

F1 SHOWDOWN HOW HAMILTON CAN BEAT ROSBERG

 **AUTOSPORT**

McLAREN-HONDA WILL WIN AGAIN

**“The team is very well
prepared to attack 2017”**

Fernando Alonso



FREE
PERFORMANCE
SUPPLEMENT

**AUDI AND VOLKSWAGEN
SIGN OFF WITH WINS**

**DA COSTA TAKES
STUNNING MACAU GP**



HISTORIC
MOTORSPORT
INTERNATIONAL
23-26 FEB 2017 • EXCEL LONDON

A new international exhibition to
champion and celebrate historic motorsport

Engineering & Preparation • Organisers & Promoters
Competition Cars for Sale • Two-Day Conference Programme • Clubs & Associations

Find out more: historicmotorsportinternational.co.uk





McLaren-Honda: F1's sleeping giant

IT MAY SEEM RATHER BOLD TO PREDICT THAT McLaren-Honda will win again, particularly given the combination's struggles since the start of 2015. But, as Ben Anderson discovers in our cover feature, there are reasons to be cheerful.

Not only has Honda made huge progress with its powerplant, McLaren has continued to develop what has been a pretty decent chassis. If that trajectory can continue over the winter, the team should once again move further up the grid, perhaps with an eye on a title assault in 2018.

The squad certainly won't be lacking for talent, with Fernando Alonso — still one of F1's top performers a decade after his last title — and the exciting Stoffel Vandoorne on the books. F1 needs some opposition for Mercedes, and McLaren-Honda is one of only three or four teams to really have the potential to provide it.

For the moment, we have a title showdown to look forward to in Abu Dhabi between Mercedes men Nico Rosberg and Lewis Hamilton. The odds are stacked in Rosberg's favour, but strange things can happen in championship finales (1986 or 2007 anyone?).

• Autosport's new owner Motorsport Network has continued to add to its armoury with the acquisition of Motors TV. The new motorsport.tv channel will cover motorsport and performance motoring, and will open up more interesting possibilities.



Kevin Turner

KEVIN TURNER EDITOR

kevin.turner@haymarket.com

@KRT917



COVER IMAGE
Hone/LAT

COVER STORY

4 Why McLaren-Honda will win again

PIT+PADDOCK

- 16** F1 title showdown: Rosberg v Hamilton
- 18** Obituary: Paul Rosche
- 20** LMP1 rule changes delayed
- 23** Obituary: Peter Foubister
- 24** Feedback: your letters
- 25** Scott Mitchell: in the Formula E paddock

REPORTS

- 26** WEC: Porsche's title as Audi wins at last
- 34** Mikkelsen wins as VW signs off from WRC
- 44** Da Costa takes Macau GP for Carlin
- 54** Drama in Macau GT and TCR events

RACE CENTRE

42 Brazilian Stock Cars; NASCAR Sprint Cup

CLUB AUTOSPORT

- 67** McLaren GT4 campaign for Osborne
- 68** Mixed responses to BTCC test chance
- 70** Calendar boost for Classic Sports Car Club
- 71** Humble Pye: the voice of club racing
- 72** National reports: Anglesey; Mondello
- 74** Guest race: Historic Formula Ford

FINISHING STRAIGHT

- 78** What's on this week
- 80** From the archive: 1975 Formula Atlantic
- 82** Bucket List: visit Rally Finland

AUTOSPORT SUBSCRIPTION OFFER

83 Sign up and get FREE KitSound wireless headphones

FREE INSIDE

PERFORMANCE SUPPLEMENT



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

“

After Mercedes, someone
I don't think anyone is in a better

McLaren-




has to lead the sport, and
position than

Honda..."







“...THERE IS STILL A LONG WAY TO GO, BUT I DON'T THINK ANYONE IS DOING BETTER THAN US”

By Ben Anderson, Grand Prix Editor

[@BenAndersonAuto](#)

So said Fernando Alonso in the summer of 2016. Has he lost his mind? Has he not looked at Formula 1's constructors' championship table? Should he care to do so he will notice there are actually four teams and three engine manufacturers currently in a better position in those standings than McLaren-Honda.

That's all of what could loosely be termed F1's 'top teams', and all of its other engine builders...

So what does the double world champion know that the rest of us do not? Well, naturally he is privy to the inner workings of McLaren-Honda's operation, so knows better than most how far this once famously successful alliance has travelled, and how much ground it still needs to tread.

McLaren-Honda still has a long way to go before becoming a true force again in Formula 1. As we approach the final race of 2016, McLaren's winless run in F1 stretches back 77 races, to the final grand prix of 2012.

During that same spell Mercedes has won 53 races, Red Bull 18, and Ferrari five.

McLaren has enjoyed only two podium finishes since its last victory, an inherited two-three result at the first race of 2014. And since Honda came onboard for the start of last season, a McLaren driver hasn't qualified or finished higher than fifth in any single grand prix. That is not even close to the form expected of a frontrunning outfit; it's the sort of record that might belong to a solid midfielder.

But amid the barren run of results, there are genuine reasons for optimism. Alonso's positive outlook no doubt stems from the fact that McLaren-Honda has made a giant leap forward in relative competitiveness this season.

McLaren-Honda has climbed three places in the constructors' championship, and scored almost three times the tally of points it managed in 2015. A package that finished behind Sauber in the standings – and was generally battling the Swiss squad to avoid being the whipping boy at the tail end of the midfield in '15 – is now capable of genuinely challenging Williams and Force India on certain circuits.

“What I'm happy with is how the team has settled with the structure that we have, with the organisation that we have – [it is] much closer than ever in the last two years, with the Honda progress as well,” Alonso explains.

“Last year we had a lot of difficulties. This year we knew improving the engine would not be difficult, because it was at a very low performance base, but for next year the step will be even bigger, because the organisation has changed a lot, we have a lot more people and resources, we have a lot more ideas, and everything I see now is much more logical for next year.

“So even though the regulations change a lot [for 2017],

and even if all the information that we get this year is not very useful, the team is very well prepared to attack next year's regulations with a lot of confidence, because the team grew up a lot in the last 15-16 months.”

McLaren-Honda has indeed ‘grown up a lot’ over the past two

seasons, and of course the biggest gains in performance have come from improvements to the fledgling Honda power unit.

Last year's engine was a disaster, lacking power, reliability, and the ability to recover energy and deploy it efficiently. The power unit was so weak that Jenson Button described McLaren-Honda as a “sitting duck” on the straights.

Honda placed particular winter focus on the ERS, identified as the chief (but not the sole) weakness in the 2015 power »

“The team is very well prepared to attack 2017 with a lot of confidence”



“Because rpm is limited, to achieve better power it is about being efficient”

unit. This year's engine featured a beefier ERS turbine, which has helped transform Honda's ERS into something it now believes is a match for the very best on the grid.

“Last year we prioritised size more than performance, but we didn't know that we sacrificed the performance of the turbine, so we thought it was OK,” explains Honda F1 chief Yusuke Hasegawa, the former BAR-Honda engineer who replaced Yasuhisa Arai during pre-season testing, a move McLaren feels has improved communication within the team.

“But as a matter of fact it wasn't OK, and at the start of this season we focused on turbine performance, and designing the turbine to put the turbine itself inside the engine.”

This meant some compromises to how the engine fits with McLaren-Honda's trumpeted 'size-zero' design philosophy of 2015, which focused on minimising the bulk of components for aerodynamic gain.

“Now we know that the turbine is really important, which is why we have to prioritise the turbine design rather than the engine packaging,” Hasegawa adds. “So we made it bigger, but also it sacrificed the engine packaging as well. We needed to change the chassis, and make the intake manifold a little bit higher than last year's. But as a consequence, now we can tell the increase in the turbine area was the right answer.”

Honda also produced a more efficient turbo compressor design for this year, as well as making necessary revisions to the exhaust system and good old-fashioned internal combustion engine as the season progressed.

The pure performance of the chassis/engine package has improved dramatically as a consequence. McLaren-Honda failed to make Q3 at all last season; this year the MP4-31 has made it at half the GPs, with both cars doing so in Hungary. McLaren-Honda lapped 2.954% shy of Mercedes across the 2015 season in pure pace terms, but this year that's narrowed to 2.201%.

The car is generally much more competitive in race trim too, across a much broader range of circuits than last season. Instead of hoping for rain, and biding time until a street track comes along, McLaren-Honda can now mix it in the midfield at the majority of venues, provided it enjoys a clean weekend. Alonso and Button have even managed to charge from the back of the grid into the top 10 in recent races at Spa, Sepang and Austin.

But the Honda engine is still lacking on several fronts. The



complex way the hybrid systems recover energy from exhaust gases means gains in ERS potency generally come at the expense of pure combustive power.

Having improved the ERS so dramatically, Honda has focused in-season development on recovering consequent power lost from the internal combustion engine (ICE). It has succeeded to a degree — with estimates suggesting energy recovery has doubled since 2015, with the ICE simultaneously producing similar horsepower to last season.

“That's why it's very important to update the internal combustion engine simultaneously, otherwise we lose energy recovery power,” Hasegawa says. “Now we understand that ERS is very important to achieve the proper level [of overall performance]. That's why we didn't just want to introduce a new ICE. We really needed to introduce both systems at the same time.

“Our [energy] management is doing a very good job. We have had three updates this season. I think we made a very good step with the turbine and the ICE.”

The big challenge for Honda now is to develop the sort of cutting-edge lean combustion technology that has given Mercedes a significant advantage over the competition, particularly in qualifying trim.

This will be no easy task, even with the rules around engine development (including the abolition of the token system) relaxed significantly for next year. Such technology is

Top left: last season McLaren was dicing at the back with Manor

Above: now it's been in a position to lock horns (albeit briefly) with Mercedes



complicated to understand, and places enormous strain on the reliability of standard components.

“There is no secret with the combustion, because we have a limitation of rpm, so to achieve better power it is about being efficient with the engine,” says Hasegawa, who believes opening up the token system will have little impact in regard to ICE development because “from that point of view we don’t need many tokens”.

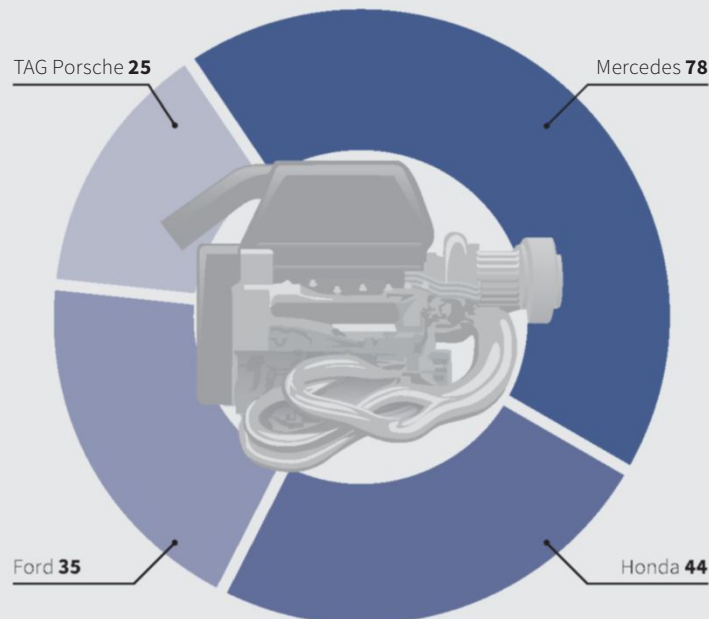
“Knowledge, technology and trial and error is necessary,” he adds. “To have a better efficiency we need to have lean combustion, and a high compression ratio. The secret is how we can achieve that.”

Honda’s research in this area is “still ongoing” according to Hasegawa, who admits the process of developing reliable lean combustion technology is “not very easy”. Honda is recruiting more European engineers with current F1 experience to aid its cause, but it will take time to properly incorporate their ideas, especially considering the natural cultural barriers that exist between Japan and Europe.

“Naturally we have some obstacles of communication of language,” admits Hasegawa. “Unfortunately Japanese engineers are not good at speaking English normally, so sometimes it is quicker to do it inside Japan.”

“But with that style we understood we have some limitations to progress, so we need to change. We have to try our best to communicate with the outside.” ➤➤

McLAREN ENGINE F1 WINS



Give it the works

SINCE RON DENNIS’S Project Four operation essentially took control of McLaren ahead of the 1981 Formula 1 season, works engine deals have been a cornerstone of the team’s success.

Dennis, who relinquished his role of chairman and chief executive officer of the McLaren Technology Group last week, believes being one of Mercedes’ customers in the current era won’t allow a title challenge. It’s a philosophy McLaren has largely followed over the last 36 years, as manufacturer support has generally become

more important in F1.

Before Dennis, McLaren had scored all its successes – including 24 world championship GP wins – with Ford’s Cosworth DFV. Dennis-era McLaren added six more with the customer engine before a switch to TAG-badged Porsche turbos at the end of 1983.

The partnership was hugely successful, scoring 25 wins and five titles (three drivers’ and two constructors’) before being overtaken by the Williams-Honda combination. McLaren took the Honda deal for 1988 and added another 44 wins and eight crowns (four drivers’,

four constructors’) before Honda pulled out at the end of ’92.

That left McLaren as a Ford customer at the start of 1993 (during which Ayrton Senna conjured up five victories in the MP4/8) and that was followed by a troubled season with Peugeot.

In 1995, McLaren began a long relationship with Mercedes that brought 78 wins, three drivers’ titles and ’98 constructors’ success. It’s worth noting there were two winless seasons with Mercedes before the alliance got into its stride.

KEVIN TURNER



Brazil 2012: Button takes McLaren’s last win

Honda has still progressed relatively quickly despite these limitations. Beefing up the turbine has dramatically improved McLaren-Honda's overall performance this year. But Formula 1 is nothing if not a compromise, and these changes have also increased the weight of the power unit, and consequently raised the MP4-31's centre of gravity.

This creates knock-on problems for the chassis, which has improved substantially in braking and low-speed performance compared to last year, but still has serious weaknesses in high and medium-speed corners.

The high CofG, in combination with remaining imperfections in the car's aerodynamic platform and suspension geometries, means the MP4-31 doesn't work particularly well in long-duration, medium-to-high-speed corners. The car is balanced, but just doesn't generate much grip.

Hasegawa admits Honda now needs to find a way to repackage the turbine *without* compromising its improved performance. "Next year we focus on the packaging and the combustion," he says. "Those are two areas we need to improve. More compact and lower down — especially lower is very important.

"But it is easy to say. Of course [a lower] centre of gravity is always better, but if we can create much more horsepower, nobody will care about the high position of the engine..."

It's a good point. If Honda can produce a more powerful engine than its rivals, the precise packaging of the turbine will be of minor inconvenience. But as things stand, Honda cannot rest on such luxuries, so must find a way to somehow square that circle, and get the turbine to work well enough while also being small enough and packaged well enough to avoid unduly compromising the performance of the chassis.

"If you compare the last 12 months, say August to August, the gain in performance was massive"

Beyond occasional competitive hiccups, such as at Honda's home race in Japan — where the Suzuka layout brutally exposed the chassis' chief weaknesses — McLaren-Honda is pleased with ongoing development of the car aerodynamically.

"We look for downforce all the time, but that gives you drag and there is always some phase — slow-speed corner, medium-speed corner, high-speed corner, where you need to improve," McLaren racing director Eric Boullier tells Autosport.

"Sometimes you improve high-speed corners, which is to the detriment of the slow-speed corners, and then you have to improve the slow-speed corner, but not degrade the high-speed corner. So you always have room."

Boullier believes McLaren is now a match for any team under braking and in slow-speed corners, which stands as justification for restructuring the team over the past few seasons. It looked to have lost its way technically, but seems to be getting back on track with former Red Bull aero chief Peter Prodromou re-integrated into McLaren's technical team as head of engineering.

"The key is to explain to everybody what was the cause of not winning anymore," says Boullier of the cultural shift that has occurred within McLaren's Woking headquarters. "One of the characteristics to keep the motivation of people is to make sure they also look at themselves and their own environment, and make it better.

"One of the key successes today is the correlation rate, which has improved massively. So something we think, design and test, before was maybe 60% success, now it's 95%, so that means everyone in the chain has improved massively.

"People are very happy when we debrief after the races, back at the factory, to tell them, 'The new front wing we brought,





McLaren has had a cultural shift, says Boullier

DUNBAR/LAT



TEE/LAT



TEE/LAT

you were expecting this, and it happened.' That is a little bit of personal pride, because we have no celebration with the on-track [results].

"It's worked for some time, it's not going to work forever, but I think we are now ready to be mature enough. And if tomorrow we can have the right package, or in the same ballpark [as the others], we will be there."

In terms of a specific technical focus, Boullier says McLaren has also shifted towards embracing a fundamental car concept that can be consistently developed over several seasons, rather than searching for the single 'magic bullet' that can outwit the field. This was McLaren's undoing in 2013, when it went for broke in an effort to conquer Red Bull.

"With the current regulations you cannot build the winning car for one year anymore, because you are limited in aero development, in your CFD capacity, you are limited everywhere," Boullier adds. "McLaren had this reputation of turning a shit car into a winning car in the same season, but the move of regulation has made this impossible.

"So to be successful since 2010 is to have a concept that you develop steadily every year. This is what Mercedes does, this is what Red Bull does, [but] every year McLaren was changing the concept of the car.

"With Peter Prodromou joining, having a restructure of the full aero department, and the company as well, we decided to go for a brand new concept [in 2015]. The engine was not mature enough, and chassis-wise it was the same because we started a new concept from scratch.

"We are competing against Mercedes, which has developed the car concept over the last three, four, five years. So we had to catch up every year [we missed]. This year we had a big step in terms of chassis. If you compare the last 12 months, say August to August, the gain in the car performance was massive for us."

Boullier says the main impact of Prodromou's return has been to provide "clear vision and guidance" to the technical team, rather than simply aping Red Bull design philosophies.

"This is key to the success of any team — you need to have proper leadership, in aero, in technical leadership, in management, and if you have proper management in the right place it works," Boullier explains. "When you miss leadership you take the wrong decision, or ignore something strategically very important to be successful. >>

"The idea was to start from a clean sheet of paper. We started from there, and the good thing is even though you have a change in regulation next year, our concept is still working. Even if we are still developing this year's front wing, we know this will be applicable for next year's car."

"If Honda steps up on the final step regarding the power of the engine, then we will be where we should be. You see in qualifying it is [usually] a fight with Williams and Force India. Remember they have more power than us. With a Mercedes customer engine we would be with Red Bull."

McLaren had a Mercedes customer engine until the end of 2014, but gave that up for its current partnership with Honda. McLaren still feels it is not possible to beat Mercedes while being one of its customers, so must endure its current pain and trust Honda to get the job done. Boullier's comments also suggests McLaren realises it is still deficient on the chassis side too, despite making significant improvements.

"A lot has changed in the aerodynamics department — with Prod in charge now I think it's very good in terms of direction, but it takes time," explains Button, who will give up his race seat to rising star Stoffel Vandoorne next season.

"It's a very different philosophy in terms of the aerodynamics and the type of car we have — how we use the airflow and which part of the car it's pushing down on, whether it's 'dirty downforce' [high drag], or parts you can use during a corner."

"We have a good plan for the future, it just takes time to get that working. Red Bull has been going in the same direction for so many years with its car, massively high rake and the way they use the airflow around the car."

"McLaren and Honda have an attitude to destroy all reasons to lose. There is no reason we cannot win"

"But the team is going in the right direction and listening to the drivers, which is important for the finer details. Behind the scenes it's improving, and also on the Honda side, in terms of their leadership, it's very good."

"The way they interact with McLaren is good, and also the improvements they've made [to the engine] this year. We're still obviously down on Mercedes in terms of outright power, [but] Honda knows that."

"Reliability has got a lot better this year; we've been able to be more aggressive with the engine. Initially when they came in we had a lot of engine failures and it hurts confidence, especially when you're Japanese and you are passionate about motor racing, but they've gained a lot of strength over the last year and a half."

F1's regulatory overhaul for next season, when engine development will be opened up and cars will be made significantly faster by aggressive aerodynamics and better tyres, presents an opportunity for McLaren-Honda to break back into the top four, provided the engine/chassis package can deliver.

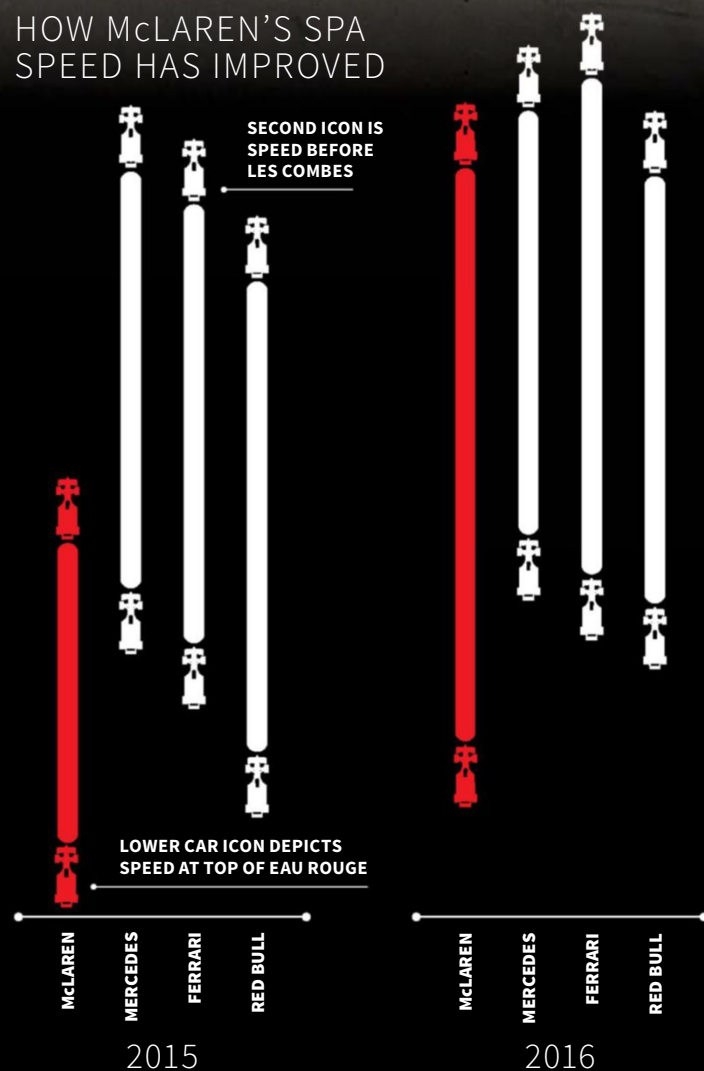
That remains a big 'if', but if the current rate of progress continues then podiums should be the target for next year, followed by race wins and a title tilt in 2018.

"Sometimes you can win with an accident, but in Japan if you lose there is always a reason, so you have to find and eliminate them," says Hasegawa. "McLaren and Honda have an attitude to destroy all reasons to lose. There is no reason we cannot [eventually] get the win."

Alonso's contract is up at the end of next year, but a few top-three finishes in 2017 might convince one of F1's top performers to stick around a bit longer, to see whether McLaren-Honda really can 'destroy all reasons to lose' and finally return to winning ways. 🏆



HOW MCLAREN'S SPA SPEED HAS IMPROVED





Quantifying Honda's improvement

GAUGING HONDA'S POWER deficit to Mercedes' leading standard for F1 is tricky, given that the Japanese manufacturer is naturally reluctant to publicly distil its current shortcomings into a pure horsepower figure.

It's also an inexact science, given the target is constantly shifting as each manufacturer extracts more performance from what remains relatively immature hybrid technology.

But analysis of generally accessible speed-trap data from the last two seasons can help identify how far Honda was behind the opposition, and how much it has improved this year.

Belgium's Spa-Francorchamps is a useful point of analysis, because it offers the benefit of locating the official speed trap at the top of Eau Rouge, plus a sector timing line before the braking zone for Les Combes, at the end of the following straight. Essentially, this provides us with a full-throttle drag race between all the cars.

These two speed detection

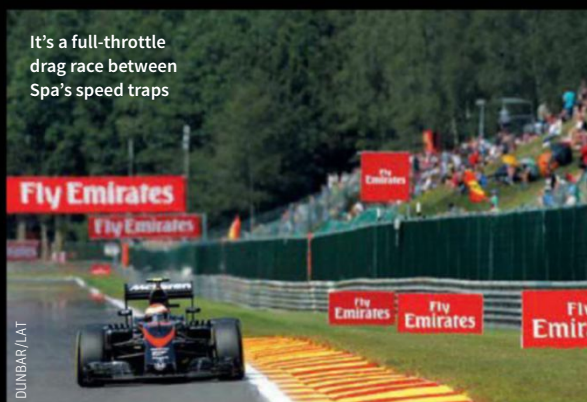
points highlight just how weak Honda's ERS was in 2015. During qualifying for that year's Belgian Grand Prix, McLaren-Honda clocked 189.3mph through the Eau Rouge speed trap, putting it 7.8mph down on Mercedes (197.1mph), 6.1mph down on Ferrari (195.4mph), and 2.8mph down on Red Bull-Renault (192.1mph).

By the end of the Kemmel Straight, the McLaren was travelling at 197.8mph, barely quicker than the Mercedes could go at the start of the straight! Mercedes reached 209.2mph, Ferrari 208.2mph, and Red Bull-Renault 205.8mph.

All the top teams were faster through this section this season, thanks to improvements in aerodynamic efficiency, and using softer tyres as well as better engines.

McLaren-Honda logged 192.4mph through the speed trap, putting it 6.3mph down on Mercedes (198.7mph), 5.1mph down on Ferrari (197.5mph), and 4.2mph down on

It's a full-throttle drag race between Spa's speed traps



Red Bull-Renault (196.6mph).

That paints a fairly similar picture to last year, but the story at the end of the Kemmel Straight is very different. During this season's equivalent session, McLaren-Honda recorded 209.3mph, compared to 211mph for Mercedes, 212.8mph for Ferrari, and 209mph for Red Bull-Renault.

These figures are skewed by specific aerodynamic and engine settings (Spa is not a full-downforce circuit), as well as particular circumstances concerning how individual drivers

were operating their cars, and whether any of them picked up a speed-boosting aerodynamic tow.

But the broad picture suggests McLaren-Honda is at least now able to maintain a favourable rate of acceleration in a straight line compared to the other top teams, though it still clearly lacks pure grunt.

McLaren is impressed by the progress Honda has made, and the team's racing director Eric Boullier says it is important to judge this improvement within the context of Honda's late

arrival to the V6 hybrid turbo formula compared to the other manufacturers.

"I don't understand why people don't explain this," he says. "Mercedes started to develop this engine in 2010, and the first time they ran on track was '14. They were [already] a successful F1 race engine [manufacturer] for generations. Honda decided to start in '13 from scratch. They had an empty building, so you can imagine the difference.

"You can't compare apple with orange. It's [actually] like they [Honda] started in 2014, because you need one year to buy the dynos and set up the operations – and still you are not at a level, but at least you can work. So they were [actually] four years behind.

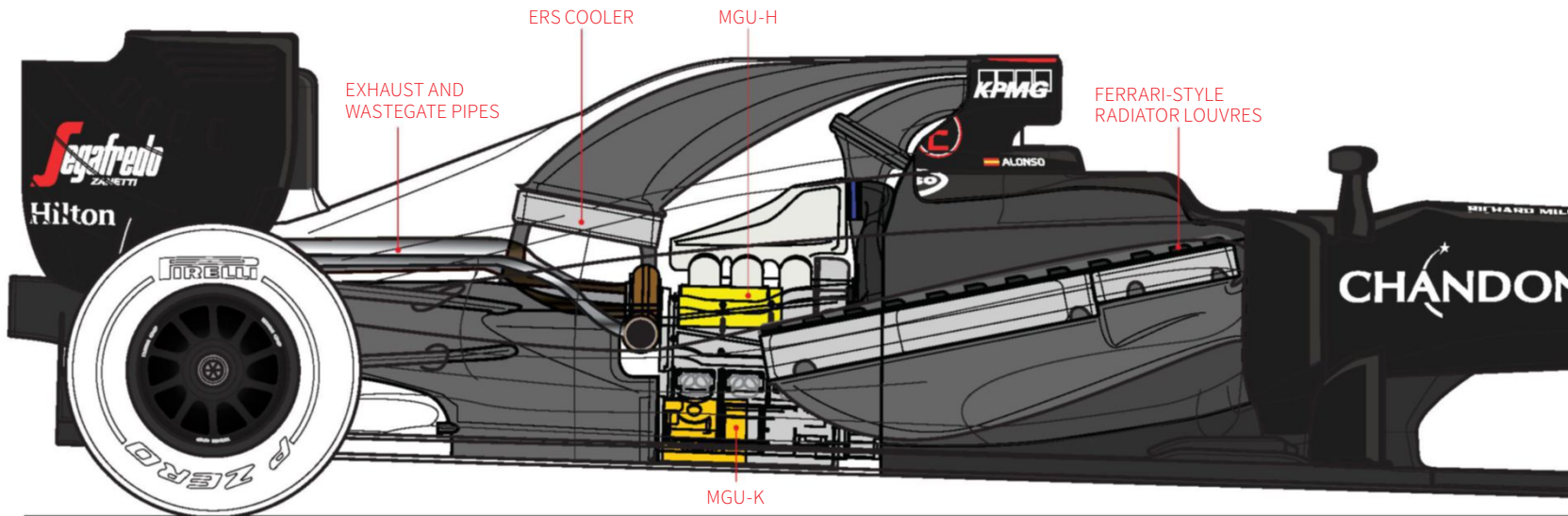
"To be fair with them, if you take the time frame from 2010 to '14, and you overlap what they did from '13 to '16, this engine should be more or less the one we had in '14.

"If we had this engine in 2014, we would've been world champion, so on paper they did a good job. But now the next step..."

TECH FOCUS ON McLAREN-HONDA

By Craig Scarborough

[@ScarbsTech](#)



MP4-31 CHASSIS

On first sight, the MP4-31 as it was launched was not far removed from the troubled MP4-30 from 2015. However, the new car indicated lessons had been learned from the changes in design direction that McLaren had gone through the previous season. The car was already on an evolutionary path started by the design team a year earlier. It can be argued that McLaren's chassis have not been the best for many years, often lacking pace out of the box, but a strong development rate had always brought the car back into competitiveness.

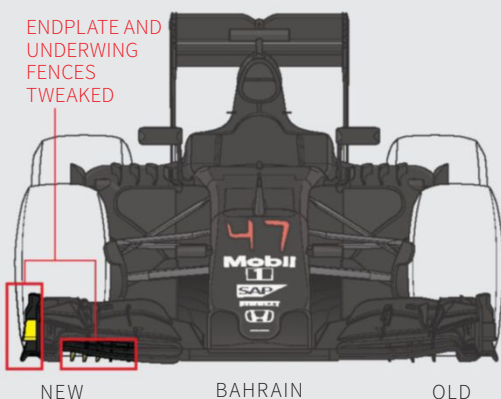
Often its approach was to pin the car's design around a specific area to gain an advantage, such as the F-duct, 'U' sidepods, and trying mushroom-fairing rear suspension. This focus on one specific solution saw the rest of the car lack detail and complexity relative to its rivals. Often the big idea was dropped after one season and the cycle restarted.

For 2015, the mushroom rear suspension fairings were dropped, though initially McLaren did not rule out bringing them – or something similar – back later during the campaign. Instead the focus centred on the size zero concept – matched with the Honda powerplant, the rear end of the car was tiny. This didn't compromise the chassis too much (the car handled and cooled sufficiently well), although the impact for Honda was far more significant. But this early commitment to the concept left McLaren not following the increasing trend of a raked set-up attitude and increasing complexity around the front wing and brake ducts.

With the technical structure for McLaren a trio of designers (Matt Morris, Tim Goss and Peter Prodromou), the in-season development started at a pace through 2015, focusing on rake and front-end aero design, which led to the embryonic concept of the 2016 car. Thus, at its launch the new car kept the good features of the MP4-30; short S-duct nose, multi-element front wing, clamshell front brake ducts, raked set-up and slim rear end. It also moved forwards with revised front suspension layout, returning to a conventional rear wishbone layout and a tidier radiator formation in the sidepods. Overall, it was far more conventional and featured much less of the tangential thinking of recent McLarens.

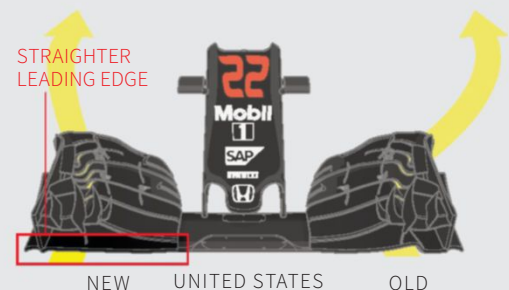
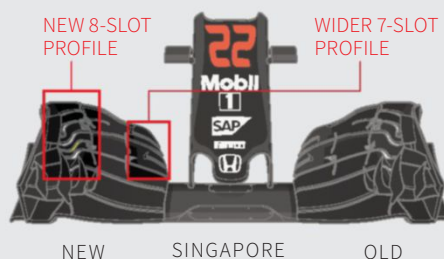
The progress of the car has been marked, McLaren's usual in-season development rate was applied to a car that already had many of the fundamentals right. At every race the car has sported updates to some section of bodywork or another. So, we saw the cars raked set-up near some 13-14cm of rear rideheight, the passive hydraulic front suspension set-up keeping the front rideheight under control, critically ensuring the T-tray splitter is kept clear of the track to prevent undue wear to the skid blocks below the car.

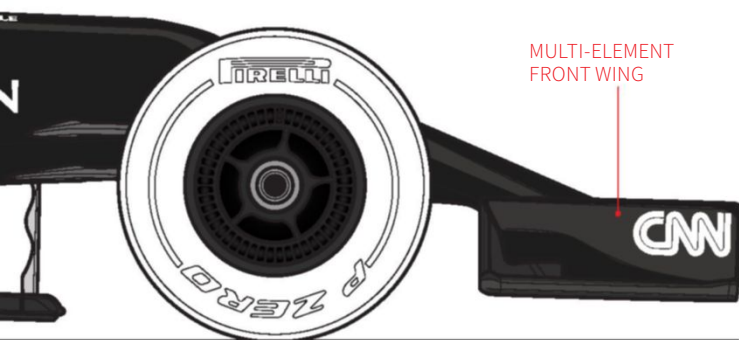
While attention has been paid to the aero at the rear of the car, with the diffuser and floor area being constantly reworked to make the most of the greater airflow expansion under the car from the raked set-up, it is largely the front end that has seen the most influential changes. The front wing and brake ducts have seen the greatest number of iterations.



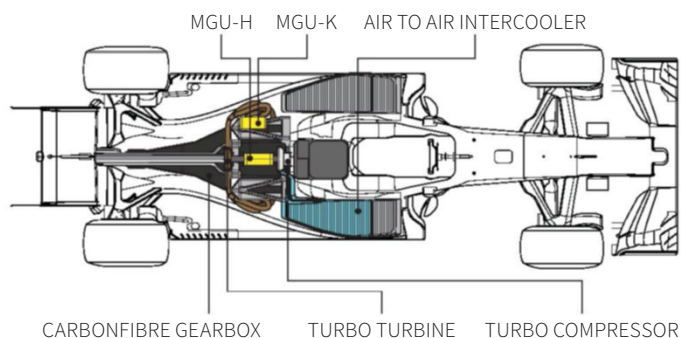
THE EVOLUTION OF THE FRONT WING

Front wing changes started early in the season and continued throughout, with new slot profiles arriving in Singapore. In the US, McLaren also experimented with airflow changes for 2017.





WHAT GOES WHERE



This started with a 2015-based pre-season testing front wing, which was soon eclipsed by the Melbourne spec that increased the number of elements, starting a sequence of increasingly complex updates to the front wing. By the Spanish Grand Prix in May, there was the third major wing update. Numerous updates adding extra flicks to the cascade winglets, more slots to the wings inner and outer tips have followed.

Allied to the front wing, the front brake ducts also serve to be influential on airflow control, as much as brake cooling. The original clamshell-design brake ducts were discarded for flatter duct shapes, the brake cooling air being collected by a scoop, rather than fed in between the wheel and brake duct.

All the work in this area serves to control the front tyre wake from upsetting the rear bodywork, and in turn the airflow passing under the raised rear end of the car. One further addition to the car's armoury of frontal bodywork was the addition of a winglet under the raised part of the chassis, with a Red Bull-like bat wing mounted to the T-tray splitter.

With the trio of front wing, brake duct and bat wing, the car is now better able to produce downforce front and rear, with a lot of the focus on the front aero improving rear aero. This reduces the amount of rear wing required to give the car its grip, and a smaller rear wing boosts top speed thanks to reduced drag.

This is important as the Honda engine hasn't been able to deliver the huge amounts of power its rivals have, hindering top speed. With a greater power output the team could add more downforce for more grip, the extra drag created being overcome by the horsepower of the engine. So really the chassis has come as far as it can with the power available. ❄

RA616H ENGINE

Honda's progress has been quite immense over the last two seasons. Before 2015, many were concerned that Honda arriving a year later into the current power unit regulations would give them a huge advantage by learning from what could be seen in the first year of the new regs. While it's true Honda did learn something in terms of layout and ERS strategy, the small gain was offset by other compromises in the power unit. Handicapped by poor power, driveability, reliability and ERS endurance, the package was not what had been predicted.

A winter redesign changed little of the odd power unit layout for 2016, the turbo compressor was still small and mounted inside the 'V' of the engine, the MGU-H was still highly stressed and mounted in a similar position. The combustion technology was still conventional in contrast to the Ferrari and Mercedes lean burn pre-chamber set up.

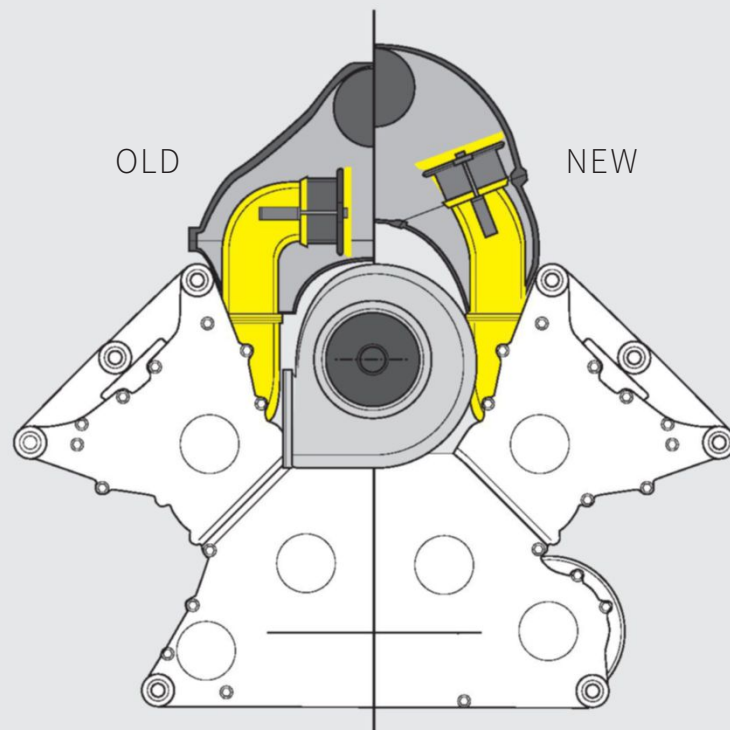
But as with the McLaren chassis, Honda carefully allocated use of the remaining development tokens to bring the powerplant closer to competitiveness. This started with turbo and MGU-H fixes, which did help stabilise the performance and reliability. Approaching the British GP in July, the power unit finally enjoyed the ERS-H being able to provide extra energy throughout the lap and race. This gave the drivers the full 180bhp ERS boost, a luxury not afforded the year before.

This left the team with two hurdles to overcome, outright power and fuel consumption. Thus, the mid-season upgrades were part

of a large package to start to resolve these issues. The first step was a redesigned inlet plenum, which straightened and raised the inlet trumpets. This probably gave a power boost, but the thinking was much more about the space created underneath the plenum. Subsequent token spends allowed a larger turbo compressor and MGU-H redesign, which were far more beneficial than the plenum update alone.

It's quite likely that peak horsepower in qualifying was far closer to the other three power units than it appeared. This was due to the continued problems of fuel consumption, which only affected the engine in the race, forcing the drivers to run less powerful maps and lift/coast more to eke out the 100kg of race fuel. At the season's end this issue remains unresolved, perhaps because Honda did not have the token spend for the major combustion and top-end update to change from conventional plug ignition to the pre-chamber set-ups working so well for Ferrari and Mercedes.

With the token system dumped for 2017 and a complete engine redesign on the cards for Honda, allowing it to change the turbo layout and the combustion system, the McLaren chassis will be released from its enforced low-drag set-up. When allied to the change in regulations and McLaren's more conventional approach to chassis development, there should be no reason for the team not to make a step up the grid next year.





FORMULA1

How Hamilton can grab

THIS IS THE CLOSEST NICO ROSBERG HAS ever been to becoming the Formula 1 world champion. It may even be the closest he will ever get, given next year's major rule changes.

This weekend in Abu Dhabi, all the German has to do is guide his Mercedes around Abu Dhabi's Yas Marina track in third place or better and it will be mission accomplished, even if Lewis Hamilton wins the race. Thirty-four years after his father Keke won the title in a Williams-Ford, Rosberg would thus become the third second-generation F1 world champion.

Based on his form this year, third place should be relatively straightforward. He has finished second in each of the past three races and has been off the podium only five times this year.

History is also in his favour. Only five times has a driver made up a deficit of 12 points (or equivalent when gaps are adjusted for varying points systems), the advantage he holds over team-mate and title rival Hamilton, in a last race shootout – in 1950, '64, '86, 2007 and '10. And just 10 times in 28 deciders has a driver come from behind to win the title.

His form in Abu Dhabi is strong, too. Rosberg has outqualified Hamilton all three times they

have headed to Yas Marina as team-mates, from 2013-15. He has only once been outqualified by a team-mate at the venue (by Michael Schumacher in 2010) in seven attempts.

Looking at the numbers, Rosberg does not need to take any risks. He simply needs to drive within himself, hope that his Mercedes is reliable and deliver a result the car is capable of. He can also take heart from the fact that races in Abu Dhabi are normally straightforward and don't throw up the kinds of surprises, such as bad weather, that made the last race at Interlagos a minefield for his title aspirations.

But conservatism can cause problems. Hamilton knows all about that. In Brazil in 2008, McLaren played it cautiously in a rain-hit title decider in which he led by seven points, when 10 points were awarded for a win. It required a last-lap, penultimate corner pass on slick-shod Timo Glock for Hamilton to deny Ferrari driver Felipe Massa the title by a single point.

All season long, Rosberg has steadfastly refused to be drawn on talk about his championship hopes, falling back on the old chestnut about taking it one step at a time. It's what elite sportspeople do to retain focus and



HOW THE TITLE WILL BE WON

ROSBERG WINS IF

AND HAMILTON

He finishes in the top three	
He finishes fourth, fifth or sixth	<i>doesn't win</i>
He finishes seventh or eighth	<i>isn't in the top two</i>
He finishes ninth or 10th	<i>isn't in the top three</i>
He finishes outside the top 10	<i>isn't in the top three</i>

HAMILTON WINS IF

AND ROSBERG

He wins	<i>is outside the top three</i>
He is second	<i>is outside the top six</i>
He is third	<i>is outside the top eight</i>

the Formula 1 crown from Rosberg

deal with the pressure. Don't worry about the outcome, concentrate on the process.

After losing out to Hamilton in each of the past two seasons, Rosberg has embraced this new approach. After saying in Brazil that he was unsure how he would approach the title-decider, Rosberg gave it some thought and has decided to stick with the outlook that has got him to where he is today. However, he did stop short of declaring he was going for the win.

"I have to treat this like any other race," he said. "Doing a good job on a grand prix weekend is always a challenge. Nothing in this sport is easy, so this won't be any different and I still have to go all out for a good result."

For Hamilton, there is little he can do other than win the race and then hope for the best.

"I am in an awkward position going into the last race," said Hamilton. "It doesn't really make a big difference if I go and drive like I do right now, because I have already lost so much through the year."

"I can't give up. You never know what can happen"

Hamilton is referring to a series of mechanical failures that have tarnished his campaign. Engine problems in China and Russia put him on the back foot. He then paid for those in Belgium when he was handed a series of penalties for engine changes. And then a near-certain 25 points went up in smoke in Malaysia when he suffered an engine failure.

But he will also have in the back of his mind that Rosberg, in contrast, has had luck on his side this year. In Malaysia, he recovered to salvage a podium after being hit by Sebastian Vettel at Turn 1 at the start, which dropped him to last place. In Austin, he benefited from the virtual safety car to get a 'free pitstop' and jump Daniel Ricciardo.

In Mexico he escaped damage after colliding with Max Verstappen on lap one, and in Brazil he benefited from Red Bull not splitting its strategies to get back ahead of Verstappen.

"Unbelievable, when will it end?" said Hamilton of his luck. "Red Bull made such a big mistake with that call.

"Verstappen still had a great race and got back up to third, but it would be good if they made some good calls at the next race."

Hamilton needs Red Bull to get it right in Abu Dhabi, because if both Verstappen and Ricciardo get ahead of Rosberg, with Hamilton winning, that would be enough for an impressive fourth world title. There is also the question of reliability. Hamilton has encountered several issues this season — what is to say it won't finally hit Rosberg in Abu Dhabi?

Hamilton knows he is up against it. After all, in the four last-race shootouts he has been involved in, only twice has he prevailed. And on both those occasions, he was leading beforehand.

But then he will also know that stranger things have happened in the sport.

In 2007, he led by four points over Fernando Alonso and seven over Kimi Raikkonen, but ended up losing to the latter by a single point.

A year later, he had a seven-point lead when he had to conjure that miracle last-lap pass.

"I can't give up because you never know what can happen," said Hamilton. "It's unlikely, but you never know."

LAWRENCE BARRETTO

OBITUARY

Paul Rosche 1934-2016

THE WORD GURU IS OFTEN OVERUSED, applied too flippantly to the technical innovators of our sport. But Paul Rosche, who died at the age of 82, was undoubtedly a guru and perhaps even a genius when it came to engine design, such was the role he played in BMW's motorsport successes.

Rosche was a one-company man who spent 42 years with BMW until his retirement in 1999. He will be best known for the 1.5-litre Formula 1 turbo engine that gave the German manufacturer its only world championship title in '83, but he was also responsible for the engines that brought success in Formula 2, touring cars and sportscars.

Others came and went at BMW Motorsport, but Rosche was a fixture from the '70s onwards. He came to symbolise motor racing at the Munich marque. "Paul was Mr BMW Motorsport," says long-time factory driver Steve Soper.

"Paul had BMW at his core; his heart was made by BMW, if you like," reckons Hans Stuck, who had two long spells with the marque. "He came to stand for the company."

Rosche's role went beyond leading the design of race engines. Soper remembers how he played a pivotal role in the internecine BMW battle between the Schnitzer and Bigazzi teams at the 1992 Spa 24 Hours.

Bigazzi boss Gabriele Rafanelli had put Soper back in his BMW M3 for the final stints in the hope of overhauling the Schnitzer car, now with Eric van de Poel at the wheel. BMW was assured of victory, so it wasn't clear the two teams would be allowed to race.

"Paul, as the most senior person from BMW Motorsport present, said, 'This is



XPBIMAGES

motorsport; let's race," explains Soper, who went on to secure a dramatic victory for himself, Christian Danner and Jean-Michel Martin.

"That was a big decision, because some people were saying that it could end in tears and I'm sure there was a bit of pressure from Schnitzer for us to hold positions. But that was typical of Paul. He was a true racer."

He was also a genius, according to Gordon Murray, his opposite number at Brabham during the F1 team and the manufacturer's successful partnership in the '80s.

"Paul could dream up camshaft profiles in his sleep," says Murray of the speciality that explained Rosche's 'Nocken-Paule' nickname within BMW. "I really do think he was a genius. He was one of those guys who could think outside the box."

But Rosche was also an intuitive engineer who, says Murray, "wasn't afraid of getting his hands dirty".

"The night before the race when we won the championship with Nelson [Piquet] at Kyalami in '83, out in the grass behind the pits there was Paul with an engine pulled to pieces," recalls the Brabham designer.

"We had been running very lean and kept blowing up, and he had the guys turn the engine upside down while he was scrabbling around looking up into the bores.

"And don't forget that we won the Le Mans 24 Hours with a road-car engine in the McLaren F1 GTR in '95."

Rosche joined BMW from university in 1957. He designed the two-litre turbo engine that won the European Touring Car Championship in '69, before joining BMW Motorsport in '75 to lead development of the straight-six unit for the M1 supercar.

He became technical MD in 1980 ahead of BMW's F1 entry and retained the role until his retirement after completion of the company's first three-litre F1 V10.

GARY WATKINS



The four-cylinder BMW turbo powered Piquet to the 1983 drivers' title

LAT

IN THE HEADLINES

ERICSSON CONFIRMED AT SAUBER

Sauber has officially confirmed Marcus Ericsson will stay at the team in 2017. The deal is understood to have been done before the Brazilian Grand Prix earlier this month.

KING TO RUN IN ABU DHABI FP1

GP2 race winner Jordan King will make his second appearance in a Formula 1 free practice session for the Manor team in Abu Dhabi this weekend. King, who ran at Austin last month, will replace Esteban Ocon.

LECLERC WITHDRAWS FROM F1 OUTING

Charles Leclerc has withdrawn from Haas Formula 1 team Friday practice duties at the Abu Dhabi Grand Prix to prioritise his GP3 title bid. The Ferrari protege heads the GP3 standings by 29 points heading into the weekend.

DA COSTA RULES OUT MACAU COMEBACK

Antonio Felix da Costa, who claimed his second Macau Grand Prix win on his return to Formula 3 last weekend (see report, page 44), has ruled out returning to chase a third victory. "This is not for me – this is for the rookies and the guys who want to go to Formula 1," said da Costa.

RUSSELL SET FOR MERCEDES F1 ROLE

Macau Grand Prix pole position qualifier George Russell is to switch to the GP3 Series in 2017 along with an expected role within the Mercedes Formula 1 team. The '14 McLaren Autosport BRDC Award winner is set to join the ART Grand Prix GP3 squad, and has already begun a programme as a Mercedes development driver.

WORKS VAUXHALL TEAM BACK IN BTCC

Vauxhall will return to the British Touring Car Championship next season as a factory team. Power Maxed Racing has signed a three-year deal to run new Astras in the series, and initial work has begun on the cars at the team's base in Bidford, Warwickshire.

SIMPSON JOINS DYNAMICS FOR 2017

Matt Simpson will race for the Team Dynamics Honda squad in the British Touring Car Championship in 2017. He raced for Speedworks Motorsport in '16, and will partner Gordon Shedden and Matt Neal next year.

TORDOFF QUILTS AFTER TITLE TILT

British Touring Car Championship runner-up Sam Tordoff has decided to leave the series. He has announced that he will race elsewhere in 2017 having previously suggested he might stop racing entirely.

KUBICA QUICK ON FIRST LMP1 TEST

Former grand prix driver Robert Kubica made his LMP1 debut during the World Endurance Championship rookie test in Bahrain. Kubica (below) drove the privateer ByKolles squad's CLM, lapping half a second faster than team regular Pierre Kaffer's best effort in free practice.



F1 PREVIEW

Abu Dhabi Grand Prix

November 25-27



YAS MARINA CIRCUIT

LENGTH 3.451 miles NUMBER OF LAPS 55

2015 POLE POSITION Nico Rosberg 1m40.237s

POLE LAP RECORD Sebastian Vettel 1m38.481s (2011)

RACE LAP RECORD Sebastian Vettel 1m40.279s (2009)

● DRS DETECTION ZONE
— DRS ACTIVATION ZONE



Tyre allocation



UK start times

LIVE ON SKY SPORTS F1 & CHANNEL 4

FRIDAY

FP1 0900 FP2 1300

SATURDAY

FP3 1000 QUALIFYING 1300

SUNDAY

RACE 1300

Previous winners

2015	Nico Rosberg	Mercedes
2014	Lewis Hamilton	Mercedes
2013	Sebastian Vettel	Red Bull
2012	Kimi Raikkonen	Lotus
2011	Lewis Hamilton	McLaren
2010	Sebastian Vettel	Red Bull
2009	Sebastian Vettel	Red Bull

Themes to watch

TITLE DECIDER

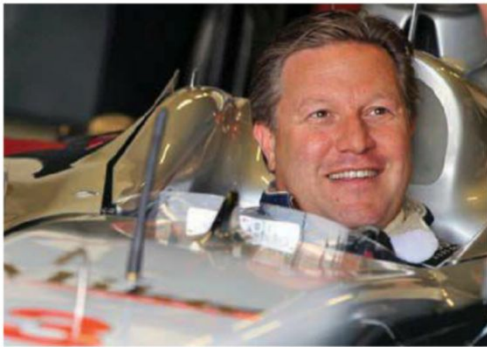
If Nico Rosberg is in the top three, it's game over regardless of what Lewis Hamilton does. But F1's 29th last-race title decider could create a shock.

BATTLE FOR FOURTH

Force India is on the brink of fourth place in the constructors' championship. Only a disaster, and a massive two-car result for Williams, can change that.

TWO FAREWELLS

Felipe Massa and, depending on what happens in 2018, Jenson Button will start their last F1 races in Abu Dhabi. Can either score a strong result?



BROWN APPOINTED DIRECTOR OF McLAREN GROUP

ZAK BROWN HAS BEEN announced executive director of the McLaren Technology Group.

His appointment comes less than a week after Ron Dennis, former chairman and CEO of McLaren Group, was forced to step down in the wake of a protracted power struggle.

Brown, 45, is due to take up his new position early next month.

"I'm immensely proud to be joining McLaren Technology Group," said Brown.

"I have the utmost respect and admiration for what the business has achieved to date, and I look forward to contributing to the next important phase in its development.

"Having worked closely with McLaren for many years, I've been struck by the talent and ambition of the entire workforce, and I very much look forward to complementing the business's many existing strengths, and building on them to drive future success in everything we do."

A McLaren statement described Brown's appointment as a "significant part of a restructuring programme", adding that he will jointly lead the technology group with chief operating officer Jonathan Neale.

The Formula 1 team said it was still seeking a new group CEO.

Over the past decade Brown has become one of the leading commercial figures in motorsport.

He founded the JMI marketing agency in 1995 and it grew to become the biggest in its field before being sold in 2013 to the CSM Sports and Entertainment Group.

Brown stepped down from his position on the CSM board earlier this year, fuelling speculation that he was poised for a move back into a full-time role in motor racing.

Brown's appointment marks the culmination of almost two years' in-fighting at McLaren, as Dennis battled to secure his position as chairman and CEO, in the face of opposition from fellow major shareholders Mansour Ojjeh and the Bahraini sovereign wealth fund, Mumtalakat.

When Dennis, 69, returned to the Group CEO role in January 2014, he was a 25% shareholder in the group and planned to acquire a full controlling shareholding by buying out the 50% owned by Ojjeh and the Bahrainis.

Autosport understands that since his return, Dennis failed to meet deadlines by which he was required to raise the capital in order to complete the buyout.

ANTHONY ROWLINSON

LMP1 rules stable to 2019

Following Audi's withdrawal, the prototype regulations have been extended for two years

A

FREEZE OF THE LMP1 RULEBOOK WAS THE inevitable consequence of Audi's decision to end its involvement in the LMP prototype ranks and withdraw from the World Endurance Championship. The decision was required to keep budgets under control for the remaining manufacturers and, more importantly, prevent a further escalation of costs in an attempt to attract a newcomer.

Vincent Beaumesnil, sporting director of WEC promoter the Automobile Club de l'Ouest, described the move that keeps the present regulations in force until the end of the 2019 season as "a tough decision, but a sensible one". He said the freeze "makes complete sense in the context of the current situation".

The decision delays two major changes to the rulebook that had been in place for 2018. An increase in the scope of the hybrid regulations would have allowed the use of an additional or third retrieval system and an increase in the amount of energy deployed with the creation of a new, upper 10-megajoule subclass. New survival cell rules, focused on the seating position of the driver, were due to come into force at the same time.

Constant evolution of technology was part of the philosophy of the efficiency-based LMP1 rulebook introduced at the start of the 2014 season. But putting a hold on that evolution will not remove the ability of the manufacturers to showcase their high-tech credentials, according to Porsche LMP1 team principal Andreas Seidl.

"It was important not to take a backwards step; we need to maintain the technology and the scope to develop it further," he said. "Keeping the regulations frozen until the end of 2019 doesn't mean that the technology will stand still. We will continue to drive for greater efficiency."

Where the rules go beyond 2019 has yet to be determined. That is likely to depend who comes to the rule-making table with a desire to join Porsche and Toyota in the top class of the WEC.

"As always we will be listening to the manufacturers already involved and those that are looking for the opportunity to join," said Beaumesnil.

Peugeot has expressed an interest in returning to LMP1, but it has claimed that the costs are too high as they stand. It has suggested that it would need a significant budget reduction for it to return to a category from which it suddenly withdrew ahead of the inaugural season of the reborn WEC.

The decision made over last weekend's Bahrain WEC meeting does not affect the changes planned for 2017. Alterations to the aero regulations, with a view to reducing downforce to keep lap times under control, include a reduction in the depth of the rear diffuser.

GARY WATKINS





MID-ENGINE GTE PORSCHE Porsche has built a mid-engined 911 in its attempt to win back the World Endurance GTE titles it won in 2015. The new 911 RSR, which will also race in the IMSA SportsCar Championship, exploits the 2016 GTE rulebook, which allows for free positioning and orientation of the engine. Exactly how far the four-litre flat-six has been moved forward has not been revealed, although Porsche GT boss Marco Ujhasi has described the shift as the “maximum possible”, at the same time as confirming that the gearbox is at the back of the engine. “There is an opportunity in the regulation to optimise weight distribution and aerodynamic efficiency, and we went for it,” he said. “But it is still a 911; yes, it has the genes of a 911.” **Photograph by Jakob Ebrey/LAT**

MOTOGP

Vinales flies on his debut for Yamaha

MAVERICK VINALES MADE A perfect start to life with Yamaha, topping his first two days of MotoGP testing as Jorge Lorenzo’s replacement.

Less than 36 hours after the 2016 season finale, Vinales and Lorenzo (Ducati) started work with their new teams at Valencia.

Vinales finished fourth in the 2016 standings with Suzuki, and the 21-year-old wasted little time getting accustomed to his new surroundings, beating new team-mate Valentino Rossi to top spot on the first day by 0.020 seconds. He went faster again on the second day, setting the test’s only sub-1m30s lap to beat world champion Marc Marquez by 0.196s.

While Rossi tried Yamaha’s 2017 engine and chassis – and crashed on the new package on day one – Vinales spent his time on the ’16 bike, setting what the Italian described as a “huge lap time”. Yamaha was preparing to test at Sepang as Autosport went to press.

Marquez was fourth and then second-fastest on the two days, focusing on Honda’s 2017 engine, while Lorenzo enjoyed a good start to his Ducati spell.

Lorenzo was third behind Vinales and Rossi on the opening day, and tried Ducati’s 2017 bike on the second day, looking comfortable on his way to the eighth-quickest time. Andrea Dovizioso showed the promise of the ’17 Ducati by finishing the test third fastest.

Squeezed out of Ducati in favour of Lorenzo, Andrea Iannone was quick from the outset with Suzuki. Iannone crashed twice, but finished the test in fourth, while rookie team-mate Alex Rins’ test finished early when he fell and compressed two vertebrae on day two.

Tech3 Yamaha’s Jonas Folger was the best of the rookies in 10th, while former Tech3 riders Pol Espargaro and Bradley Smith got their first taste of KTM’s new MotoGP bike. Espargaro led the way in 17th place, 1.878s off the pace.

MITCHELL ADAM



Yamaha recruit Vinales was fastest on first two days of testing



TOTALLY MOTORSPORT



ICE DRIVING IN SWEDEN IS THE ULTIMATE DRIVING EXPERIENCE

BOOK NOW FOR 2017

**NEW VENUE, NEW TRACK, NEW CARS
BUT THE SAME EXHILERATING EXPERIENCE!**

**LIMITED PLACES ARE STILL AVAILABLE ON OUR RACE DRIVER CAR CONTROL
IMPROVEMENT COURSE - Designed for drivers of all ages and experience
(PLUS NEW SKI/DRIVE PACKAGES ALSO AVAILABLE)**

Ice training is an awe-inspiring experience like no other, where you slip out of grip and move into graceful slide... Driving flat out on a frozen lake in the middle of Scandinavia - sideways!

For 2017 (January to March) our professional instructors offer you the opportunity to control the power of the latest Audi Quattros. Experience the exhilaration of driving on ice and the freedom of the open Wilderness on frozen lakes in one of the most stunning environments in the world.

There are several different courses available including the race driver car control course, the combined ice driving and ski package at the fabulous nearby Are ski centre and the 3 night 2 day package suitable for individuals or groups which includes the snowmobile safari.

BESPOKE PACKAGES TAILORED TO SUIT YOU PLUS CHOICE OF FULL BOARD ACCOMMODATION.

CALL OR EMAIL GRAEME FOR FURTHER DETAILS AND PRICES

01625 427683 • graeme@f1.co.uk • Check out our video clip at www.icedriving.net

Callum Grant would like to thank the following people for their support in helping him to secure the 2016 Historic Formula Ford Championship



All at Nigel Grant Motor Engineers including (Dad), Nigel, (Mum), Janet, Nick Jeffery, Peter Robinson, "The Big Butty" Jack Butterworth and Olivia Howlin.

Max and Barbara Samuel-Camps, John and Allison Sykes (TR Bitz), Clive Haywood (Merlyn CRD), Simon Brown and Julie Sinsbury (Trackstar Racing), Mike Waite (M.W. Fabrications), Ken, Carol and Simon (URS), Neil Bold (Bold Race Engines) and Neil Shinner and a special massive thank you to Bruce Bartell, Max and their family.

"I couldn't have done it without you"

OBITUARY

Peter Foubister

1953-2016

AS NEWS OF THE UNEXPECTED PASSING of Peter Foubister last Friday filtered through, the level of respect in which he was held was clear in reactions from all over the world carrying the same message: "What a sad loss of a wonderful, lovely, genuine, enthusiastic character. A great man." They were followed by tales of great times, fun, celebrations and laughter.

Foubie – there is no other way to remember him – was instrumental in the development and growth of Autosport through the late '80s and '90s, including many of the activities associated with the title: the Autosport Awards, the Autosport International exhibition, and what's now known as the McLaren Autosport BRDC Award, launched 27 years ago.

"His mantra: 'Make the reader feel like they were there'"

A proud Scotsman, Foubie started at the magazine as rallies editor in 1980, and his passion for the sport came through in his work as he followed the World Rally Championship. When he became editor in 1988 the writing took a back seat, and his mantra to his staff was simple: "Make the reader feel like they were actually there."

Foubie became editor soon after I joined the magazine, and no better mentor could I have had. He would give us all encouragement, and make every one of us feel that anything was possible, however off-the-wall. He would be there for advice ("Aye! It'll cost ya a Foubie Pooooound..."), and he would also be there to help with personal issues any of us were facing outside of work. He cared.

He was editor until 1992, then became publisher, always exploring new ways to expand the Autosport brand. Among the many ideas that had been kicking around was turning the magazine's annual awards feature into an actual end-of-season event in 1987. It grew very, very quickly into the star-studded banquet it is today.

In 1989 another award idea came together and was hastily pitched to Ron Dennis at McLaren to support young British racing talent – and the McLaren Autosport Young Driver of the Year was born. Within a handful of years the BRDC was brought onboard to make the award even bigger.

The first recipient was 18-year-old Formula Ford racer David

Coulthard, who was blown away to find out that the prize included a run in the then-dominant McLaren-Honda Formula 1 car. There are a great number of successful racers who consider winning the Award a pivotal moment in their careers, and are forever grateful to Foubie for its existence.

The Awards might have been Foubie's baby, but from day one it was his long-suffering personal assistant Laura Coppin who helped make these grand ideas a reality. As the Awards grew, so did the after-show party, which in no time became the hottest ticket in town.

As the Autosport brand and the commercial products associated with it continued to grow, so did Foubie's career, moving him further 'upstairs'. However, the magazine would always hold a huge place in his heart.

In 1996 he became publishing director, and the successful launch of *F1 Racing* soon followed – in a multitude of languages. One title – not quite so glamorous, but which showed his willingness to try whacky ideas – was *GPX*, a kind of *Hello!-meets-Formula 1* magazine, complete with promotional milk float!

In 2004 he was appointed CEO of Haymarket Worldwide Inc, with a relocation to America that oversaw *RACER* magazine and its media projects.

On returning to the UK in 2009 there were spells as a consultant to the Bahrain Grand Prix, Goodwood and its Breakfast Club, and finally the role of Motoring Secretary at the Royal Automobile Club in London.

It's fitting that only the night before he died Foubie was in his element – at the International Historical Motoring Awards ceremony, collecting an award for Best Rally Tour for the RAC's recent London to Brighton Veteran car run.

Foubie's influence touched a lot of people's careers and lives. There are a great many of us in publishing and the media that owe Foubie their careers. He will

be sorely missed. Appropriately, the flags at the RAC Club on Pall Mall and at Woodcote Park were flown at half-mast in his honour.

Grand prix legend Stirling Moss paid his own tribute. "Susie and I were really saddened to hear the news about Peter," he said. "He was a great PR man who was imaginative and energetic. He was also a very good journalist and we fondly remember the Autosport summer parties on the Roof Garden in Kensington. He was fun, loyal, and most of all a good friend. That generous, smiling face will be an enormous loss to the motoring fraternity and we will miss him a great deal."

Our condolences go to his wife Marion and children Gemma and Rory. A great man might have gone, but neither he nor his legacy will be forgotten.

ANDY HALLBERY



FEEDBACK

Meddling by team boss 'unthinkable'



Neubauer would not have wanted his drivers' rivals to don kid gloves

As a retired racing driver, I was staggered to read that Toto Wolff rang Jos Verstappen to ask him to encourage his son, Max, to curb his aggression when racing against Wolff's team's title challengers!

How times have changed. In 1955 I had the honour to drive for Mercedes-Benz and our team manager was the great Alfred Neubauer.

The idea of Neubauer asking any other team's drivers not to fight their very hardest against me, Fangio or anyone else is unthinkable.

Stirling Moss
London W1

Sky F1's crew were spot-on

I write concerning the usually excellent Gary Anderson and the article 'F1 just needs to get on with it in the wet' on the website. Overall another well thought out piece, but I must take exception to yet more criticism of F1 commentators.

On Sky F1 the excellent team of Brundle, Crofty and Ted Kravitz certainly did 'have a clue' who was on wet tyres and when. In an exceptionally crazy race they all managed to keep me up to date with every development, ensuring I remained on the edge of my

seat (at least when the cars were racing!).

I was also hoping to hear more about the restrictive parc ferme regulations rather than just the tyres. Surely if teams were able to switch to a previously nominated wet-weather suspension set-up we'd have far less aquaplaning and the sorry situation in Brazil could be prevented from happening again.

Matthew Dougherty
Byemail

Don't mess with F1 races

I read with dismay comments by Bernie Ecclestone regarding the format of a grand prix. Whether a bit of mischief is at play here, or part of a drive by the sport's new owners to spice up the show, it's a move that does not go down well with the purists.

Ever since 1950 we have had some form of qualifying session followed by just one race, for which points and thus championships are determined. To separate this into smaller parts puts things on an equal footing with junior formulas and lessens the spectacle that is the pinnacle of motor racing.

Rather than tinkering with the main event, we should look at qualifying. Run practice as normal on Friday and

Saturday morning but from these times establish a dummy grid. This then creates a qualifying race, whereby the last driver on track is knocked out after every two laps until a winner is declared. The main race is then run as normal from the qualifying grid.

Such a solution crucially forces all drivers onto the track, and may provide mixed-up grids and more exciting normal racing, seemingly craved by all.

Michael Brierley
Stalybridge, Cheshire

Motorsport fan remembered

Richard Ayling, motorsport enthusiast and former Olympian, passed away on November 1 aged 64. Over a lifetime Richard amassed an impressive collection of more than 6000 car models, recordings, memorabilia and an extensive library of books and magazines dedicated to motorsport.

His interest in motorsport was inspired at a very young age by his father who, with Richard in tow, attended many races, thus beginning his interest in collecting everything connected with the sport.

Richard became an Olympic rower in the '70s and continued enjoying coaching success until recently. He was also editor of rowing and aviation magazines, and made many contributions to publications dedicated to cars. He started buying Autosport in 1960 and never missed an issue thereafter.

He enjoyed close friendships within the motorsport community. He is survived by his wife Astrid and their children, Alex, Christina and Roxana.

The Ayling family
Byemail

HAVE YOUR SAY, GET IN TOUCH

Autosport editorial
Bridge House
69 London Road
Twickenham
TW1 3SP

@
E-mail
autosport@
haymarket.com

Twitter
twitter.com/
autosport

Facebook
facebook.com/
autosport



Formula E reality bites

Jaguar played down expectations for its return to international motorsport, and it was right to. But there's a spark of optimism

By Scott Mitchell, Features Editor

[@ScottMitchell89](#)

FORMULA E IS TOUGH. JAGUAR KNEW THAT, AND played down expectations ahead of its debut last month as a result. But perhaps the reality of how tough its return to major international motorsport is going to be is now sinking in. Two races into the electric single-seater series' 2016/17 season and the British manufacturer looks a fair way from scoring its first points.

Let's recap. Jaguar knew it wasn't going to set the world alight this season, even though there are plenty who think ample resources and a tie-up with Williams Advanced Engineering – the series' spec battery supplier – mean it should be making a more immediate impact. There's no denying both those elements will be advantageous, but it's more likely to make an impact in the long-term.

In the short-term, Jaguar's introduction to FE has been underwhelming. A best qualifying result of 14th (1.3s off the pace) and race result of 12th (4.4s off the winner) – both of which came on its debut in Hong Kong – leaves a lot to be desired.

The bad news is Jaguar's nowhere on one-lap pace at the moment. The most accurate way to analyse this is using the 'supertime' methodology, where the single best lap time of each race event is expressed as 100% and every team is compared to that.

Renault e.dams has had the best performance across the two rounds so far with a supertime of 100.141% – then there's a pretty close spread of little more than 1% covering the next seven teams. Jaguar stands a distant last in the table at 102.43%, a chunk off the next-slowest team (Venturi) and some way from the benchmark. It's also further away than the performance of last season's worst package, from NextEV.

There are two reasons for this. First, the Jaguar I-type 1 is not the perfect powertrain; it uses the season-one longitudinal motor layout and a top-mounted inverter that's not ideal for centre of gravity, and a two-speed gearbox in an aluminium casing that means it's a bit on the heavy side.

Second, with the exception of Adam Carroll's engineer Patrick Coorey there is no experience of running Formula E cars on a race weekend. That means even if its powertrain has a lower ultimate peak than its rivals, the team is some way from reaching that maximum.

"We're learning this car," says team director James Barclay. "We have a good race balance but we don't have that sweet spot and getting to that and making the car

very easy to really lean on [is critical]."

The good news is with more experience and a more aggressive approach it is reasonable to expect Jaguar to improve its qualifying performances as the season progresses. Formula E's single-day format and minimal track time punishes being on the back foot heavily, so Jaguar needs to start races further up the grid – especially as its race pace is not as problematic as its qualifying performance.

Taking an average of the 10 fastest lap times from the opening two races is a slightly tricky point of reference, because in Hong Kong an early safety car split the field in terms of strategy. You had several cars on an energy conservation drive for more than half the race, and others that were able to push a lot harder. But it is the only data to go on so far, and it suggests Jaguar is on the fringes of a fierce midfield battle.

Renault and DS Virgin Racing have the edge out in front, with BMW-supported Andretti, NextEV, Abt Audi Sport, Venturi, Techeetah and Mahindra separated by about two tenths. Jaguar is a couple of tenths adrift of that group and the same distance clear of the Faraday Future-backed Dragon

Racing team, which has fallen far from its perch as the third-best team in the series.

That's encouraging for Jaguar, which is searching for positives right now. Its energy management has been solid and, while both Adam Carroll and Mitch Evans looked

unhappier in Marrakech than in Hong Kong after a second successive race mired towards the rear of the field, it is not cut adrift in the races in the same way it seems to be in qualifying.

Fixing that qualifying deficit is the key, and it's a lot easier said than done. Formula E has an incredible quirk of being a street circuit championship that isn't determined by qualifying at the front, but because it's become intensely competitive this season, particularly in the midfield, it can be hard to recover ground if you're not one of the leading three or four teams.

"We're not necessarily fulfilling our potential in qualifying and if you don't have that track position it's really difficult," admits Barclay. "It really puts you on the back foot. The drivers were frustrated with themselves not optimising everything fully and we were frustrated when we saw things we would do differently operationally, but that is part of that process.

"Next year we know we'll be in a stronger position – but with the car we've got we can still get some strong results. The bigger results will be next year, but we want to be pushing and finding those opportunities to surprise later in the season." ❧

"The manufacturer looks a fair way from scoring its first points"

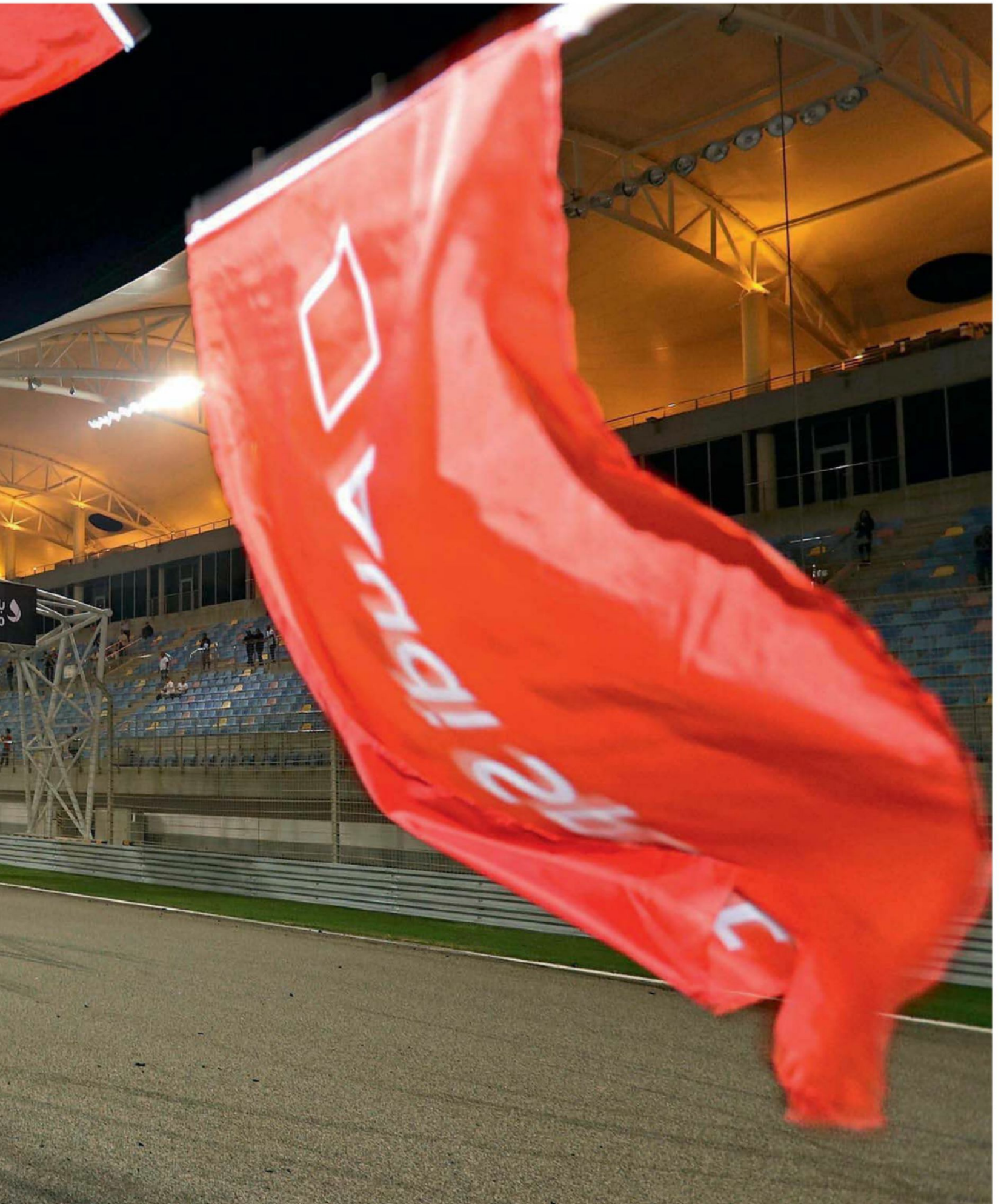
Audi signs off in fine style

Sportscar racing is losing one of its most dominant forces, but only after one final, triumphant performance

By Gary Watkins, Special Contributor

🐦 @gazzasportscars







Audi took its bow from the prototype arena in fitting style, while Porsche claimed the World Endurance Championship drivers' title in the most unsatisfactory manner. One German manufacturer notched up the perfect result in Bahrain last weekend with a one-two led home by Loic Duval, Oliver Jarvis and Lucas di Grassi, while the other claimed a further piece of silverware for its collection with a distant sixth place for Neel Jani, Marc Lieb and Romain Dumas.

The Audi R18 e-tron quattro finally achieved what it has been threatening to do all season – to leave the opposition trailing in its wake all the way to the chequered flag of a regular six-hour WEC race. The high desert temperatures at the Sakhir venue, even after night had fallen, played into the hands of a car that has been at its most competitive this season when the sun has been shining.

This time there were no technical problems, no major issues in the pits and no bad luck with virtual safety cars and the like. And that explains why the two examples of a car that has been faster

than its rivals more often than not this season were so far ahead at the finish.

Duval, Jarvis and di Grassi finished 16 seconds up on their sister car shared by Marcel Fassler, Andre Lotterer and Benoit Treluyer and nearly 80s up on the best of the rest, the #1 Porsche 919 Hybrid of outgoing world champions Timo Bernhard, Mark Webber and Brendon Hartley. It wasn't much of a racing contest, to be honest, but no-one appeared to begrudge Audi such a peerlessly dominant display as it ended its 18-year adventure in the prototype ranks.

Conditions enabled Audi's drivers to get the most out of the car, with none of the bad luck that has marred the team's season

Audi's superiority around the 3.36-mile Bahrain International Circuit had been evident in qualifying. Andre Lotterer had topped the times after the first runs in the aggregate session before di Grassi went nearly seven tenths faster – with a time that ended up more than half a second clear of everyone else – to snatch a pole that Porsche couldn't challenge even when Timo Bernhard and Neel Jani returned to the cockpits of their respective 919 Hybrids.

They got ahead of the second Audi, in which Fassler by his own admission had struggled, but that was about as good as



Temperatures remained high even as night fell



G-DRIVE WINS DESPITE DRAMA

THE G-DRIVE RACING SQUAD WRAPPED UP A third consecutive LMP2 victory, and its first with talisman driver Rene Rast in the cockpit, but it made life difficult for itself along the way. Its Jota-run ORECA-Nissan 05 had to start from the back, lost time when its rivals pitted under the virtual safety car and even survived a late spin.

That Rast, Roman Rusinov and Alex Brundle were still able to win by 6.8 seconds underlined the advantage that the car has enjoyed for the majority of the season. It was apparent throughout practice and into qualifying, where the car notched up a sixth class pole in 2016 with Rast and Rusinov at the controls. The problem for the team was that it was hauled up for a technical infringement.

The mesh ahead of the front brake ducts had been removed in the name of safety; the idea was to try to keep soaring brake temperatures under control. Taping the missing items into the cockpit didn't fulfil the homologation requirements, the stewards unsurprisingly ruled.

Rast struggled to get through the P2 pack early in the race and was only sixth – and around 50s back from the leaders – by the first round of pitstops. The decision not to change tyres moved him up the order, but came back to haunt the team when it decided to bring him in early to change over to Rusinov. Just a few laps later, their rivals came in during

the virtual safety car, which lost G-Drive the better part of another 50s.

Rusinov and Brundle had brought the car back up to fourth when Rast got back in for the final two stints. A spin, after contact with the GTE Am class Larbre Chevrolet, barely dented the German's progress. He had made it past Filipe Albuquerque in the RGR Sport Ligier-Nissan JSP2 before the final round of stops. Albuquerque, who was teamed with Bruno Senna and Ricardo Gonzalez, was back ahead after forgoing tyres at the final stops, but Rast with fresh Dunlops on the left-hand side was able to close back in and retake the lead with 18 minutes to go.

Gustavo Menezes dominated the opening daylight stints in the Signatech Alpine ORECA and was nearly a full lap up on the G-Drive car at one point. The performance of the car he shared with Nicolas Lapierre and Stephane Richelmi subsequently dropped off in the cooler conditions of the night. Late on, Lapierre overhauled Chris Cumming in the Extreme Speed Motorsports Ligier-Nissan, in which Pipo Derani had starred, to move the car back into the podium positions.

ESM and technical partner OAK Racing were out to prove a point in Bahrain. They opted to put silver driver Cumming in last for the first time this season so that Derani and Ryan Dalziel could show what the car was really capable of.

it got for Porsche last weekend. Fassler dropped as low as fifth in the opening exchanges, but within 16 laps he'd clawed his way up to second position and was only seven seconds behind the leader before the first round of stops.

Lotterer subsequently turned a four-second deficit to Jarvis into an advantage of the same margin over the course of a double stint before the race turned in favour of the winning Audi

First off, the #7 car lost time when Lotterer handed over to Treluyer. The connection for the torque meter that lets the Audi Sport Team Joest crew know when the wheels have been sufficiently tightened fell off the right rear wheelgun. The 10 or so seconds lost while the unit was replaced meant di Grassi emerged with a handy lead over the sister car and then continued to extend it.

The deal was effectively sealed as early as the three-hour mark when the #8 Audi exploited a full-course yellow virtual safety car. The team made a spontaneous decision to bring the car in two thirds of the way through a normal stint. The full service undertaken while its rivals – most pertinently the sister car – were crawling around at 80km/h would prove decisive.

Duval was able to pass team-mate Treluyer for the lead early in the »



TITLES TO ASTON MARTIN AND FERRARI

ASTON MARTIN HAD THE FASTEST CAR IN GTE Pro in Bahrain. Which made it relatively straightforward for Marco Sorensen and Nicki Thiim to seal the drivers' title with their second class victory of the season. What the British manufacturer didn't have was the luck to enable it to overhaul Ferrari in the manufacturers' standings.

The Aston Martin Vantage GTE had no peer at the weekend. That looked the case after opening free practice and then became crystal clear during the second session when the two Pro cars lapped nigh on two seconds faster than their nearest rivals.

Darren Turner and Jonny Adam, who returned to the line-up in place of Richie Stanaway now that the #97 car was out of contention for the title, claimed pole with identical lap times in the aggregate session. Points leaders Sorensen and Thiim lined up second, just over a hundredth behind on aggregate, to suggest it was going to be plain sailing for the Aston boys on Saturday.

Aston's Dunlop tyres appeared to be the decisive factor on a highly abrasive track surface. The Dunlops crucially gave the Vantages an edge on their Michelin-shod rivals over both one lap and a stint in Bahrain, and allowed them to overturn the small performance advantage enjoyed by the Ferrari early in the month at Shanghai. Ford, winner of the previous two races, wasn't in the ballpark after a double Balance of Performance hit.

Gianmaria Bruni did everything he could to spoil the party when he managed to propel his AF Corse Ferrari 488 GTE ahead of the British

cars and retained the lead for 26 laps. The best of the AF cars, which Bruni shared with James Calado, ran second to the #97 Aston until Thiim got ahead to make it an AMR one-two early in hour three.

Shortly afterwards, it all went wrong for Aston's bid for the manufacturers' crown. Adam lost the front-left wheel on his out-lap as the result of an unexpected technical issue that the team reported it had never seen before. The delay meant Adam/Turner could finish no higher than fifth.

Davide Rigon and Sam Bird, the Danish Aston crew's rivals for the title, qualified fifth in the second AF car after using only one set of tyres and had to fight its way past the Ganassi Ford GT of Harry Tincknell and Andy Priaulx to take the final step on the podium. Combined with Bruni and Calado's runner-up position, that was more than enough to give Ferrari the crown.

Ferrari and AF Corse also claimed GTE Am drivers' championship honours with Emmanuel Collard, Francois Perrodo and Rui Aguas. They only needed to get their 458 Italia to the finish to make sure of the title. When their only rival, the Aston Martin crew of Pedro Lamy, Mathias Lamy and Paul Dalla Lana retired late in the third hour with engine failure, they were champions.

Collard ultimately finished third behind two Proton-run Porsche 911 RSRs. The Abu Dhabi-Proton car shared by Khaled Al Qubaisi, Patrick Long and David Heinemeier Hansson prevailed over the KCMG-entered car of Joel Camathias, Christian Ried and Wolf Henzler after a faultless run in which they also gained territory under the virtual safety car.

Audi's R18 would have been a major force next year



penultimate hour. Both Frenchmen were struggling with diminished downforce, a problem that has often afflicted the complex aerodynamics of the latest – and final, as it turned out – iteration of the R18 this season.

Audi opted to bring in Duval early halfway through his stint to effectively take the splash that the car would have needed at the end. This time it wasn't a build-up of tyre debris that was causing the problem, rather an errant crisp packet that was quickly removed. Duval was left on the same set of Michelins, which had only 15 laps on them, and the seconds gained forgoing a tyre change put the result of the internecine Audi battle beyond dispute.

"This track suits the Audi and we know that high temperatures always help us," said di Grassi, who also claimed fastest lap to go with his best lap in qualifying. "It was very close with the other car as always, but I think we had the edge in the middle of the race and we called it right with the yellow."

Porsche wasn't too proud to admit that it was never truly in the hunt.



EBREY/LAT



“It was close, but we had the edge in the middle of the race and called the yellow right”

“They were on fire all day,” said Webber of the Audis after his final WEC race. “Third was the maximum we could have done. We just weren’t quick enough to get in among them.”

The #1 Porsche couldn’t do anything about the Audis, and nor did it come under much in the way of pressure for the final spot on the podium. Sebastien Buemi in the best of the Toyota TS050 HYBRIDS did move ahead of Webber after he pitted one lap earlier than Bernhard at the first round of stops. He got the undercut, but it took the Australian only half a stint to get the 919 back into a podium position that was never threatened thereafter.

The TS050 HYBRID wasn’t quite the competitive proposition that it has been

in many of the races over the second half of the season, though admittedly it wasn’t far off the Porsche. It was more that Audi was in a different class. Buemi and team-mates Anthony Davidson and Kazuki Nakajima were classified a lap down, but in reality were closer.

The very faint title hopes of Mike Conway, Kamui Kobayashi and Stephane Sarrazin never came alive in Bahrain. The second Toyota took fifth, 35s down on the sister car, and with it lost second place in the championship to Duval, di Grassi and Jarvis.

The #6 crew effectively needed to win the race to steal the crown, and even then fifth would have been good enough for Jani, Lieb and Dumas to add the world championship to their Le Mans



Rebellion won the LMP1 privateer class on its swansong in the top prototype category

24 Hours victory. A distant sixth place wasn’t what the crew who have led the championship throughout the season — or at least from the moment the winning Audi was thrown out of the results after the Silverstone opener — wanted last weekend.

A podium would be a nice way to take the title, reckoned Jani before the race, after their run of fourth and fifth positions since the big one in June. >>

The car looked on for that result early in the race before the ill fortune that has been part of their season since winning the 24 Hours struck.

Jani moved past Bernhard on the opening lap. He had made way for Fassler late in the stint and was running third shortly after the first round of stops when the experienced Christian Ried driving the Proton-run KCMG GTE Am class Porsche inexplicably moved over on its LMP1 sister in a straight line.

"He just pulled over on me on the straight and I thought, 'Oh no, not us again,'" explained Jani. "What happened today encapsulates our season since Le Mans. We started well, hit some trouble and then just had to survive to finish the race."

A slow lap back to the pits with a broken left-rear wheel, and a three-minute stop that included attention to the rear bodywork, cost the car the best part of two laps. A corner knocked out of alignment didn't help the cause of its drivers over the remainder of the race, during which time they lost another lap.

A championship is a championship, just as a Le Mans win is a Le Mans win even if you did inherit the victory from someone else with a lap to go.

"It's unbelievable winning Le Mans and the world championship in the same year – it doesn't get much better than that," reckoned Jani. "And to do it in such a competitive year makes it extra special."

"But that helped us. There were so many different winners, and without that we would have been in trouble because we had so many problems."

Rebellion Racing also bowed out of P1, at least for the time being, with a victory. Alexandre Imperatori, Dominik Kraihamer and Matheo Tuscher, who've long since been crowned P1 privateer champions, had a flawless run on the way to a seventh class victory of the season aboard their Rebellion-AER



XPBIMAGES

R-One. The ByKolles team for once didn't have any problems either, but its crew of Pierre Kaffer, Oliver Webb and Simon Trummer were four laps behind at the finish.

Rebellion is expected to be back in the WEC next year when it steps down a class to LMP2. There will, of course, be no Audis. That made it an emotional result for everyone involved.

"This is the perfect way to close the door," said 2013 WEC champion Duval, "and it means a lot to be the

Toyota was closer to the pace of the Porsches than the result suggests

last guys to win a race [in an LMP prototype] for Audi Sport."

The events of last weekend emphasised just how good a car the 2016 R18 is, or rather was. That it won't be back next season is probably a major let-off for its rivals.

"It's sad that Audi is going, everyone agrees on that, because the racing has been so competitive," said Jani. "But looking at what happened today and the potential of that car, I think we all would have been in trouble next year." ❄



Lieb, Jani and Dumas took the drivers' title

EBREV/LAT

RESULTS ROUND 9/9, BAHRAIN (BRN), NOVEMBER 19 (201 LAPS – 675.935 MILES)

POS	DRIVERS	TEAM	CAR	CLASS	TIME
1	Loic Duval (F) Lucas di Grassi (BR) Oliver Jarvis (GB)	Audi Sport Team Joest	Audi R18 e-tron quattro	LMP1	6h00m12.387s
2	Marcel Fassler (CH) Andre Lotterer (D) Benoit Treluyer (F)	Audi Sport Team Joest	Audi R18 e-tron quattro	LMP1	+16.419s
3	Timo Bernhard (D) Mark Webber (AUS) Brendon Hartley (NZ)	Porsche Team	Porsche 919 Hybrid	LMP1	+1m17.001s
4	Sebastien Buemi (CH) Anthony Davidson (GB) Kazuki Nakajima (J)	Toyota Gazoo Racing	Toyota TS050 HYBRID	LMP1	-1 lap
5	Kamui Kobayashi (J) Stephane Sarrazin (F) Mike Conway (GB)	Toyota Gazoo Racing	Toyota TS050 HYBRID	LMP1	-1 lap
6	Neel Jani (CH) Romain Dumas (F) Marc Lieb (D)	Porsche Team	Porsche 919 Hybrid	LMP1	-3 laps
7	Alexandre Imperatori (CH) Matheo Tuschler (CH) Dominik Kraihamer (A)	Rebellion Racing	Rebellion-AER R-One	LMP1	-10 laps
8	Pierre Kaffer (D) Simon Trummer (CH) Oliver Webb (GB)	ByKolles Racing Team	CLM-AER P1 01	LMP1	-14 laps
9	Rene Rast (D) Roman Rusinov (RUS) Alex Brundle (GB)	G-Drive (Jota Sport)	ORECA-Nissan 05	LMP2	-17 laps
10	Bruno Senna (BR) Ricardo Gonzalez (MEX) Filipe Albuquerque (P)	RGR Sport by Morand	Ligier-Nissan JSP2	LMP2	-17 laps
11	Gustavo Menezes (USA) Nicolas Lapierre (F) Stephane Richelmi (MC)	Signatech Alpine	ORECA-Nissan 05	LMP2	-18 laps
12	Luis Derani (BR) Ryan Dalziel (GB) Chris Cumming (CDN)	Extreme Speed Motorsports	Ligier-Nissan JSP2	LMP2	-18 laps
13	Giedo van der Garde (NL) Tom Dillmann (F) Sean Gelael (RI)	Extreme Speed Motorsports	Ligier-Nissan JSP2	LMP2	-18 laps
14	Paul-Loup Chatin (F) David Cheng (USA) Ho-Pin Tung (PRC)	Baxi DC Racing Alpine	ORECA-Nissan 05	LMP2	-19 laps
15	Roberto Merhi (E) Julien Canal (F) Roberto Gonzalez (MEX)	Manor	ORECA-Nissan 05	LMP2	-19 laps
16	Vitaly Petrov (RUS) Kirill Ladygin (RUS) Victor Shaytar (RUS)	SMP Racing (AF)	BRE-Nissan BR01	LMP2	-22 laps
17	Mikhail Aleshin (RUS) Nicolas Minassian (F) Maurizio Mediani (I)	SMP Racing (AF)	BRE-Nissan BR01	LMP2	-25 laps
18	Alex Lynn (GB) Matt Rao (GB) Richard Bradley (GB)	Manor	ORECA-Nissan 05	LMP2	-26 laps
19	Nicki Thiim (DK) Marco Sorensen (DK)	Aston Martin Racing	Aston Martin Vantage GTE	GTE Pro	-27 laps
20	Gianmaria Bruni (I) James Calado (GB)	AF Corse	Ferrari 488 GTE	GTE Pro	-27 laps
21	Davide Rigon (I) Sam Bird (GB)	AF Corse	Ferrari 488 GTE	GTE Pro	-28 laps
22	Harry Tincknell (GB) Andy Priaulx (GB)	Ford Chip Ganassi Team UK	Ford GT	GTE Pro	-28 laps
23	Darren Turner (GB) Jonny Adam (GB)	Aston Martin Racing	Aston Martin Vantage GTE	GTE Pro	-28 laps
24	Olivier Pla (F) Stefan Mucke (D)	Ford Chip Ganassi Team UK	Ford GT	GTE Pro	-29 laps
25	Michael Christensen (DK) Richard Lietz (A)	Dempsey Racing - Proton	Porsche 911 RSR '16	GTE Pro	-29 laps
26	Khaled Al Qubaisi (UAE) David Heinemeier Hansson (DK) Patrick Long (USA)	Abu Dhabi-Proton Racing	Porsche 911 RSR	GTE Am	-30 laps
27	Christian Ried (D) Wolf Henzler (D) Joel Camathias (CH)	KCMG	Porsche 911 RSR	GTE Am	-31 laps
28	Emmanuel Collard (F) Francois Perrodo (F) Rui Aguas (P)	AF Corse	Ferrari 458 Italia	GTE Am	-32 laps
29	Ben Barker (GB) Mike Wainwright (GB) Adam Carroll (GB)	Gulf Racing UK	Porsche 911 RSR	GTE Am	-33 laps
30	Ricky Taylor (USA) Pierre Ragues (F) Romain Brandela (F)	Larbre Competition	Chevrolet Corvette C7.R	GTE Am	-37 laps
R	Pedro Lamy (P) Paul Dalla Lana (CDN) Mathias Lauda (A)	Aston Martin Racing	Aston Martin Vantage GTE	GTE Am	84 laps-engine

Winner's average speed 112.591mph. **Fastest lap** Di Grassi 1m41.511s, 119.260mph.

LMP2 Menezes 1m51.768s, 108.316mph. **GTE Pro** Calado 1m58.995s, 101.737mph.

GTE Am Taylor 2m01.184s, 99.900mph.

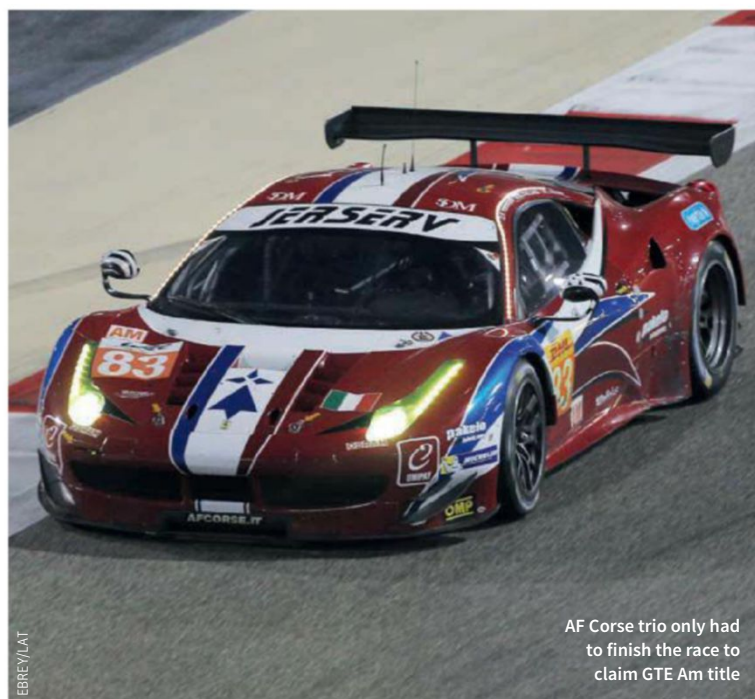
QUALIFYING

1 di Grassi/Jarvis 1m39.207s; 2 Bernhard/Hartley 1m39.471s; 3 Jani/Lieb 1m39.669s; 4 Lotterer/Fassler 1m39.698s; 5 Kobayashi/Conway 1m40.222s; 6 Nakajima/Davidson 1m40.776s; 7 Imperatori/Kraihamer 1m45.091s; 8 Menezes/Richelmi 1m49.690s; 9 Lynn/Rao 1m50.034s; 10 Senna/Gonzalez 1m50.410s; 11 van der Garde/Gelael 1m50.685s; 12 Merhi/Canal 1m50.800s; 13 Derani/Cumming 1m51.071s; 14 Chatin/Cheng 1m51.185s; 15 Aleshin/Mediani 1m51.427s; 16 Petrov/Shaytar 1m51.475s; 17 Turner/Adam 1m56.953s; 18 Thiim/Sorensen 1m57.081s; 19 Calado/Bruni 1m57.380s; 20 Priaulx/Tincknell 1m57.891s; 21 Rigon/Bird 1m58.201s; 22 Pla/Mucke 1m58.504s; 23 Christensen/Lietz 1m58.882s; 24 Lamy/Dalla Lana 1m59.879s; 25 Collard/Perrodo 2m00.227s; 26 Taylor/Brandela 2m00.938s; 27 Barker/Wainwright 2m02.112s; 28 Ried/Camathias 2m39.576s; 29 Rast/Rusinov NT; 30 Trummer/Webb/Kaffer NT; 31 Long/- NT.

Fastest in each class **LMP1** di Grassi 1m38.828s; **LMP2** Derani 1m49.410s; **GTE Pro** Adam 1m56.953s; **GTE Am** Lamy 1m59.359s.

CHAMPIONSHIP

LMP drivers 1 Dumas/Lieb/Jani 160; 2 Duval/di Grassi/Jarvis 147.5; 3 Sarrazin/Kobayashi/Conway 145; 4 Hartley/Bernhard/Webber 134.5; 5 Lotterer/Fassler 104; 6 Treluyer 70. **LMP manufacturers** 1 Porsche 324; 2 Audi 266; 3 Toyota 229. **LMP2 drivers** 1 Menezes/Lapierre/Richelmi 199; 2 Senna/Albuquerque/Gonzalez 166; 3 Rusinov 162; 4 Cumming/Derani/Dalziel 116. **GTE drivers** 1 Sorensen/Thiim 156; 2 Rigon/Bird 134; 3 Bruni/Calado 128; 4 Pla/Mucke 118; 5 Priaulx/Tincknell 117.5; 6 Turner 115. **GTE manufacturers** 1 Ferrari 294; 2 Aston Martin 287; 3 Ford 241.5; 4 Porsche 123. **GTE Am drivers** 1 Collard/Perrodo/Aguas 188; 2 Heinemeier Hansson/Al Qubaisi 151; 3 Lauda/Dalla Lana/Lamy 149; 4 Long 130.



AF Corse trio only had to finish the race to claim GTE Am title




MCKLEIN



Mikkelsen's day at the end of an era

VW pledged to bow out of the WRC on a high,
and it was the Norwegian star who
delivered down under

By David Evans, Rallies Editor

 @daviddevansrally

Ogier (right) fought for the win, but was still “cheering” for Mikkelsen



Sébastien Ogier’s car chief Martin ‘Hase’ Hassenpflug pressed play, prompting those unmistakable piano chords. Seconds later, Adele delivered the line: *This is the end...* Momentarily, it felt as though the sky would fall. Three weeks ago in Wales, talk of the end had been roundly dismissed. Rumour. Gossip. Speculation. On the other side of the world, fiction became fact and fact became the beginning of the end. But what a way to end: with a stunning all-Volkswagen fight to write an unbelievably emotional final chapter.

Day one (56.65 miles; 11 stages)
Forget the dark side. Celebrate good times. Ogier didn’t want to dwell on

the end of an era ahead of the opening day of Rally Australia.

But Andreas Mikkelsen was on a different page. “You can see it in the eyes of the mechanics,” he said. “This rally means something different. It’s so sad. I want to stay in this car forever.”

Well, he couldn’t. He’d be out of it for the final time come Sunday afternoon, leaving him just three days aboard this World Rally Championship record-breaker.

That was three days to do his bit to wrest second in the drivers’ standings from Thierry Neuville. Or three days to shine up his personal shop window before rival team principals start shopping this week.

“It would be very nice to talk to [those team principals] as winner of the last round of the championship,” said Mikkelsen, “but I think I showed



Ogier flew on tyres battered by hard Aussie surfaces

the whole year that I have what it takes to fight. In terms of our pace, everything is getting better and better. Our graph is going up.”

Earlier this season, when Mikkelsen won in Poland, much of that achievement was overshadowed by the emotion of Ott Tänak missing out on his maiden victory. Arguably, Mikkelsen had driven the



better rally in Mikolajki, coping brilliantly with cleaning conditions from third on the road.

It was the same on the beautifully sweeping roads south of Coffs Harbour last Friday. Mikkelsen found his mojo and led for all but one stage through the opening day. While the Norwegian politely talked down the need for speed to keep him in a seat next season, there was no denying the other two factors driving him harder, further and faster. He wanted second in the championship and he wanted his current employer to go out on a high.

The latter was a sentiment echoed by Volkswagen team principal Sven Smeets.

"There's only one directive to them this week," said Smeets, "and that's to win. We have to go out on a high."

The seasonal silver was a bit more complicated, with a Thierry Neuville- ➤



SNAKES ALIVE, WHERE ARE ALL THE RALLY FANS?

BRUCE HAD GOOD AND BAD NEWS. SUMMER'S early arrival on Australia's east coast had roused the wildlife from its winter slumber.

"The brownies are awake mate," he grinned.

In my world, there's only one kind of brownie: the one that comes in cake form and can only be consumed in pairs. It has nothing to do with the eastern brown snake to which he was clearly referring.

In case you were wondering, the snakes' early alarm clock was the bad news. The good news? Because they'd woken up early, they were – generally speaking – still quite sleepy.

The best news of all was that Bruce's information was imparted while I stood in the middle of a stage, facing a walk back through the kind of scrub perfectly in keeping with his description of a brown's natural habitat.

Run for it? What if I stood on one? Stealth, that was the way forward. It's fair to say that Bruce and his buddies thought I was being a bit of a Jessie. Or Sheila. I'm not one for national stereotypes (*you called the bloke*

Bruce – ed], but this scene was straight out of Crocodile Dundee. It was great. And even better when viewed from the inside of my hire car.

Last week, we couldn't have been anywhere other than Australia (even if Mads Ostberg's co-driver did get bitten by a snake in Wales last month) and that kind of geographical diversity is vital for the World Rally Championship. Setting and scenery bring our story to life.

Rally Australia was, once again, an efficient and successful round of the series. The press office remains the best on the calendar, with information delivered almost before it's been asked for – and always accompanied by a cup of tea or a breakfast muffin.

The downside? Rally Australia remains largely ignored by the quarter of a million or so fans regularly hiking out of Sydney across the Blue Mountains, westbound on the A32 to a place called Bathurst.

Once more, nobody came. They can't all be afraid of the brownies, can they?

DAVID EVANS



ALL PICS: MCKLEIN

sized thorn remaining in the side of Mikkelsen's plan. Neuville started Australia 14 points ahead.

"If he doesn't retire, then I have to win," said Mikkelsen. "I got a good feeling from shakedown and I'm sure I can keep that in the rally. I have to take the risk; there's nothing to lose for me."

Fastest on four of the morning's five stages, Mikkelsen's shakedown form had indeed remained. And looked like turning into a purple patch when he emerged from Friday with a 15-second lead. The afternoon hadn't been quite so straightforward, but still he was satisfied.

It was a flustered Mikkelsen who landed at the finish of the day's penultimate gravel stage.

"There was a bottle, a water bottle, getting underneath the pedal," he said. "That was quite intense! We took the water from the end of the stage before and then forgot to give the bottle to the guys at the start of the next one. It was at Anders' [Jager, co-driver] feet, but then it came to my side. I lost the rhythm a bit after that."

Bottle binned, he found his feet again.

Hyundai stars Dani Sordo and Hayden Paddon had been Mikkelsen's closest pursuers through much of the morning. Sordo's usually cheerful demeanour went south when he got lost on the way to the fifth stage. Two minutes late at the control meant a 20s penalty. Waiting to go into service following the stage, the Spaniard sat in the car, fiddling with his phone. His co-driver Marc Marti was absent, leaving something of an atmosphere aboard the #20 i20.

Asked for an explanation, Sordo said: "I don't know. We got lost in the dust..."

Silence. He looked up, only to offer the sort of wry smile and wink that signalled this particular interview was done.

Unfortunately for Sordo, that incident flattened the wave he'd been riding and he slipped back from the fight at the front.

Paddon was the only driver to take a gamble on tyres on Friday morning, shunning his fellow Michelin runners' choice of softs all round in favour of a couple of hards to be bolted onto the front of the car for the day's only forest stage, Newry (which had been



shortened from 15 to six miles due to the potential for a dust problem).

"I lost the balance of the car," he said. "The surface in there is softer; I had about four half-spins. That wasn't acceptable."

There was more self-criticism at the end of the day, when the Kiwi stared at what was left of the Michelins sitting beneath the Hyundai. "I was too hard on them," he said. "My own fault. I need to drive straighter."

His team-mate Neuville and VW's

Neuville finished third, but pipped Mikkelsen to second in the championship

Ogier got past on Friday's final loose-surface stage. Neuville's effort was impressive from second on the road, but Ogier... well, that was vintage Ogier. The day ended with a couple of meaningless fan-friendly, three-quarter-mile runs up and down the seafront. The Frenchman was fastest on both, breathtaking in his precision and phenomenal in his ability to slow the Polo on tyres battered by an afternoon ripping up the hard-baked, rock-solid New South Wales roads.

"I'm a little surprised to be second," he said, "but we still have a day to go at the front. Let's see what this looks like tomorrow, but still I think the chance for me to win is a long way away. Normally, I would not cheer for another driver, but I am cheering for Andreas today. We want this one. Volkswagen deserves this one."

Ahead of the rally, both Ogier and Mikkelsen had pointed to Jari-Matti Latvala's Polo as the one most likely to fulfil that ambition. He held all the cards, they said. They were absolutely right. Starting sixth on the road, J-ML should have had this one done and dusted on Friday night.

What happened? He crashed. The left-rear of the Polo got out of line and slapped a bridge early in the Utungun



M-Sport's Mads Ostberg trailed home in sixth



“I was flat-out. I pushed so hard, it was the maximum. I cut every corner and hit every pole”

Sebastien Ogier

opener. Suspension broken, he and co-driver Miikka Anttila used ratchet straps to bring the car through the morning, dropping almost eight minutes in the process.

“This was not what I wanted,” said Latvala, rather superfluously. “Now I must finish the rally with dignity.”

Day two (84.00 miles; 7 stages)

Ogier’s demeanour was definitely more bouncy on Saturday morning. He sensed something could be possible. He had a card to play: running softs all-round on the first loop.

Despite temperatures on Australia’s east coast rapidly rising towards the 30C mark, Ogier played his card and set about the 31.6-mile Nambucca test, ignoring the raised eyebrows around the service park.

But this wasn’t a gamble. This was the champion playing to one of his major strengths: his ability to driver harder for longer while using his tyres less than anybody. And the theory was simple. The gravel was so deep, the soft covers would spin through the dirt without clawing at Mother Earth. And so it played out. Second in behind Ogier, Neuville lost 9.7s – so much for the theory that each car in would gain 0.2s per kilometre from the cleaning effect.

Mikkelsen took 2.4s and knew it wasn’t enough.

The scarred front of Ogier’s Polo told its own story. “I was flat-out,” he said with a smile. “I pushed so hard, it was the maximum. I cut every corner and hit every pole.”

On hearing Neuville’s time, Ogier said: “He’s behind me on the »

VW’S WRC LANDMARK MOMENTS



RALLY SWEDEN, 2013

After finishing second on the Polo R WRC’s debut in Monte Carlo, Sebastien Ogier provides the first victory in Sweden.



RALLY FRANCE, 2013

Reigning champion Sebastien Loeb rolls his Citroen and Ogier wins to secure his first drivers’ crown. Volkswagen’s teams’ title follows in Spain.



RALLY AUSTRALIA, 2014

VW scores its first 1-2-3, Ogier followed by Jari-Matti Latvala and Andreas Mikkelsen, and secures another teams’ championship.



RALLY SPAIN, 2015

Although Ogier crashes out on the final stage, Mikkelsen wins. The result means all three works VW drivers had taken WRC victories in the Polo.



RALLY GB, 2016

With a fourth drivers’ crown already secured, Ogier’s success in Wales gives VW its fourth consecutive manufacturers’ title.

Mikkelsen can't hide his emotions on VW's swansong



road; I killed him."

Paddon had been looking forward to this weekend all season. "This is my day," he said. "I love these stages, they just suit me."

Good as his word, he took 12s out of Ogier to win the stage and move back to second place. But that was as good as it would get for Paddon. He didn't beat the #1 Polo again and was powerless to stop him coming past on the second run through Nambucca.

Paddon remained third at the end of the day, rapidly dispensing questions about whether he would be sacrificing his own podium to allow Neuville the extra points to be second in the championship.

"It's the drivers' championship..."

came the caustic response.

Fastest time through Valla 2 showed Neuville was willing to do his own dirty work; 21.8s separated him from Paddon with one day to run.

Back to second on Saturday afternoon, Ogier locked onto Mikkelsen, but ending the day just two seconds off the lead was more than even he had expected.

"It should not be possible for me to be here," said Ogier. "There are two reasons. Jari-Matti's problem — he should have been leading by a long way from his place on the road. The second point is that I take the full risk; normally I never allow myself to do this when we are fighting for the championship."

There's another reason: another freak moment in Mikkelsen's footwell.

VW crews form a 'guard of honour' to say farewell to champion Ogier

But this time it was far worse than an errant bottle of water.

Not far from the end of the stage, the Volkswagen hit something under the car. The force twisted the clutch pedal over and onto the brake, partly depressing the middle pedal.

Mid-stage, the leader grabbed the occasional glance at his feet, desperately trying to figure out what was going on. When he reached the finish, he glared at the pedals — effect had overtaken cause and he'd shipped nine seconds to his team-mate.

Back in service, Mikkelsen had cheered up. Slightly. "It's simple," he said. "If I want to win, my last day working for Volkswagen has to be the best day of my life."

There was an entirely unintentional twisted irony about that.

Day three (35.53 miles; 5 stages)

Two seconds. Two seconds. "It's nothing," said Mikkelsen. But it could be everything. He grinned. "Then let's give it everything."

The contrast at morning service was marked. His car perfect, polished and poised, Ogier waited patiently, leaning on the roof and making small talk with his mechanics. The unmistakable thump of lump hammer on metal came from beneath Mikkelsen's car as his boys continued to straighten the underside after his pedal-twisting whack a day earlier.

One more day to play in the Polos. The building emotion was defused to

Paddon relished 'home' conditions, but missed out on podium





some extent by the fight that remained.

Two seconds. Five stages. Mikkelsen stole six tenths on the opener and readied himself for Bucca, the location for 19 of the day's 35 competitive miles.

This one could be decisive. Through the four split times, Mikkelsen trailed Ogier. Just over halfway through, the champ's advantage in the stage peaked at 2.3s. Mikkelsen trimmed it back 0.6s in the penultimate sector.

Just when we looked to be heading for a tenth-for-tenth kind of a day, Ogier dropped it and spun in the closing mile.

Mikkelsen's lead mushroomed to 22.2s. Elation and devastation were just a Polo apart. But what this rally gave Mikkelsen with one hand it took away with another: Paddon knocked a tyre off a rim, gifting Neuville third overall and second in the championship.

Forget the war. If there was ever a battle to win, this was it. Mikkelsen knew it. As the end neared, the emotion began to build again. He couldn't help himself. "I had to tell Anders how much I will miss this car," he said.

On any other day or any other rally, interrupting your co-driver in the last mile of a powerstage might have been considered a bit bonkers. Not on Sunday.

A Volkswagen one-two, 43rd win and 87th podium. These were the numbers at the end of the Polo R WRC's 30,276th and final mile as a factory World Rally Car.

But the numbers mean nothing without the people. As the tears flowed, realisation dawned. Their number was up. This is the end. 🌿

RESULTS ROUND 13/13, RALLY AUSTRALIA, NOVEMBER 18-20

POS	DRIVER	CO-DRIVER	TEAM	TIME
1	Andreas Mikkelsen (N)	Anders Jäger (N)	Volkswagen Motorsport II · Volkswagen Polo R WRC	2h46m05.7s
2	Sebastien Ogier (F)	Julien Ingrassia (F)	Volkswagen Motorsport · Volkswagen Polo R WRC	+14.9s
3	Thierry Neuville (B)	Nicolas Gilsoul (B)	Hyundai Motorsport · Hyundai i20 WRC	+1m12.6s
4	Hayden Paddon (NZ)	John Kennard (NZ)	Hyundai Motorsport · Hyundai i20 WRC	+1m26.7s
5	Dani Sordo (E)	Marc Martí (E)	Hyundai Motorsport N · Hyundai i20 WRC	+1m28.3s
6	Mads Ostberg (N)	Ola Floene (N)	M-Sport WRT · Ford Fiesta RS WRC	+1m41.5s
7	Ott Tänak (EST)	Raigo Molder (EST)	DMACK World Rally Team · Ford Fiesta RS WRC	+3m04.3s
8	Esapekka Lappi (FIN)	Janne Ferm (FIN)	Skoda Motorsport · Skoda Fabia R5	+7m32.3s
9	Jari-Matti Latvala (FIN)	Miikka Anttila (FIN)	Volkswagen Motorsport · Volkswagen Polo R WRC	+7m56.9s
10	Lorenzo Bertelli (I)	Simone Scattolin (I)	FWRT · Ford Fiesta RS WRC	+8m00.1s

OTHERS

R	Eric Camilli (F)	Benjamin Veillas (F)	M-Sport WRT · Ford Fiesta RS WRC	SS21 - accident
---	------------------	----------------------	----------------------------------	-----------------

DRIVERS' CHAMPIONSHIP

1 Ogier 268; 2 Neuville 160;
3 Mikkelsen 154; 4 Paddon
138; 5 Sordo 130; 6 Latvala
112; 7 Ostberg 102; 8 Tanak
88; 9 Meeke 64; 10 Breen 36.

MANUFACTURERS' CHAMPIONSHIP

1 Volkswagen Motorsport
377; 2 Hyundai Motorsport
312; 3 Volkswagen
Motorsport II 163; 4 M-Sport
WRT 162; 5 Hyundai
Motorsport N 146; 6 DMACK
World Rally Team 98.



STAGE TIMES

STAGE	FASTEST	LEADER	SECOND
SS1 Utungun 1 4.90 miles	Mikkelsen 4m55.9s	Mikkelsen	Tanak +1.3s
SS2 Bakers Creek 1 10.41 miles	Paddon 10m05.5s	Paddon	Mikkelsen +0.6s
SS3 Northbank 1 5.23 miles	Mikkelsen 5m49.3s	Mikkelsen	Paddon +1.1s
SS4 Newry 161 15.34 miles	Mikkelsen 6m22.6s	Mikkelsen	Paddon +13.7s
SS5 Raceway SSS 1 0.85 miles	Mikkelsen 1m17.6s	Mikkelsen	Paddon +14.2s
SS6 Utungun 2 4.90 miles	Mikkelsen 4m50.5s	Mikkelsen	Paddon +16.4s
SS7 Bakers Creek 2 10.41 miles	Neuville 9m48.8s	Mikkelsen	Paddon +16.8s
SS8 Northbank 2 5.23 miles	Ogier 5m37.5s	Mikkelsen	Paddon +17.4s
SS9 Newry 162 15.34 miles	Ogier 6m13.8s	Mikkelsen	Ogier +16.8s
SS10 Coffs SSS 1 0.79 miles	Ogier 1m02.4s	Mikkelsen	Ogier +16.3s
SS11 Coffs SSS 2 0.79 miles	Ogier 1m02.0s	Mikkelsen	Ogier +15.4s
SS12 Nambucca 1 31.57 miles	Paddon 28m38.6s	Mikkelsen	Paddon +13.5s
SS13 Valla 161 9.22 miles	Latvala 8m37.1s	Mikkelsen	Paddon +13.4s
SS14 Raceway SSS 2 0.85 miles	Ogier 1m16.8s	Mikkelsen	Paddon +13.6s
SS15 Nambucca 2 31.57 miles	Latvala 28m07.0s	Mikkelsen	Ogier +12.0s
SS16 Valla 162 9.22 miles	Neuville 8m31.5s	Mikkelsen	Ogier +2.8s
SS17 Coffs SSS 3 0.79 miles	Ogier 1m01.7s	Mikkelsen	Ogier +1.8s
SS18 Coffs SSS 4 0.79 miles	Mikkelsen 1m01.3s	Mikkelsen	Ogier +2.0s
SS19 Settles Reverse 1 3.79 miles	Mikkelsen 3m06.5s	Mikkelsen	Ogier +2.6s
SS20 Bucca 16 19.00 miles	Mikkelsen 17m22.5s	Mikkelsen	Ogier +22.2s
SS21 Wedding Bells 161 5.58 miles	Mikkelsen 3m40.8s	Mikkelsen	Ogier +22.7s
SS22 Settles Reverse 2 3.79 miles	Ogier 3m05.1s	Mikkelsen	Ogier +19.9s
SS23 Wedding Bells 162 (Power Stage) 8.13 miles	Ogier 3m36.8s	Mikkelsen	Ogier +14.9s

RACE CENTRE

V8 STOCK CARS • NASCAR SPRINT CUP

Fraga leads at the start of the main race at Curvelo



Fraga on the brink of Brazilian crown

V8 STOCK CARS
CURVELO (BR)
NOVEMBER 20
ROUND 11/12

FELIPE FRAGA TOOK ONE STEP CLOSER to his first V8 Stock Car title by grabbing his fifth victory of the season to increase his points lead over main rival Rubens Barrichello. But things only turned Fraga's way on the last lap of the sprint race, when the ex-Ferrari Formula 1 driver ran out of fuel while in the lead – and less than 300 metres away from the chequered flag.

Fraga fired a warning shot by taking pole position for the main race, with an unexpected advantage of 0.338s over Barrichello, with team-mate and defending champion Marcos Gomes just behind.

Although Fraga held the lead at the start, the intervention of the safety car allowed Barrichello to jump ahead at the restart. Fraga then used push-to-pass to recover first place, with Gomes following him through five laps later.



Fraga and Gomes finished first and second, with Barrichello holding off the aggressive Allam Khodair for third.

In the reversed-grid sprint race, most drivers opted to delay their pitstops in anticipation of a safety car intervention that never came. When early leaders Diego Nunes and Atila Abreu dived into the pits

Barrichello was close to victory in the sprint race when he ran out of fuel on the run to the chequered flag

with four laps to go, Barrichello had just passed Denis Navarro for third, so he took the lead for the dash to the flag.

Under pressure from Ricardo Mauricio, who had saved around 3.5 litres of fuel by starting from the pits (so he did not have to stop), Barrichello was forced to give it all in the closing stages and ran dry within touching distance of the finish, meaning he was classified 22nd.

Fraga now only needs a 13th place in the Interlagos finale to win the title.

LITO CAVALCANTI

RESULTS

Race 1 1 Felipe Fraga (Peugeot 408) 24 laps in 47m46.344s; 2 Marcos Gomes (Peugeot) +0.979s; 3 Rubens Barrichello (Chevrolet Cruze); 4 Allam Khodair (Chevy); 5 Atila Abreu (Chevy); 6 Thiago Camilo (Chevy).

Race 2 1 Ricardo Mauricio (Chevy) 16 laps in 30m48.889s; 2 Tuka Rocha (Chevy) +2.028s; 3 Daniel Serra (Chevy); 4 Valdeno Brito (Chevy); 5 Denis Navarro (Chevy); 6 Vitor Genz (Peugeot).

Points 1 Fraga 282; 2 Barrichello 245; 3 Brito 200; 4 Gomes 192; 5 Diego Nunes 173; 6 Serra 169.

Johnson celebrates his seventh title – and his first since 2013



Johnson makes it seven

NASCAR SPRINT CUP
HOMESTEAD (USA)
NOVEMBER 20
ROUND 36/36

IN A MAMMOTH 281-DAY SEASON OF thousands of racing laps, it came down to less than an hour, or 16 laps, for history to be written on the floodlit banks of Homestead, Miami.

For 263 of the 268 laps in the season finale, Jimmie Johnson was the outsider among the four title contenders. But he still ended up becoming a seven-time NASCAR Sprint Cup champion.

The day started badly when officials deemed Johnson's Hendrick Motorsports crew made adjustments to his Chevrolet after the pre-race inspection, and put him to the back of the grid.

That just provided the 41-year-old with a chance to show his class, gamely scything through the pack to end up an astonishing fifth within the first 47 laps, albeit still trailing behind his three title rivals – Carl Edwards, Joey Logano and Kyle Busch. But a slow fourth pitstop put Johnson in 11th and the Californian was visibly struggling for pace compared with his rivals. But, on lap 253, the race was turned on its head.

A caution for Dylan Lupton's puncture prompted a flurry of pitstops and, when the race went green, leading Chase contender Edwards moved down to the low line to stop

the quicker Logano behind from getting past.

The pair touched, spearing Edwards into the inside wall and back across the track, collecting a handful of other cars.

"When Carl and I got into each other there, that just pretty much parted the seas for the 48 [Johnson] to run through there and gain a couple of spots and put himself in position to win," Logano rued. "You know, he was in the right place at the right time, and that's good for him."

Following a red flag, Johnson made a good restart to put him in second behind long-time race leader Kyle Larson and ahead of Logano.

But a final caution after Ricky Stenhouse Jr's Roush Fenway Racing Ford crashed left the title being decided in overtime.

Johnson executed a perfect restart on the low line to deny Larson the lead, and took the chequered flag to clinch his seventh title.

Despite Edwards' agony of losing the title – particularly given that the Joe Gibbs Racing driver performed most consistently of all four contenders in the race – he still showed great sportsmanship by shaking the hands of Logano's crew following the pair's coming together.

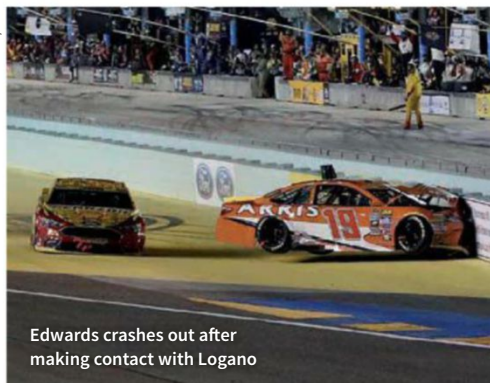
But with a Chase format that favours taking race wins at the opportune moment, it's hard to see how anyone will be able to match the extraordinary feat of seven titles for Richard Petty, Dale Earnhardt and now Johnson.

Retiring Tony Stewart joined Johnson's celebrations after an anonymous final Sprint Cup appearance, finishing 22nd.

RESULTS

1 Jimmie Johnson (Chevrolet SS) 268 laps in 3h07m10s; 2 Kyle Larson (Chevy) +0.466s; 3 Kevin Harvick (Chevy); 4 Joey Logano (Ford Fusion); 5 Jamie McMurray (Chevy); 6 Kyle Busch (Toyota Camry); 7 Matt Kenseth (Toyota); 8 AJ Allmendinger (Chevy); 9 Denny Hamlin (Toyota); 10 Michael McDowell (Chevy).
Points 1 Johnson 5040; 2 Logano 5037; 3 Kyle Busch 5035; 4 Carl Edwards 5007; 5 Kenseth 2330; 6 Hamlin 2320; 7 Kurt Busch 2296; 8 Harvick 2289; 9 Larson 2288; 10 Chase Elliott 2285; 11 Martin Truex Jr 2271; 12 Brad Keselowski 2267; 13 McMurray 2231; 14 Austin Dillon 2223; 15 Tony Stewart 2211; 16 Chris Buescher 2169.

LEVITT/LAT



Edwards crashes out after making contact with Logano

IN BRIEF



MRF CHALLENGE

Mick Schumacher (above) won two out of four races to take an early lead after the first round of the MRF Challenge in Bahrain. Harrison Newey took a dominant victory from pole position in the first race ahead of Ralf Aron and Joey Mawson, with Schumacher finishing fifth. Schumacher then took the lead from Felipe Drugovich at the start of race two, winning from Mawson and Aron. Aron hit back in race three, jumping Mawson at a safety car restart. Schumacher, who finished third in that race, jumped ahead of polesitter Pedro Cardoso in race four, but had to pass the fast-starting Juri Vips to win.

BRAZILIAN TOURING CARS

The new Curvelo circuit didn't look like bringing good luck for Nono Figueiredo after he took his Chevrolet Cruze to only seventh place in race one, which was won by teenager Gabriel Casagrande in a C2 Team Renault Fluence. But Figueiredo held on to the points lead with second in race two behind Guilherme Salas's Renault.

NASCAR TRUCK SERIES

William Byron took his seventh win of the year driving for Kyle Busch Motorsports at Homestead, clinching rookie honours in the process. But it was veteran Johnny Sauter who secured the championship with third place behind Tyler Reddick.

NASCAR XFINITY SERIES

Joe Gibbs Racing driver Daniel Suarez (below) won the NASCAR Xfinity Series title with victory in the Homestead finale. The Mexican led 133 out of 200 laps, holding the lead in a late restart to win from Ty Dillon. Elliott Sadler, Justin Allgaier and Erik Jones were the other drivers in contention, finishing third, sixth and ninth respectively.



LEVITT/LAT




XPBIMAGES



Da Costa leads veterans' day parade

The Portuguese beat Rosenqvist to take his second Macau win, but F3's regular young stars made the achievement hard work for them

By Marcus Simmons, Deputy Editor

 @MarcusSimmons54



The old guys triumphed in the end, but the youngsters made it hard for them. Antonio Felix da Costa led home fellow racing professional Felix Rosenqvist to take his second Macau Grand Prix victory, and with it the inaugural Formula 3 World Cup, but the results sheet doesn't do justice to the efforts of F3 European Championship aces Sergio Sette Camara, Callum Iltott and George Russell, or Japanese title winner Kenta Yamashita.

Da Costa's win was also vindication for Carlin, a team that has been through a dreadful season in European F3 and which, as a consequence, was disadvantaged in Macau. The cars' race numbers, and teams' positions in the pitlane, are ordered team by team based roughly on where they finished in the championship points. With Alessio Lorandi being Carlin's highest-placed

driver in 14th in the standings, the Farnham squad was down the unfashionable end of the pitlane, ahead only of Double R Racing and Fortec Motorsport. That can be critical when qualifying sessions are interrupted by a series of red flags, as they were in Macau last Thursday and Friday, because it means that the higher-numbered cars have to wait in the pitlane before going out on track in order to get a clear space, and consequently sometimes don't even complete a flying lap before the next stoppage.

Lorandi flounced out of his contract with Carlin during the summer, having criticised the quality of the people and the equipment they were running. So it was particularly sweet for the team that Matt Ogle, who engineered the Italian for the first half of the season, was in charge of da Costa last weekend. And that the chassis Lorandi rejected after the first two rounds of the season was qualified ninth by F3 newcomer Lando Norris, who then ragged it from an accident-enforced 26th on the grid



Rosenqvist and Prema got quicker as the weekend progressed

for the final to 11th in the results.

No wonder the party was in full flow on Sunday evening.

The pitlane positioning played a large part in the qualifying outcome. Russell put in a magnificent performance in Friday's quicker second session to take pole, but he was also aided slightly by the fact that Hitech GP's positioning in the pitlane was favourable owing to his third spot in the European F3 rankings this season. By contrast, the Carlin drivers and, to a lesser extent, Van Amersfoort



Racing ace Ilott, got mired in traffic or simply ran out of an opportunity to get a hot lap in once they'd switched mid-session onto new tyres. All their times were set on the older Pirellis bolted on at the start of the 40-minute period.

Still, da Costa was always a factor. He topped Thursday's qualifying session, which for a while looked as though it might be the one that counted as rain was forecast for Friday. In the end the weather stayed favourable for all but a few minutes – Russell set his mega-lap, Keke Rosberg-at-Silverstone-in-1985-style, as drizzle was falling – and the times tumbled.

As the cars did their first runs on old tyres, first it was Norris who lowered the pole time, then Yamashita, then da Costa returned to the top, before Ilott moved in front as the field headed pitwards for new Pirellis. Russell was sixth at this point, and his subsequent mighty pole effort made him the only one of the top nine to set his time on new rubber.

That left da Costa third on the grid for the qualification race, in which he »

RUSSELL'S POLE-LAP POETRY

GEORGE RUSSELL'S POLE POSITION LAP ON Friday was incredible. Others complained about their positioning in the pitlane (see main report), but the 2014 McLaren Autosport BRDC Award winner put in two consecutive laps that were quicker than anyone else's best, so any advantage gained by Russell in being in a favourable pitlane slot was a moot point. Instead, he merely used that advantage to go even faster, with arguably the best lap ever of Macau in a current-spec Dallara.

"After the red flag I went out, and at Lisboa there was a slippery-surface flag," said Russell. "I wondered what it was for, and further round the track I saw some drops of rain, but I realised the grip was there. At the start of the next lap I had Jann Mardenborough in front of me and I thought I'd be a bit cheeky and use his slipstream, and I went P1.

"I thought, 'Surely I can't improve on that', and I knew P1 was probably there, but I also knew that if I crashed P1 was probably still there [because it would cause a red flag], so I just pulled the lap out. The middle sector was absolutely awesome!"

It was. Russell might have done his lap on tyres bolted on mid-session, but like everyone else they'd gone through out-laps, red-flagged hot laps and in-laps, and a couple of heat cycles, and he was able to nail it while the others couldn't. His sector two time, from before the braking area for Lisboa to the downhill exit from Melco, was 0.415s quicker than next-best da Costa. And it was half a second quicker than anyone had ever gone around the Macau mountain in the current 2012-spec Dallara.

While Russell was joyful, some teams fumed.

The final red flag came moments before the end of the session, with Arjun Maini off at Lisboa and a report of poor visibility from a marshals' post. One driver who suffered was Double R Racing's Alexander Sims, who was on a lap good enough for fourth but which didn't count. The episode resulted in criticism for FIA race director Tamas Zettner, on his first visit to Macau to do the task usually carried out by Charlie Whiting or Bob Kettleboro, and who has done a pretty good job in Euro F3 this year, the crane-by-track episode at Zandvoort excepted.

"He's throwing red flags when he doesn't need to," grumbled one team boss. "There can only have been 30 seconds left, the car [Maini's] was in a place that everyone had gone past already, and if the visibility was so bad how come people were setting green sectors? A race director with more experience of Macau might have read it a bit better."

"The main factor was the status of the barriers," said Zettner. "The front wing [of Maini's car] was under the barrier and you don't know how safe that is. And when you have reports of the regular drivers on the streets near the track switching on their headlights, that's a bit worrying."

In light of the fiascos in the Guia touring car race and the GT World Cup, mostly caused by lengthy delays repairing the newly installed TECPRO barriers, there were fears that the Macau GP would be ruined. In the end there were two safety car periods, both caused by crashes (for Nikita Mazepin and Nick Cassidy) at the hard-to-access Paiol bend, but no one could dispute the race needed to go under caution to recover those cars.

XPBIMAGES



Racing fuels & oils



Proud supplier to the Masters Racing Series

BORN FROM JOE GIBBS RACING
DRIVEN
DRIVEN TO WIN **RACING OIL**



Driven Racing Oil's range of specially developed racing engine and gearbox oils reduce internal friction, keep viscosity longer and dissipate heat faster allowing you to run thinner oils with increased protection and power.

RACING ENGINE OILS:

XP0: SAE0W synthetic
XP1: SAE5W-20 synthetic
XP2: SAE0W-20 synthetic
XP3: SAE10W-30 synthetic
XP4: SAE15W-50 mineral
XP5: SAE20W-50 semi-synthetic
XP6: SAE15W-50 synthetic
XP7: SAE10W-40 semi-synthetic
XP8: SAE5W-30 mineral
XP9: SAE10W-40 synthetic
XP10: SAE0W-10 synthetic

HIGH PERFORMANCE ENGINE OILS:

FR20: SAE5W-20 synthetic
LS30: SAE5W-30 synthetic
DT40: SAE5W-40 synthetic
FR50: SAE5W-50 synthetic
DT50: SAE15W-50 synthetic
HR: SAE10W-30 mineral
HR: SAE10W-40 mineral
HR: SAE15W-50 mineral
HR: SAE10W-30 synthetic
HR: SAE10W-40 synthetic
HR: SAE15W-50 synthetic

RUNNING-IN OILS:

BR30: SAE5W-30 mineral
BR40: SAE10W-40 mineral
BR: SAE15W-50 mineral

GEARBOX AND TRANSMISSION OILS:

Running-in Gear oil: SAE80W-90 mineral
LSD gear oil: SAE75W-90 synthetic
LSD gear oil: SAE75W-140 synthetic
Qual. gear oil: SAE70W-80 synthetic
Gear oil: SAE75W-85 synthetic
Gear oil: SAE75W-110 synthetic
Gear oil: SAE75W-140 synthetic
MTF: Dog box Transmission
STF: Synchro Transmission
Max Duty: ATF
PSF: Power steering/high temp

Sunoco & R racing fuels are made to very tight tolerances to consistently maximise power within MSA & FIA regulations. Don't gamble – pump fuels are not the same all the time!

SUNOCO RACE FUELS:

Optima: 98RON, 0% oxygen – storage
RMR: 100RON, 2.7% oxygen – MSA unleaded
CF: 102RON, 2.7% oxygen – FIA unleaded
FR: 102RON, 3.7% oxygen – FIA unleaded
260 GTX: 103RON, 0% oxygen – unleaded
GreenE15: 104RON, 5.6% oxygen – unleaded NASCAR
E85R: 104RON, 29% oxygen – 85% ethanol INDYCAR
260 GT: 105RON, 3.7% oxygen – unleaded
260 GT Plus: 109RON, 4.5% oxygen – unleaded
EXO2: 115RON, 10% oxygen – leaded
Supreme: 116RON, 0% oxygen – leaded
MO2X: 116RON, 2.7% oxygen – leaded
MaxNOS: 119RON, 0% oxygen – leaded
SR18: 120RON, 0% oxygen – leaded

R RACING FUELS:

SUR: 99RON, 1.8% oxygen – MSA unleaded
TC: 102RON, 3.7% oxygen – unleaded turbo
TF: 102RON, 3.7% oxygen – FIA unleaded turbo
TFF: 109RON, 12.9% oxygen – unleaded turbo
4SR+: 100RON, 1.5% oxygen – MSA leaded
5SR+: 101RON, 1.8% oxygen – FIA leaded
6SR: 105RON, 0% oxygen – leaded

We deliver to your door!



Anglo American Oil Company

+44 (0)1929 551557 info@aaoil.co.uk www.aaoil.co.uk

Sunoco_UK Sunoco UK



Yamashita took a fine fourth for T-Sport

“One lap I went wider and tried to turn in faster, and I nearly lost the car!”

Antonio Felix da Costa

emerged from Lisboa on the opening lap in second place. As usual in Macau, it's better to get a slipstream than to lead off the grid. Russell made a terrific getaway but was down in fourth by Lisboa; Ilott, from the other front-row position, made a botch of it but towed his way in front at the Mandarin Oriental kink.

An early safety car played into da Costa's hands, and he was able to grab Ilott's tow and take the lead before they reached the braking area for Lisboa. From then on Ilott kept the pressure on, setting fastest lap on the penultimate tour, but he couldn't quite get back into da Costa's tow. He was just 0.850 seconds adrift at the chequered flag.

That was despite a near-lose of the race for da Costa. The racing line on the entry to Lisboa had been covered with concrete dust owing to water from morning rain falling off the overlooking grandstand onto the track, delaying the start by an hour. That forced a tighter turn-in arc for most. “I was being a little bit conservative, but I wasn't sure that Callum wasn't doing the same,” admitted da Costa. “On one lap I went wider and tried to

turn in faster, and I nearly lost the car!”

That also prompted caution from Ilott. “I started to catch him but I made a mistake at the last corner and ran wide,” said the Briton. “Then I saw him almost hit the wall at Lisboa so I thought I'd just take it easy.”

Sunday, of course, was the race that counted. Ilott this time made a peach of a start, at exactly the track he didn't need it. As a consequence he led into the Reservoir kink, but was fifth by the time the field exited Lisboa, and it was Sette Camara's Red Bull-liveried machine leading from da Costa.

The Brazilian was sensational over the first couple of laps, but da Costa began coming back at him. It was a typical stealthy, classy and menacing drive from the BMW-contracted Macau specialist. He rarely looked the absolute best out on the circuit — that was usually Rosenqvist, Russell, the flamboyant Ilott or Sette Camara — but he was always there lurking. By the end of lap four he was 0.744s adrift, just about ready to pick up the tow and inevitably eat up his teenaged prey. But then the safety car was scrambled. >>

JAPANESE STRUGGLE

IT WAS A TOUGH MACAU FOR THE TEAMS FROM the Japanese F3 Championship, with runner-up Jann Mardenborough particularly disappointed with his form.

The Welshman's B-Max Racing Team usually puts out a pretty good car in Macau, and with the switch to Volkswagen power from Toyota for 2016 hopes were high that Mardenborough could put on a strong weekend. One reason for the recent poor Macau showings of the Japanese Toyota and Toda powerplants is that they were homologated for the '13 season, when the country introduced the new FIA engine rules, while the Volkswagen, Mercedes and NBE were homologated one year later for European introduction in '14 after tweaks to the regulations, and the Tomei for '15. That's why Toyota was happy to allow champion Kenta Yamashita to switch to the Tomei-powered T-Sport entry as a one-off for Macau.

But Nissan protege Mardenborough looked uncomfortable all weekend on his rookie visit to Macau. “It's one of the hardest events I've done,” he said. “I've not been able to fight really. It's all down to the dampers on the car — over the bumps and on braking entry me and Daiki [Sasaki] have this weird feeling. It feels as if the whole of the car shakes and you're grabbing on for dear life. We get da Costa's data [as another VW-engined runner] and every corner the gap in braking is quite significant. But it's a cool place — driving the track is amazing.”

Further trouble for B-Max came on the first lap of the qualification race, when the team's Ye Hong Li hit the back of Sasaki after the Mandarin kink and was launched over his team-mate's machine in a scary aerial crash. The chassis damage ruled him out of Sunday's race.

The Japanese championship attack was finally headed by Toda Racing's Honda talent Tadasuke Makino, who has tested with Prema recently with a view to a European F3 move and who bounced back from a Thursday qualifying crash. He finished 14th, two places ahead of TOM'S driver Sho Tsuboi.



JOHN MARSHALL & SCOTT CRAWFORD

2015/16 SCOTTISH TARMACK RALLY CHAMPIONS



ROSS MARSHALL & DAVE ROBSON

2016 IRISH TARMAC MODIFIED CHAMPIONS

Special thanks to the Guys at TEG Sport & Den Motorsport for a top job on the cars all year and to Both Dave and Scott for a super job on the notes!



BEATSON'S
BUILDING SUPPLIES
www.beatsons.co.uk

DEN
Motorsport

TEG SPORT

+44 (0)1524 733 837

PIRELLI



When the race went green, da Costa repeated his move on Ilott from the Saturday race, although Sette Camara had been disadvantaged by the late call for the safety car to return to the pits. "This year I have never been leading [in European F3] when the safety car turns its lights off," he said. "I wanted to go really early, out of Melco hairpin, and attack the last two corners, but the safety car turned its lights off too late."

That meant Sette Camara only squirted it between Fisherman's Bend and R Bend, too close to the finish line to build up an advantage. Da Costa was

0.495s behind as they crossed the line, easily close enough to get past.

Sette Camara got another chance when the safety car emerged again, but wily old da Costa had it handled, and was 0.633s in front as they started the next lap. "I thought, 'What can I do this time to be different?'" he said. "So I just went super-early. Two corners to nail the restart, and it was just enough because he was side by side with me by the end of the straight."

Sette Camara now came under attack from Rosenqvist. The two-time Macau winner and Prema Powerteam had

Sette Camara (27) was a frontrunner all event and deserved his podium spot

endured a poor Friday and Saturday. Rosenqvist ended up eighth in qualifying, a lap that would have put him fourth discounted as it was completed a split-second after the red flags appeared. In Saturday's race, he didn't have the straightline speed he needed and backed out of a fight with the punchy Yamashita, finishing sixth.

This was a below-par performance from European championship dominator Prema, but as ever the Italian team found its way in the end. "P6 gave us the advantage of having nothing to lose, so we took a risk and made a lot of changes to the car," said Rosenqvist. "It paid off, and we were flying on the track."

Rosenqvist worked his way up to third and, when Sette Camara got into a slide out of Fisherman's on the 13th lap of 15, the Swede moved close enough to outbrake him on the drag to Lisboa. Partly thanks to the tow, Rosenqvist set fastest lap on the penultimate tour, but was 1.054s behind da Costa as they started the final lap of the 3.8-mile Guia circuit. That was enough for safety, and da Costa made no mistakes around the mountain before the Carlin boys on the pitwall erupted with joy.

Sette Camara, tearful with emotion even several hours later in the bar, completed the podium, before Yamashita led Ilott home for fourth after a feisty battle between the two. Toyota protege Yamashita, 'on loan' to T-Sport for the weekend and using the squad's ThreeBond-backed Tomei engine, showed what a force the Brackley squad can be. And the team had even »



Norris was one of several Macau rookies to impress



Ilott led, but not at the right moments

“I was pissed off, but I can’t be really. Typical that I got my best start in the wrong place”

Callum Ilott

further satisfaction with 12th place for Andy Chang in its NBE-engineered car. “I think Kenta’s the best young driver we’ve had since Sergio Perez,” enthused team boss Russell Eacott. “He’s done one test day at Silverstone and then come here. We didn’t quite have the balance right in the final. We made a couple of little changes and it just went against us. Fourth is good, but disappointing, and to have him and Andy in the team has been great. They’re two great lads.”

Ilott, who was up at the front for most of the weekend, attacking the circuit with typical panache, was upbeat, although the VAR team reckoned there was an imbalance on his set of race tyres, meaning it was all he could do to keep up. “I was pissed off after the race, but I can’t be really – it’s been a brilliant weekend,”

he said. “It’s the first time this weekend we’ve lacked pace. Typical that I got my best start of the year in the wrong place...”

In his wake, Jake Hughes put in a superb drive on just his second race weekend in an F3 car to demote Hitech duo Russell and Daniel Juncadella and finish sixth – and in the process deny Russell the unofficial ‘best-rookie’ title. While the Hitech aces paradoxically found they were lacking straightline speed despite going ultra-low on downforce, Hughes provided yet another tonic for Carlin, whose party began the moment da Costa crossed the line. Joining them in celebration were Volkswagen engine builder Spiess, which has also had a tough season.

“It’s not that we ever doubted ourselves,” said engineer Ogle. “I was



Carlin squad finally had something to celebrate after a tough year in F3

confident in us and what we were doing. Lando is such a great driver and all our young mechanics know him from karting. Then to have someone like Jake come in... he’s shone straight away. Sergio’s not had the best year but he’s come to Macau and finished on the podium. And finally, everyone who’s in the company of Antonio immediately feels a bit better about life. Things are looking up.”

RESULTS MACAU GRAND PRIX, NOVEMBER 19-20 (15 LAPS – 57.042 MILES)

POS	DRIVER	TEAM/CAR	TIME
1	Antonio Felix da Costa (P)	Carlin · Dallara-Volkswagen F312	37m57.447s
2	Felix Rosenqvist (S)	Prema Powerteam · Dallara-Mercedes F316	+1.603s
3	Sergio Sette Camara (BR)	Carlin · Dallara-Volkswagen F315	+3.194s
4	Kenta Yamashita (J)	T-Sport · Dallara-Tomei F314	+3.862s
5	Callum Iltott (GB)	Van Amersfoort Racing · Dallara-Mercedes F316	+4.348s
6	Jake Hughes (GB)	Carlin · Dallara-Volkswagen F312	+6.191s
7	George Russell (GB)	Hitech GP · Dallara-Mercedes F315	+7.027s
8	Daniel Juncadella (E)	Hitech GP · Dallara-Mercedes F316	+7.840s
9	Pedro Piquet (BR)	Van Amersfoort Racing · Dallara-Mercedes F316	+9.361s
10	Alexander Sims (GB)	Double R Racing · Dallara-Mercedes F313	+11.294s
11	Lando Norris (GB)	Carlin · Dallara-Volkswagen F312	+13.040s
12	Andy Chang (PRC)	T-Sport · Dallara-NBE F316	+15.101s
13	Anthoine Hubert (F)	Van Amersfoort Racing · Dallara-Mercedes F312	+15.520s
14	Tadasuke Makino (J)	Toda Racing · Dallara-Toda F316	+17.674s
15	Guan Yu Zhou (PRC)	Motopark · Dallara-Volkswagen F314	+17.913s
16	Sho Tsuboi (J)	TOM'S · Dallara-Toyota F314	+18.530s
17	Sam MacLeod (GB)	Fortec Motorsports · Dallara-Mercedes F312	+19.081s
18	Keyvan Andres Soori (D)	Mucke Motorsport · Dallara-Mercedes F316	+19.972s
19	David Beckmann (D)	Mucke Motorsport · Dallara-Mercedes F316	+20.325s
20	Jann Mardenborough (GB)	B-MAX Racing Team · Dallara-Volkswagen F312	+22.895s
21	Arjun Maini (IND)	Motopark · Dallara-Volkswagen F315	+48.349s
22	Daiki Sasaki (J)	B-MAX Racing Team · Dallara-Volkswagen F312	13 laps-DNF
NC	Joel Eriksson (S)	Motopark · Dallara-Volkswagen F315	11 laps
R	Nick Cassidy (NZ)	Prema Powerteam · Dallara-Mercedes F314	9 laps-accident
R	Daniel Ticktum (GB)	Double R Racing · Dallara-Mercedes F313	7 laps-accident damage
R	Ferdinand Habsburg (A)	Fortec Motorsports · Dallara-Mercedes F312	6 laps-accident
R	Maximilian Gunther (D)	Prema Powerteam · Dallara-Mercedes F315	4 laps-tyre blowout
R	Nikita Mazepin (RUS)	Hitech GP · Dallara-Mercedes F316	3 laps-accident
NS	Ye Hong Li (PRC)	B-MAX Racing Team · Dallara-Volkswagen F315	accident damage

Winner's average speed 90.167mph. **Fastest lap** Rosenqvist 2m11.080s, 104.440mph.

GRID Decided by result of qualification race.

QUALIFICATION RACE (10 LAPS – 38.028 MILES)

1 da Costa 27m07.011s; **2** Iltott +0.850s; **3** Sette Camara +5.030s; **4** Yamashita +5.797s; **5** Russell +7.351s; **6** Rosenqvist +7.889s; **7** Juncadella +10.136s; **8** Ticktum +17.416s; **9** Sims +17.859s; **10** Hughes +20.564s; **11** Cassidy +21.050s; **12** Piquet +21.358s; **13** Beckmann +21.607s; **14** Maini +21.996s; **15** Eriksson +24.194s; **16** Chang +24.940s; **17** Habsburg +26.006s; **18** Mazepin +28.215s; **19** Makino +31.905s; **20** Mardenborough +32.589s; **21** Tsuboi +33.073s; **22** Soori +34.143s; **23** MacLeod +56.743s; **NC** Sasaki 8 laps; **R** Zhou 7 laps-coil; **R** Gunther 1 lap-accident damage; **R** Norris 0 laps-accident; **R** Hubert 0 laps-accident; **R** Ye 0 laps-accident. **Winner's average speed** 84.142mph. **Fastest lap** Iltott 2m11.445s, 104.150mph.

QUALIFYING

1 Russell 2m10.100s; **2** Iltott 2m10.470s; **3** da Costa 2m10.501s; **4** Sette Camara 2m10.716s; **5** Yamashita 2m10.731s; **6** Hughes 2m10.776s; **7** Gunther 2m10.996s; **8** Rosenqvist 2m11.054s; **9** Norris 2m11.067s; **10** Cassidy 2m11.341s; **11** Juncadella 2m11.470s; **12** Sims 2m11.597s; **13** Ticktum 2m11.674s; **14** Hubert 2m11.751s; **15** Beckmann 2m11.775s; **16** MacLeod 2m11.799s; **17** Maini 2m11.871s; **18** Mazepin 2m11.987s; **19** Eriksson 2m12.455s; **20** Zhou 2m12.465s; **21** Piquet 2m12.609s; **22** Makino 2m12.838s; **23** Habsburg 2m12.879s; **24** Chang 2m12.897s; **25** Mardenborough 2m13.673s; **26** Sasaki 2m13.772s; **27** Ye 2m14.012s; **28** Soori 2m14.803s; **29** Tsuboi 2m14.868s.



XPB IMAGES

IN THE HEADLINES



XPB IMAGES

NIGHTMARE FOR CASSIDY

Nick Cassidy had a nightmare Macau that ended in his first crash at the circuit in three years of racing there. He was running seventh behind Prema team-mate Felix Rosenqvist in the qualification race when his engine dropped a cylinder, then failed as he crossed the finish line in 11th place. A new Mercedes was installed for the final, meaning that he had to start from the back of the grid. The Kiwi charged to 11th, setting third fastest lap and hauling in Alexander Sims, before his shunt.

GUNTHER OUTPACES ROSENQVIST

Prema's Euro F3 runner-up Maximilian Gunther rightly felt pretty proud of himself for outqualifying team-mate Rosenqvist, the acknowledged Macau maestro, on his rookie visit to the event. But the German was one of three to drift into the barriers on the exit of Mandarin at the start of the qualification race, the others being Lando Norris and Anthoine Hubert. That sent them all to the back of the grid for the GP, in which Gunther suffered a tyre blowout that damaged the suspension.

MACLEOD OUT OF LUCK

Sam MacLeod did a decent job to qualify 16th on his F3 return with Fortec Motorsport. He was climbing towards the top 10 in Saturday's race when he damaged a trackrod on the barriers, and as a result had an escape-road moment at Lisboa. He lost time in the GP avoiding a Lisboa melee between Pedro Piquet, Dan Ticktum, David Beckmann, Ferdinand Habsburg, Arjun Maini and Joel Eriksson, before recovering to 17th.

TICKTUM'S TOP-10 SHOT

Ticktum (below) made a strong impression on only his second race weekend in F3. The Briton raced to an excellent eighth in the qualification race in his Double R Racing machine, fending off experienced team-mate Alexander Sims. But he got taken out in the final in a Lisboa collision with Piquet. VAR driver Piquet finished ninth on his best showing yet in F3, which included a mega double pass on Beckmann and MacLeod in the qualification race.



XPB IMAGES



Vanthoor survives Macau farce

FIA GT WORLD CUP

MACAU (PRC)

NOVEMBER 19-20

LAURENS VANTHOOR AND AUDI were crowned the winners of the second running of the FIA's GT World Cup in Macau, but really the only victory for this farcical event was the Belgian's emergence unharmed from his R8 LMS after the scariest of accidents, which resulted in the race being red-flagged.

The race had just 15 minutes remaining on the clock, after one lap of action had resulted in Ricky Capo crashing his BMW Z4 at Fisherman's Bend. The event was red-flagged, and the field streamed into the pits, where everyone waited – and waited, and waited – while Macau's new TECPRO barriers took an age to be rebuilt. All the while the time allocation of what was scheduled as a proper 18-lap slugfest was ticking away.

Finally the field was unleashed, and Earl Bamber slipstreamed past the WRT-run Audi in his Manthey Porsche into Mandarin Oriental. Vanthoor tried

to keep in the Kiwi's tow, but touched the inside kerb, which flicked him into the outside barrier. At impact the front end of the Audi raised up, and as air got under the floor it launched Vanthoor into a scary flip. He skidded down the road to Lisboa on his roof, and to everyone's relief no-one hit him.

So the field returned again to the pits, where the allocated time eventually ran out, and Vanthoor was declared the winner on countback.

Even had the race carried on, Bamber was going to have to do something special. The fast-starting Maro Engel had used the torque of the Mercedes to draw up on the Porsches of Bamber and Kevin Estre after the start, but Bamber moved over, forcing Engel to touch the barriers and earning himself a five-second penalty.

Engel continued without significant loss of time, and was awarded third place – behind Estre – in the wake of Bamber's penalty.

Not that anyone really cared about the results, apart from rulebook fetishists

Vanthoor's Audi takes to the air, causing the final stoppage and securing victory

who argued that as the cause of the red flag Vanthoor should not be classified.

"Physically I'm OK," said the ashen-faced Vanthoor. "It was just one of the nastiest corners to have a crash, and to do half the straight upside down with other cars coming is not really describable. I don't know if I deserve the win in a way, because the way it happened was very strange. It was my mistake and I feel very awkward."

Estre agreed. "I wouldn't want to win that way either," he said.

Even Saturday's qualification race was chaotic. Edoardo Mortara spun into the Reservoir barrier when he tried to hang on alongside Audi team-mate Vanthoor away from the start, and then the race went under safety car conditions when Nico Muller had a massive shunt at Reservoir on lap two in his Phoenix Audi.

Mortara used the caution for repairs, remaining on the lead lap, and after another safety car (caused by two tail-end Porsches shunting at R Bend) he went on the rampage. That included ramming the Porsche of Darryl O'Young on the final lap, an incident which earned Mortara a grid penalty for the final.

Up front, Vanthoor won the Saturday race from Bamber, Estre and Engel, the Mercs struggling in comparison with the previous Macau form of the older SLs owing to the Balance of Performance limiting their power via the air restrictor.



Vanthoor was shaken rather than joyous on the podium

RESULTS

1 Laurens Vanthoor (Audi R8 LMS) 4 laps in 12m21.870s; 2 Kevin Estre (Porsche 911 GT3-R) +3.500s; 3 Maro Engel (Mercedes-AMG GT3); 4 Earl Bamber (Porsche); 5 Adderly Fong (Bentley Continental GT3); 6 Renger van der Zande (Mercedes); 7 Nick Catsburg (BMW M6 GT3); 8 Fabian Plentz (Audi); Mirko Bortolotti (Lamborghini Huracan GT3); 10 Franky Cheng (Audi). **QUALIFICATION RACE**
1 Vanthoor 12 laps in 33m00.643s; 2 Bamber +0.786s; 3 Estre; 4 Engel; 5 van der Zande; 6 Fong.



Monteiro (left) and Comini were the big winners

Comini's joy, Nash's woe

**TCR INTERNATIONAL
MACAU (PRC)
NOVEMBER 19-20
ROUND 11/11**

IT TOOK PRETTY MUCH EXACTLY two hours to do it, but the TCR International boys managed to get in four laps of racing over two chaotic races to decide the famous Guia title in favour of Honda star Tiago Monteiro. Meanwhile, James Nash lost his chance to win the 2016 TCR crown at the last hurdle, with Swiss-Italian hipster Stefano Comini emerging triumphantly from his Volkswagen Golf to repeat his inaugural '15 crown.

Comini was on form all weekend. Qualifying featured heavy rain in between Q1 and Q2, so the top 12 shoot-out took place on a wet track. Comini looked likely to take pole, but caught Pepe Oriola on the final lap; the Craft Bamboo SEAT was struggling for pace in the wet. As a result, Jean-Karl Vernay in the sister WRT-run Leopard Racing Golf grabbed top spot.

Comini led the first race all the way, in which there was a lengthy red flag owing to some drivers from the Chinese Touring Car Championship, which to TCR's anger were allowed to enter in spite of running to a different formula and being unable to navigate the first kink without spinning into the barriers. Gianni Morbidelli had crashed his Honda exiting Mandarin, and another car had piled into the wall going up the hill.

Nash was fourth at this point in his Craft-Bamboo SEAT, but when the race restarted he was part of a massive gaggle heading into Lisboa. The B3 SEAT of Mato Homola made contact with Nash, deranging the Briton's left-rear suspension. Homola then crashed into the barriers, everyone else piled in and the track was blocked. Cue another safety car intervention.

Owing to the earlier red flag, the time ran out before the caution ended, so as the safety car returned to the pits Comini raced to the finish line ahead of Vernay and Monteiro. With only half-points awarded, this meant that Comini was now half a point behind Nash – but, since Comini was on pole for race two and Nash was way down the field, he was the hot favourite for the title.

As the second race got going, Monteiro sprinted ahead of both VWs to put the Honda in front, and the race was just getting into its rhythm when pretty much the same culprits who'd caused the first-turn mayhem in race one all piled into the walls and/or each other at Police, blocking the track. Out came the red flags.

Finally the race restarted with a two-lap sprint to the finish. Vernay passed Comini for second, while Oriola, Dusan Borkovic (B3 SEAT) and German champion Josh Files (Target Honda) joined in the train to make it a leading sextet. It was entertaining stuff, but the cautious Comini didn't make it too difficult for Oriola to pass him on the

final lap in a move that gave the Spaniard the final podium position.

Out front, Monteiro was delighted to kickstart a day that would end with his friend and compatriot Antonio Felix da Costa winning the Macau Grand Prix. "It feels fantastic," said the World Touring Car star, who was drafted in to the WestCoast Racing Honda team for this event. "I've raced here many times and was close to the win a few times, so I really needed revenge here in Macau.

"There were not a lot of laps, but they were very intense laps. Once I was in the lead it was a matter of keeping them away in the mountain and down to Lisboa. It was a very tactical race."

But there was disappointment over the lack of action. "We were not able to show what is a real TCR race, so I'm sorry for that," commented Vernay, a star here in F3 in the past. He added that a mistake at Melco prevented him attacking Monteiro.

And then there was the disappointed Nash, who could only recover to eighth. "It was a good season but not good enough," he rued. "It was a difficult and disappointing weekend, but that's how things go sometimes. I don't understand where Homola wanted to pass, there was no space – it was silly..."

RESULTS

RACE 1 1 Stefano Comini (Volkswagen Golf GTI TCR)

5 laps in 37m08.856s; 2 Jean-Karl Vernay (Volkswagen) +1.040s; 3 Tiago Monteiro (Honda Civic TCR); 4 Dusan Borkovic (SEAT Leon TCR); 5 Pepe Oriola (SEAT); 6 Tin Sritrai (Honda).

RACE 2 1 Monteiro 7 laps in

45m38.635s; 2 Vernay +0.926s; 3 Oriola; 4 Comini; 5 Borkovic; 6 Josh Files (Honda). **Points 1 Comini 267.5;** 2 James Nash 264; 3 Vernay 246; 4 Oriola 241.5; 5 Mato Homola 175; 6 Gianni Morbidelli 174.

WEB DIRECTORY

EXHAUSTS

Inconel & Stainless Steel Specialists
SIMPSON
Race Exhausts
 Tel: 01753 532222
www.simpsonraceexhausts.com

HELMET GRAPHICS

Mike Fairholme Designs
 Sole approved painter of Arai helmets.
 Silver Birches, Corby Birkholme, Nr Grantham, Lincs NG33 4LE.
 Tel: 01476 550630. Fax: 01476 550029.
 email: fairholmedesigns@btconnect.com
www.fairholmedesigns.co.uk

MOTORSPORT LEGAL ADVICE

Motor Sport Legal Advice
 Tudor Alexander, LL.B Solicitor
tudor@fletcherday.co.uk 07887 713512
 Fletcher Day 56 Conduit St
 Mayfair London W1S 2YZ

RACE RADIO

Pit to Car **Autotel**
Radio solutions **Digital Race Radio**
 0044(0)1508 528837
www.raceradio.co.uk

GEARBOXES

Gearboxman.com
 COMPETITION TRANSMISSION SERVICES
 Gearboxes & Axles for Road, Race, Rally and more
 Telephone: 01582 840008 Fax: 01582 840007

MEMORABILIA

FINAL LAP
 For Everything Formula One
www.finallap.net **WE BUY AND SELL**
 +44 (0) 1245 287588 / 07771 920345

HELMET GRAPHICS

Visit: www.liquidcolourdesign.com
 Studio: +44 028 93378525
 Mob: +44 0770 9442894
liquidcolourdesign
 Helmet Paint | Design | Airbrush | Custom Paint

MOTORSPORT LEGAL ADVICE

MOTORSPORT LAWYER
JAMIE CHAMPKIN LL.B
 National and International
 CALL +44(0)1386 871287 ANYTIME
www@champkin.uk.com email: info@champkin.uk.com

RACE PARTS

JJC **race and rally**
 PASSIONATE ABOUT MOTORSPORT
www.jjcraceandrally.com

ARE DRY SUMP SYSTEMS
 ARMSTRONG RACE ENGINEERING INC.
WWW.DRYSUMP.COM (916) 652-5282

RACING

demon tweeks
 MOTORSPORT
www.demon-tweeks.co.uk

AUTHORISED DISTRIBUTOR
OMP YBRACING
 MOTORSPORT & PERFORMANCE
WWW.YBRACING.COM

RACING

PORSCHE SHOP
 10% off with website
 voucher code AUTOTEN
 Or Call: 0121 585 6088

CARTEK
 MOTORSPORT ELECTRONICS
www.cartekmotorsport.com
 0123 80 457747

MARDI GRAS MOTORSPORT
www.mardigras.co.uk

RALLY PREPARATION

exe-tc competition
 SUSPENSION
 World Championship winning suspension - designed and built in UK
 Including Porsche GT3 RSR 2007, Class Porsche R1
 Ford Escort MKII
 Mitsubishi Evo 7, Subaru Impreza, Toyota
 WRC, Group A, Group B and many more.
 All suspension supplied with technical set up
 Web: exe-tc.co.uk Email: john.delamare@exe-tc.co.uk
 Tel: +44(0)1292 444090 join us on Facebook and Twitter

www.EMPIRE RV.co.uk
 Living the high life
 Tel: +44 (0) 1761 300 489
www.EmpireRV.co.uk ■ info@EmpireRV.co.uk

TRAILERS & TRANSPORTERS

Committed to Quality
www.iwt.co.uk
Ivor Williams Trailers
 BRITAIN'S LEADING TRAILER MANUFACTURER

TRAILERS & TRANSPORTERS

BRIAN JAMES TRAILERS
 >> Connected to you
www.brianjames.co.uk

MOTORSPORT LAWYER
JAMIE CHAMPKIN LL.B
 National and International
 CALL +44(0)1386 871287 ANYTIME
www@champkin.uk.com email: info@champkin.uk.com

WHEELS & TYRES

Image Manufacturers of bespoke split rim alloy wheels
www.imagewheels.co.uk
 IMAGE WHEELS INTERNATIONAL LTD.



TO ADVERTISE IN THE WEB DIRECTORY
 PLEASE CALL **020 8267 5389**
 OR EMAIL autosport.ads@haymarket.com

BRIAN JAMES TRAILERS

» Connected to you



www.brianjames.co.uk

Black-and-White

The benefit of a protective transport is always valued when moving precious vehicles. Its now over 20 years since Brian James Trailers were the first to design a stylish, light and durable enclosed trailer using a GRP body construction, the original Race Shuttle.

The Race Transporter range is the third generation in the lineage and for the double decade landmark in MY2017 trailers we have introduced a host of new features, including a professional vehicle restraint system as well as fresh external styling.

Choosing a Brian James Trailer as your enclosed transport solution has always guaranteed black-and-white certainty.

Race Transporters are now available in Black or White.

Range starts from £ 6,750 + vat

BJT also offers a wide range of open trailers.
For more information on our trailer range or to find your nearest dealer visit:

www.brianjames.co.uk/dealer

RACE TRANSPORTER 6



T +44 (0)1327 308 833

For more information and details on the Brian James Trailers range, please contact our head office.



www.WOODFORDTRAILERS.com

HIGH QUALITY TRAILERS FOR CLUB, PRIVATE AND PRO MOTORSPORTS

DEVELOPED BY PROFESSIONALS, FOR PROFESSIONALS



DEALERS WANTED

**All Woodford Trailers have full
European Type Approval**

We have been designing and building our extensive range of high-quality, adaptable vehicle trailers from our Northamptonshire home for over 20 years, selling at highly competitive prices to suit a wide range of requirements. Please get in touch with us to discuss your needs.

Tel: 01327 263384 ● Mob: 07434 940 693

● E-mail: sales@woodfordtrailers.com

● Web: www.woodfordtrailers.com

TRAILERS & TRANSPORTERS

PRG TRAILERS *Finest Built British Trailers.*



PRG Trailers | Cheshire | UK | Tel: +44 (0) 1270812402
Web: www.prgtrailers.co.uk | Email: info@prgtrailers.co.uk

AUTOSPORT

IF YOU'D LIKE TO ADVERTISE
YOUR PRODUCTS AND SERVICES
PLEASE CALL

020 8267 5389



Weatherweave
Awnings & Tarpaulins


» WORKING WITH YOU

ESSENTIAL FOR MOTORSPORT TEAMS & COMPETITORS

**MAKE TRANSPORTING AND STORING EASY WITH
A WEATHERWEAVE CONVERTED TRAILER**

Weatherweave is the UK's leading specialist in bespoke awnings and trailer conversions. Featuring high specification PVC covers in a wide range of colours with artwork of your choice. Simple to use, durable, long-lasting and fire retardant to a British Standard, with an anti fungal lacquered finish. Our customer base spans from the general public, to international race teams and multi-global firms giving us experience second to none.

call us on: **+ 44 (0) 1268 774 141** or visit: www.weatherweave.co.uk



TRAILERS & TRANSPORTERS

Living the high life



APPLY ONLINE
CHOOSE YOUR OWN START DATE

The WORLD'S FIRST ONLINE Motorsport Engineering Degrees

FdSc Motorsport Engineering | BSc (Hons) Motorsport Engineering

CONGRATULATIONS!

Team NMA - Lotus Evora GTE
2nd Place in GTO - GT Cup 2016



Accelerate YOUR Career In Motorsport!

AFFORDABLE - FLEXIBLE - ONLINE

Why Study with NMA?

- 40% lower fees than other universities
- Access to student loans for UK students
- Choose your own start date, no term times or semesters, work at your own pace & study from anywhere in the world
- Mature students welcome - No upper age limit
- Earn while you learn
- No travel or accommodation costs
- Study Online & On-track
- Free industry standard CAD software

* Degrees are awarded by our academic partner Staffordshire University.



Who should do this course?

- Want to improve your career prospects by becoming a highly qualified Motorsport Engineer?
- Work or volunteer in motorsport without a degree?
- Work in the automotive sector and would like a career change into motorsport?
- Want a motorsport degree but can't justify the time/travel & accommodation costs at university?
- Have work or family commitments & need to earn while you learn & study flexibly for your motorsport qualification?

If you answered YES to any of the above, then...

The NMA Online FdSc or BSc (Hons) in Motorsport Engineering are THE courses for YOU!

NMA now has students from SEVEN F1 teams!

+44 (0)1159 123456

<http://motorsport.nda.ac.uk>

MARKETPLACE

INSURANCE



NEED RACE OR RALLY INSURANCE?

WE HAVE THE WINNING FORMULA

ON TRACK / ON EVENT / MOTOR TRADE / STORAGE & TRANSIT / PERSONAL ACCIDENT / REPATRIATION /
PROPERTY / LIABILITY / KARTING / TRACKDAYS / DRIVER TRAINING / CORPORATE HOSPITALITY /
INDIVIDUAL EVENTS OR FULL SEASON RACING / WORLDWIDE COVER

CALL +44 (0) 113 389 3666
EMAIL INFO@MISMOTORSPORT.COM
OR VISIT WWW.MISMOTORSPORT.COM

LOCKTON
MIS
MOTORSPORT.COM

Lockton MIS Motorsport is a division of Lockton Companies LLP authorised and regulated by the Financial Conduct Authority

RACEWEAR

Team



Club

Championship
Nationality

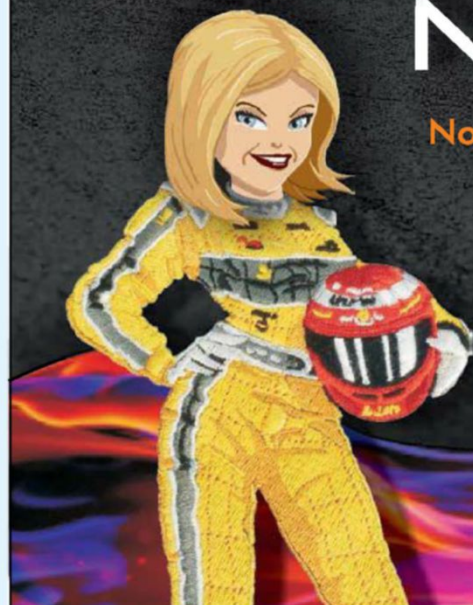
Race Numbers

Name Sponsors

Blood Groups

Nomex Motorsport badges for Race & Rally

No Minimum Order Charge
Nomex Sewing Kit Included
Easy Online Ordering
Quick Turnaround
UK Manufactured
No Set-Up Fees



WWW.HOT-STITCH.COM 01559 372 356

All copyrights & registered trademarks respected

MARKETPLACE

MEMORABILIA

F1 COLLECTORS .COM



#1 FOR F1 MEMORABILIA & AUTOGRAPHS

We buy and sell F1 items
AYRTON SENNA specialists

Call CHRIS GRINT

01763 274448

email:- sales@f1collectors.com

TYRES

FOR ALL YOUR
AVON
TYRES
MOTORSPORT

RACING TYRES
Inc. ACB 10 Formula Ford
Contact

BMTR LTD

Tel: 0121 331 1122

Fax: 0121 331 1144

email: sales@bmtr.co.uk

see our new website at www.bmtr.co.uk

RACE PRODUCTS



AP
RACING

Official Distributors
sales, servicing
and repairs



MARDI GRAS
MOTORSPORT

Unit 45 & 46
Silverstone Circuit

Tel: 01327 858006

Email: info@mardigras.co.uk

Web: www.mardigras.co.uk

RACE PRODUCTS

demon tweeks
MOTORSPORT

EXPERT ADVICE • MASSIVE STOCK • RAPID DELIVERY

BELL
HELMETS

0844 375 2196
www.demon-tweeks.co.uk

MEDIA CODE:
LZ252A
LOW CALL RATE CALLS
MAY BE RECORDED FOR
TRAINING PURPOSES

RACE PRODUCTS



READY, SET, CONNECT

Designed to meet the demands of today's racing teams, DEUTSCH ASDD 93-Way connectors from TE Connectivity (TE) allow nearly double the number of contacts as standard shell sizes. These high density connectors, which are available in a size 16 shell, feature a durable, lightweight aluminum alloy and conductive zinc finish for performance in even the harshest conditions.

Learn about our high-speed connectivity solutions for autosport applications at te.com/autosport

©2016 TE Connectivity Ltd. All Rights Reserved.
DEUTSCH, EVERY CONNECTION COUNTS, TE, TE Connectivity and TE connectivity (logo) are trademarks
of the TE Connectivity Ltd. family of companies.

EVERY CONNECTION COUNTS



MARKETPLACE / MOTORSPORT JOBS

RACE PRODUCTS

Elite Carbon Fibre

Carbon fibre race car component manufacturer

EliteCarbonFibre Ltd.
Units 20-22 Norwich Road Ind. Est.
Watton, Thetford, Norfolk IP25 6DR

Contact – Dave Greenwood 07809390316
Email – davecarbonelite@googlemail.com
Website – elitecarbonfibre.co.uk



Carbon Composite Wings, Bodywork & Repairs

STORAGE

Work More Efficiently with an Affordable Workshop Upgrade

The NewAge Professional 3.0 Series from GaragePride.



Depth
610mm

Height
2100mm

Width
4.88 metres

Heavy Duty
1.2mm steel

Soft Close
Hinges

Drawer dividers
and mats

**Only
£2530**

plus VAT
for this set
Free delivery
to UK mainland

See this and more at
www.GaragePride.co.uk 0800-206-2303

GARAGEPRIDE
Quality Storage for Home and Industry

SEATS

FACTORY SALE

HUNDREDS OF ROAD &
RACE SEATS IN STOCK

ALL RACE SEATS FIA APPROVED,
ALL STOCK AT REDUCED PRICES

4PM - 7PM | WED 30TH NOV - FRI 2ND DEC
9AM - 4:30PM | SAT 3RD DEC

COBRA
MOTORSPORT



Cobra Seats, Halesfield 23,
Telford TF7 4NY | 01952 684020
enquiries@cobraseats.com



DESIGN ENGINEER / PROJECT MANAGER

Mygale has a new opportunity for **graduate engineer in mechanical/ aeronautical/automotive engineering**. The candidate will have a minimum of 5 years work experience in motorsport mechanical design.

You will create parts drawings and product lifecycle documentation for a single-seater new project. Mobility to attend tests and to assist clients.

- Self motivated, capable of working from a design brief with a minimum of supervision for component design and calculation, you must show the potential to manage timing plans, resources and budgets.

- Good knowledge of small batch machining, fabrication and composite production

- Catia V5 for mechanical design and surfacing.

- The working language is French. A good level of English is necessary to communicate with clients and suppliers.

- Job located in Magny-Cours/France, available asap for a long contract.

Please send your resume with salary expectations to jobs@mygale.fr
More details on mygale.fr or mygale-cars.com

MOTORSPORT JOBS

Mercedes-Benz has been setting the standard in racing for over 100 years, and the MERCEDES AMG PETRONAS Formula One™ Team continues the proud history of the legendary Silver Arrows. We have some exciting opportunities at our Championship winning team within our Aerodynamics and IT departments.



**AMG
PETRONAS**
FORMULA ONE TEAM

AERODYNAMICS MACHINIST SW1553 **(12 months Fixed Term – Night Shift)**

With a proven capability in the production of high-quality machined components within a time-pressured environment, you will form part of a dedicated team responsible for programming, setting and operating CNC and manual machinery as required, meeting the daily production schedule. We are looking for candidates from a motorsport, aerospace or similar high-precision environment confident in running multiple CNC machines and with a good working knowledge of modern CAD/CAM systems, preferably CATIA V5.

SERVICE DESK ANALYST ED1520

The purpose of this role is to deliver high quality IT support to the business enabling efficient and effective use of the IT services.

INFRASTRUCTURE TEAM LEADER ED1556

This exciting new role will be responsible for the delivery of the infrastructure technology roadmap and efficiently managing the day to day activities of the infrastructure build team members.

We invest in our greatest asset: people. They embody our values: Passion, Respect, Innovation, Determination and Excellence.

We succeed when everyone delivers their tenth of a second. No matter which area of the team you work in, you will determine how we perform on and off the track.

Every person here takes immense pride in playing their part to the highest standards. Each and every day. Working here is fast. It demands technical excellence and teamwork. And it calls for great reserves of motivation and resilience.

Own your tenth of a second. Play your part. Join us.

To find out more, visit:

<http://careers.mercedesamgf1.com/>

Closing Date: 9th December 2016



McLaren Applied Technologies is a trusted provider and supplier to some of the world's most prestigious teams and race series including Formula 1, Formula E, NASCAR and IndyCar.

Our engineers work closely with customers to apply their fresh thinking to extract the best performance from the most advanced technologies. As our product portfolio expands, so does our need to continue to employ high-calibre engineers.

We are currently recruiting for the following positions:

- **SENIOR F1 TRACK SUPPORT ENGINEER**
- **F1 TRACK SUPPORT ENGINEER**
- **SOFTWARE PRODUCT SUPPORT TEAM LEAD**
- **EMBEDDED C SOFTWARE ENGINEER**
- **APPLICATION DEVELOPMENT ENGINEER**
- **POWER ELECTRONICS ENGINEER**
- **ELECTRONIC DESIGN ENGINEER**

You will be based at the McLaren Technology Centre, in Woking, Surrey.

Apply online now: www.mclaren.com/AppliedCareers

MOTORSPORT JOBS



Multimatic Motorsports Europe fields a two-car 'works' team of Ford GT LMGTE racers under the Ford Chip Ganassi Racing banner in the FIA's World Endurance Championship (WEC). With success comes growth, resulting in the need to fill a number of staff positions:

- No. 2 mechanics
- Van driver/handyman
- Parts coordinator
- Sub-assembly technician
- Lead composites technician
- Fabricator
- Junior administrative assistant

Do you have what it takes to join our team of professionals? If so, please forward your CV to the Race Team Administrator at:

Multimatic Motorsports Europe
Greatworth Park
Greatworth
Banbury, Oxfordshire OX17 2HB
England



RML have a global reputation for winning motorsport championships including touring cars, rallying and at the world famous Le Mans 24 Hours. Our business is just as diverse, providing high performance engineering in Automotive, Motorsport and Defence.

So if you want to work on exciting projects like the NextEV NIO EP9, Aston Martin Vulcan Road Conversion or one of our race programmes, we are looking to increase our team and have vacancies for:

Head of Performance Engineering

Senior Project Engineer

Principal & Senior Chassis Design Engineers

Principal/Senior Powertrain Design Engineer

Powertrain Design Engineer

HV Battery Technicians

Sub Assembly Supervisor

Competitive salary offered plus comprehensive benefits package including 32 days holiday (including bank holidays), contributory pension, life insurance private healthcare and on-site gym.

In addition, RML offer project variation, a friendly, supportive working environment, and training & development opportunities.

If you are interested in joining our team in Wellingborough, please go to our website www.rmlmallock.co.uk and apply online.

Applicants must have the right to work in the UK



We deliver world-class solutions in motorsport & high-performance engineering

THE ULTIMATE WET RACE

ENGINEERS NEEDED for revolutionary renewable energy company.

What inspires you? Pushing boundaries and breaking convention? The thrill of the race, no matter how tough?

We are recruiting for a **SENIOR CAD DESIGN ENGINEER**, a **PURCHASING MANAGER** and a **SENIOR PROJECT ENGINEER** to join us in our mission.

Interested? Get in touch to find out more.

To apply email our recruitment manager: rs@wavepower.com
Or visit: www.wavepower.com/careers



wavepower

ThreeBond

adhesives and sealants for the motorsport industry



Speedsport – official motorsport distributor of Threebond
call 01327 858 167 or buy online at www.speedsportshop.co.uk



speedsportpromotions

Safe and Sound sponsors the Ben Anderson Historic Formula Ford Outing 2016 at Silverstone!



Find out more about the Ultimate used car scheme.

0800 233 5622 SafeandSound.co.uk



Promoted by the former Stig, Ben Collins.

CLUB AUTOSPORT

NATIONAL RACING • HISTORICS • HILLCLIMB • TRACK TESTS • FEATURES



McLaren 570S GT4
was debuted by Ecurie
Ecosse this year

EBREV/LAT

Osborne returns to GT4 in a McLaren

BRITISH GT RACE WINNER JOE Osborne will return to the series' GT4 class next year driving a McLaren 570S for the Tolman Motorsport squad.

Osborne will race in GT4 for the first time since 2010, after competing in a BMW Z4 GT3 in recent years. He will be partnered by team regular David Pattison, who raced a Ginetta G55 GT3 with the squad this year.

"This is a really exciting deal for me, and it's actually pretty personal as I know every element," said Osborne, who won the European GT4 title in 2009. "I have coached David since his first test day and worked with Tolman in recent seasons too, plus I also do a lot of test work for McLaren.

"It's great that everything has come full circle. David has shown with his GT3 performances that he's become a really handy driver, and Tolman are a great team that I respect a lot.

"It will be strange heading back to GT4. I did the first ever GT4 race

in the UK in 2008, so it will be interesting to see how far the class has come on in the years since.

"The McLaren is the most advanced GT4 car around, with its carbon chassis, and the performance gap between GT3 and GT4 has narrowed. The biggest difference in dropping back into GT4 is the loss of power – you're about 100bhp down – but also the loss in aero. It's going to be a great challenge."

Tolman has opted to end its factory association with Ginetta in favour of pursuing a relationship with McLaren in the GT4 ranks. The programme marks the first firm customer entry of a GT4 McLaren, which only made its debut this year running with the factory Ecurie Ecosse team.

Team principal Christopher Tolman said: "We're very pleased to have secured about the best combination of drivers and car that you could assemble for our 2017 British GT campaign.

"We had a great run with Ginetta,



After racing a BMW Z4 GT3 for the past four seasons, Osborne will switch to a GT4 McLaren next year

EBREV/LAT

who have been very good to us – and motorsport – over the years, culminating in us running their GT3 project this season. Tolman wants to get to Le Mans in the next two-to-three years and we felt McLaren is the brand to do that with. We've already got a good rapport with McLaren and we're proud to be associated with that name. It's also a huge honour to be the first customer McLaren GT4 team."

Comprehensive motorsport insurance products to keep you on track;

- Accident damage On Track
- Rally damage On Event
- Storage and Transit
- Liability
- Personal Accident
- Track day

Log on to www.ryanmi.com to obtain your online quote

Email – info@ryanmi.com Tel – +44 (0)1799 524202

Ryan Motorsport Insurance Limited is an appointed representative (557405) of Independent Broking Solutions Limited who are authorised and regulated by the Financial Conduct Authority. Its Financial Services Register number is 312026

RYAN
MOTORSPORT INSURANCE



TOCA Whorton-Eales tests Motorbase car

RENAULT UK CLIO CUP CHAMPION ANT Whorton-Eales tested a Motorbase Ford Focus British Touring Car at Snetterton last week as part of his prize for winning the Clio title.

It was the second time Whorton-Eales tested a touring car, after driving a Team Hard Toyota Avensis earlier this year, as he targets a move into the BTCC next season. Last year's champion Ash Sutton graduated into the series in 2016 with the Triple Eight MG squad.

"It is an amazing car — so sharp and responsive," said Whorton-Eales, 22. "I could

tell it was a race winner straight away.

"The team has been amazing and we were able to contrast data with [Motorbase regular] Mat Jackson and learn about the driving style. It wasn't a case of the team just sticking us in the car and letting us get on with it — Motorbase really wanted us to benefit from the experience."

Porsche Carrera Cup GB winner Dan Cammish, who had been due to drive the car, decided to skip the test after receiving another offer.

"I had a better opportunity that I cannot

really miss," said Cammish, who won 12 of the 16 Carrera Cup races this year on his way to a second consecutive Porsche title. "There was no point in testing the touring car once this came up, and I will focus on it instead."

Cammish added that his 2017 plans should be revealed soon, but refused to rule out a switch to touring cars in the future.

Mini Challenge champion David Grady also got to test the Motorbase car as part of the Dunlop-organised outing, along with Formula Renault Eurocup racer Harrison Scott.

RENAULT UK CLIO CUP

Clio race winner Streather runs with WDE

RENAULT UK CLIO CUP race winner Paul Streather has been testing with WDE Motorsport as he considers his options for 2017.

The 27-year-old finished seventh in the standings in his first full campaign in the category this year, driving for the Finesse Motorsport squad, but is now set to move on.

"The [WDE] car and the team seem really good and I got on really well," said Streather.

"This year has been really challenging being

the only driver in the team [for most races] with no data, but I've got to look at moving forward and working with another quick driver."

Streather has tested on the new Michelin tyres that will be used next year, replacing the Dunlop rubber that has been employed since 2013, and was full of praise for them.

"The Michelins are a lot better, I knew that from the outset," he said. "The Clio was developed on Michelin tyres and suit it down to the ground."



DUBAI 24 HOURS

Cook to Dubai 24H with his Clio team

BRITISH TOURING CAR CHAMPIONSHIP racer Josh Cook will take part in his first 24-hour race in Dubai in January as part of his Cooksport team's entry.

The Renault UK Clio Cup squad will compete in the January 12-14 Creventic 24H Series event, with Cook joined in the line-up by his cousin Ollie and Clio drivers Shayne Deegan, Jon Maybin and Alex Sedgwick.

"It should be a good experience for the drivers and the team," said Cook. "It's a big task, but we're pretty confident it should go well."

"We wanted to do some endurance racing and know the car inside out, and the drivers know the car inside out so it's a good fit for us."

The team has had to modify the car so it can cope with the hotter conditions and racing at night. Additional lights and a different intercooler are among the changes that were checked in a shakedown test last week.

BRITISH GT

Pointon signs with HHC for GT4

HHC MOTORSPORT IS CLOSING ON agreeing drivers for its planned second British GT4 entry after reaching an agreement with Callum Pointon.

The former BRDC F4 title-winning team is planning to run two Ginetta G55 GT4s in the British championship next year, and is awaiting confirmation of its entry to the oversubscribed class.

HHC has already signed Ginetta Junior title rivals Will Tregurtha and Stuart Middleton for the first car, and has now enlisted Pointon for the second.

Pointon has worked his way up Ginetta's ladder, finishing third in the GT5 Challenge in 2015 before taking sixth in the GT4 Supercup this season.



"Our GT4 programme is taking shape nicely and with somebody of Callum's ability, we are confident of a good 2017 campaign," said HHC boss Charlie Kemp. "It would be a dream come true to have a two-car entry accepted into British GT."

IN BRIEF



OLIPHANT SCORES PORSCHE PODIUM

Tom Oliphant (above) scored a podium in the opening round of the Porsche GT3 Cup Challenge Middle East at the Bahrain International Circuit last weekend. Carrera Cup GB driver Oliphant finished third in the first race of the season behind Ryan Cullen and Dylan Pereira, and followed that up with fifth in race two.

SHOOTOUT FOR ROAD TO INDY PLACE

Four drivers from James Beckett's Formula Ford 1600 SuperSeries took part in a contest at Silverstone on Tuesday for a place in the Mazda Road to Indy shootout. James Raven, Jake Byrne, Oliver White and Chase Owen were fighting for the chance to join National champion Niall Murray and Scottish title-winner Neil MacLennan in the shootout to win a \$200,000 scholarship towards racing in USF2000. The winner was yet to be decided as Autosport closed for press.

KEEN AND MINSHAW STAY IN BRITISH GT

British GT runners-up Phil Keen and Jon Minshaw will return to the series next year. The duo will continue to compete in a Barwell Motorsport Lamborghini Huracan GT3 alongside a yet-to-be-announced second pairing.

CARROLL WINS VEGAS eSPORTS SPOT

Formula Ford 1600 racer Graham Carroll has qualified for January's Formula E Road to Vegas eSports final, where members of the public get to compete against the current FE field. Carroll, 26, had won the first of the championship's sim-racing events, giving him the chance to drive a Spark SRT_01E Formula E car during the Marrakech ePrix weekend. Carroll then finished second in last Sunday's Berlin event to qualify for the final.

DEFRANCESCO TO EUROFORMULA OPEN

British F4 race winner Devlin DeFrancesco (below) will switch to the Euroformula Open series for 2017. The 16-year-old will remain with the Carlin squad that powered him to fifth in the F4 standings this season as he makes the step up to F3 machinery. "It's going to be a big step forward but we're ready for it," he said.



BRSCC

Fagg races SEAT to gain signatures

GINETTA JUNIOR GRADUATE Charlie Fagg raced a SEAT Leon Supercopa at Anglesey last weekend to gain signatures on his licence ahead of a planned move to British GT for 2017.

Fagg, who was ninth in the Junior standings with HHC Motorsport, twice finished second in Wales behind the

dominant Radical PR6 of Doug Carter in the Winter Sports, Saloons and Caterham races.

"I'd like to go into British GT," said Fagg. "I really enjoyed the TOCA package but I think it's time for me to move on. I'm now 17 so unfortunately I couldn't do the Juniors again, so British GT – or something

similar – would be quite nice in a GT4 car.

"[The SEAT] is one of the sponsors' – it's actually his car. He's given it to us for this weekend and we think it's a good car to learn in. It's a good experience of front-wheel drive considering we race rear-wheel drive in Juniors."

BRITISH F4

Ginetta Junior drivers in F4 tests

GINETTA JUNIOR RACERS SEB PEREZ AND Tom Gamble have tested a British F4 car with the JHR Developments squad as they assess options for next season.

Perez finished 10th in the Junior standings with JHR this year, taking three podiums, while Gamble completed a part campaign with HHC Motorsport before joining JHR for the Winter Series earlier this month.

Gamble, younger brother of 2014 Ginetta GT5 Challenge champion George, is weighing

up a move to single-seaters: "I tried one [F4 car] last year before going into Ginetta Junior, but it's still a little strange being back in an open-wheel car.

"I hope to be able to move to single-seaters next year, but I will still be young enough to continue in Ginetta Junior."

Fellow JHR Ginetta Junior racer Olli Caldwell was also one of a number of Young Racing Driver Academy members to test an F4 car with Arden last week.



The Classic Sports Car Club will make another appearance at Thruxton

CSCC

CSCC to return to Thruxton

THE CLASSIC SPORTS CAR CLUB WILL CONTINUE TO race at Thruxton next year after its experimental 2016 event at the Hampshire circuit was so successful.

The club made its first ever appearance at Thruxton this season, with the televised meeting featuring more than 300 entries. Now the club will race at the track again with a new April 22-23 date for 2017.

"After the success of Thruxton this year they asked us to come back, which we didn't expect at all, we are thrilled," said club director Hugo Holder.

"We didn't expect they'd want us back. It was a big success, and we'd never been there before. To be asked two years in a row is a bit of an honour."

The calendar also features night races at Brands Hatch to close the season on November 11-12. The CSCC will also use the International circuit configuration at Silverstone for the first time, and makes its return

to Croft after an absence of a decade.

"The night races at Brands are a chance for people to have a go at unfinished business," added Holder.

"We ran a night race event over two days in 2015 but the second day was fogged off; it came rolling in and we couldn't use the circuit.

"The other highlight is Croft – we haven't been there in 10 years. Again, it's another circuit where it's difficult to get track time. We've been going on at them for a couple of years trying to get it all together, and now we have. It's such a fabulous circuit and we're chuffed to bits. It's one of our best calendars yet."

The 2017 CSCC season will begin with a visit to Snetterton on April 1-2 and also includes trips to Castle Combe, Donington Park and Oulton Park. The club's traditional overseas event at the Spa Summer Classic also forms part of the calendar.

MINI SEVENS

NEW LIBRE CLASS IDEA FROM MINI SEVEN CLUB

THE MINI SEVEN RACING Club will introduce a new Libre class next season after expanding its technical regulations.

The club has traditionally only run the lesser-powered Se7en and 1.3-litre Miglia fields, but will add a third series for modified cars to run on the same grid as the Miglias. The new class will cater for any steel-bodied Mini running an A-Series engine block and 10-inch wheels.

Club commercial manager Colin Peacock said he hoped the new class would swell grid numbers and eventually bring more drivers into the Miglia category.

"There are around 50 racing Minis that have been modified beyond our championship regulations, but have been shut away in garages, and we want to give them a place to run," said Peacock.

"The Libre class will run at the back of the Miglias, possibly with a delayed start."

The club has also firmed up its calendar for next season and will retain its European round at Zandvoort in the Netherlands.

HSCC

No Snetterton for HSCC leaves Autosport 3 Hours' future unclear

SNETTERTON HAS BEEN dropped from the Historic Sports Car Club's calendar for 2017.

The Norfolk venue has been the home of the Autosport 3 Hours endurance since it was revived in 2007. The HSCC is unlikely to visit in '17, but club CEO Grahame White did not rule out a return.

"For the last three or four years we've had a real struggle getting entries to Snetterton," said White. "We've lost money

and we can't really afford to do that."

White suggested that the Autosport 3 Hours, which was reduced to one hour this season, could take a hiatus or return at a different venue.

"I think people have run out of enthusiasm for longer races," he added. "It puts a lot of wear and tear on cars and that costs."

The high-speed Thruxton circuit, which hosted the HSCC's 2015 season opener,

has also missed out.

"Thruxton was an extra meeting and the last time we were there we had quite a lot of people say they'd rather not go back," said White. "We thought we'd not go back for the moment, but I think we will return eventually, perhaps at a different time of year."

The HSCC's 2017 season will kick off at Donington Park on April 8. It also includes visits to Silverstone, Cadwell Park, Croft, Brands Hatch and Oulton Park.



Chevron of Brooks/Beebe won this year's Autosport race at Snetterton

STYLES



Peter Foubister: an inspirational leader

By Marcus Pye, the voice of club racing

[@Autosport](#)

FOUR DAYS ON, AS I WRITE, I AM STILL TRYING to come to terms with the devastating news of my former Autosport editor Peter Foubister's sudden passing last Friday.

More so because I was among a select band of friends gathered in the Segrave Room at the magnificent Royal Automobile Club in London's Pall Mall – where he was to have hosted a small private luncheon to celebrate the presentation of the Historic Tourist Trophy to Aston Martin DB4 aces Wolfgang Friedrichs and Simon Hadfield – when Peter Read solemnly informed us of his death there overnight.

As Motoring Secretary of the RAC in recent years, 'Foub' had reinvigorated the club's social hub to widespread acclaim and apparently been on top form at Thursday's sixth International Historic Motoring Awards, accepting the prize for Rally or Tour of the Year for its 2015 London to Brighton Veteran Car Run.

Having played 'mobile hockey', missing each other's calls on Wednesday and Thursday, I'm left with his message: "Marcus, looking forward to seeing you tomorrow. Give me a ring when you are near the clubhouse and we'll catch up before lunch." Alas, it wasn't to be.

Catching up, on family and motorsport matters, was always a joy with Foub, whose company I hugely enjoyed from the moment he arrived from Scotland to take up a rally post on this mag in 1980.

While I questioned his wisdom in strapping me into Alan Carter's Toyota rally car at Esgair Dafydd, even before the mad Australian crashed, Peter's vision and ability to work with the Haymarket 'suits' long after his stint as editor finished in 1992 bore abundant fruit over what were most definitely glory years.

Foub was a people person who got on with everybody. Having inspired Ron Dennis to come on board, he was the architect of the McLaren Autosport BRDC Award, following the success of fellow Scot David Coulthard, whose talent I'd rung in excitedly to flag up from his first Formula Ford test at a bitingly cold Thruxton in early 1989.

Twenty-seven Britons have benefited from MABA support to date, but there were special glows of patriotic pride when compatriots Dario Franchitti, Andrew Kirkaldy, Paul di Resta and Lewis Williamson followed DC onto its roll of honour. And Foub didn't need any persuasion when I suggested instigating a blue cover, a twist on the green that had traditionally replaced red to mark a British success, for Tom Walkinshaw Racing's Jaguar victory at Le Mans in 1988.

Press days on a weekly publication are invariably long and fraught, but Foub instigated a Monday night tradition, soothing the editorial team's frazzled nerves and assuaging its growing hunger by ordering a "carry-oot" (take-away) from the Indian restaurant around the corner from the office in Teddington. Having taken our orders for the first time we were in stitches with laughter when, increasingly frustrated at the restaurateur's inability to jot down "Foubister, that's FOU-BIS-TER", Peter gave up and said "put it down as Smith". Fun days. We'll miss you Mr Smith!

● Peter Foubister's untimely death has further rocked the Scottish motorsport fraternity, which lost long-time Doune hillclimb clerk of the course Frazer Madder last Wednesday, November 16, three weeks after the passing of Bill Henderson. Autosport's man north of the border served the title from its inception in August 1950 for more than 50 years. 🍷



F2 FOR PAU AND OULTON

Formula 2 cars unseen in many years are promised for invitation races at Pau's Historique GP showcase on May 27-28, 2017. The HSCC's Historic F2 series meanwhile will feature at the Donington Historic Festival, Nurburgring's ADAC 90th Anniversary celebration, Magny-Cours' first GP de France, the Oulton Gold Cup and Dijon.



HSCC HONOURS LEADER

Grahame White, who has transformed the Historic Sports Car Club since 1997, was honoured with a special 'This Is Your Life' presentation at the club's 50th anniversary awards dinner at Whittlebury Hall last Saturday. This season's champions received their trophies from club pioneer Stuart Turner.



FISCAR WIDENS ITS NET

FISCAR has received an enthusiastic welcome for a new race to be promoted within the Bentley Drivers' Club's annual Silverstone meeting in 2017. The George VI Cup contest will be open to sportscars of a type that raced in the 1938-51 era, an open competition for machinery likely to be outmoded in FISCAR's later timeframes.

Cowley resisted McArthur (15) to grab second Star of Anglesey crown



ANGLESEY
BRSCC NOVEMBER 20

Cowley beats McArthur for second Star

THE BATTLE TO BE CROWNED STAR of Anglesey went down to the wire as Matthew Cowley narrowly pipped David McArthur to defend his title in the Formula Ford 1600 races.

Nineteen-year-old Cowley, who was the Pre-1990 Formula Ford champion in 2015, secured his second consecutive Star of Anglesey trophy after bagging a runner-up finish and a victory in his Van Diemen JL13 during a pair of hotly contested races.

Despite only qualifying on the third row at the end-of-season BRSCC Winter Race Day at the Welsh circuit, Cowley made the most of a retirement for polesitter Joshua Smith and a subsequent safety car period to surge into second spot on the rostrum, while McArthur took the race-one win.

Just 1.6 seconds covered the top three by the end of the second race, in which Cowley made a perfect start to storm

into the lead at Turn 1. After thwarting a series of advances from McArthur — who needed back-to-back victories to claim the Post-1989 accolade — Cowley usurped his rival to win the trophy by five points.

With a number of leading runners absent from the meeting, Ivor Mairs capitalised to snatch the Pre-1990 Star of Anglesey honours thanks to a brace of class wins.

A field of just eight cars served up three thrilling Global Lights encounters. With winning margins of less than 0.3s in each outing, the Irish series rounded out its annual trip to the UK in style.

The frenetic 15-minute thrashes began in dramatic fashion when early frontrunners Max Drennan, Conor Farrell and James Thompson plummeted to the back after all three came to blows at the sweeping Church right-hander on lap two. Following a separate spin for erstwhile

leader Michael Conway, his father John took control of proceedings and held off recovering pair Drennan and Farrell by just 0.13s at the flag.

After multiple lead exchanges during a four-way scrap for the race two win, and having survived late contact with Thompson, Drennan staked his own claim on the top step by leading home Farrell and Michael Conway.

A perfectly executed final lap — partly aided by an ailing Thompson — allowed Drennan to navigate from third into the race lead in the finale, pulling off a daring overtake around the outside of Farrell at Rocket to seal a last-gasp win.

Doug Carter was untouchable in his Radical PR6 on Sunday as he romped to two commanding victories in the Winter Sports, Saloons and Caterham Series.

Carter claimed pole position by 5.85s, and translated his dominance in the races by lapping the field at least once in both events. Even a 10s penalty for a jump-start in race one could not deny him a pair of imperious victories.

Of an eclectic mix of 16 machines varying from Ginetta G40s to an MG Midget, Ginetta Junior graduate Charlie Fagg proved to be Carter's nearest 'rival' as he led home Oliver Thomas and Danny Carroll in his SEAT Leon Supercopa.

Further behind the supreme Carter, Andy Thompson impressively recovered from throttle problems in his SEAT Toledo in race one to record a top-five finish from the back of the grid in the series finale.

LEWIS LARKAM

Drennan (8) was thwarted in Lights race one, but took a brace in remaining bouts



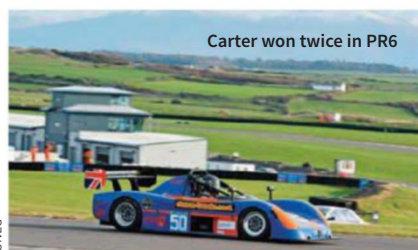
JONES



JONES

RESULTS

WINTER FORMULA FORD 1600 (16 LAPS) 1 David McArthur (Van Diemen LA10); 2 Matthew Cowley (Van Diemen JL13) +3.076s; 3 Matt Round-Garrido (Van Diemen JL016K); 4 Martin Short (Van Diemen JL012K); 5 Luciano Carvalho (Van Diemen RF05); 6 Ivor Mairs (Mondiale 84S). **Class winners** Mairs; Colin Williams (PRS RH01); Ian Cowley (Reynard RS88). **Fastest lap** Joshua Smith (Van Diemen JL13K) 1m11.697s (77.82mph). **Pole Smith. Starters** 18. **RACE 2 (17 LAPS) 1 M Cowley;** 2 McArthur +0.233s; 3 Round-Garrido; 4 Carvalho; 5 Short; 6 Mairs. **CW** Mairs; Oliver Chapman (PRS RH02); I Cowley. **FL** McArthur 1m11.939s (77.56mph). **P** McArthur. **S** 15. **WINTER GLOBAL LIGHTS (ALL 12 LAPS) 1 John Conway;** 2 Max Drennan +0.130s; 3 Conor Farrell; 4 Anthony Thompson; 5 Iain Duff; no other finishers. **FL** Drennan 1m12.517s (76.94mph). **P** Farrell. **S** 8. **RACE 2 1 Drennan;** 2 Farrell +0.207s; 3 Michael Conway; 4 James Thompson; 5 A Thompson; 6 J Conway. **FL** M Conway 1m13.822s (75.58mph). **P** J Conway. **S** 8. **RACE 3 1 Drennan;** 2 Farrell +0.146s; 3 M Conway; 4 J Conway; 5 Conor May; 6 A Thompson. **FL** Farrell 1m14.269s (75.13mph). **P** Drennan. **S** 8. **WINTER SPORTS, SALOONS AND CATERHAM SERIES (17 LAPS) 1 Doug Carter (Radical PR6);** 2 Charlie Fagg (SEAT Leon Supercopa) -1 lap; 3 Oliver Thomas (Subaru Impreza); 4 Danny Carroll (Caterham Roadsport); 5 Bruce Carter (MG Midget); 6 Stuart Middleton (Ginetta G40). **FL** D Carter 1m08.530s (81.42mph). **P** Carter. **S** 16. **RACE 2 (18 LAPS) 1 D Carter;** 2 Fagg -1 lap; 3 Carroll; 4 Thomas; 5 Andy Thompson (SEAT Toledo); 6 B Carter. **FL** D Carter 1m08.144s (81.88mph). **P** D Carter. **S** 14.



Carter won twice in PR6

JONES



MONDELLO PARK
MPSC NOVEMBER 20

Blackchurch team was declared the winner after red-flag confusion

CHESTER

Blackchurch crew charges through fog

A DRAMATIC RACE FEATURING A RED flag and troublesome fog meant the annual Fiesta Six Hours contest was reduced to less than half its scheduled distance, with the Blackchurch Ford team eventually being declared the winner.

The delays began with qualifying as sub-zero temperatures and thick fog pushed the session back by an hour. When it eventually got underway it seemed every one of the 32 entries had a stint at the top of the timesheet. When the chequered flag fell, it was Eoin Murray in the Murray Motorsport #32 car in pole position. Ulick Burke's Smart Movers team shared the front row, with Kevin O'Hara's LOH Motorsport entry and Alan Dawson's Mr Gearbox Mr Clutch car on row two.

Murray led away cleanly from the delayed start but immediately came under pressure from Burke, with the Keith Dempsey Southside machine right with them in third. Burke displaced Murray for the lead at the final corner on lap 10 with a superb move. Murray subsequently retook the place, but Burke replicated his earlier switchback at Southside corner to snatch the advantage again, the pair battling as if the race was a 10-lap sprint. On lap 40 Murray again got by Burke, this time around the outside of Mobil corner.

Inside the second hour, FF1600 star Niall Murray, having taken over from brother Eoin, chased down the Smart Movers entry, now with Garret Burke at the wheel, getting close before the safety car was dispatched for a car parked in the gravel at Turn 1.

When racing resumed, Murray had a strong lead as Burke's team remained in the pitlane, having pitted too late under the safety car. Emer Campbell ran in second for Campbell Racing, with Murphy Prototypes boss Greg

Murphy in third. Murphy sliced by Campbell, subsequently assuming the lead when Murray pitted and handed over to Michael Devaney just before the two-hour mark.

Around the same time, Team Barrable retired with a blown engine. John Morris's Team Weight Watchers had climbed to second but received a three-lap penalty (subsequently reduced to a single lap) for running the red light at the end of the pitlane, initially dropping them to 17th.

At the two-and-a-half-hour point, the Micksgarage.com car suffered a massive engine failure, with the resultant oil slick at Bridgestone Corner sending a number of runners into the gravel. The safety car was deployed again, which bunched up the pack.

When the frontrunning LOH Motorsport machine dumped fluids at Turn 2, John Denning – having taken over in the Murray Motorsport #32 – lost it, triggering a massive shunt as he was collected by team-mate Murray Motorsport #30, among others, with a safety car period soon superseded by a red flag.

After a long delay and two different regrids, the decision was taken not to restart the race as the lingering fog had finally descended over the entire circuit.

Initially, the Murray Motorsport #30 car of Hugh Grennan, Dave Maguire, Rod McGovern and John Farrelly was declared the winner, but later in the evening, after a number of protests and appeals, the Blackchurch Motors entry of Kevin Doran/Shane McFadden/Sean Lillis showed at the top of the final result sheet. The Murphy Prototype/Murray Motorsport entry of Murphy, Colin Lewis, Paul Dagg and Sean Doyle was second, and the #30 Murray car third.

LEO NULTY

RESULTS

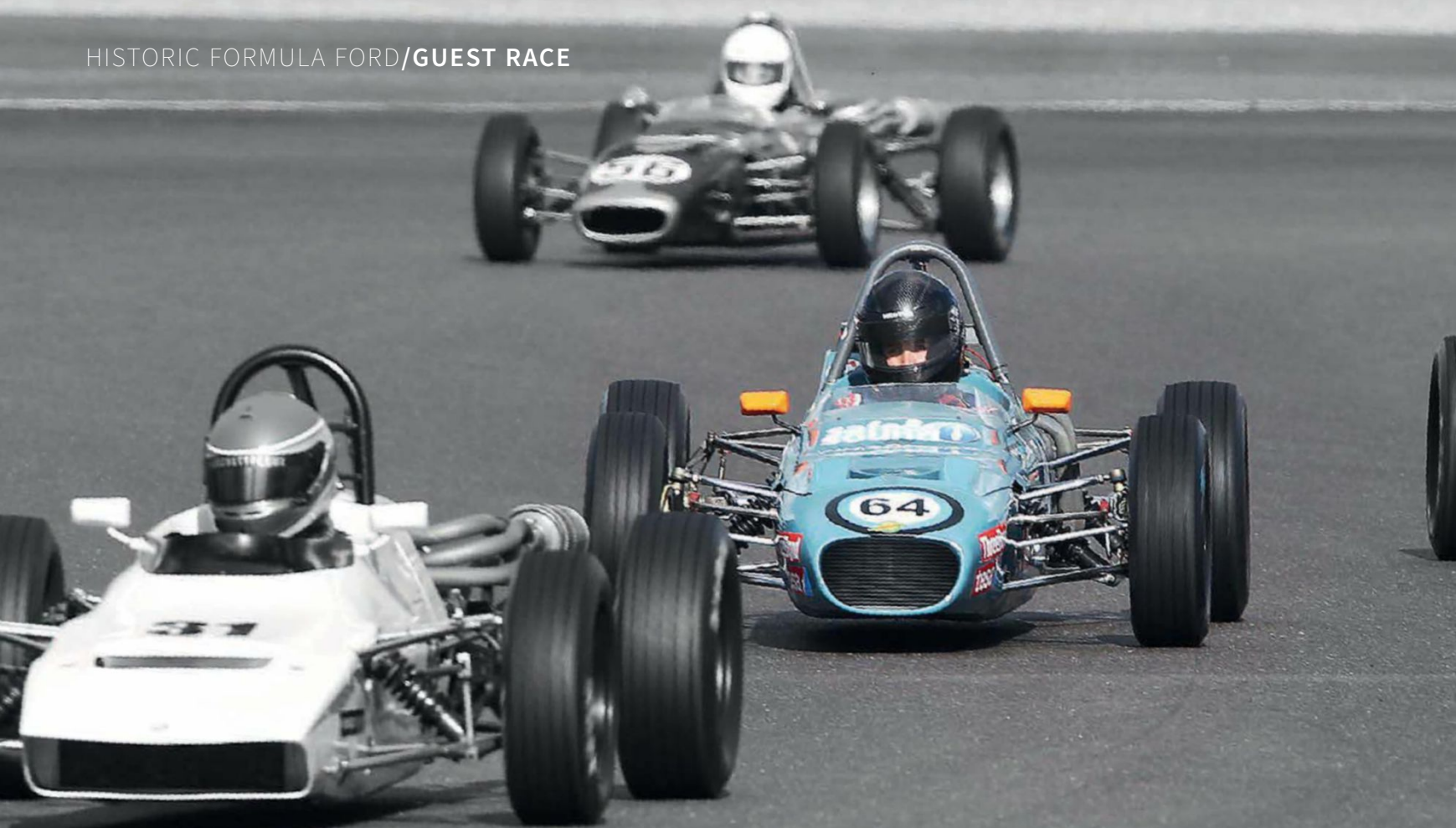
FIESTA ZETEC ENDURANCE RACE (129 LAPS) 1 Blackchurch Ford (Kevin Doran/Shane McFadden/Sean Lillis); 2 Murray Motorsport #18 (Colin Lewis/Sean Doyle/Greg Murphy/Paul Dagg) +53.364s; 3 Murray Motorsport #30 (Hugh Grennan/Dave Maguire/Rod McGovern/John Farrelly); 4 Murray

Motorsport #19 (John Lally/Barry English/Michael Cullen/Sean Lally); 5 Mr Gearbox Mr Clutch (Alan Dawson/Keith Dawson/Alastair Kellett); 6 LOH Motorsport (Kevin O'Hara/Dan Polley/Adam MacAulay). **Fastest lap** Murray Motorsport #32 Eoin Murray 1m11.277s (58.06mph). **Pole** Murray Motorsport #32 (E Murray/Niall Murray/Michael Devaney/John Denning). **Starters** 32.



Denning crash led to eventual abandonment

CHESTER



Taking on 2016's toughest club series

Historic Formula Ford is going through a golden period right now. We decided our resident racer had to give it a try

By Ben Anderson, Grand Prix Editor (and club racer)

[@BenAndersonAuto](#)

Limping back to the pitlane in a damaged car without completing a flying lap was not how this was supposed to go. Sure, the track was wet and slippery from overnight rain, but I wasn't even pushing! Just rolling off the accelerator through the Maggotts kink, gentle press of the brake pedal, suddenly snap! And I was sliding through the gravel trap and into the barrier...

It was the worst start I could possibly have imagined, other than maybe stuffing it at the pitlane exit – especially when I knew I'd be dropping in to the finale of what many pundits were calling the most competitive club championship of 2016.

My Merlyn Mk20 – a car once raced by Tim Brise (former rally ace and elder brother of '70s rising British grand prix

star Tony) – is quickly rebuilt by Mike O'Brien's Speedsport/Classic Team Merlyn crew, and the broken exhaust replaced.

Car back together, we can now get to know each other properly. Formula Fords are beautifully basic racing cars, but being single-seaters they are of course purpose-built, and should be driven hard. Their simple technical nature means most of the lap time comes from the driver.

Speedsport recognises this, so employs Racelogic video and data logging (permitted for testing but naturally outlawed in historic racing) to help the driver improve.

I have good references in Mike's son Michael, who did a part-season as a novice in Historic FF1600 in 2014 (winning twice) before becoming a race winner in BRDC F4 in '15, and my team-mate Mark Shaw, a junior racing peer of Jan Magnussen and Juan Pablo Montoya.



MICK WALKER

Shaw stopped racing in 1999, after becoming a podium finisher in Italian Formula 3000, but returned 14 years later, taking second in the 2013 Caterham R300 Superlight championship, and winning the Historic Sports Car Club's Formula Ford season opener at Castle Combe this year.

With expertise like this around me, and the car that has won at the prestigious Silverstone Classic meeting in British Formula Ford champion Callum MacLeod's hands, there are no excuses.

As we get stuck into dry running, I work down to high-1m05s/low-1m06s laps quite easily, which is roughly a second off the pace, depending on particular conditions/settings/getting a tow, etc.

The car is forgiving, and a pleasure to drive, with a surfeit of rear grip that makes it difficult to spin (unless it's wet). But, like anything, you have to dig deep to get the most out of it. Nothing comes for free.

Apart from being brave enough on corner entry, the key with these cars is throttle application. The technology is dated, which makes the car naturally quite lazy. You always feel this is where you can perform some acrobatics that will give you an edge over your opposition, but in fact discipline is crucial.

If you are too late, too lazy, or pick up too much understeer by getting back on the throttle on a poor line, the stopwatch punishes you mercilessly. I am several km/h faster than O'Brien into Copse, but this comes at a cost of steering adjustment and acceleration that hurts my times massively. »

Anderson's Merlyn goes wheel-to-wheel with Formula Ford regulars

INSIDE CLASSIC TEAM MERLYN

MIKE O'BRIEN WAS once a works Merlyn driver in Formula Ford, so there is a fitting symmetry in his Speedsport team now calling itself 'Classic Team Merlyn' and running that particular chassis in Historic Formula Ford. Speedsport stopped what O'Brien calls "serious racing" at the turn of the millennium, having achieved some notable underdog success in Formula 3, including winning the British Grand Prix support race in 1998 with Darren Manning.

"I had a history with Merlyn – I was a works driver for them in 1978," O'Brien says. "When your car came up for sale I bought it, we built it back up, and put Callum [MacLeod] in it. He won every race he did in it. I acquired another one, and it was the usual thing – we started running people and so it went."

Speedsport brings the professionalism of its F3 days to bear in the running of these

cars. My mechanic Kevin Young helped Manning in British F3 and still works for Speedsport today. Car preparation is meticulous.

"The Classic Team Merlyn thing came around at the start of last season," adds O'Brien. "I asked Clive Hayward [who runs Merlyn manufacturer

"I think Historic Formula Ford is the best racing around"

Colchester Racing Developments] if he was happy for me to run with it – not as a 'works team', just as a name.

"We won the championship last year with Richard Mitchell. I've got a real passion for it. I think Historic Formula Ford is the best racing around, and it's nice to be up at the sharp end!"



Classic Merlyn team is meticulous



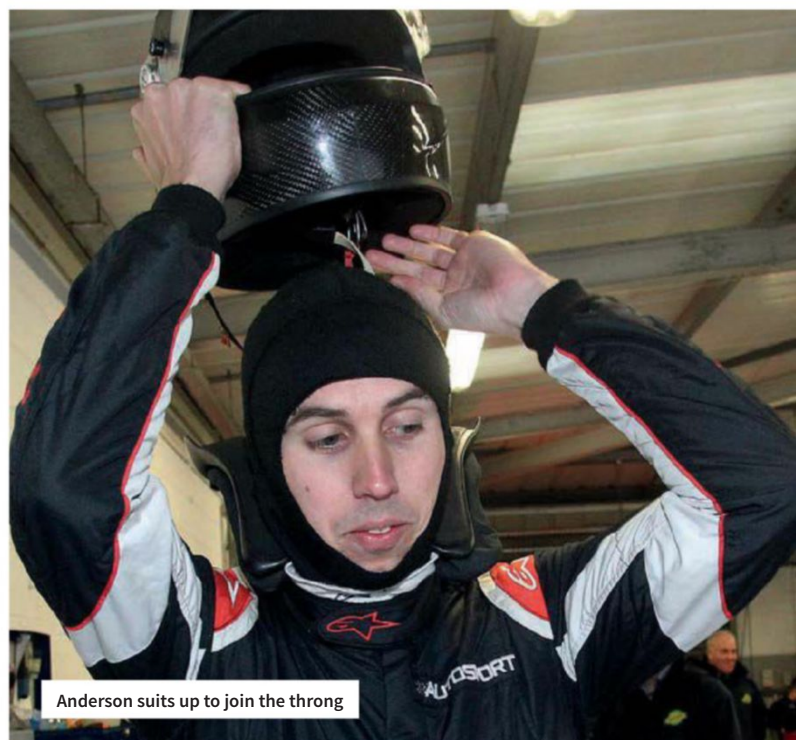
Formula Ford technology is beautifully basic



Aerodynamics are rudimentary too



Second race was much better for our resident racer, who mixed it near the front of a bumper field



Anderson suits up to join the throng



Come with us now in a journey into the '70s...



Anderson leads Shaw in race one, as Classic Team Merlyn recovers from a difficult opening few laps

BLOXHAM

Focusing on better and more aggressive throttle re-application unlocks a chunk of lap time, and I work down to a 1m05.3s best before the day is through. Shaw manages a 1m05.2s in the final session, and analysis suggests I'm giving away three tenths to him on the entry into Brooklands alone.

Analysing my performance compared to O'Brien's benchmark (with an offset of 0.6s on the pit straight that's put down to particular conditions of the day on which his time was set) suggests there's another four tenths to find just from further refinements to my technique.

I head into the race weekend feeling pretty relaxed and confident. This was my first big mistake. Saturday evening's qualifying session, split into two groups to account for a massive 46-car entry, brings me crashing back down to earth.

I am sitting behind Shaw, plus championship frontrunners Callum Grant and Benn Simms, in the collecting area, but they take off like rockets as the session begins, catching me off-guard. I try my best to follow but lose their tow on the out-lap, which consigns me to driving around on my own throughout the session, watching them from a distance.

Fighting to make up the deficit with some hitherto unseen heroics behind the wheel is a foolish strategy, which ultimately leads to over-compensation and scrappy driving on my part.

In a car good enough to compete for the front row (the sister Merlyn driven by Shaw qualifies second fastest – just 0.019s from pole) I end up fifth quickest, six tenths off the pace. I'm disappointed in myself to say the least, especially given the group qualifying format means that performance is only good enough for ninth on the grid.

The suggestion is a good tow is worth half a second. My car is only 12th in the speed traps, so this certainly made some difference. But it is also an excuse. I give away far too much time in sector one by losing my discipline at Copse (carrying too much speed and picking up the throttle too late), and poor entries into Becketts and Luffield, which give me too much throttle-on understeer heading onto the Wellington and National straights.

I also regret making a set-up change that I mulled over the entire day leading up to the session, to make the car a bit softer in pursuit of greater traction. I should have left it where it was. But again this is an excuse – better driving would have improved my standing more than anything else.

Analysis of the lap times suggests the top 12 cars are a step clear of the pack, all covered by 0.8s. That is a very deep field for club racing. I find optimism in the prospect of two proper slipstreaming races, and a realistic chance to recover to somewhere near the front, even from a row-five start.

Overnight rain makes Sunday's first race a damp squib.

I fancy myself a decent wet-weather driver, but this was not my finest hour.

After a decent opening couple of laps I'm hanging onto the pack and playing myself in, but lose control on oil freshly dumped on the exit of Brooklands, spinning through 360 degrees. This is frustrating in itself, but the real disappointment is not the lowly ninth-placed finish (a respectable debut result in challenging conditions), it's the lack of pace in recovery.

Instead of throwing caution to the wind and exploring new possibilities with the car, I just sort of drive around steadily to the finish. I know I can drive so much better than I did. Frankly, I was embarrassed to finish a whopping 28s behind winner Grant after 14 laps, with a best lap time almost 2.5s slower than Sam Mitchell's benchmark.

I've thought long and hard about why I so suddenly underperformed – perhaps that Friday mishap nibbling at the back of my mind, lack of knowledge of the car in those particular and tricky conditions, a loss of confidence in the moment after spinning on the oil?

All of these factors potentially played a part. But the



biggest setback was losing touch with the pack I was fighting with, as a result of that spin.

The fire of a racing driver is lit by the joy of battle. You live to race wheel-to-wheel and do your damndest to come out on top. That spin took the wind out of my sails. I lost my fight, and lacked the powers of recovery one usually possesses if fighting for a championship, or to right the wrong of some early injustice, such as getting turned around by contact.

The fact that I set my best time on lap three, while almost everyone else did theirs in the closing laps as the track dried, is particularly telling.

Whatever the reasons, it was a poor performance, not worthy of the opportunity or equipment I'd been given. So I dressed myself down for race two, and gave myself a good talking to beforehand. There is no point in going racing if you are just going to drive about aimlessly, and not a) try to be creative, or b) leave everything you have out on the circuit.

I sat in the assembly area for race two better prepared mentally, and aiming for a top-six finish as a minimum.

I made a terrible start, dumping the clutch too quickly with not enough revs, but generally drove much better. I was fighting with other cars, overtaking them, striving to improve

by experimenting with my technique until the chequered flag fell.

I enjoyed a battle with James Buckton's Elden, occasionally side by side but not quite able to get the move done. Conditions were tricky again,

with anti-freeze dropped at the Maggotts/Becketts section of the circuit. I got a good run on the last lap, but Buckton closed the door Max Verstappen-style approaching Brooklands.

I ultimately finished sixth (helped by Shaw getting taken out by Rob Wainwright at Becketts), but within 8.5s of the race win, and much happier with my personal performance. I felt I was lacking a bit of support from the rear of the car at Copse, but I was much improved through Brooklands/Luffield – to the point where only race winner Mitchell was faster than me through that sequence.

It all came too little too late though. Racing at the front is generally competitive at almost every level, so you cannot afford to relax and not push yourself to new limits every time you get in the car. That was the biggest lesson learned from my weekend racing in Historic Formula Ford. 🏁

Historic Formula Ford is so popular that a heat race is needed

“I dressed myself down for race two, and gave myself a good talking to”

WHAT'S ON



How Formula E drove a car on an

MOUNTAINS. WATER. ICEBERGS. NOT many, but *some* icebergs. That's quite telling. Should there be more? It feels like there should be more. It's supposed to the Arctic after all.

Maybe this doesn't make sense. This is the opening sequence to the film *Ice Drive*. It documents Formula E's summer exploits in Greenland, where the electric single-seater series got Lucas di Grassi to drive a season-one specification Spark SRT_01E... on an ice cap.

The 52-minute film premiered at the Marrakech circuit in Morocco, the day after the second round of the 2016/17 Formula E season. But what's the story behind it?

The purpose of the PR stunt was, says series CEO Alejandro Agag, to provide a clear link between the electric racing championship and the message it is trying to help spread. Nobody is pretending a worldwide switch to electric vehicles will cure the planet

of the climate-change crisis that is threatening life as we know it, but cleaner energy is part of the solution.

The film is more than just 'di Grassi On Ice'; it's a full retelling of the process from start to finish. What started as a bold attempt to drive the car on an iceberg had a number of hurdles, some of which seemed impossible to overcome — particularly finding out that the iceberg they were due to helicopter the car to had broken into three pieces.

The helicopter pilot was crucial in allowing the stunt to still take place after a major setback



Were there moments when Agag thought it was just not going to work?

"All the time," he says. "We had, like, 10 times. I was catching a flight to Iceland to go to Greenland and I got a call saying the iceberg had broke. I said look for another one! They said nobody wants to work on an iceberg now. That kind of made sense..."

The last-gasp alternative was to replace the iceberg with the Greenland ice sheet itself. This was originally torpedoed because the distance between the project's Greenland base and the sheet was too far to travel by helicopter. But the film has an unseen hero.

"One person made everything happen: that helicopter pilot," says Agag. "He was really crazy to fly it to the ice cap. He found a rock in the middle. He took a barrel of fuel the day before and left it there. They got to the rock, dropped the car, landed, refuelled, took off again, and barely made it to the ice cap."

GET
AUTOSPORT
ON THE
MOVE

DOWNLOAD IT
NOW FROM
AUTOSPORT.COM



HOT ON THE WEB THIS WEEK

You Tube MIKKELSEN'S WIZARDRY IN OZ

Search for: Rally Australia 2016: ONBOARD Mikkelsen

This in-car footage might only be from shakedown, but eventual Rally Australia winner Andreas Mikkelsen doesn't appear to be holding a whole lot back. Indeed, he said that with VW heading for the door, this rally would be the ideal showcase for his talents in front of potential employers.

Ice Drive was filmed on the Greenland ice sheet after iceberg broke up

ice cap

Rising global temperatures are the reason more icebergs break apart, and this obviously contributed to the stunt's difficulties. That symmetry is appropriate but concerning, and while cynics will look at it as just another chance for the championship to promote itself, there are contributions from two leading climate-change experts to try to ram home the significance of the problem.

Back to the stunt itself, the film is not without tension. The exchanges between project director Jeremy Hart, glaciologist Nicco Segreto and Formula E technical director Carlos Nunes are always frank, and at times confrontational.

"We wanted to get the actuality of the story," says Lawrence Duffy of filmmakers Aurora Media. "I hope the tension and pressure came through. It was an extraordinary achievement, just epic, and we wanted to tell an authentic story of what happened."

SCOTT MITCHELL



ABU DHABI GRAND PRIX

LIVE SKY SPORTS F1/CHANNEL 4

Sunday 1230/1200

This is it. After a long 20-race season, the Formula 1 drivers' title battle all comes down to this weekend's Abu Dhabi finale. Can Lewis Hamilton snatch the crown from the grasp of team-mate Nico Rosberg? Both Sky Sports F1 and Channel 4 are showing the race live, so there's no excuse for missing it.

INTERNATIONAL MOTORSPORT

GP2 SERIES

Rd 11/11

Yas Marina,
United Arab Emirates

November 26-27

WATCH ON TV

Live Sky Sports F1,
Saturday 1435;
Sunday 1015

GP3 SERIES

Rd 9/9

Yas Marina,
United Arab Emirates

November 26-27

WATCH ON TV

Live Sky Sports F1,
Saturday 0820;
Sunday 0855

WORLD TOURING CARS

Rd 11/11

Losail, Qatar

November 25

WATCH ON TV

Live Eurosport 1,
Friday 1815

SUPER TC2000

Rd 12/12

Cordoba, Argentina

November 27

WORLD RALLYCROSS

Rd 12/12

Rosario, Argentina

November 26-27

WATCH ON TV

Live Quest, Sunday 1800



WORLD TOURING CARS





THE ARCHIVE

Gilles Villeneuve (March-Ford 75B), sporting an early lid design, en route to second place in the fourth round of the 1975 Formula Atlantic season at Mont-Tremblant, Quebec. The race was won by Elliott Forbes-Robinson (Lola-Ford T360), although Villeneuve took fastest lap.

www.latphoto.co.uk
[@latphotographic](https://twitter.com/latphotographic)

THE BUCKET LIST

FLYING STARS
IN FINLAND



McKLEIN/LAT

FIFTY METRES GOES ON A BIT. I KNOW THIS BECAUSE IT USED TO BE THE official distance for the Etching Hill Primary School running race on sports day. I always finished second... damn you, Nathan Owen.

Latterly, my measure of 50 metres has altered slightly. It's now much more to do with a car, a yellow house, a dodgy sausage and any number of cans of Karjala.

Welcome to Finland. Welcome in particular to a road just outside a two-house hamlet in the middle of the country in the last week in July. Ouninpohja.

First things first, it's *oooo-nin-paw-ya*. If you're coming, you need to get that bit right. And you are coming, aren't you? Seriously, if you're making one foreign motorsport trip next season, your final destination simply has to be Jyväskylä. Rally Finland is a genuinely jaw-dropping, awe-inspiring place to be a petrolhead. But, in 2017, it'll be going to another level.

Next year's World Rally Cars will be the fastest ever to grace the roads that make up the World Rally Championship. And they're not going to be just a little bit quicker, they're going to be significantly quicker. More power will shorten the straights, while more aero will speed up the twisties.

And when they take to the skies – which they do more than 30 times in Ouninpohja alone – they will fly further than ever.

Come along and find out for yourself what 50 metres is really all about.

The first time you stand between the trees and watch a car pass you at head height at 130mph, nothing happens. Nothing happens because you're totally transfixed by what you've just seen. Your eyes and brain argue momentarily. That couldn't have just happened. It did. And two minutes later it happens again. Gawping inevitably follows.

The 2017 cars are all about increasing the spectacle of the sport, bringing back the spirit of Group B. Given how frankly epic the current apparently 'mundane' cars look, the mind boggles at what awaits us next season. 🚗

DAVID EVANS

Jumping rally cars are as Finnish as the sport of pesapallo. Next year they'll jump further than ever before

AT A GLANCE

Where Jyväskylä
When TBC – July in 2016
Cost Pretty pricey – and costs are especially hiked for rally week. Get your hotel booked early; there's

an accommodation service on nesterallyfinland.fi and then save money by taking the train from Helsinki or Tampere if you're tempted to Ryanair it. The railway

station is five minutes from the service park. **Key tip** However you get there, just get there. Fifty metres will never seem the same again.



McKLEIN/LAT

AUTOSPORT

Autosport Network UK Ltd, Bridge House, 69 London Road, Twickenham TW1 3SP Tel +44 (0) 20 8267 5998
Email autosport@haymarket.com Website www.autosport.com
Individual email firstname.surname@haymarket.com

Editorial

Editor-in-Chief **Edd Straw**
Editor **Kevin Turner**
Deputy Editor **Marcus Simmons**
Chief F1 Correspondent **Ian Parkes**
Grand Prix Editor **Ben Anderson**
F1 Reporter **Lawrence Barretto**
Features Editor **Scott Mitchell**
Chief Sub-Editor **Peter Hodges**
Executive Editor **Stuart Codling**
Group National Editor **Jack Benyon**
Rallies Editor **David Evans**
BTCC Correspondent **Matt James**
Art Editor **Michael Cavalli**
Office Manager **Joanne Grove**

Autosport.com

Editor **Glenn Freeman**
Deputy Editor **Matt Beer**
International Editor **Mitchell Adam**
Technical Team Leader **Geoff Creighton**
Senior Digital Designer **Amar Vijay**

Photography LAT Images

Steven Tee, Glenn Dunbar, Sam Bloxham, Zack Mauger

Special Contributors

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

Correspondents

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

Advertising

Tel +44 (0) 20 8267 5271 Email autosport.ads@haymarket.com
Sales Manager **James Robinson**
Display Advertising **Don Rupal, Karen Reilly, Jamie Brooker**
Classified Advertising Team Leader **Jonathan King**
Classified Advertising **Ben Kavanah**
Autosport.com Sales Manager **Fiona Bain**
Sales Director **Matthew Witham**

Advertising Production

Tel +44 (0) 20 8267 5588 Fax +44 (0) 20 8267 5320
Production Controller **Abbey Gunner** abbey.gunner@haymarket.com

Subscriptions

UK +44 (0) 344 848 8817 **Overseas** +44 (0) 1604 251451
Email help@autosport.themagazineshop.com
Back issues 0344 8488817
Direct Marketing Executive **Maria Fernandez** +44 (0)20 8267 8254

Autosport, ISSN number 0269946X, is published weekly by Autosport Network UK Ltd, Bridge House, 69 London Road, Twickenham TW1 3SP, United Kingdom. Airfreight and mailing in the USA by agent named Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Jamaica NY 11431. Subscription records are maintained at Haymarket Media Group, Bridge House, 69 London Road, Twickenham TW1 3SP. Air Business Ltd is acting as our mailing agent.

Licensing and Syndication

Stuart Williams

Management

Managing Director **Tim Bulley**
Publishing Director **Stuart Williams**
Editorial Director **Anthony Rowlinson**
Group Publishing Manager **Sunita Davies**
Special Events Manager **Laura Coppin**
Digital Product Manager **Simon Grayson**

We abide by the Editors' Code of Practice and are committed to upholding the highest standards of journalism. If you think we haven't met those standards and want to make a complaint, contact 0208 267 5000.

© 2016, AUTOSPORT NETWORK UK LTD

Publishing, trade and further subscription details on www.autosport.com. While due care is taken to ensure the contents of Autosport are accurate, the publishers and printers cannot accept liability for errors and omissions. Advertisements are accepted for publication in Autosport only upon Autosport Network UK Ltd's Standard Terms of Acceptance of Advertising, copies of which are available from the Advertising Sales Department of Autosport.

CIRCULATION TRADE ENQUIRIES

Frontline Ltd, Park House, 117 Park Road, Peterborough, Cambs, PE21 2TS.
Tel: +44 (0) 1733 555161. Printed by William Gibbons & Sons Ltd, 28 Planetary Road, Willenhall, Wolverhampton WV13 3XT.
ISSN 0269-946X. Autosport, is published weekly by Autosport Network UK Ltd, Bridge House, 69 London Road, Twickenham TW1 3SP.

motorsport
NETWORK

Autosport Network UK Limited is a division of Motorsport Network LLC

recycle
When you have finished with this magazine please recycle it.

FREE

KITSOUND MANHATTAN HEADPHONES

WHEN YOU SUBSCRIBE TO

AUTOSPORT

PLUS SAVE UP TO **61%** ON THE COVER PRICE

The Manhattan headphones allow you to stream music from your Bluetooth-enabled mobile phone, iPad, PC or Mac wirelessly. By simply moving the switch to the Bluetooth logo and selecting the Manhattan headphones in your device's Bluetooth settings, pairing is extremely easy.



- Wireless connectivity that pairs with your Bluetooth-enabled device
- Huge battery life with up to 18 hours of music play time
- Up to 30 hours of talk time
- Answer phone calls with the integrated touch controls



PRINT SUBSCRIPTION ACCESS
+ FREE GIFT

UNLIMITED ACCESS FOR JUST AN EXTRA £6.20



- ✓ SPREAD THE COST – PAY JUST £34.99 EVERY 13 ISSUES BY DIRECT DEBIT
- ✓ GREAT SAVING – **29%** ON THE COVER PRICE
- ✓ **FREE** P&P – EVERY ISSUE DELIVERED TO YOUR DOOR



- ✓ FULL ACCESS TO autosport.com
- ✓ AUTOSPORT iPad EDITION SUBSCRIPTION
- ✓ GREAT SAVINGS OF **61%**

SUBSCRIBE ONLINE AT
www.themagazineshop.com/asp/as1116m

QUOTE THE PROMOTIONAL CODE

AS1116MP FOR PRINT ONLY OR
AS1116MW FOR PRINT AND DIGITAL ACCESS

OR CALL US ON
0344 848 8817

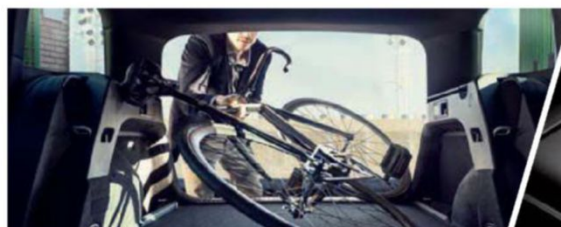
Terms and conditions: This offer is open to UK residents only. Overseas rates are available on +44 (0)1604 251 451. Please allow 35 days for delivery of your first issue. Direct Debit rates are valid for one year after which they are subject to change – should prices change we will inform you in writing. Should you wish to cancel your subscription it will be cancelled on expiry of the current term, which will not be refundable other than in exceptional circumstances. Details of the Direct Debit Guarantee are available on request. If your subscription includes access to autosport.com and the Autosport digital magazine, you can set up your Autosport online account by visiting www.autosport.com/subs/magazine.html. You'll need to enter your subscriber number along with your email address to access your content. You will be emailed instructions on how to gain access to your iPad edition within 24 hours of your order being processed. The gift will be sent under separate cover from the magazine and will not be dispatched until your first payment has cleared. Should we run out of gifts, you will be offered an alternative gift – there is no cash alternative. Savings are based on standard UK print cover price of £3.80, digital cover price of £2.99 and autosport.com subscription rate of £5.50 a month. **Offer ends December 2 2016.**

THE NEW LEON ST CUPRA 290

CAPABLE, WHICHEVER
WAY YOU LOOK AT IT



TECHNOLOGY TO ENJOY



587 LITRE BOOT

Room for an active lifestyle.



290PS CUPRA ENGINE

Guarantees precision-driving fun.



CUPRA DRIVE PROFILE

Dynamic driving at your fingertips.

Model shown is a Leon ST CUPRA 290 Black with optional Sub8 Performance Pack and Nevada white metallic paint.

FOLLOW US ON:     **SEAT.CO.UK**

Official fuel consumption for the SEAT Leon ST CUPRA in mpg (litres per 100km); urban 31.7 (8.9) - 33.2 (8.5); extra urban 50.4 (5.6) - 51.4 (5.5); combined 41.5 (6.8) - 42.8 (6.6). CO₂ emissions 158 - 154 g/km. Standard EU test figures for comparative purposes and may not reflect real driving results.

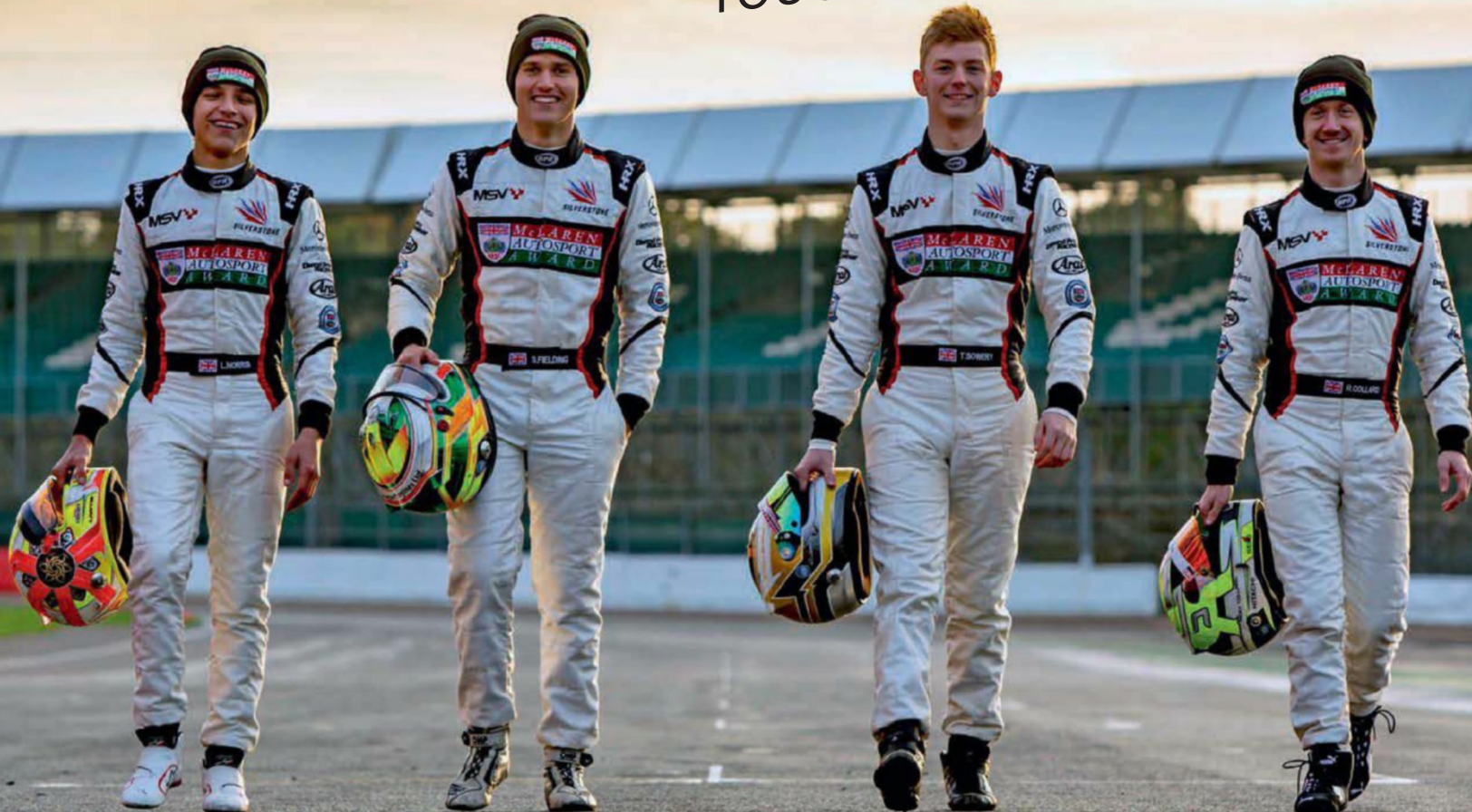
 **AUTOSPORT**

PERFORMANCE

FINDING THE NEXT

F1 STAR

BEHIND THE SCENES OF THE WORLD'S
TOUGHEST YOUNG DRIVER TEST



TECHNIQUE
ROB WILSON

TRACK GUIDE
PEMBREY

DRIVER'S EYE
JOE OSBORNE

AN F1 LEGACY
DR AKI HINTSA

LATEST GEAR
THE INDI SEAT



VBOX VIDEO

- Dual Camera HD – 1080p
- Real-time graphical overlay
- Ultra-smooth video
- Class leading driver training software (Windows, macOS & iOS versions)
- 10Hz GPS data logging
- Video record pre-buffer
- Camera preview over WiFi
- CAN interface

VBOX VIDEO captures stunning video in full 1080p HD with real-time graphical overlay.

Supplied in a rugged, water resistant case, with two cameras, internal GPS logger, backup battery supply, up to 30s video pre-buffer and real-time graphical overlay, **VBOX VIDEO** represents the ultimate in tough, reliable motorsport video loggers.

VBOX VIDEO when used with **CIRCUIT TOOLS** - intuitive, simple to use data analysis software developed by racing drivers for racing drivers - can quickly help any level of driver go faster.



VBOX VIDEO HD2 available to order online now

Professional racing drivers share their experience on advanced circuit driving techniques in our **FREE** eBook:
www.vboxmotorsport.co.uk/ebook

www.vboxmotorsport.co.uk



THERE'S A PSYCHOLOGICAL THEORY,

developed by the Stanford professor Carol Dweck, that splits people into growth and fixed mindsets. In a motor racing capacity, the growth mindset to improving as a driver is an understanding that their abilities can be honed through effort and persistence.

The fixed mindset, that talent trumps effort, manifests itself in a different way. Does a driver fail to push him or herself to the next level when a particular goal has been reached? Do they need to be prodded into action more often than not? Do they acknowledge the finer details that can unlock greater levels of performance?

Natural ability is one thing, but driving well and reaching a high level can be taught. Don't be fooled into thinking otherwise. There are myriad attributes that can be honed with the right attitude – and on the other end of the scale there are plenty of potential pitfalls to be avoided (Rob Wilson, page 4).

The late Dr Aki Hintsa (page 14) believed that wellbeing spawned performance, and that it was something any person could learn to enhance.

That philosophy has helped deliver 11 Formula 1 drivers' titles – not bad going, is it?

SCOTT MITCHELL PERFORMANCE EDITOR

scott.mitchell@haymarket.com
@ScottAutosport



04 ROB WILSON Avoiding motorsport's mistakes

The world of motorsport is filled with so-called experts and a range of booby traps young drivers must avoid

07 DRIVER'S EYE VIEW Joe Osborne

You can make a career out of driving without being a factory gun. This Brit knows which areas count

08 THE TOUGHEST TEST McLaren Autosport BRDC Award

Every year a selection of the best British drivers fight it out for a Formula 1 test. And the process is tougher than ever

14 AKI HINTSA'S LEGACY How wellbeing became key in F1

The Finn, who has died aged 58, leaves behind a philosophy fully embraced by the Formula 1 paddock

18 PEMBREY TRACK GUIDE Alexander Sims

The Welsh track is a testing favourite, and this Formula 3 gun-for-hire is the go-to navigator

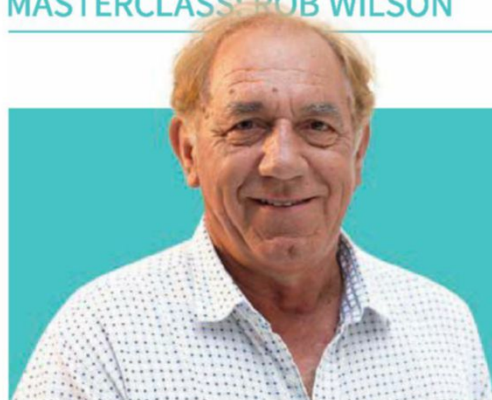
24 LATEST GEAR: iNDi SEAT SCHROTH's perfect fit

The driver's seat is an underrated component, but there's an easy way to get the fit that's right for you

26 GETTING STARTED The key info

The licensing contacts, organising clubs and race tracks you need to take your first steps in racing

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



MASTERCLASS

WITH ROB WILSON

THE WORLD-RENOWNED DRIVER COACH EXPLAINS HOW ASPIRING DRIVERS CAN AVOID MOTOR RACING'S BOOBY TRAPS



Having good relationships with engineers is crucial

Throughout your motor racing career, no matter what level you reach, you're going to encounter a multitude of motorsport 'experts' along the way. Some will be just that. Some people have had a lot of experience in a lot of areas. There will be no shortage of advice, some of it very, very good.

Everything will be important ultimately, no experience is generally wasted, but the first thing to do is learn to be a racing driver. There are various parts of the industry now that will be on at you – saying you'll need simulator time, you'll need mind coaching, you'll need a physio, you'll need a manager. Then, and this is the thing I hear most about now, once you get into a team – you've got to have the right engineer.

All of these things add up to a big part of it. Leaving the engineer aside, these days a team is going to want to know that you have all of these things in place. So when they say 'we need a simulator program' – it's expected you'll say 'I love it! I've got one in my bedroom!'

It is important to be good on a simulator, because most of the teams have data on other drivers that have driven simulators. That said, you can find nine-year-olds who could out-perform current grand prix drivers in that environment.

Not only do some grand prix drivers not like simulators, they refuse to use them. This can be advantageous for

younger drivers, because there are professional positions available within F1 teams now as a simulator driver.

That helps drivers integrate into the team, the management gets to know them, and they will help the engineering team – because engineers use simulators for a variety of technical exercises. It's a useful tool for engineers, and a way into a team for young drivers.

You can learn your way around a race track on a simulator, but most good racing drivers should be able to learn a circuit within five laps in reality. After that, the usefulness of the simulator experience is reduced. It's highly unlikely a simulator will ever make a racing driver actually go faster, though it can be useful for taking coaches and engineers inside the driver's world and highlighting particular bad habits that need attention.

Becoming effective on a simulator is important, because of its usefulness to the team, and the potential relationships you can forge as a result. On your way to the simulator you could walk past the chief designer's office, or the marketing manager's office, for example.

Become good at it. But remember, the clue is in the name – it's a simulator. It's not an actual substitute for the real thing. They have massive simulation programs in golf. Really good golfers can tell the difference between ball manufacturers when they hit it – they can feel it. You cannot replicate that on a simulator. This tells you that your 'feel' is critical.

MENTAL COACHING

Mind management is a huge industry now – in life as well as motor racing. There are some good people around, and there are a number of drivers who find it beneficial.

Personally, I feel similarly about mind management as I do about simulators. If a driver needs too much mental coaching then you've got to wonder how much faith you'd have in that driver out on the track...

When you learn the art and craft of being a racing driver, you go faster, you know exactly what you're doing, and that breeds the confidence and mental stability you need to be successful. Everything begins with correct technique; everything else merely augments that.

I wouldn't put this down as mental coaching, but good advice about where to situate yourself is really important. An advisor may recommend a particular driver receive mental coaching, for whatever reason. I know Romain Grosjean had sessions with a coach after he was branded a bit of a first lap 'nutcase', so it clearly does have its benefits. But I'll leave that to the 'experts'.

I don't believe the driver is anything until the car moves. It moves as a result of your input. You can imagine, even after 40 years of racing, you don't know what's going to happen 300 yards down from the start. You can strategise as much as you like beforehand, but you just don't know.

I honestly don't think I've ever started a race knowing that I'd be the first car into the first corner. If you're not,



Fitness and sim work must be taken seriously



You can learn the 'body language' of other drivers on track

what will the strategy be? That will present itself to you. The body language of the person in the car ahead will present to you – you will see if the guy's vulnerable or rock solid. Certain guys, you knew they'd fall apart. Others, Stefan Johansson for instance, you knew were rock solid.

You've got to be creative. You can race year after year, but if each year becomes too similar to the last – you probably won't move forward. Practice makes permanent.

FITNESS

I'm fairly sure drivers 'overtrain'. You do need to be physically fitter these days than ever before, but you've just got to be able to drive the racing car.

The more feel you've got for your car, the fewer times it will surprise you because of the wrong sort of input. That will in turn give you fewer times to have to react to events – so it will be easier, physically and mentally, to do the job.

Never forget what it is that you're actually supposed to be doing. Be fit. Don't get caught with cigarettes in your hand too often! Certain drivers have a not inaccurate reputation for partying. And reputations stick, no matter what. Reality you can change; perceptions last forever.

MANAGERS

Managers can be very important allies. But did you hear the story of Jenson Button being shown the door by Jackie Stewart at his interview, because the manager did all the

talking? But Jenson became terrific as he developed. Drivers sometimes find it hard to negotiate well with somebody who is giving them the opportunity of a lifetime.

It's a difficult balance. You need somebody with goodwill within the industry, because people have to get on with the person that they're negotiating with.

It's all a matter of carefully picking your people. When somebody approaches you, make sure you ask around – 'what's his reputation, has he got goodwill in the industry?', because those things are as valuable as cash. Make sure they're not known for pulling too many fast ones.

ENGINEERS

Nowadays, the engineers tend to be part of these negotiations. The previous year's form doesn't always follow. DAMS was a great place to be in GP2, but is having issues this year.

You probably need to be looking at the personnel changes from year to year, knowing there's an engineer there that understands the whole dynamic of the car, rather than just concentrating on data downloading.

That said, when you learn your craft as a driver you can still win races with an understeering car, because understeer can equal traction.

Alain Prost did a fantastic job with that, which Keke Rosberg could not match in the same team. And there was nothing wrong with the McLaren engineers who designed

“Generally it has to have gone wrong for you to work on flaws and finesse things”

and built the car that won Prost the 1986 world title.

He could alter the car with the way he moved his hands and his feet. He didn't just rely on set-up.

DRIVER COACHING

You can learn a great deal from driver coaching away from the track, but there is generally some cynicism around driver coaches and I tend to agree.

It's good to have experienced people at the track, sometimes who have driven cars themselves, people who can see things, help organise the time, help the driver communicate for instance.

It really depends on who the driver is. Sometimes, trackside coaching can be a bit intrusive. We've heard a few top drivers telling their teams to 'shut up' on the radio. You get it from Jenson too, who says 'I know what I'm doing! I'll fix it the next time.' I think there's a bit of an overemphasis on driver coaching from the pitwall. With this stuff, you really had better know what you're doing if you're setting yourself up as a driver coach...

Things are constantly evolving, so probably the most important thing is to develop a language of communication, particularly with your engineers. It does take time, but look at Kimi Raikkonen's revival at Ferrari for evidence of where picking your people can take you.

STAYING THE COURSE

Generally it has to have gone wrong first for you to learn from it. Then you need to work on the flaws. Do we need a different engineer, or to present ourselves better to the sponsors, or more time at the gym? You just finesse things.

You probably need to make tiny adjustments for quite a big result change. When those setbacks happen, think carefully about the areas you can improve, and where you can get advice. Be honest with yourself. But most importantly, keep the faith. You may only need to change one thing to unlock a whole new world of possibilities.

PROGRESS. From the base up.

**We sweat the small stuff
so you don't have to.**



RA 665A-2000 & SFI 3.3 approved

NASA approved temperature regulation reacts quickly to reduce perspiration by up to 300% when the heat is on, and delivers warmth when it's not. Antimicrobial technology keeps you fresh and superior tailoring helps you maintain communication.

Introducing Wulfsberg. More ready advanced base layers.

Get The Edge

www.wulfsberg.com





INSIDE LINE

JOE OSBORNE

IT'S BETTER TO BE A PROFESSIONAL DRIVER WHERE IT COUNTS THAN SPEND TOO MUCH TIME TRYING TO LOOK LIKE ONE

CAREER Highlights

- 2016** 6th in British GT with AmD
3 podiums
Blancpain with Barwell
24H Series with Barwell,
Optimum
- 2015** 3rd in British GT
with Triple Eight
3 podiums
Blancpain, 24H Series
with Triple Eight
- 2014** British GT with Triple Eight
5th in Blancpain Pro-Am
with MP
24H Series with Optimum
- 2013** British GT with Triple Eight
Blancpain with Barwell
24H Series with Optimum
- 2012** 7th in British GT with
Trackspeed
2 wins
Dubai 24H with Optimum
- 2011** FIA GT3 Euro with United
Autosports
British GT with United
Autosports
- 2010** British GT4 with own
team
FIA GT3 Euro with
Muhlnher Motorsport
- 2009** European GT4
champion
- 2008** 5th in British
GT4 with
RPM
- 2005-06** Formula
BMW UK

A

lot of young racing drivers emulate Formula 1, which they probably should because that's the pinnacle. But you need to get the right balance. If I was in Formula 1 I'm sure I'd have to be a lot different – I haven't had a personal sponsor in four years and I can write on Twitter what I want because I'm not bringing any company down into disrepute with me!

It may be old school, maybe just even normal school, but I don't think it's particularly different. It's just not what we maybe expect to see in motorsport. I don't think too much about what I write and put on social media but I try to make sure there's a purpose to it and it's not just boring drivel – 'this is my office for the day', the amount of times you see that shit is very, very boring.

There are so many forms of social media. I'm not particularly active on Facebook, that's just for keeping in touch with people. Twitter I love because it's short, sharp, you can write what you want, put a picture on or a video if you want and that's my motorsport output. Instagram is for when I'm feeling a bit arty, then Snapchat is stuff I don't want people to ever really see me doing in the public eye.

When people churn out the same drivel, what's the point? What you're doing on social media is portraying an image that you want to be you. Clever people do it very well and you believe that that's who they are. I think some

Some people just don't have a personality but they're very good at other things. Should they try to be interesting? Probably not, they should stick to what they're good at.

I'm not trying to say that I'm everybody's cup of tea, but some people like what I say and some people like what I do and I'm happy to entertain and be the class clown in that regard, but if you're happier behind the scenes then maybe don't try and fool anyone.

All I try to do with how I say things is make sure it's truthful and it's not trite. Some people want to hear the sugar-coatedness, unfortunately that isn't me and my mouth is far bigger than my brain. Whatever comes into my head I say it and there's not enough delay. There are things when I look back in the cold light of day – be it sober, be it not so angry – that I shouldn't have written or said, and if I was wrong then I will go back and apologise.

Maybe sometimes I'm a bit of a go-to guy for a controversial subject because they know that 'that kid doesn't care about what he says' and they'll get the answer they want. That's always good because any publicity is good publicity, right?

My racing is all about the co-driver, that's why I'm here and why I'm driving. If he enjoys my personality and we're at dinner, and I can have a beer with him, and he's enjoying his weekend a bit more, maybe he's more likely to employ me the next time than a guy that's equally as quick?

“My mouth is far bigger than my brain, but I will go back and apologise in the cold light of day. Any publicity is good, right?”

people just need to chill out and maybe look back at what they're saying.

My first foray into car racing after karts was Formula BMW. I won the scholarship with them and part of the package was some media training. That job fell to Ann Bradshaw, who has been with BMW for many years. She was brilliant and we always got on very well. I've probably gotten worse as I got older, maybe some of Ann's wise words have been lost on me.

I think it's really difficult, it's good to be told what you should be doing, but you should be left to your own devices.

I don't try to kid anyone. I'm not the fastest driver in the world, I'm not the most technical driver in the world. I like to do a good job, I want to win, but I'm a bit of a believer that if you're having fun and having a good time then you'll perform better anyway.

I'm not saying that I'm banging at the door ready for a manufacturer contract by any stretch, but I wouldn't automatically say yes to it if it meant I had to change who I am and change my lifestyle. A rolling contract is quite normal and a lot of my work is the same, but a factory driver doesn't get told until December-January if he's getting a new contract, whereas by September I've already got a gauge of where 75% of my income will come from.

Maybe it's not the most ambitious thing in the world to say but I think it boils down to being relaxed and being happy with what you've got. It's a good life!

Don't get me wrong, the goal is always to be a manufacturer driver because you get the biggest payday, you've got a bit more job security and it's kudos, it's cool. And good guys get on longer contracts and I appreciate that. But sometimes you're more of a number than an asset. You've got to look at what you're happy with.

MAUGER/LAT

A photograph of two male race drivers standing on a racetrack at sunset. They are wearing white racing suits with black and red accents, featuring logos for McLaren Autosport BRDC Award, Mercedes-Benz, and others. The driver on the left is holding a helmet with 'MICKY GRIST' and 'NG' on it. The driver on the right is holding a helmet with 'T. SOWERBY' on it. The background shows a blurred racetrack and grandstands under a warm, orange sky.

THE TOUGHEST TEST AROUND

THE MCLAREN AUTOSPORT BRDC AWARD IS BACK – AND THIS YEAR IT'S TOUGHER THAN EVER



The evaluation process is an intense one



T

wo hours in a McLaren simulator. Three hours undergoing a fitness assessment from the Formula 1 team's human performance crew. Two days at Silverstone hopping between Formula 2, Mercedes DTM and McLaren GT cars. There's nothing in the world like the McLaren Autosport BRDC Award.

Trying to find the best young British driver around, one that could follow in the footsteps of drivers such as David Coulthard, Dario Franchitti, Jenson Button, Jamie Green and Paul di Resta isn't supposed to be easy. With enhanced support from McLaren this season, the process has become even more intense. It's not about merely separating the wheat from the chaff; the standard is too high for that. It's about identifying the very best from a clutch of talented drivers.

Enter Ricky Collard, Sennan Fielding, Lando Norris and Toby Sowery. Across multiple days at the McLaren Technology Centre and the Silverstone Grand Prix circuit, these four drivers were put through their paces – and then some. What's at stake? More than ever. The prize of a Formula 1 test with McLaren remains, as does full BRDC membership, but instead of a £100,000 windfall the reward is now a simulator driver role with the F1 team next season.

As well as a role in the full-movement Driver In Loop Simulator and time alongside professional simulator driver and 2006 Award winner Oliver Turvey, the victor will become part of McLaren's driver fitness programme.

This package, similar to that used by McLaren Formula 1 reserve driver Stoffel Vandoorne, includes regular physical assessment and a targeted programme, and access to the Woking squad's gym facilities.

McLaren will also provide a sponsorship masterclass and the chance to impress potential backers or reward established sponsors with the use of the Technology Centre HQ, and arrange for the winner to spend a session with respected driver coach Rob Wilson.

"It's a major opportunity for all of them," says Turvey, who has been on McLaren's books since 2009 and readily credits the prize F1 test he earned a decade ago for his present career status. "Just going through the Award is a great experience, and these days, with a limited amount of track testing, the simulators are the next best thing, so it's a great opportunity for the winner.

"When I did it, not many people saw what the process was. It's very intense, and there are some very experienced judges. It's very thorough and a massive Award to win – it helped my progression to becoming a professional.

"To come into McLaren, go through these tests and get the simulator evaluation, which is one of the best around, it shows them [the drivers] the level they need to achieve. It makes for more pressure, but you have to deal with this in reality. It's part of being a racing driver."

THE SIMULATOR

The simulator part of the process has always been taken seriously. Previously, Base Performance Simulators has been a partner of the Award, but McLaren's desire to become more involved in the process has afforded the opportunity to use their in-house facilities.

Each driver has a seat fit in the F1 simulator and completes around 10 sighting laps, then gets 10-15 minutes to review data with the engineers. After another debrief session, it's time for the first qualifying run – six

timed laps to set the quickest time possible. That means trying to get as close as they can to someone who knows a thing or two about the simulator: Stoffel Vandoorne. The Belgian, who will replace Jenson Button in the F1 cockpit next season, has set the benchmark on a car based on the Silverstone in-season test.

But it's not just outright pace that we're assessing. Simulator pace is not necessarily an indicator of on-track potential, although the expectation is to perform well. This is why, after a 15-minute break following the first qualifying run, the drivers are thrown into a 10-minute consistency practice run. There's no engineering break after this session, instead it's straight into the consistency run itself.

This is 10 laps, during which the drivers are assessed on the number of mistakes made and how closely they can keep their lap times together.

After another 15-minute break to debrief, it's time for the second qualifying run. Since the consistency run takes place so soon after the first sessions in the simulator, each driver followed the usual pattern of going faster – so more is expected when it comes to turning the wick up in qualifying trim. This is another six-lap run, followed by a data review. Then there's a final test, balance discrimination – this gives each finalist 30 minutes to evaluate small changes in set-up.

THE FITNESS TESTS

"It's extremely important," says Clayton Green, McLaren Human Performance Programme manager, of the Award evaluation's fitness element. "Ultimately we're looking for the best of the best, and in any competitive sports environment when these guys have to perform under



GRIFFITHS/LAT



MAUGER/LAT

The Mercedes is one of three on-track tests



Two McLarens give the Award a GT element

GRIFFITHS/LAT



MAUGER/LAT

New-tyre and longer runs make up the F2 test

pressure often it's the physical and professional components that can be the difference."

The three-part assessment for the four finalists was born out of the knowledge the Human Performance team has gained from its own experience and the scientific understanding developed from the holistic approach it employs at the facility. Simon Reynolds, the centre's driver performance manager, has worked with Kevin Magnussen and Vandoorne, just two of some 22 drivers across a vast range of series. "Structure is really important," he says.

When working with its own drivers, the Human Performance team can spend more than a day working through a whole range of tests. Time is a factor for our finalists, but the three tests give a good understanding of what level they are currently at. How do they deal with physical and mental stresses? How well do they regulate body temperature? Can they maintain cognitive function?

Identifying what can be improved is the next step. "There's certainly a couple of things we want them to take away," says Reynolds. "Within motorsport the culture is not necessarily comparable with other elite areas of sport. We hope the finalists understand the contribution fitness and preparation makes in the sport. They should never underestimate how important the driver's physical state is. We really want them to understand the level that's required to excel at the top."

What the finalists witnessed on the day was "just a snapshot", says Green, of what is offered by the Human Performance team, which operates commercially as well as running its specific in-house programmes for staff. The winner will have access to the works – all the knowledge and expertise gleaned from the many programmes ►



Each finalist
had their own
Formula 2 car

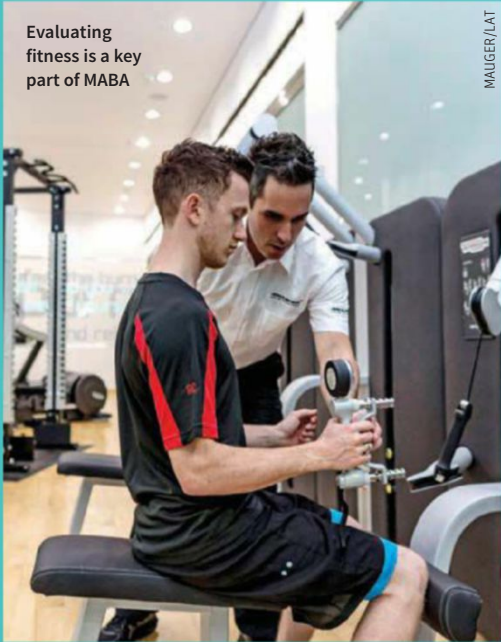
HOW WERE THE DRIVERS TESTED?

The cardiovascular test is designed to assess a candidate’s ability to exercise over a prolonged period, measuring the amount of oxygen they can utilise. Cardiovascular fitness is linked to a driver’s ability to maintain thermoregulation, which can affect driving ability. Each candidate will cycle against an increasing effort until exhaustion. The one who can utilise the greatest amount of oxygen has the highest level of cardiovascular fitness.

The anthropometry test is a measure of the amount of adipose tissue (body fat) at eight different sites on their body using callipers. If a driver has excess body weight it can slow their performance; a lighter driver can position ballast on their car for a technical advantage.

Strength endurance is conducted over 11 tests, measuring both muscular strength and muscular endurance in the major muscle groups related to elite-level driving. Muscular strength and endurance is critical to a driver as it relates strongly to their ability to brake and steer.

TEST	DESIRED VALUES
VO2 max result (ml·kg-1·min-1)	>55.0
Anthropometry (Σ 8 skinfolds, mm)	<45
Double leg power (cm)	>45
Right leg power (cm)	>20
Left leg power (cm)	>20
Strength – Right (KgF)	>55
Strength – Left (KgF)	>55
Supine pull ups	>18
Push ups	>60
Plank (seconds)	>180
Lowerback (seconds)	>180
Side plank Right (seconds)	>120
Side plank Left (seconds)	>120



Evaluating
fitness is a key
part of MABA

MAUGER/LAT



within McLaren Applied Technologies, including partnerships with the likes of Oxford Medical School and Imperial College London.

THE TEST DAYS

Turvey points out: "It's a little bit different from when I did it! For me the Award was a massive opportunity. Up until that point I'd been struggling for funding, and racing on a small budget, so the opportunity to get into the same cars as everyone else was a level playing field."

"The process is very intense. You jump between three different types of car and get very limited running, plus you're trying to enjoy the opportunity and get the most of out it."

Each finalist has access to his own Formula 2 car, a step up across the board from the Formula Renault Eurocup and BRDC British F3 machinery our finalists have raced throughout this season. After early exploratory laps in McLaren road cars to learn the circuit and get a feel for conditions, the finalists go straight into a trio of five-lap sighting runs in the F2 machinery.

There's more power, more grip and more gadgets to understand and utilise. The finalists are told where they can deploy their boost (on the second day, not the first) and when – but not everybody listens...

Beyond the boost, the drivers are free to adjust the front wing as they see fit during their runs. But striking a quick relationship with their experienced engineers – randomly

"The process is very intense. You jump between three types of car and get limited running, plus you're trying to enjoy it"



A sim in the gym?
At McLaren, yes

assigned before the days at Silverstone – is key. With such limited track time, making the right calls is crucial, though the onus remains on the driver.

What are the judges looking for? Speed and consistency. Track limits are being monitored, and mistakes noted. There are four runs comprising five timed laps, all with new tyres. Lap time counts here.

At the end of the second day, the best four used tyres are bolted on and the drivers sent out for 10 timed laps – a consistency run where the test is the best 'race time'. It's not a decider – no single session is weighted heaviest. Everything counts. This long run is a new addition for 2016, and was conceived to test how consistent drivers can be and how well they can set up a car for a longer run and manage their tyres throughout.

Post-event analysis includes full debrief with the HWA Mercedes DTM team, the McLaren GT crew and two MSV representatives. Mercedes and McLaren are then quizzed on how the drivers interacted with the team, listened to the engineers, carried out their instructions, performed on track and fed back over set-up. Full data trace analysis on the F2 cars includes how wing angles were experimented with over the runs, where boost was deployed, where lap time was gained and lost and whether drivers failed to hook up theoretical best laps.

No stone is left unturned. But it can't be – this is the toughest young-driver evaluation in the world, with motorsport's greatest prize on offer at the end of it. ■

THE MAN WHO CHANGED FORMULA 1 FITNESS

AKI HINTSA PASSED AWAY EARLIER THIS MONTH. AS HIS LEGACY LIVES ON, EVERY DRIVER SHOULD EMBRACE HIS TEACHINGS

This weekend, Dr Aki Hintsa will win another Formula 1 drivers' title. The Finn, who sadly passed away earlier this month at the age of just 58, has won titles with Mika Hakkinen, Kimi Raikkonen, Lewis Hamilton and Sebastian Vettel since first becoming involved in grand prix racing in 1998. Since Hamilton and Nico Rosberg are looked after by Hintsa Performance, the company Aki set up and which is now tasked with continuing his legacy, the former McLaren physician and chief medical officer's tally of titles will tick up to 11.

Aki succumbed to cancer on November 16, but his methods are burned into those he mentored and those who benefited from them.

Back in 2011, a struggling Hamilton talked of a need for a "happy bubble" of friends and family to enable him to bounce back stronger for 2012. Whether by accident or design, this was a reflection of Aki's founding principle.

"It would be fair to say that the core Hintsa method can be traced intact back to Ethiopia through Aki's initial F1 season with Mika Hakkinen," says Dr Luke Bennett, Hintsa Performance's medical and sports performance director.

"The philosophy has always been the enhancement of performance by attending to the human life of the athlete.

"However, it has certainly evolved in its detail as Aki assisted and observed more drivers over many years, and recruited a selected group of performance coaches to live and train with his drivers."

'Wellbeing' is the word best associated with Aki's work, which was inspired by his time in Africa in the '90s. He applied his methodology to long-distance running legend Haile Gebrselassie and his training partners, before an unexpected move into F1 beckoned. Aki was a key part of Hakkinen's eventual realisation of his obvious talent in 1998, when Hakkinen drafted in Hintsa for help. Later, Aki would aid Raikkonen in the same way.

McLaren's tribute to its former doctor included this telling extract: "Aki helped [Hakkinen and Raikkonen] develop the mental and emotional strength to translate their mercurial talents into the disciplined performances that would result in many grand prix wins for McLaren and, in Mika's case, world championships in 1998 and 1999.



Hakkinen's
1998 title was
Aki's first of 11

Dr Bennett, who took over Aki's full-time duties in the F1 paddock in January 2014.

"But he soon appreciated that the complexity of the intellectual and social environment, the sheer unlikelihood that any young driver might realise their ambition to secure an F1 seat, and the near-impossible odds of winning an F1 world championship, made it the perfect crucible for his work on the human elements of the athlete.

"The fact that his philosophy has been so successful in this environment, across such diverse personalities – and

management and nutrition throughout the season.

Face-to-face mentoring is also applied to these programmes to help drivers achieve the necessary mental energy across a gruelling 21-race F1 calendar.

Aki's legacy also extends beyond just drivers – his team works with the junior driver programmes at Mercedes, Red Bull and (of course) McLaren, as well as providing medical coverage for all travelling staff at Mercedes and McLaren. This could even expand to Hintsa coaches aiding the mechanics and engineers in 2017. It speaks volumes that in a world that is often as secretive and insular as F1 that Aki has been able to create a company that works across multiple teams.

"Aki held the trust and friendship of most of the key management figures in the F1 paddock, despite occasionally needing to defend his independence and integrity," says Dr Bennett. "The fact that Hintsa Performance is trusted to work across so many competitive teams is a huge testament to his values.

"Aki's quiet wisdom and counsel has been of untold influence over the past decade, not only to drivers and team bosses but to the countless mechanics, media, catering staff and administrators he has assisted along the way. His example has been a beacon of human values in a world not always known for such integrity, and has encouraged others of integrity to maintain their influence.

"In a more subtle way, his growing cohort of coaches in the paddock is able to enhance a spirit of goodwill (much of the time) and collegiality within and between

"Aki has been of untold influence over the past decade... a beacon of human values in a world not always known for such integrity"

"Undoubtedly, Aki played a crucial role within Lewis's inner circle during his time at McLaren, and it was often to Aki that Lewis would turn first in times of stress."

Given the extensive long-term impact of Hintsa's methodologies in the world of F1, it may surprise you to learn that it took time for him to appreciate the sport.

"Aki was initially unimpressed by Formula 1, in comparison to the purity of athletics and the other winter Olympic sports he had been exposed to," says

all of the team bosses involved along the way – proves that his focus on the human being at the centre of the sport has tremendous value."

Hintsa Performance is now a core part of more than half of the current F1 grid – it supplies a full-time performance coach to eight drivers and provides support services to four others. The full-time coaches all have sports science degrees – "most to Masters level", says Dr Bennett – and aid their drivers with physical training, sleep and recovery



Hintsa's work transcended motorsport

F1 teams and drivers in a way that I believe is somewhat novel in the history of the sport."

To those who worked with Aki, and those who will work with those he mentored, being properly mentally prepared for competition can never be underestimated. This is as crucial in grand prix racing as it is in any top-tier sport.

But he went on to apply his philosophies to the wider world. Business and political leaders, entertainers and athletes in other fields were helped "either at times of crisis, or to improve their performance". Better life, better performance became the mantra as his philosophy broadened – and it was the strap line for his book, *The Core*, which was published last year.

Aki undoubtedly influenced all who would listen to him and embrace his outlook, and the impact his holistic approach had in motorsport was extraordinary. That legacy lives on through Hintsa Performance, and any ambitious driver would do well to adhere to it.

"I was, and I am, humbled by the opportunity and the privilege he presented to me," says Dr Bennett. "The decision to step back from the paddock weighed heavily on Aki, and his key F1 clients, over many years and he demonstrated enormous trust in handing over Hintsa's F1 operations with no external interference at all.

"His legacy and his example are best embodied in a selfless patient focus, absolute integrity and discretion above the politics of the paddock, and a discerning wisdom regarding the pressures facing F1 drivers and the teams around them."



Hamilton was one of many to work with Hintsa

BELLANCA/LAT

TWITTER TRIBUTES FORMULA 1 REMEMBERS AKI

RIP Dr Aki Hintsa. My deepest condolences to his family and friends.

HEIKKI KOVALAINEN

Such sad news, Dr. Aki Hintsa a guy that worked his whole life helping others. We're going to miss you big guy you absolute legend. RIP Aki.

JENSON BUTTON

Very sad, the passing away of Dr. Aki Hintsa. A truly amazing person who will be missed. My deepest condolences to his family and friends.

MAX VERSTAPPEN

Very sad to hear the passing of Dr Aki Hintsa. I was fortunate enough to work with him for a couple of years & I still use what he taught me.

MAX CHILTON

RIP Dr Aki. Formula 1 will miss you !! My thoughts for his family.

FELIPE MASSA

Very sad to hear that Aki passed away. All my thoughts are with his family. We are going to truly miss him.

ROMAIN GROSJEAN

My Tiger Friend, did I ever tell you how much I loved you and you influenced my life? My thoughts and love are with his family. RIP Aki #nr1

PEDRO DE LA ROSA

RIP Aki Hintsa ! Aki was an amazing person, in same league as Sid!

ALEX WURZ

A friend, a mentor, and someone I consider to be family. Aki, you have left an incredible legacy, that will live on forever within our sport, and our hearts. One of the strongest, most inspiring people I've ever had the pleasure of calling a friend. God bless you and watch over your loved ones. Thank you for everything, my friend. You've done so much more than you know for me, and many, many others.

LEWIS HAMILTON



XPB IMAGES

SCHROTH RACING

WE HAVE THE FIELD COVERED



**XLT
CARBON**



**XLT
SUPERSPORT**

SCHROTH®
RACING



© LAT Photographic 2015

**Wide range of HANS Devices,
Harness Belts & Racing Nets**

Visit www.schroth.com/racing to learn
more about our products.



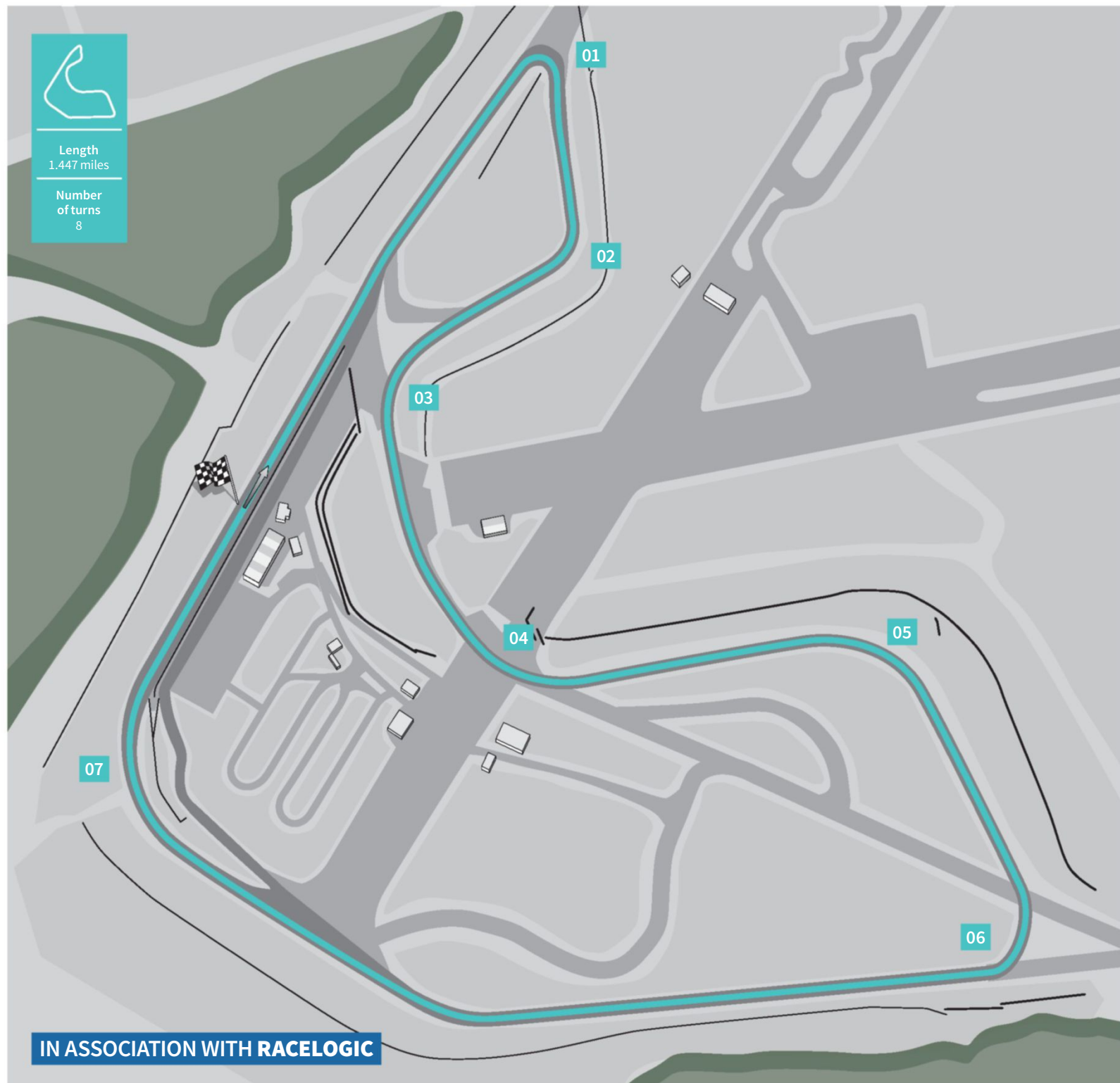
Follow us on Facebook
www.facebook.com/schrothracing

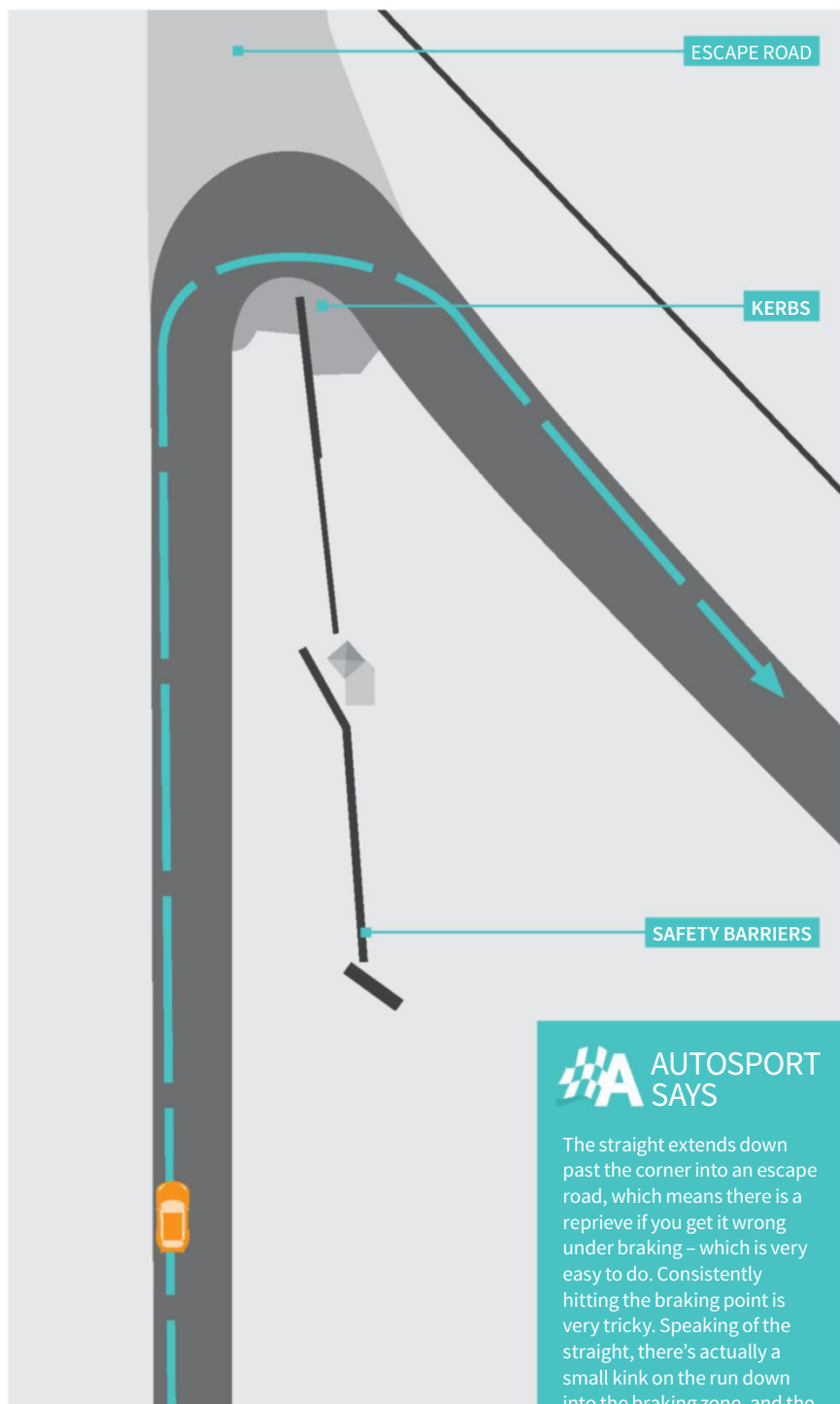


PEMBREY

WITH ALEXANDER SIMS

THE WELSH CIRCUIT MIGHT NOT HOST MUCH RACING BUT IT IS STILL A TESTING FAVOURITE – AND SIMS KNOWS IT WELL





01 HATCHETS HAIRPIN

Turn 1

There's a stack of tyres on the right-hand side that I use as a reference point and because you run such high downforce at Pembrey – it's all fast corners and no straights – braking is really impressive for the hairpin.

You go from sixth down to first, there are no marker boards so I don't know what it is in terms of metres, but it's got to be on the low side.

It's probably the only overtaking spot for a Formula 3-type car, the problem is that the corner before is so high-speed that you'll probably not get close enough and the straight isn't long enough to slipstream up to them.

Braking is very late for that and very quickly down the gears, so locking the rears is sometimes a bit of an issue because you're asking the gearbox to do so much so quickly that the engine struggles to respond fast enough.

AUTOSPORT SAYS

The straight extends down past the corner into an escape road, which means there is a reprieve if you get it wrong under braking – which is very easy to do. Consistently hitting the braking point is very tricky. Speaking of the straight, there's actually a small kink on the run down into the braking zone, and the stopping power of a Formula 3 car – for example – means that a confident driver has time to get the deceleration phase complete with a braking point after the road straightens back up. Small undulations add a further challenge. The turn-in point is quite late, which means braking in a straight line until you're almost level with the geometric apex of the corner – then hard right to bring the car square across the inside. It's quite a conventional hairpin, but the heavy braking makes it a challenging one.

KEY CORNERS

02 SPITFIRES/DIBENI

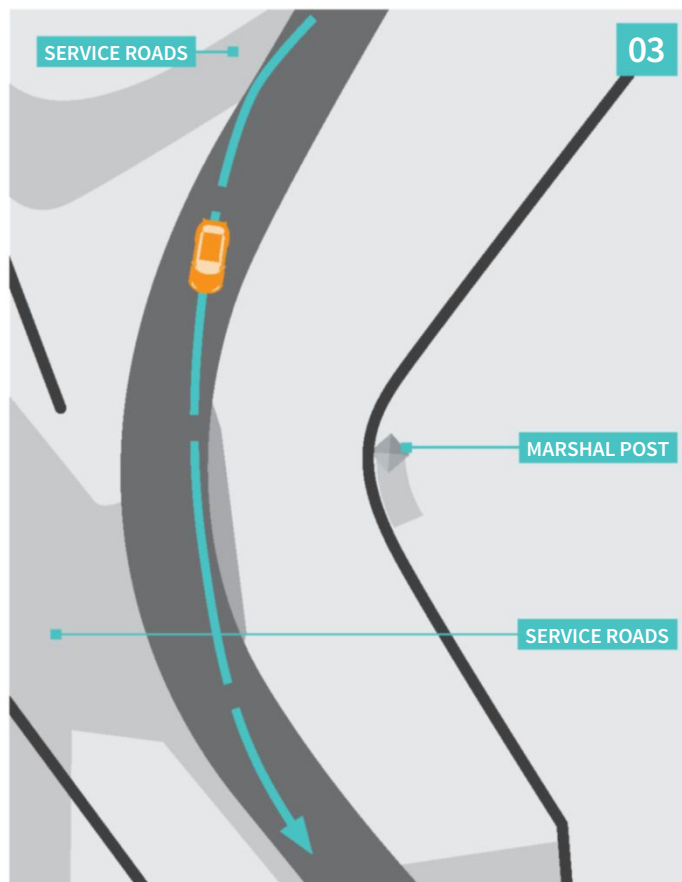
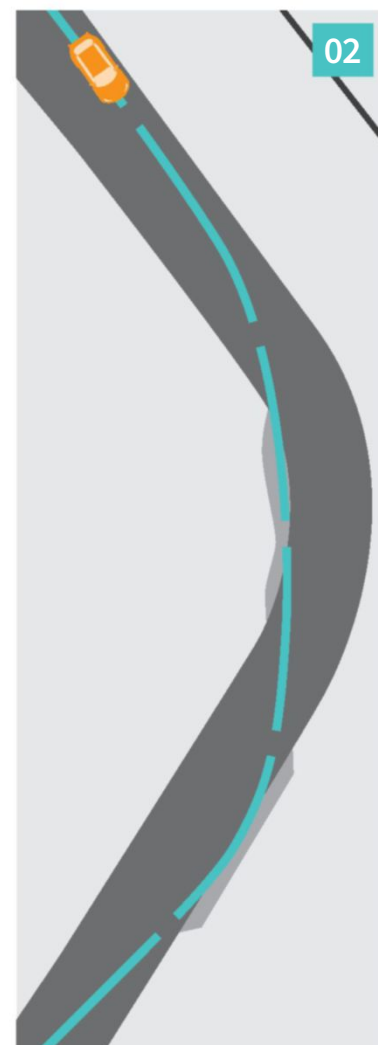
Turns 2 and 3

You exit the first corner in first gear and traction is pretty sensible normally. Then from that point on it's completely flat out. Turn 2 you sometimes have a little bit of a lift, but on new tyres you can be flat. It's a bit of a funny sequence because although you can be flat through all three, you end up putting quite a lot of load on the car and I've seen it in the past where actually if you just reduce to 80% throttle or something through Turn 2, hold your line a bit tighter and calmer and then open up Turn 3, you can be as fast if not a touch faster.

On the inside of Turn 2 you can cut it a bit, but then for Turn 3 you don't go over the inside kerb in an F3 car.

NOTE

There's no point treating these two corners as individual turns – it's a sequence. Being mid-gear between the two means concentration and balance is important.



VBOX MOTORSPORT

RACELOGIC

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.

www.vboxmotorsport.co.uk

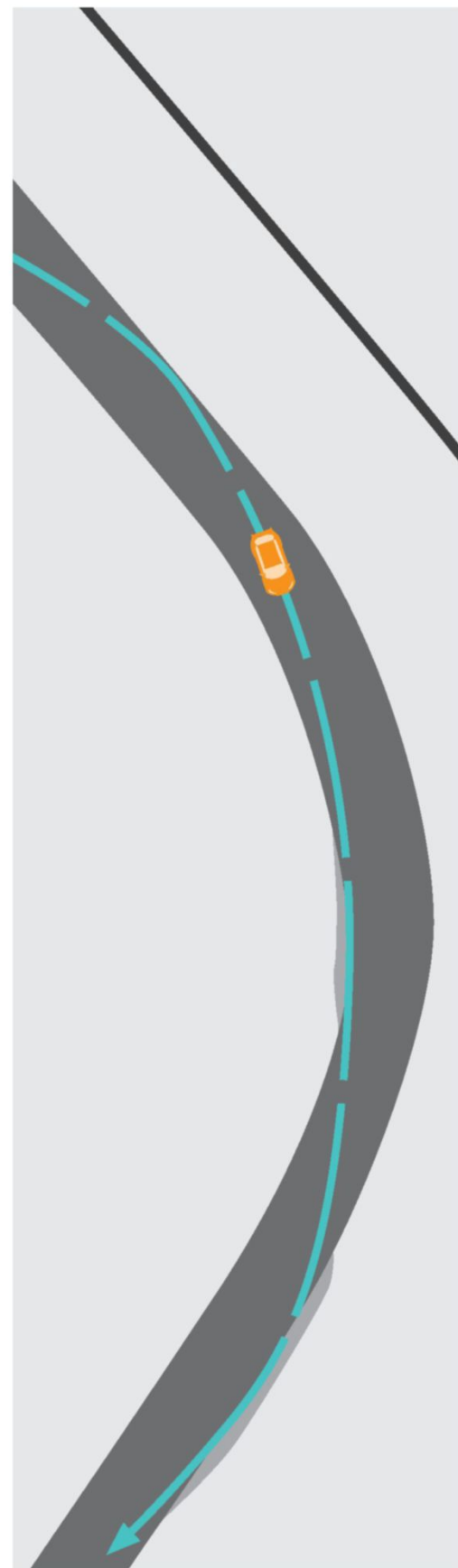
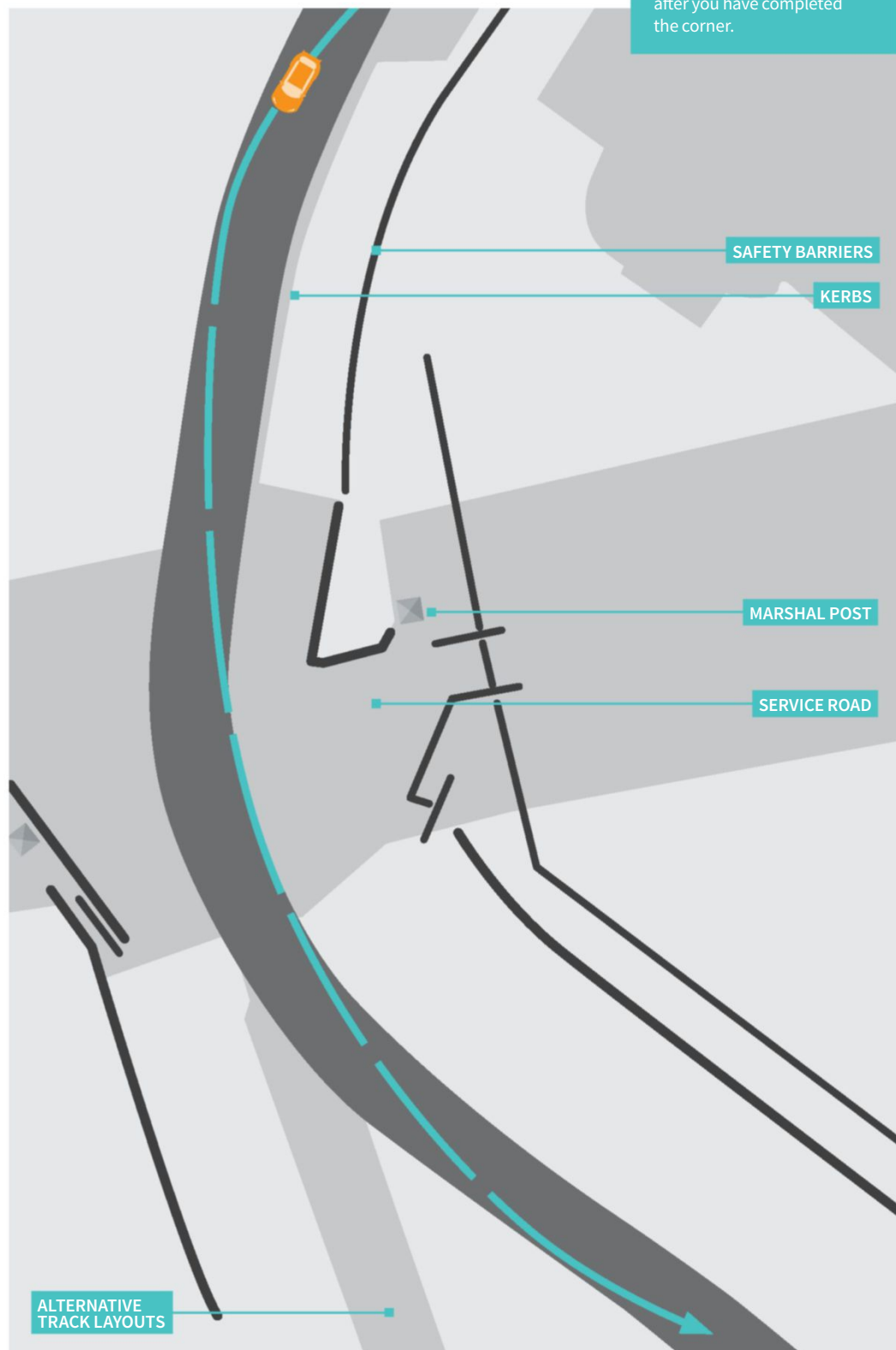
04 PADDOCK BEND Turn 4

Because you don't take the previous corner so tight to the apex, the car naturally runs to the outside which helps set up Turn 4. There's not an inside kerb but where the track goes across the entry road, there's extra asphalt there, so quite often you'll just dip a wheel in over the white line and then it steps back up to the race-track so you get a little bump as you make your way back across the line.



AUTOSPORT SAYS

Take the opportunity to straighten the wheel between Dibení and Paddock (and ignore the rallycross track that extends straight ahead). Because Paddock leads straight into the Esses, it's important to move back to the left as soon as possible after you have completed the corner.



05 THE ESSES Turn 5

It is super-high speed and you can use the inside kerb. It's a feather of the throttle to 30% and then back on it in fifth gear, so it's pretty fast! There's very, very little room on the exit so it's all about entry speed and minimum speed, then a reasonably hard braking zone into Turn 6.

06 BROOKLANDS

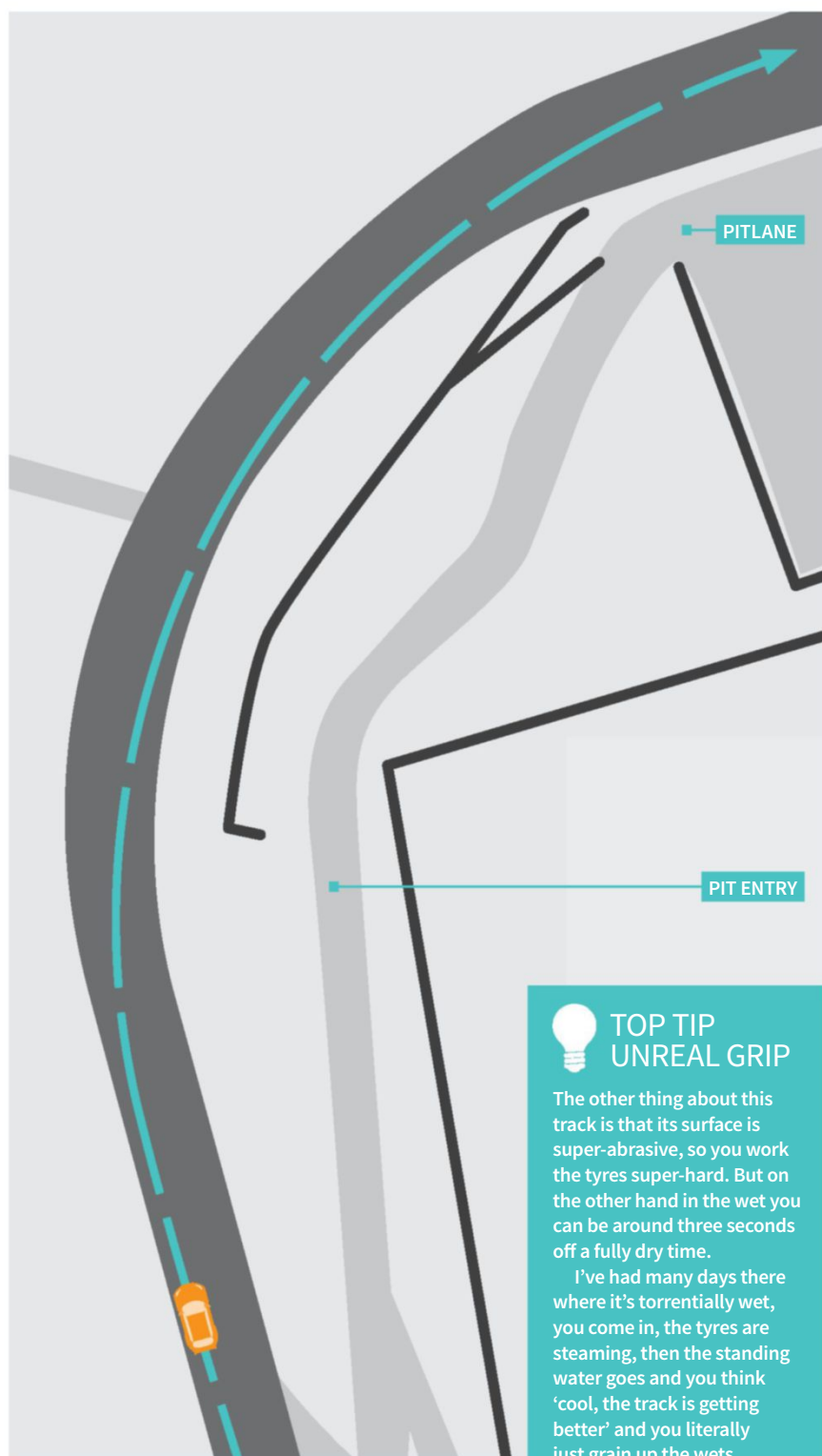
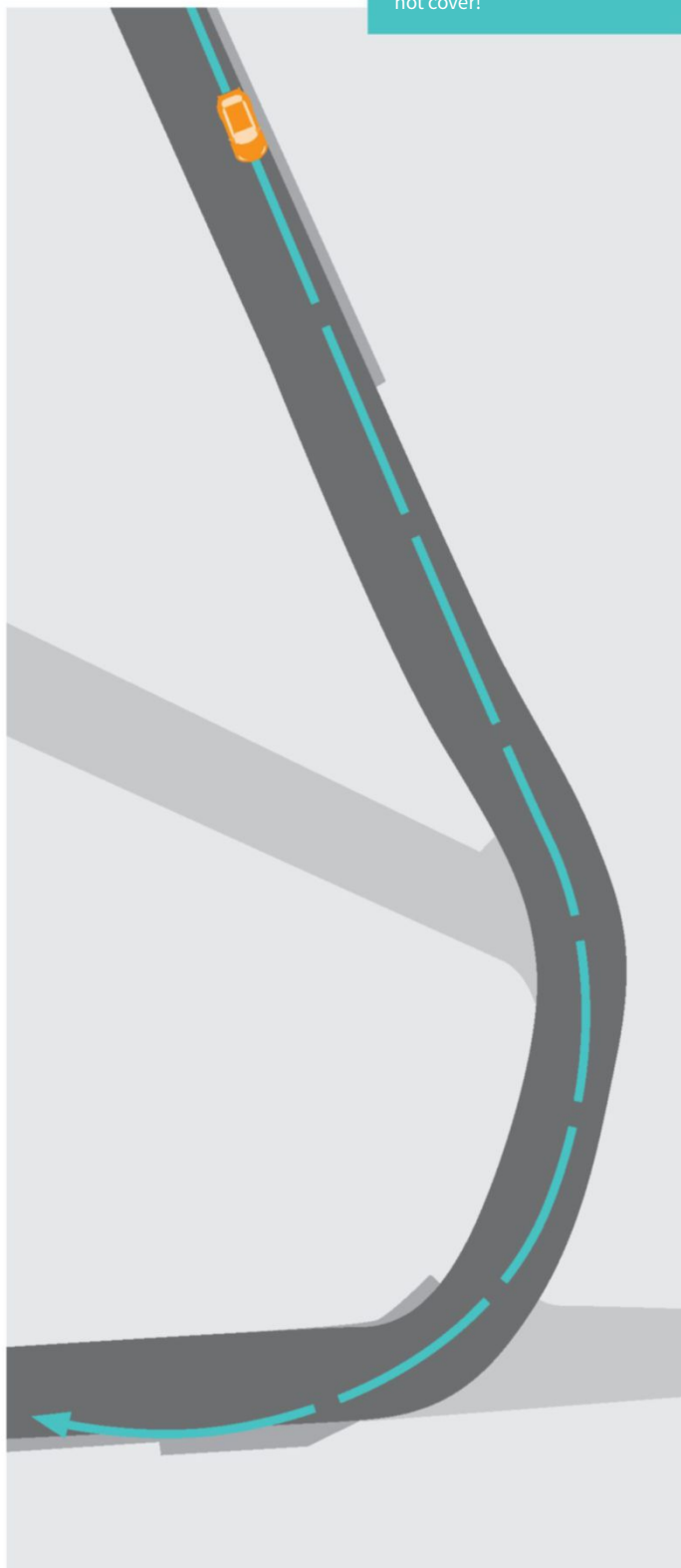
Turn 6

You go from fifth down to third gear in the dry and there's a bit of a dog-leg corner, so you turn in on the braking zone a little bit to then turn more later in the braking zone. It's more of a long apex, there's only one kerb point and when you get to the inside kerb as it is, you're pretty much back on the throttle and that's the exit of the corner. So you have to imagine where the artificial apex is.



AUTOSPORT SAYS

Let the car wash out on the exit, where the wide, flat concrete allows you to maximise exit speed onto the Speedway Straight. This is important because speed is key heading to the next 'corner', Woodlands, a simple flat-out right hander we need not cover!



07 HONDA

Turn 8

It is one of the ballsiest corners in an F3 car, probably anywhere in the world. It's super-fast, but bumpy as well on the exit, so sometimes you go through there and you want to take a bit more speed in, but your toe just curls off the throttle a little bit because you're not too confident in what's going to happen on the exit – quite often the rear of the car will bottom out on the bumps up there, and you're straight back past the pitstraight and back into turn one very quickly.

It's unique I'd say, I haven't done Thruxton in an F3 car, I don't know if it's flat all the way around the back through Goodwood and Church, but Honda is a big corner in an F3 car and very challenging.

TOP TIP
UNREAL GRIP

The other thing about this track is that its surface is super-abrasive, so you work the tyres super-hard. But on the other hand in the wet you can be around three seconds off a fully dry time.

I've had many days there where it's torrentially wet, you come in, the tyres are steaming, then the standing water goes and you think 'cool, the track is getting better' and you literally just grain up the wets, they completely overheat, they work way too hard and you have this funny period where you just can't drive because there's no point in killing tyres.

It's pretty interesting, I had my first F3 test there. It was wet and I remember thinking 'oh God, these things have got so much grip, I'm in the wet and it's still ridiculous!' But actually it was just Pembrey, at Oulton Park I had a bit of a reality check.

The newly revised Wireless Control System from CARTEK is the quickest and easiest way to install push-button controls to a detachable racing steering wheel. The system has eight push-button switches that are wirelessly linked to eight (10-amp) relays. These relays are microprocessor controlled and individually configurable to provide a choice of functions including momentary, latching and flashing modes for uses such as PTT radio, pitlane limiter, dash menus, lights, indicators, etc.

- Eight push-button channels (or six+two gearshift paddles).
- Wireless link between steering wheel and dashboard – 360 degrees.
- Compatible with any make and type of quick-release hub.
- Eight independent relay channels (10A rated contacts).
- Configurable relay functions including:
 - Momentary action
 - Latching (with memory)
 - Latching (without memory)
 - Flashing (slow speed – minimum five seconds)
 - Flashing (slow speed – latching. For indicators or hazards, etc)
 - Flashing (fast speed – minimum three flashes. For flashing headlights, etc)
- Fast response time, suitable for electronic gear shifting.
- Two label sheets allowing for full customisation.
- Battery powered – long life with battery condition indication.

KIT INCLUDES:

- Eight sealed push-button switches
- Infra-red transmitter
- Relay control module
- Multi-coloured label sheet
- UV florescent label sheet (glow in dark under UV light)

The Racelogic VBOX HD2 is a top-of-the-range data analysis tool that allows drivers to develop their skills behind the wheel.

Using global positioning systems accurate to just a few centimetres, it can give real-time information about speed, lap time and, often more crucially, technique. The system uses side-by-side video comparisons to make it easy to spot where improvements can be made. It also automatically recognises and plots 500 circuits around the world.

The VBOX Video HD2 is Racelogic's top-of-the-range product, although more than 8500 examples across its comprehensive range have been sold to date.

As well as giving you simple indicators such as top speed, which gives a clear picture of how well you are coming off a corner, it also helps you to analyse lines and car positioning. So if you are trying to balance up whether you should take the exact geometric racing line, or compromise, this is the tool that will allow you to prove definitely which way of taking a corner is fastest. Work on multiple lines, and it will help you work out the best option.

The basic VBOX Video HD2 consists of a single main data box, an aerial and two 1080p cameras, making it easy to install or move between cars. That allows the driver plenty of time to focus on what really matters – going quickly.

- Dual-camera 1080p system
- 10Hz GPS data logging
- Records to SD card or USB
- Predictive lap timing (with OLED display)
- Real-time, high-definition graphic overlay
- MP4 video and audio recording
- Internal power back-up for reliable recording
- Powerful data analysis software
- Up to 32 CAN channel inputs
- USB 2.0 host interface (for recording to USB flash drive)
- Camera preview over wifi
- Bluetooth LE connectivity

WALERO

We've added a new colour option for our Walero base layers underwear. After many requests, we decided to add a new, darker colour, petroleum, to our range of temperature-regulating flame retardant racewear. This new collection, which joins our lighter tone, cool grey, is proving to be very popular and is available to buy now.

HEADSOCKS

In response to customers' feedback, we have added a large-size headsock to our collection. Stock is currently available in cool grey and petroleum.

FOR A LIST OF RETAILERS PLEASE VISIT
OUR WEBSITE www.walero.uk OR
CALL US ON +44 (0)1223 847617



A large-size headsock has been added to the collection

VALETPRO: FOAM BLASTER

ValetPRO's Foam Blaster is a compression sprayer designed to enhance foams for pre-cleaning of vehicles. It holds eight litres of liquid, enough to pre-wash/foam three medium-sized vehicles.

Since Foam Blaster applies concentrated foam, cleaning power is vastly improved over a traditional foam lance. This is because traditional foam systems apply the foam at a final dilution of up to 1:300; Foam Blaster applies foam at a more concentrated dilution of 1:15 up to 1:25.

With ValetPRO's Foam Blaster you have full control over dilution ratios. There is an environmental (and cost) benefit since you'll use less water – which is good news if you're on a water meter. In addition, you'll use the same or less concentrate, so it's the same cost per car clean too.

Customers who currently wash their car with a pressure washer can be sure that a ValetPRO Foam Blaster will improve the cleaning power of any foam, giving you a more thorough clean time and time again.

For customers who do not have access to a pressure washer or hose, ValetPRO's Foam Blaster is a great option, enabling you to pre-foam your vehicle, breaking down dirt before shampooing.

Our Foam Blaster makes cleaning quicker and easier, lubricating grime and dirt, and giving your paintwork the protection it needs to keep its gloss and shine.

ValetPRO's Foam Blaster is a high-quality compression sprayer that will last you a lifetime.

BENEFITS

- Great for use in combination with a pressure washer since it improves the cleaning power of any snow foam
- Environmental benefit: reduce the amount of water used per car clean (up to 10 litres per clean)
- Perfect when pressure washers or hoses are not available for applying foam cleaners
- Full control over dilution of snow foam
- Effective foam cleaning anywhere

RRP £94.99

Our retailers are making an introductory offer of £94.99 and giving a free five-litre bottle of pH-neutral Snow Foam worth £19.99 with each purchase



Perfect for car
cleans before
and during
race days

TO FIND YOUR NEAREST STOCKIST LOG ON TO THE WEBSITE www.valetpro.eu
AND POP IN YOUR POSTCODE, OR CALL US ON 01323 287980

LATEST GEAR

SCHROTH iNDi SEAT

BEING PROPERLY POSITIONED IN YOUR CAR IS CRUCIAL – AND YOU CAN, QUITE EASILY, HAVE THE PERFECT CUSTOM FIT

The Schroth iNDi Seat kit uses a vacuum casting bag with a unique bead and slow-cure resin mix, making it a simple and professional system to fit any driver comfortably into any car. The Schroth iNDi Seat kit gives the user control over where they need to be positioned for optimum performance and safety. Schroth iNDi Seat kit materials have been tested extensively at an FIA-approved test laboratory.

The product is the official seat of leading British marques such as Radical and Caterham, but it's also used in a plethora of series, from club racing all the way up to Formula 1. That's thanks to the combination of longevity and simplicity: while targeted at the DIY sector, it's also proven at the very top. If a driver doesn't change shape, then the seat can last five seasons. It takes a bashing but can keep its shape – when Nicholas Latifi crashed heavily into the back of Roberto Merhi's car in a Formula Renault 3.5 race at the Red Bull Ring last year, the car sustained huge damage but the seat was reusable.

Century Motorsport boss Nathan Freke acts as an 'emergency fitter' for the product. He says the process of making the seat "has sped up a lot recently".

"Schroth is always doing stuff to improve the product and now it has a resin that cures in 25 minutes, whereas it used to be three to four hours," he says. "It's a great product, far better than two-part foam, and it has proven shock absorbing properties so it's a safe seat."

"You can use them in all walks of motorsport. In sportscars you would make the base seat for the biggest driver, and this seat would remain in the car at all times. You'd then make small inserts for each other driver and these can be swapped around. Ideally the inserts would only be for the back/shoulder area, which makes swapping the inserts around that little bit easier."

"We also use them in GT cars. If you have a particularly fussy driver you can fill the entire shell for them, or you can use smaller inserts to adapt the seat for a mixture of driver sizes at the pitstops."



HOW IT WORKS



STEP 1: Sit the driver in the empty cockpit with no bag at first. Evaluate what the driver requires, and take the measurements and the position. Take these and move the beads to the required thickness and distances. Lay the bag onto a flat surface and form a seat shape. Apply a slight vacuum. Put the bag into the car, and then put the driver in again.

STEP 2: If you have too many beads, remove the bag and the valve and empty the beads. Once the driver is happy with the bead volume, mark on the bag where the driver is

sitting, and where the back, the base and the legs were. These will be helpful later. Then remove the driver.

STEP 3: With the driver out, lift out the bag and then remove the valve. Mix the resins, referring to the instructions for resin ratios.

STEP 4: Pour the resins into the bag. You will see the resins settle in the bottom of bag. Refit the valve.

STEP 5: Mix the resins and beads together. The beads will change colour when mixed properly. The

process will take five to 10 minutes.

STEP 6: Form a seat shape again. Make sure you have removed creases in the front and back.

STEP 7: Put the bag back into the car. Re-position it into approximately the correct position before the driver sits in the cockpit again.

STEP 8: With the driver in, you have approximately 30 minutes to fine-tune their position. Then the seat is cured and ready for excess matter and seatbelt holes to be cut.



KIT CONTENTS

- Casting bag, which has an on/off valve with filter
- Litres of impact-absorbing bead mix to customer specification
- Resin and hardener – the resin has a colour dye to assist in mixing
- Funnel, mixing jug, mixing stick, and a hose for the vacuum
- User guide

EXTRA PRODUCTS

QUICK-CURE RESIN

Can be used with the GT kit, 25-litre kit and 30-litre kit. Ideal for track seat fittings or urgent seat fittings, the resin has a 30-minute working window and 10 minutes later it is cured and ready to trim. Currently being used successfully in the World Endurance Championship and British Touring Car Championship.

SIMULATOR SEAT

Available in small, medium and large sizes and developed for simulator use, this is employed for several Formula 1 simulators. It allows for multiple driver use, and has pre-inserted seatbelt holes for six-point harnesses.

KIT SIZES

GT KIT 20-LITRE

Ideal for replacing seat shell padding.

25-LITRE

Ideal for larger drivers in a tight cockpit or seat shell.

30-LITRE

Ideally suits tight cockpits or a liner/insert inside a seat shell or extractable seat. Used in single-seaters, touring cars, prototypes and historic racing.

40-LITRE

Same applications as the 30-litre kit sizes, but for a smaller driver.

50-LITRE

The most popular single-seater option, used in GP2, GP3, Formula 3, Formula V8 3.5 and Formula Renault. It has also been used for much smaller drivers in roofed vehicles such as GTs and touring cars.

70-LITRE

Used as a standalone seat in open-cockpit cars such as Radical and Sports 2000, and has been used for small drivers in single-seaters.



**CONTACT
SCHROTH**
+49 (0) 293297420
or germany@schroth.com

WEBSITE www.schroth.com



EBREY/LAT

CIRCUITS AND CLUBS

KEY CONTACTS

THE PLACES TO GO TO FOR INFORMATION ON EVERYTHING FROM GETTING YOUR LICENCE TO FINDING A SERIES

CIRCUITS

ANGLESEY
angleseycircuit.com



LYDDEN HILL
lyddenhill.co.uk



BRANDS HATCH
brandshatch.co.uk



MALLORY PARK
mallorypark.co.uk



CADWELL PARK
cadwellpark.co.uk



MONDELLO PARK
mondello.ie



CASTLE COMBE
castlecombecircuit.co.uk



OULTON PARK
oultonpark.co.uk



CROFT
croftcircuit.co.uk



PEMBREY
barc.net/pembrey



DONINGTON PARK
donington-park.co.uk



ROCKINGHAM
rockingham.co.uk



GOODWOOD
goodwood.co.uk



SILVERSTONE
silverstone.co.uk



KIRKISTOWN
kirkistown.com



SNETTERTON
snetterton.co.uk



KNOCKHILL
knockhill.com



THRUXTON
thruxtonracing.co.uk



GOVERNING BODIES NATIONAL SANCTIONING AUTHORITIES

Motor Sports Association
msauk.org

MOTORSPORT IRELAND
motorsportireland.com



UK RACE ORGANISERS CAR CLUBS AND SERIES PROMOTERS

Aston Martin Owners
Club Racing
amocracing.org

Masters Historic Racing
themastersseries.com

British Automobile
Racing Club
barc.net

MG Car Club
mgcc.co.uk

British Racing &
Sports Car Club
brscc.co.uk

MotorSport Vision Racing
msvracing.co.uk

Castle Combe Racing Club
castlecombecircuit.co.uk

South East Motor Sport
Enthusiasts Club
semsec.org.uk

Classic Sports Car Club
classicsportscarclub.co.uk

Scottish Motor Racing Club
scottishmotorracingclub.co.uk

Darlington and District
Motor Club
darlington-motor-club.org.uk

750 Motor Club
750mc.co.uk

Historic Sports Car Club
hsccl.co.uk

500 Motor Racing Club of Ireland
kirkistown.com

Vintage Sports-Car Club
vsccl.co.uk

Feel the difference.

Test for yourself. What's it like in the real world?



standard vs modified



Have you always wondered just how much difference a set of good quality coil-over suspension would make to your car? What about lightweight alloy wheels and semi slick tyres? How good does a proper exhaust sound? When it comes to modifying your own car, these questions make all the difference - and it's something that **most won't have a chance to test, until it's too late** and the modifications are purchased and installed on your car.

Welcome to the **Standard Vs. Modified** programme, allowing you to test our modified cars first hand - back to back against a standard version of the same car. Gain a subjective opinion by testing the car on the road, or a proper "cold-hard-fact" objective test on the circuit - backed up by lap times and video data.

The subjective road comparison is held on our favourite twisty roads in Germany and Belgium - meaning you get true "real world" experiences. But, even better - the circuit used for the track comparison isn't just any local circuit - it's the **proper Formula One level race track of Circuit de Spa-Francorchamps**. Both the Road and Track Comparisons come complete with expert guide(s) and instructor(s), ensuring the highest level of safety and peace of mind.

In association with:



For more, visit:

www.StandardVsModified.com



 **AUTOSPORT**

PERFORMANCE

NOW AVAILABLE
ONLINE!

www.autosport.com/performance

HERE'S WHAT YOU CAN EXPECT

- Video track guide in conjunction with Racelogic
- Advice on the best safety gear from SCHROTH
- Columns from the best coaches and drivers
- Bespoke features on technique, fitness, nutrition and more...

