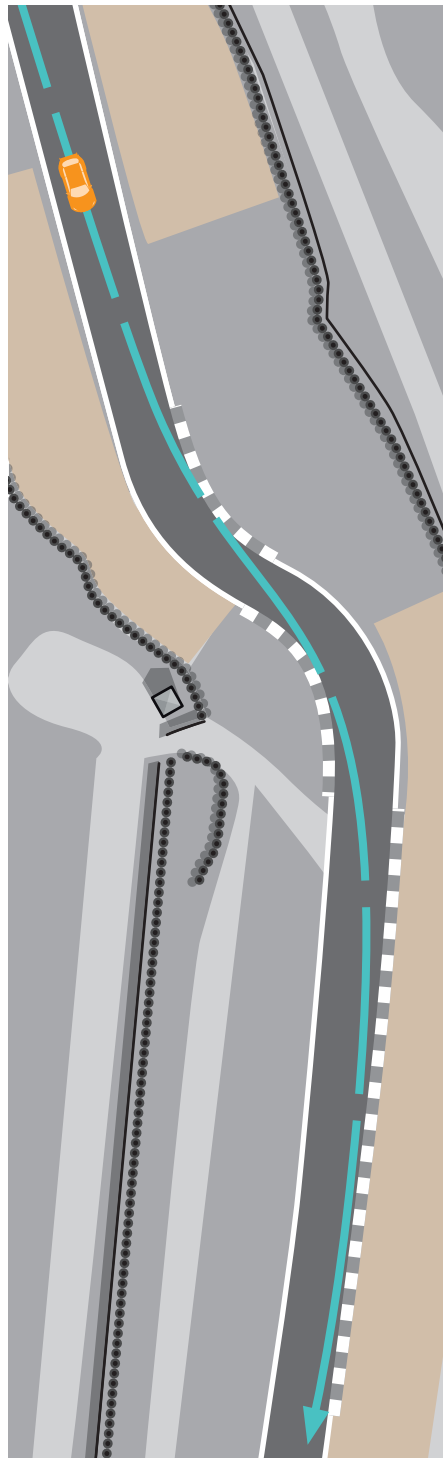
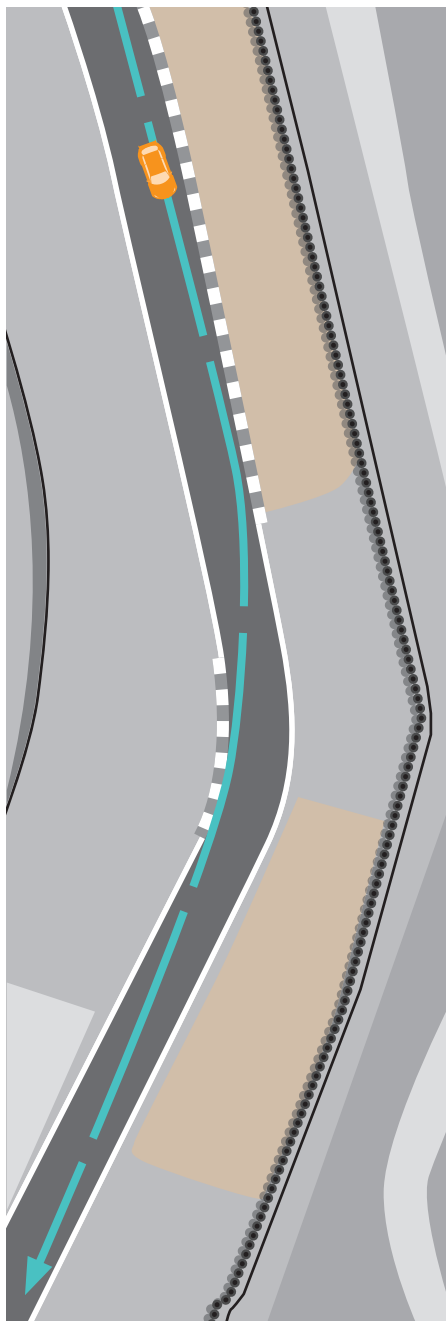


**03 BUTCHER'S
Turn 4**

My dad has owned the circuit since 1983 and decided to name that particular corner after himself. Maybe to a lot of people it's not much of a corner, but it's still pretty crucial and it's very important in a Carrera Cup car, where it's not entirely flat. A slight feather on the entry to the turn can position you much better for the chicane.

From the point you turn in, the road starts to fall away and you basically drop down into a compression, so the car can feel quite unsettled through there.

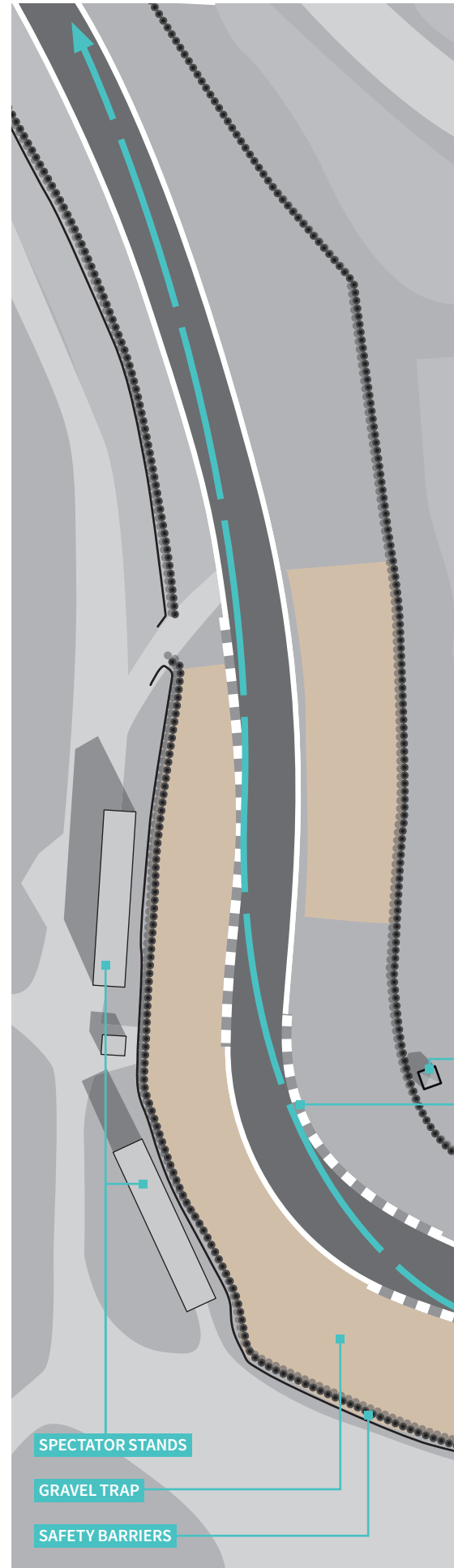
I do a lot of coaching with local drivers at Knockhill and the exit of Butcher's heading up towards the Chicane is the easiest place to find time. What I tend to find when I look into the data is a lot of people struggle for confidence through Butcher's and they don't accelerate hard enough up the hill, so you can typically find a tenth and a half just like that.



**04 THE CHICANE
Turn 5**

I would say that it's a corner I've still not conquered. When I did Carrera Cup, I had that corner absolutely nailed and I was able to consistently pick my line through there on the limit, but I've only raced there with the sausage kerbs once or twice in the past five years and it's such an easy one to get wrong.

Since we've just had the circuit resurfaced in November, the kerbs have all been reprofiled. The sausage kerbs are still there, but they're less severe, which will make them more forgiving, so you can get away with a lot more. If you have an off, it's going to be recoverable.



KEY CORNER



05 CLARK'S Turn 6

It's where I got up on two wheels in the touring car last year and didn't know if I was going to come back down again – I admit it gave me that sickening feeling in my stomach!

The camber is working with you a bit there. Your head might tell you to go in quite deep and cut back for an apex, but my advice would be to try to take a slightly earlier turn-in, using a little bit of the kerb on the inside. There seems to be a little bit more grip in there and the camber works with you better.

Sometimes you are better to give way because there is a good chance you can probably get the cutback out of Clark's on the way back down to the hairpin. That happened with my brother-in-law Gordon Shedden – he made the move up the inside and caught me off-guard, but because he had to go in so hot, I managed to just nip behind his rear bumper and get alongside him and then I got the position back at the hairpin. Whatever you do, there is a way of coming back somehow.

MARSHAL POST

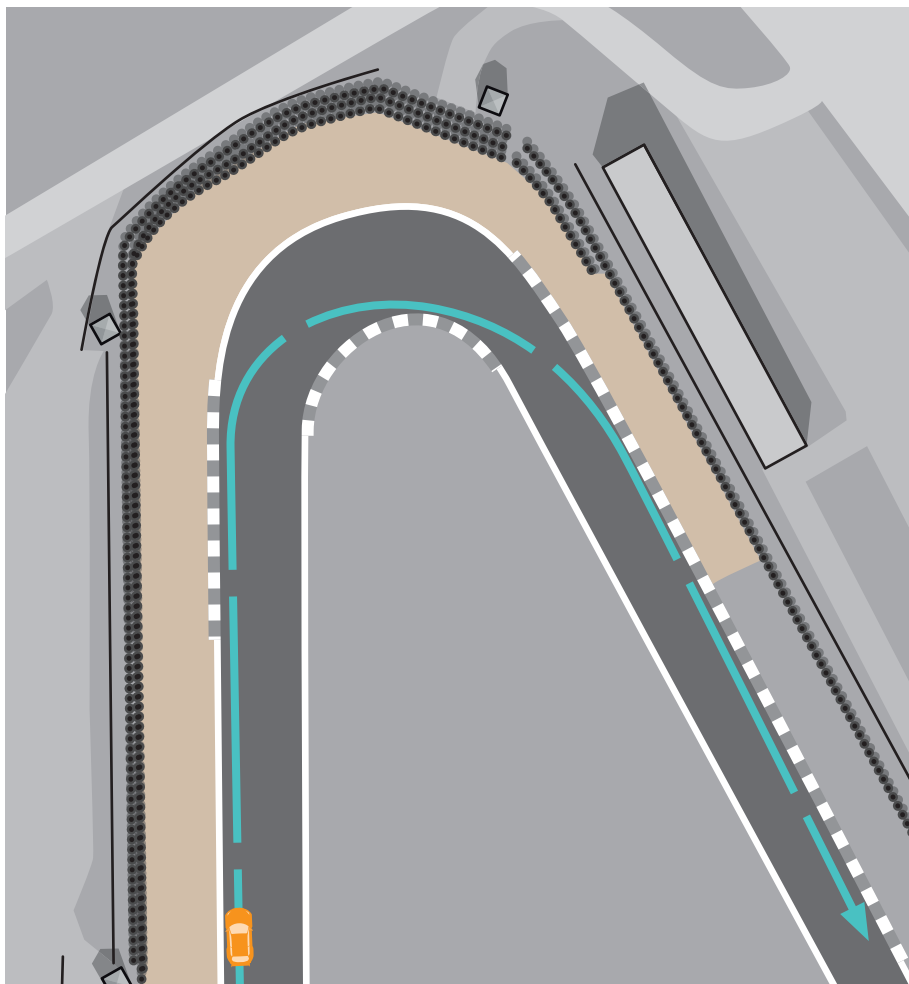
KERBS

06 TAYLOR'S HAIRPIN Turn 7

You've got a lot of time to psyche yourself out before you hit the brakes here. From my days in Carrera Cup it was easy to overshoot the corner; you had to be really heavy on the anchors and get down the gears to help slow the car, all the while staying focused on getting to the apex.

The pass doesn't have to happen straight

away, so if you brake a bit later you can almost just angle the car towards the apex. You arrive in alongside the other car as they're turning in and leave them with no choice but to go on your outside. The other move is to put them under pressure and make them defend, so there's definitely an opportunity to get a cutback.



REVERSE DIRECTION

There are only a handful of tracks in the world that have the licence to go in both directions and Knockhill is the only one in the UK that does, so it's definitely unique in that respect.

The two layouts are so different, but the two key areas on the reverse direction are Clark's corner, because you're now braking and trying to settle the car on the right-hand kink, and then coming out of McIntyre's up through Duffus Rise. You can really build momentum there and carry a lot of speed onto the main straight if you get the line right, which takes some doing because it's blind.

My favourite part is coming through the



Chicane, because it's blind and the road completely falls away on the exit. You could compare it to the Corkscrew at Laguna Seca, because the car goes light, and as you head down the hill you've got to then have the car lined up for Butcher's. From the Chicane all the way up over Duffus Rise it's so flowing and fast – it's a totally different challenge and a lot of fun.

PARTNERS' NOTICEBOARD

WALERO Fiona James in European GT4 graduation

Fiona James, founder of the Walero base layers brand, will make her debut in the GT4 European Series at Zolder this weekend in an Academy Motorsport Aston Martin Vantage.

Experienced club racer James, who previously raced a Praga in the Dutch Supercar Challenge, will partner team owner Matt Nicoll-Jones, who finished second in the championship last year with Will Moore.

The SRO-organised championship, which supports the Blancpain GT Series Sprint Cup, boasts a healthy grid in excess of 40 cars, including reigning British GT champions Will Tregurtha and Stuart Middleton.

"I'm really excited to be racing with Matt in the Aston Martin Vantage GT4 and am looking forward to progressing with his help," said James. "It's a big step up to be racing in European GT4 against such a high-quality field, but I can't wait for the challenge."

After Zolder, James will race on home soil at the Brands Hatch Grand Prix Circuit, before taking in Misano, Spa-Francorchamps, the Hungaroring and the Nurburgring.



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VALETPRO Introducing ValetPRO's Development/Formulation Chemist



Pre-eminent car-care provider ValetPRO has appointed a first full-time chemist, Josh Fennell, to lead development of its existing product range. But what does the job involve?

Fennell joined the pH-neutral specialist last September after graduating from the University of Hull with a Masters in Chemistry with Industrial Placement. He undertook that work experience with a company in the Netherlands making detergent cleaners for kitchen care, giving him an excellent grounding in the processes he would be using at ValetPRO.

"It's been a busy six months," Fennell says. "The reason I was brought in to work at ValetPRO is that we're investing a lot more heavily into our research and development, so I've been given a budget to spend on new equipment to look at how we can improve our products in a lab environment. We're currently in the process of building a brand-new lab at our new site, which we'll be moving into soon."

When working with tiny molecules to test new formulations, controlling as many factors



as possible is paramount, so Fennell hopes the newly constructed lab – complete with a state-of-the-art viscometer – will help improve consistency of results.

"It's important to make sure that we're doing all our tests in the lab to measure the detergency of certain products, as well as testing on actual cars," he says. "For example, we sell Dragon's Breath as a gel-based product, so it will be interesting to see how we can change it slightly within the

formulation but still maintain the same efficiency.

"We'll also be trying to make different soils in the lab to mimic what you can get on a car, so we can add some repeatability when it comes to comparing products that I've made one day with ones I've formulated the next.

"When you test a cleaner with a car, depending on the day you can have different kinds of dirt. So if I just tested a formulation on a car on just one day, it might produce different results without necessarily being because it's a better product – it could have been because the weather conditions were different that day."

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BELL RACING

Working with FIA on new 8860-2018 standard



Following the FIA's announcement of a new advanced helmet standard, 8860-2018, Bell Racing helmets is working with the motorsport governing body to develop new products for homologation.

FIA 8860 was first introduced in 2004 and last updated in '10. The latest standard offers several key improvements that will increase the level of protection offered to users.

The first and most impressively named addition is 'Advanced Ballistic Protection'. A unique test based on military specifications has been

developed to ensure helmets meeting 8860-2018 can withstand projectiles weighing up to 225g, travelling at 250km/h. Helmets will therefore require the integration of a reinforcement structure in the forehead area.

Further to this, they are required to absorb an additional 12% of energy – rising to a 22% increase for large helmet sizes – and chin straps will be specially designed to assist the work of extraction teams after an accident.

Helmets homologated to 8860-2018 will

become mandatory in Formula 1 and Formula 2 next year, before being rolled out into Formula E and the World Endurance Championship.

"The FIA is developing a new 8860 standard and Bell has been at the forefront of working with them," said Bell Racing USA President Kyle Kietzmann. "This standard will be released at the end of this year, and it's another evolution where we're again pushing the performance envelope to make that product the best that we possibly can for the benefit of the athletes that choose to wear Bell."

FOR FURTHER INFORMATION ON OUR PRODUCE RANGE, PLEASE VISIT OUR WEBSITE www.bellracing.com OR www.bellhelmets.eu



RACELOGIC VBOX HD2 The driver improvement solution

Motorsport is driven by data. It is the vital unit of measurement for tiny details in car performance, helps engineers refine their set-up, and is also an invaluable tool for driver development.

The power of this is demonstrated in the Racelogic VBOX HD2, a portable data-analysis system that gives real-time information to help drivers improve their technique.

Created by technology expert and club racer Julian Thomas, the VBOX is billed as an accessible solution made for drivers, by drivers, providing all the relevant information required without becoming overwhelming.

Besides showing speed (useful for knowing how quickly you are exiting a corner) and lap times, broken down sector by sector, the VBOX uses side-by-side video comparisons with an HD graphic overlay showing throttle and brake input to help drivers analyse their car positioning and find the optimal racing line. Highly accurate GPS systems ensure the data is reliable for all manner of circuits, ranging from the 1.2-mile Brands Hatch Indy track to the 12.3-mile Nurburgring Nordschleife.

The VBOX Video HD2 consists of a single main data box, an aerial and two 1080p cameras. It's

quick and simple to move between cars.

"The system is very easy to transport and install – everything downloads to an SD memory card and the software will allow you to overlay a lap from today, yesterday or a few years ago at the same time," says Thomas.

"That's incredibly useful to see how far you've come as a driver over time, since all of the data is stored and instantly accessible."

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THE CHANGING FACE OF HELMET TECH

THE DEVELOPMENT OF HELMET TECHNOLOGY IS INTERTWINED WITH THE INDIANAPOLIS 500 AND THE ANDRETTI FAMILY, AS MARIO ANDRETTI TELLS **JAMES NEWBOLD**

When it comes to the Indianapolis Motor Speedway, Mario Andretti has seen and done it all. The 1969 Indy 500 winner's long career – only AJ Foyt has made more appearances – spanned one of the most dangerous eras in the history of motorsport, traversing front-wheel-drive roadsters, normally aspirated rear-wheel drive, and turbocharged ground-effect cars with ever-more complex aerodynamics that contributed to speeds rising at an almost unabated pace.

At Andretti's first appearance at the Indy 500 in 1965, the qualifying speed of Foyt's polesitting Lotus 34 was 161.2mph. By the time of his 29th and final outing in '94, having taken pole in '66, '67 and '87, the benchmark pace had risen to 228mph and was still climbing, with Arie Luyendyk setting a new course record at 237.0mph in '96.

As the cars became ever-faster, so the pressure grew on safety companies to keep pace. Given the technological limitations of the period, that was no mean feat, but Andretti's close affiliation with Bell Racing helmets has served both parties well. With third-generation racer Marco Andretti now in his 13th season representing the brand in the IndyCar series, the Andretti family has used its products for all but two years since 1962 – including Mario's Formula 1 world championship in '78 – and their feedback has helped Bell Racing to stay at the cutting edge of helmet technology.

At the age of 78, Mario remains up to date with the latest developments courtesy of his role driving IndyCar's two-seater, so is uniquely qualified to assess the progress made since

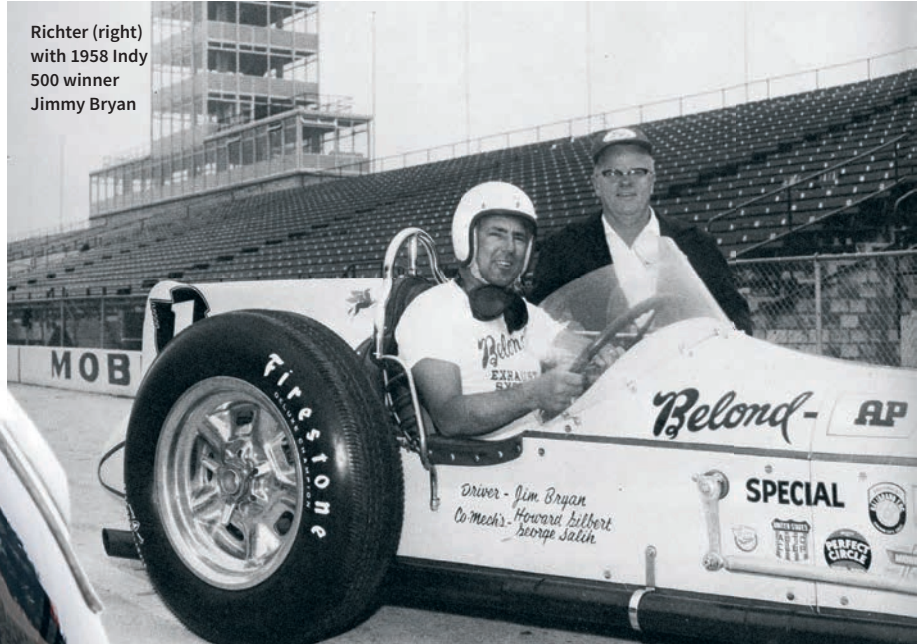
Bell Racing was founded in 1954 – the same year as his first experience watching trackside, as local favourite Alberto Ascari duelled with Juan Manuel Fangio at Monza.

"I'm probably one of the very few that can really tell you about the experience we had over the decades. It was very basic in the beginning with the open-face; I must have had a real hard head in those days not to get hurt!" he says.

"It's fascinating how everything has progressed. We always had a better car every year and we obviously got better protection as well. In all my years, I've had two seasons where I used a Simpson, but I came back to where I'm familiar and I steered a whole clan in that direction. Even on my brother's side, third-generation race drivers there, it's the same thing.



Richter (right) with 1958 Indy 500 winner Jimmy Bryan



“There are other brands that do a fantastic job, but Bell has done it from the start”

Motegi, and was running competitive laps when Kenny Brack hit the wall at Turn 1, dislodging a piece of SAFER barrier into Andretti's path. At over 200mph, his car broke into a somersault before fortunately landing back on its wheels.

“That was one where I'm sure grammy wanted to kill him afterwards!” jokes Marco, who had just started racing cars in Formula Dodge. “It's one of those surreal things – he runs his whole career and then he comes back to run the Speedway and almost killed himself there.”

Richter's revolution begins

Although head protection was mandatory at the Speedway from 1935, it did little to prevent injury in accidents. This fact was not lost on Roy Richter, a tuning shop owner from California.

Richter was a racer in his own right – a regular competitor in midgets in the 1930s, he made a successful comeback in '50, beating a field that included future world champion Phil Hill in a local sportscar event. Determined to find a better solution than was available at the time, he started the brand known today as Bell Racing.

“Richter's goal was to make a product to protect drivers and enhance their performance,” says Bell Racing USA president Kyle Kietzmann. “If you look at the history and the evolution of the helmet, it's really the history and the evolution of Bell.

“Obviously the designs and the technology are better-applied and the advancements of other safety aspects that go along with the sport have changed, but our core mission hasn't.”

Richter's first effort, the aptly named '500', was an early indication of where his intentions lay. ▶

There are other brands that do a fantastic job, but Bell has done it from the beginning, they continue to do it and we thank them for protecting us the way they've done.”

The Andretti name has come to be synonymous with poor luck at Indianapolis; although he has since racked up multiple wins as an owner, Marco's father Michael holds the unwanted record for the most number of laps led without a victory (431) while his uncle Jeff, Mario's youngest son, never regained career momentum after suffering serious foot injuries in 1992. But as anyone familiar with the events of April 23 2003 will tell you, the family luck held when it was needed most.

Showing no signs of rustiness after nine years away, a 63-year-old Mario had returned to practice Tony Kanaan's Andretti/Green entry while the Brazilian recovered from a crash at



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RECRUITMENT DRIVEN BY PASSION



LAT IMAGES

Andretti was the last driver to win the 500 with an open-face helmet in 1969

It made its debut at Indy with Cal Niday in the ill-fated 1955 race, which is remembered for the death of two-time winner Bill Vukovich.

“One of the philosophies of Bell really started with Richter saying, ‘If I want to prove that I’ve got the best helmet, there is no better proving ground than the Indianapolis Motor Speedway,’” says Kietzmann. “By 1955, Bell was at the Indy 500 and we’ve been there every year since servicing, sponsoring and supporting drivers. He realised that only by working with the absolute best can you really push technology and innovation to develop a great product.”

Based on a combination of the leather helmets available at the time and fighter-pilot helmets used by the military, early developments incorporated fibreglass, which provided better protective capability than rival companies including Cromwell and Premier. However,

this was combined with a polyurethane foam liner that was inadequate for absorbing and distributing the energy of an impact.

That all changed when the Snell Foundation was set up in 1957 and rigorous tests were established for helmet safety. Bell Racing was the first to meet the new standard with the 500-TX in ’57 and bought the patent rights for expanded polystyrene (EPS) liner from Toptex in ’60.

Bell Racing’s ground-breaking technology and a willingness to provide on-site support for drivers facilitated the company’s rapid growth and attracted top names to wear its products, a fact that was not lost on Mario Andretti.

“It was really coming on, all the top drivers in the States wore Bell helmets, so you figured you wanted to join that group for sure,” he says. “When I got into full-sized midgets in ’62, I got my very first Bell and then proceeded to obviously

harm myself, so it was quite an investment!”

He had started out wearing a Cromwell, derived from equestrianism, until twin-brother Aldo was seriously injured in an accident in 1959.

“The protection was minimal, it was more aesthetic than anything else,” recalls Andretti. “Aldo and I had one race car, one helmet and we used to alternate, so in the first season he took over one week and I drove the other. At the last race of the season, I had a ride with somebody else and I borrowed somebody else’s helmet, Aldo drove with ours... He had a huge accident and fractured his skull.”

Transitioning to full-face

Although motorsport was an important proving ground, motorcycle racing was the source for the next major innovation. The Bell Star was a full-face helmet used by dirt bikers to protect against stones being flicked up and was worn by stuntman Evel Knievel for his unsuccessful attempt to jump the fountains at Caesars Palace in 1967. It soon came to the attention of motorsport pioneer Dan Gurney, who became the first F1 driver to wear it at the ’68 German Grand Prix.

Andretti was initially put off by the dual issues of weight and visibility; more mass meant a greater load for the driver to carry, while the visor was fixed in place and easily misted up in inclement weather. However, Gurney’s choice to lead the way with the full-face had a profound effect. When a wheel sheared off Andretti’s car during practice for the 1969 Indy 500, leaving him with facial burns when the rubber lining of his goggles melted, it was clear that his concerns were outweighed by safety benefits. It would prove to be the final ▶



Gurney was first to wear a full-face lid in 1968

LAT IMAGES



Full-face was common by 1970, when Andretti took his first F1 podium at Jarama

LAT IMAGES



MAURENBEELD/LAT

Andretti won four Indycar titles wearing Bell...

“Bell cannot cover the full spectrum of safety, but they’ve certainly covered their side of it”

500 won with an open-face helmet, although open-face helmets did not disappear from F1 until Leo Kinnunen’s short spell concluded in 1974.

“The only thing that kept me from doing that was it had a screen that was built in; it didn’t have a flip-up and I thought that in itself was a negative because of fogging,” says Andretti.

“But when you have someone of the stature of Dan to be the first one to wear it, you figure he has to know something. He was always a progressive thinker at the leading edge of technology, so I figured if he’s wearing it, it’s got to be better, and that was good enough for me.

“There’s always a reluctance to change, but ultimately safety overrides everything, so that’s what you go for. You have to just get used to it and there’s no turning back.”

By now a semi-regular in F1, Andretti switched to the full-face Bell helmet in 1970. As feared, visors were initially problematic – BRM driver Helmut Marko was blinded in his left eye when a stone penetrated his visor at the ’72 French Grand Prix – but Bell Racing countered this by developing a curved 3mm Lexan material that was both stronger and more user-friendly.

“Actually the transition was a lot better than I thought,” Andretti recalls. “By the second year already they had made improvements to the flip-up shield. Dan took care of the early development, so I benefited from that and from there on it was just better and better.”

Breaking new ground

In 1973 Bell took the major step of introducing the Star FX, the first helmet with a fire-retardant liner. It couldn’t come soon enough. Although gasoline had effectively been phased out at the Speedway after Eddie Sachs and Dave MacDonald perished in a fiery crash in ’64, methanol was no less deadly. Gurney’s protege Swede Savage was killed after a horrifying accident in the rain-delayed ’73 race,

while Salt Walther was fortunate to survive a crash at the original start that burned over 40% of his body and left spectators requiring treatment.

“Fire was probably the worst that we were dealing with in those days,” agrees Andretti. “We used to lose drivers and they didn’t have a broken bone – a large majority of fatalities were from fire and the only thing that companies like Bell could do was do their part in having fire-proof materials. But the problem was bigger than that.”

With speeds still rising, Tom Sneva became the first man to break the 200mph barrier at Indianapolis in 1977, but frontal head restraint devices (FHRs) and SAFER barriers were still some 25 years away. Every impact with the concrete wall carried a risk of serious injury, prompting Bell Racing to conduct research into increasing the volume of the helmet to improve management of energy to the head.

As ever, it was a balancing act between safety and performance. Ever-more stringent Snell tests meant there could be no letting up on research and development, but with the caveat that burdening the driver with heavy, oversized

helmets would present an unwelcome distraction. It was a slow process, but having comprehensively overhauled its manufacturing processes to incorporate proprietary high-pressure moulding and advanced aerospace carbon materials, Bell Racing became the first company to meet the FIA8860 Advanced Helmet Standard in 2004. This was fitting, as it had also led the way in bringing forth performance-enhancing benefits in parallel with its safety innovations.

Starting with the first helmet to use lightweight composite materials, the XFM-1, in 1979, Bell Racing followed it up in ’89 with the Kevlar AFX-1, the first helmet to feature ventilation points to counter the effects of fogging. Aerodynamic efficiency was the next area to tackle and debuted with the Vortex in ’91. The principle was taken to the extreme with the Feuling SS in ’93, which proved highly effective in improving stability and preventing lift at higher speeds.

Bell Racing has since pioneered the Xylon visor panel in 2011 to help prevent penetrations around the upper eye port area – identified as a potential weak spot after the injuries Felipe Massa sustained



Andretti retired from his final Indy 500 in 1994

LAT IMAGES



MARCO'S FAMILY PRIDE

As you might expect, Marco Andretti has enormous respect for the achievements of his grandfather. But his admiration amounts to far more than the natural pride of family and stems largely from the heightened risks Mario faced during his storied career.

"When you think of my grandfather, [his generation] ran one helmet all year – it's crazy just how much the integrity of the helmet takes the hit and they're still wearing it..."

Externally, the younger Andretti's helmet bears a striking resemblance to his grandfather's – having reverted to the red stripe carried by both Mario and Michael after swapping it for blue in his early days "because I didn't want my helmet to be exactly like theirs" – but that's where the comparison ends.

Bell Racing's HP7 is at the leading edge of helmet technology and features a pure carbon shell using proprietary high-pressure moulding technology, combined with an EPS energy-absorbing liner. Designed specially to fit Marco's head using 3D image-scanning, it's a world away from the helmets in his private collection used by James Hunt and Ronnie Peterson in the 1970s.

"When you look at these, how flimsy the visors are, it's just unbelievable with the speeds they were running back then – it doesn't even fasten to the head!" Andretti says.

"You can't put a piece of paper in the helmets now between the head and the padding, it's all completely computer

generated to fit. But these old ones you put on, it doesn't fit me right, but at the same time, I don't know how it [could] fit anybody right back in the day! It moves around and the visor is the biggest thing. You look at it and think if a pebble hit it, it would go through..."

Andretti admits that he doesn't often speak up on safety matters in drivers' meetings and tries not to think about it where possible "because you feel vulnerable, right?". He instead

"Look at how flimsy the visors are, it's just unbelievable with the speeds they were running back then"

prefers to put his trust in safety suppliers like Bell Racing as, despite the massive strides to improve safety, danger is ever-present.

"It's one of those things, it's never going to be safe," he says. "The danger is in the back of our minds, always, and you have to have that respect level, but if it comes anywhere out of the back of your mind then it's going to slow you down.

"I bet 10 years from now, we're going to be looking back at me and saying, 'That was crazy, our heads were exposed!' It's all relative, but I've been fortunate. God willing, we'll be able to retire on our own terms, that's the goal."

at Hungary in '09 – and introduced its groundbreaking Double Screen Anti Fog (DSAF) visor across the HP7 range to ensure optical clarity in the worst conditions.

"Bell cannot cover the spectrum of [safety], but they've certainly covered their side of it," Andretti says. "Like the development of the cars, there were tremendous strides being made at the beginning, but now all the improvements are really minute, because you reach a level of knowledge and experience where naturally you know a lot more."

Despite this, nobody is under any illusions that motorsport will ever be completely safe. The losses of Dan Wheldon at Las Vegas in 2011 and Justin Wilson at Pocono in '15 still weigh heavy and are constant reminders that there is no place for complacency. Even with developments to protect the driver such as IndyCar's deflector shield, helmets remain the last line of defence in an incident and work is ongoing to find small gains, even down to the way they are integrated with other safety systems, such as the FHR.

"It's easy to say, 'This is the first helmet certified to Snell, this is the first with the EPS liner, this is the first aerodynamic helmet' and so on, but those things have already been done," says Kietzmann. "Now our challenge is to continue to evolve the product to make it the best that we possibly can."

All things considered, is Mario Andretti glad that his grandson hasn't been exposed to the same struggles with safety that he experienced?

"Oh gosh, absolutely, but would I change my position for that? No," he says. "I have a special appreciation for what companies like Bell have done over the years where the younger drivers obviously take everything for granted, it's already there. That's great, but the experience that I've had and been so fortunate to live through, that's a very precious knowledge that I would not change for anything." ■

...and returned to the Speedway for ill-fated run in 2003



Marco Andretti is the latest to uphold family honour

LIFE AS A ONE-OFF DRIVER

PIPPA MANN'S INDIANAPOLIS 500 PREPARATIONS ARE UNUSUAL, AS TOM ERRINGTON EXPLAINS

If the Month of May sounds like an extensive build-up to the Indianapolis 500, consider Pippa Mann's route to competing there in her only open-wheel race of the season – an event she builds her career around and dedicates the whole year to making.

Even then, the US-domiciled Brit will sit in her Dale Coyne Racing car – for her sixth Indy 500 in a row, seventh in total – for the first time only four days before qualifying, where 35 cars are expected to be competing for 33 places in the field.

Under any circumstances, that's scant preparation – let alone for an event that takes place in the heat of summer for 200 laps, at speeds that exceeded 230mph last year and this time features a new, radically different car.

Never has a cushy full-time ride and the relative security it offers looked so appealing, but despite spending much of the year outside the IndyCar bubble looking in – securing new sponsors, keeping existing backers happy and fulfilling all the commitments that entails – it's a challenge Mann relishes.

"It's my year-round job," she explains. "Like many racing drivers, I work as a performance driving coach for various programmes including Porsche Driving Schools, the AMG Driving Academy and the Lucas Oil School of Racing.

"But in between that, which brings in my income to race, I effectively spend the calendar year looking after the sponsors who support my car throughout the calendar year, meeting new partners, introducing my story and what we're doing with this car at Indianapolis to more people. It's a year-round continuous process."

That way of working also extends to her team. Although Mann will benefit from the familiarity of working with chief engineer Rob Ridgely for a third consecutive year, her pitcrew has not worked as a unit since Mann took the chequered flag in 17th position last May.

As one of nine one-off entrants in the field for the IndyCar series' centrepiece event, Mann

INDIANA DONOR NETWORK





Having your kit sorted helps



Mann is targeting a top 10 finish in her seventh Indy 500

GETTING THE RIGHT KIT

There are many factors to consider in ensuring a strong performance at the Indy 500, with balancing speed and caution – trying not to wreck a car – at the forefront of any driver's mind. Considering the danger that has put off other Formula 1 stars from following in Fernando Alonso's footsteps, properly functioning equipment

is an essential box to tick. That's why Mann will use Walero's industry-leading underwear at this year's race. Based on NASA technology, a tailored fit balances comfort with freshness and temperature regulation through such advances as Outlast® fabric and Envirotech+, an anti-microbial agent.

Mann found Walero through social media and was convinced of its advantages, even if the Indy 500 and single-seater racing wasn't Walero's target audience.

"I saw an article about what they were doing and I read about this brand with a British female entrepreneur [Walero founder Fiona James]," she says. "We

connected last year at Petit Le Mans; we were talking about this, so to have them on board and on-brand at Indy is very cool.

"With this race being the hottest event of the year, the humidity, the length of the race and the amount we sweat in that time means having Walero in my corner will be a real advantage."

certainly isn't alone in this regard, but in a series where performance can be defined by how well a traditional 10-person-per-car team works on the ideal set-up, it is a significant drawback. Rather than be deterred by that rustiness, Mann sees it as a means of setting realistic goals.

"It's unique when you're trying to be a one-off driver," she says. "People often ask, 'How do you practise?' and the truthful answer is there is no really good way. Every time I get back in that car for the first time, day one is always about readjustment, getting comfortable and getting back up to speed, and day two is normally the day we start working on things.

"The big thing people need to remember is that this isn't just me. My engineer 'Ridge' hasn't engineered an IndyCar since last May, my over-the-wall team haven't been over the wall and changed a tyre since last May. We have this entire band of people, like a lot of one-offs, coming together to try to make something cool happen."

Mann does not even have the budget for simulator training, let alone testing, although she will benefit from the data provided by team-mates Sebastien Bourdais, Pietro Fittipaldi and Conor Daly to aid her set-up course. But if that lack of running suggests plenty of free time, that's far from the case for Mann, who doesn't have a

management team and engages with all of her corporate partners personally. She doesn't need reminding that it's very different from how the other half lives.

"When you are as lucky as I am to have so many people willing to support your programme, you have a lot of people to look after," she says. "I have to balance my time carefully in May between being the driver and the person who looks after all the sponsors, making sure everyone has all the access they need, not just the PR person looking after social media but coordinating the sponsors.

"In May, I wake up before 7am every single day and don't go to bed before 10 or 11pm each night; that's how long it takes to fulfil the commitments alongside being a racing driver. For the people who back my programme and are Indianapolis-based like I am, I make commitments to them throughout the year. Between leaving town to do jobs, I'll be back for three or four days to wash kit and head out again. I'll do several appearances with sponsors, go to the gym like other drivers and then leave again.

"It's a very different life to the full-time drivers, but it's a life I enjoy and allows me to drive a car once a year at a very cool event."

So while Mann will watch on as similar one-off entries such as Danica Patrick (Ed Carpenter

Racing) and Carlos Munoz (Andretti Autosport) rack up the miles in advance, she is comfortable with her circumstances and is not letting them detract from her hopes of achieving a top-10 finish at the world-famous speedway.

"The biggest thing coming into the Indy 500 every year is to have a realistic expectation," she says. "I feel the way we band together means we can have a go at the top 15 and ideally the top 10, so that's the goal. If we do our job right and have some luck, it could come our way."

INDY 500-ONLY ENTRIES

DRIVER	TEAM
Conor Daly	Dale Coyne Racing
JR Hildebrand	Dreyer & Reinbold Racing (TBC)
Jay Howard	Schmidt Peterson Motorsports
Sage Karam	Dreyer & Reinbold Racing
Pippa Mann	Dale Coyne Racing
Carlos Munoz	Andretti Autosport
Danica Patrick	Ed Carpenter Racing
Oriol Servia	Rahal Letterman Lanigan Racing with Scuderia Corsa
Stefan Wilson	Andretti Autosport

MEET THE MAN BEHIND SAFETY LEGISLATION

THERE'S A COMMON CRITICISM FROM COMPETITORS THAT CHANGES IN SAFETY LEGISLATION ARE SIMPLY MONEY GRABS FROM SUPPLIERS, BUT THE REALITY IS ANYTHING BUT, AS MARCUS SIMMONS EXPLAINS

LAURENT MEKIES



Sport Council when it comes to safety.

“Before something gets to the Safety Commission, in 80% of cases it has gone through the FIA research body, the Global Institute. They will have had some research work done on a given topic, say the halo, and that research work is filtered through the Research Working Group, which is a group of experts from all categories of motorsport; IndyCar, NASCAR, Australian Supercars, DTM – not only the FIA immediate family, but the enlarged family.

“In that way, we expose our work to the wider community of experts to get input, feedback, guidance and reassurance that we are going in the right direction. That’s the way any research work is validated internally. Only after that will it go to the Safety Commission – they are another group of experts, who evaluate what we have done and what is needed for motorsport safety.”

The industry suppliers such as safety-equipment manufacturer SCHROTH Racing are very much key to this process.

For most participants, motorsport is a never-ending quest to get the best performance you can from human and machinery, while keeping an eye on costs. Of course, maximising the capability of the human depends on remaining uninjured for as long as possible. After all, you’re not going to get very good results if you’re convalescing in bed for a year. And, if that happens, the cost of your motorsport activities to your family will have been far more than missing a few visits to your local pizza restaurant so you can afford a new set of shock absorbers.

Laurent Mekies joined the FIA from Toro Rosso in October 2014 as the governing body’s new safety director. He’s leaving soon for Ferrari, but remains in his current duties at the Safety Department until June, and these have been far more detailed than the average competitor could ever realise. Decisions on safety legislation certainly are not made on a whim by this hirsute Frenchman from his FIA office in Geneva.

“We have a Safety Commission, which a bit like the Safety Department is working across all championships,” explains Mekies, “and this Safety Commission is the body entitled to propose regulation change to the World Motor



“Absolutely,” states Mekies. “As part of the research work, we have what we call an Industry Working Group, which today is more than 50 companies that are safety suppliers worldwide. In these meetings, we discuss what is needed for future standards, where we want to go in terms of targets, what is possible from the industry point of view and the points that need to be addressed. We have a very constructive dialogue with the industry and SCHROTH has for many years been a very active member of this group. It’s a two-way discussion that hopefully leads to better standards and better regulations.”

So if, say, a new development is mandated on frontal head restraints, how is this developed behind the scenes?

“At first we would need to decide to start a head-restraint research project,” says Mekies. “And if we were doing so, we would do it with a reason and a set of objectives that would be shared with the industry. We would either conduct the research ourselves, or share it

“It’s a two-way discussion that hopefully leads to better standards and better regulations”

with members of this group – we would split it into modules so we can go faster, and we can get everybody’s experience. And we would share results so we can move to the next step.”

To most readers of Autosport – who want to learn about their heroes going quickly and, yes, risk-taking – the role of Mekies is possibly towards the drier end of motorsport subject matter. But it’s his time at the coalface in motorsport that left him well qualified for it. Following his engineering studies, Mekies initially worked for the Signature Formula 3 team in 2000 – including winning the Zandvoort F3 Masters with Jonathan Cochet. He then switched to the Asiatech Formula 1 engine

project in ’01, working as an engine race engineer first with Arrows before moving across to Minardi.

When Asiatech folded, Mekies joined the Minardi staff, staying in Faenza through the team’s transformation to Toro Rosso. He was the team’s chief engineer during Sebastian Vettel’s famous victory in the 2008 Italian Grand Prix and latterly headed up its vehicle performance division.

“It might sound like a long stint, but the company changed massively – so I didn’t change company, but it changed around me!” he laughs. “After Red Bull bought Minardi we got the fantastic time with Sebastian, where we peaked our performance. After this, there was a big cut ▶



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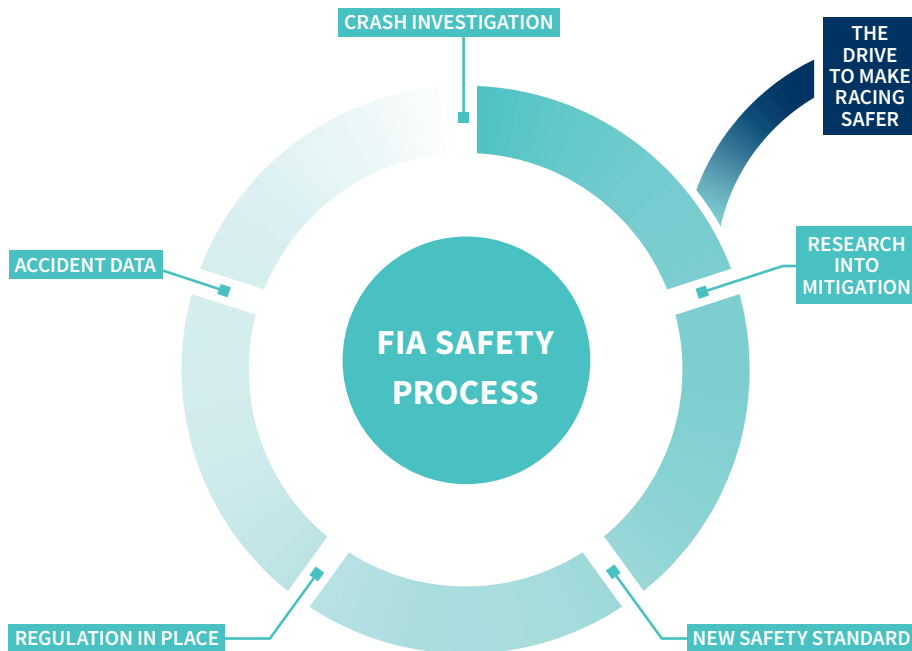
in what teams could share, and the company structure changed completely to become a full manufacturer. The team evolved with massive growth and when I left at the end of 2014, we were probably around the 400-people mark.”

Mekies’ vehicle-performance role encompassed all the divisions that focused on car improvement – engineering, vehicle dynamics, tyres, software, simulators, aero performance etc – and he admits that “having seen so many departments during my Toro Rosso time it did help” with his subsequent role at the FIA, where “we look at the same subjects, just from a different angle”.

Such work with Toro Rosso would also have necessitated a proactive approach – instead of reacting to what’s already happened – and perfectly fits the Safety Commission’s remit.

“Some of our actions are coming from accident data, accident analysis and research into mitigations of the injuries suffered for the same accident ‘pulse’,” explains Mekies. “This is why we have the accident data recorder in the car, the ear-accelerometer for the drivers, the high-speed camera and the biometric gloves now. We will then try to understand if we have had the same accident, the same ‘crash pulse’ – which is recorded by the accident data recorder – and how we will then change the equipment and parameters in such a way that for the same crash pulse, the injuries suffered will be less.

“But there is also our own drive – industry plus FIA plus stakeholders – to improving motorsport safety without waiting for a given accident. For example, a new helmet standard



for top-end motorsport is going to be compulsory for next year. We believe it’s going to be the safest helmet standard in the world, and we didn’t do it in reaction to an accident. We did it as our continual push for improving safety. That’s very much the DNA of why the Safety Department is here and what the FIA is after, so you could say 50% is coming from that drive, and 50% from crash analysis.”

Now, we can hear people moaning that these fancy new helmets are going to seriously slash into amateur racers’ bank accounts when they become mandatory lower down the ranks – a charge frequently levelled at the safety suppliers. But Mekies has good news.

“We are very aware of the economics,” he says, “and that sometimes we are perceived as bringing cost into the sport, but we feel it’s quite the opposite. By buying the right thing, you will keep it for a longer time, you will have a better-quality product, and the cost of the sport will be lower.”

He then illustrates this point using the new

standard of helmets filtering down through the sport: “We cascade everything that we develop on our top-end championships in hopefully easier-to-implement, cheaper versions for lower categories of motorsport in the coming years. There is also a second helmet standard – not as good as the first one, but if you can get 80% of the performance for 20% of the price, why shouldn’t you? We are very cost-conscious and we certainly try to put that into the equation.”

Also, be wary of counterfeit products. Mekies says that “we try to be mainly proactive in the way we try to improve our labelling system to reduce these sorts of issues. We inform the world community of scrutineers, National Sporting Authorities and so on, and publish informative notes on our website which are sent to our stakeholders.”

Remember that. The FIA Safety Department can’t stop you hurting yourself in a competition car, but it has played a large part in lessening the severity of injuries. ■

WORKING WITH THE FIA The supplier’s perspective

SCHROTH Racing’s Head of Motorsport Programs Tom Myers explains why it is important for safety product suppliers to be represented in the Industry Working Group (IWG)

“Being involved in the FIA IWG is extremely important for companies working on the frontline of technology and safety specifications.

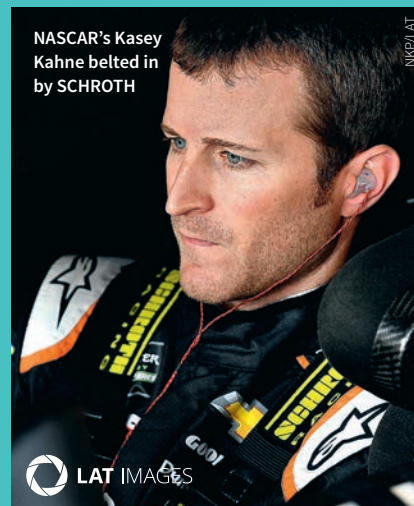
“Through the IWG, the members receive information on why a new product or updated standard is being

considered, which allows us to design or introduce product improvements in parallel with the publication of new standards. You can see this even today, as SCHROTH Racing has a wide range of 8853-2016 harnesses approved, while many of our competitors are struggling to bring products to market.

“While we do understand that, from an outside point of view, some of the standards and changes may seem cost-generating, in the

projects that we have been involved in, the majority have come from a real-life accident or injury that we as an industry have learned from.

“The IWG has greatly improved in the frequency of meeting, communication and exchange of information within the working groups over the years and, given the support of the industry, I expect we will continue to close the loopholes in the safety cell to further improve driver safety.”





TYRE TRIVIA

NANKANG

UNDERSTANDING TYRES – THE ONLY AREAS OF THE CAR IN CONTACT WITH THE ROAD – IS HUGE IMPORTANT FOR DRIVER CONFIDENCE. NANKANG MOTORSPORT MANAGER BEN LAWSON ANSWERS FIVE OF YOUR QUESTIONS

01 What materials are Nankang tyres made from?

A tyre is made from rubber, silica, carbon black, steel and nylon, to name a few materials. All of these are used in different mixtures, depending on the compound and structure required. Our tyre range covers everything from trailers, commercial vehicles and 4x4s to performance road and track, plus a non-marking grey compound used specifically by *Fast and Furious Live* during the show's global tour.

02 There was a video of McLaren's muddled pre-season F1 testing pitstop in which they got the left and right-side tyres mixed up. Why does this matter in technical terms?

Tyre manufacturers put a lot of money and time into R&D to design tyres for a certain purpose, concerning different compounds for different weather or track abrasiveness. Each tyre will be fitted to work to its full potential in one position on the vehicle, so although the compound may be the same, the pressures used may not be. For example, if the track is mainly anti-clockwise, the tyre pressures will be different from side to side.

03 What are the advantages and disadvantages of going high or low on tyre pressures?

Tyre pressures are possibly the most crucial part of setting your car up on track. Running pressures too high will cause excessive tyre wear, promote

understeer or oversteer, and potentially cause the tyre to overheat. Running pressures too low will not allow the tyre to perform as well as it should, causing the car to feel unresponsive. It can also create extra shoulder wear since the central part of the tread is not inflated enough to give the contact patch required.

The difficult part of car set-up is that every track is different and even the same track will differ through varying weather conditions. Because of this, we always recommend keeping a set-up guide, so you can look over historical data to give you a better starting base each time you go out.

04 If you have very limited budget and can't spend much money on tyres, how do you balance performance with durability?

Choosing tyres for your budget and vehicle has multiple factors – it can't always be answered on a forum full of trackday enthusiasts.

At Nankang we produce two track options: the NS-2R, aimed at trackday users looking to improve the performance of their car over a road tyre, as well as being able to drive to and from the track in varied weather conditions without any issues; and the AR-1 (right), aimed at maximising track performance. It's a true laptime beater with a soft and consistent compound.

If you are looking to have fun on track and are watching the wallet, a tyre such as the NS-2R would be more suited since it will last multiple trackdays, offer good consistent track performance, and give more tyre per pound.

05 As a supplier to championships that have both FWD and RWD cars competing, do you have to do anything particular with tyre construction to balance this out?

In all honesty, no. The AR-1 track tyre, for example, is the same construction style across the range. However, we do work with a wide range of geometry settings that differ from FWD to RWD. For example, RWD cars tend to use camber up to 4.5 degrees, while we advise front camber settings below 3 degrees on FWD cars to ensure the shoulder stress is not too high.



Understanding tyres is crucial in one-make club racing



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