

Ferrari wants to end the season on a high after the bitter title loss



Red Bull in commanding form: the energy drink-owned team shines in Mexico, leaving the opposition breathless



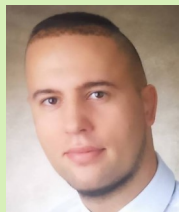
Mercedes weaponless: the dominant team of recent years struggles with tyre management without its innovative wheel rims—*Full story on page 10*

The 2018 Formula One season is slowly crawling towards its end. With two more races, the Drivers' Championship title fight is already done and dusted after Lewis Hamilton secured his fifth title in Mexico. However, Ferrari are still chasing Mercedes for the Constructors' Championship title, albeit with a difference of 55 points, and face a steep mountain to climb if they want to claim their first title since 2008.

Despite slightly anticlimactic closing stage to the season, the sport still chases for answers on many fronts. On the technical stage, Ferrari's radical floor featuring a series of fins caused for an interesting talking point over the last weeks. Next to evaluating this novelty, the Italians were also busy with seeking for answers why the performance of their successful SF71H was below-par for three races following the Italian Grand Prix. The Maranello-based outfit desperately wants to understand it before the winter break to find the correct design path for their next year's car.

Mercedes' unexpected surge in form since the Singapore Grand Prix and its sudden dip in pace after it was forced to discard its innovative wheel concepts featuring a series of holes from the American Grand Prix still excites the F1 community. The FIA is expected to clarify the matter this weekend when the sport descends in Sao Paulo.

With Red Bull's recent strong form, the last two Grand Prix in Sao Paulo and Abu Dhabi might bring the 2018 season to an end in the best fashion, leading to thrilling battles between the current three top teams, Ferrari, Mercedes and Red Bull.



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Only three colours for the Pirelli tyres next year

Formula One's sole tyre supplier Pirelli will cut down the number of colours for its various compounds in 2019. The Milan-based company intends to make it easier for fans to recognize the differences between the three compounds at the given race weekend.

Fans have been asking for simplifying the colour scheme of tyres after this year saw seven different dry-weather compounds including the back-up superhard compound. To make it clear which compound drivers are on at the track, Pirelli introduced different colours for each compound, thus a total of seven different ones.

In 2019, fans only need to get used to three colours. However, Pirelli sticks to its multiple-compound concept to be able to supply teams with the best tyres for tracks of very different nature. For those wishing to go into a little more technical detail, each compound step will be given its own name or letter to distinguish it. Taking the example of Silverstone and Monaco, for instance, the hard Silverstone tyre might be compound one whereas the hard Monaco compound might be compound three.

The colours for the Cinturato intermediate and full wet tyres remain unchanged next year – green and blue respectively.



Brazilian Grand Prix — Preview



The country of Brazil has held 46 Grands Prix so far with the first one being a non-championship race. The event has been held continuously since it made its debut in 1972.

Racing in Brazil has its roots between the two World Wars. The first event was held on the 6.9-mile Gavea street circuit in Rio de Janeiro in 1934. Two years later, the construction work of the country's first permanent circuit kicked off in Sao Paulo. The new track at Interlagos quickly gained reputation for its long corners, demanding nature and elevation changes.

When local hero Emerson Fittipaldi began to enjoy racing success in the 1970s, demand for a Brazilian Grand Prix grew. In 1971 and 1972 Interlagos hosted non-championship events, before staging its first Formula One World Championship round in 1973. The track became a lucky charm for a host of local drivers in the 1970s, including José Carlos Pace, whose first and only Grand Prix victory came here at his home race. Following his death, the circuit was renamed in his honour.

In 1978 the Brazilian Grand Prix moved to Jacarepaguá in Rio de Janeiro. Argentine Carlos Reutemann dominated in his Ferrari. For the following year, Formula One moved back to Interlagos. After the emergence in 1980 of Rio de Janeiro racer Nelson Piquet, the decline of Interlagos and the retirement of Fittipaldi, Brazilian fans lobbied to host the Brazilian GP in Piquet's home town. The flat Jacarepaguá circuit, like Interlagos before it, proved to be extremely demanding: most corners were long and fast, some were slightly banked and the track had a very abrasive surface.

Fans succeeded and the event moved to Jacarepaguá in 1981 and stayed there for a period of nine years. However, the Sao Paulo-born Ayrton Senna's success prompted the owners of the Interlagos circuit to revamp the track and heavily invest in its infrastructure and modernization. The layout was shortened, the surface was smoothed and the Grand Prix returned to Sao Paulo in 1990 where it has remained since.

Until today, five Brazilian drivers have won in front of their passionate and adoring fans, with Emerson Fittipaldi, Nelson Piquet, Ayrton Senna and Felipe Massa each winning twice and Jose Carlos Pace winning once.

The most successful drivers and constructors

King of the Brazilian Grand Prix is the Frenchman Alain Prost. The quadruple world champion claimed victory on six different occasions. Second on this list is Michael Schumacher with four victories. Carlos Reutemann and Sebastian Vettel form the group of the three-time Brazilian Grand Prix victors. Among the drivers with two wins in their pocket are Nico Rosberg, Felipe Massa, Mark Webber, Juan Pablo Montoya, Mika Häkkinen, Ayrton Senna, Nigel Mansell, Nelson Piquet and Emerson Fittipaldi.

McLaren and Ferrari are the most successful constructors in the history of the Brazilian Grand Prix. The British outfit has won 12 races there while its Italian rival squad has eleven victories. Williams is a six-time Brazilian Grand Prix winning team. Red Bull managed to claim triumph on four occasions while Mercedes on three occasions. Renault, Benetton and Brabham have

Brazilian Grand Prix—Preview

Interesting facts

Brazil is the fifth largest country in the world.

It is named after a tree; brazilwood.

Brazil has 26 states and one federal district.

The capital of Brazil is Brasilia, built in 1960.

Brazil shares a border with nine countries – every South American country except Chile and Ecuador.

The highest point is Pico da Neblina at 2994 metres (9820 feet).

Virtually every Brazilian city has a soccer stadium because they are crazy about soccer.

Brazil is ranked number 9 in the world soccer standings.

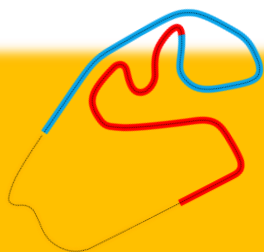
Brazil has won the World Cup five times and perhaps its most famous player is Pele.

The Amazon River is the second longest river in the world and the world's largest river by volume.

Brazil has 64 national parks and more than 200 conservation units.

Brazil has the fifth largest population in the world estimated to be over 200 million people.

There are 13 cities with more than one million people in Brazil.



Track layout

The Autodromo José Carlos Pace track has a total length of 4.309km. During Sunday's race, drivers will need to circulate 71 times to complete the race distance of 305.909km.

The circuit is run counter-clockwise, putting extra pressure and unusual loads on drivers' shoulders and neck muscles. The course is made up of 15 turns, of which 10 are left-handed ones. The 15 turns of the track are a mixture of speeds, but medium-speed corners are the dominating type.

The lap record is held by Max Verstappen. The Dutchman clocked a 1:11.044 in the 2017 Brazilian Grand Prix. The start is usually relatively calm, the distance from the pole position to the apex of Turn 1 is 334.5m. The start line is on a slight incline, meaning the drivers must hold the brake ahead of the start. Drivers must adhere to a speed limit of 80kph through the 387.1-metre-long pit lane.

Abu Dhabi Grand Prix—Preview



The Abu Dhabi Grand Prix is a unique event, starting at sunset and finishing in the dusk, with the sun setting during the early phase of the race. The Grand Prix takes place on the ultra-modern Yas Marina Circuit. The inaugural race was Formula One's first ever day-night race.

This track, surrounded by the desert sands, is quite spectacular in an exceptional setting with a stunning hotel that overlooks the flat circuit. Especially during Friday practice and the race, the temperatures will go in the opposite direction to those we usually experience. The first sector features a mix of mid to high-speed corners, the second one is about straight-line speed, braking and traction and the third sector looks like a street circuit and calls for grip and downforce.

History

The circuit was designed by Hermann Tilke, and is situated on the peninsula of Yas Island, about 30 minutes from the capital of the UAE, Abu Dhabi. Yas Marina is the second Formula One track in the Middle East, with the first being in Bahrain.

The first ever action on the track was a GP2 test in 2009 which took place one week before Formula One assembled in Abu Dhabi for its inaugural round there. Since then, GP3, GP2, V8 Supercars, Drag Racing, GT1 World and the Gulf 12 Hours visited the complex.

The Moving Circus first came to Abu Dhabi in 2007 in the guise of the first ever Formula One Festival. The event which took place on 3 February 2007 was free, and the largest gathering of current Formula One cars and drivers outside of a Grand Prix. It was announced during that event that Abu Dhabi had won the rights to host a Grand Prix from 2009 until 2016. Later that year, Etihad Airways negotiated a three-year deal for them to become sponsors of the Grand Prix.

The construction of the circuit cost 893 million EUR. The main contractor was Cebarco-WCT WLL and the Hermann Tilke-led company was responsible for the design.

The circuit was the first ever day-night venue in the history of Formula One. Musco Lighting was responsible for the permanent lighting system which is similar to that installed at the Losail Circuit in Qatar. The latter was the biggest permanent sports venue lighting project in the world, but the Yas Marina system took over this title.

The track surface is made of greywacke aggregate which was shipped from England. This surface is acclaimed by the drivers for the high grip level it offers.

The marina-based development includes a theme park, a water park, as well as residential areas, hotels and beaches. The circuit has five grandstand areas (Main Grandstand, West Grandstand, North Grandstand, South Grandstand and Marina Grandstand). The complex also houses a team building behind the pit building, Media Centre, Drag Strip, VIP Tower and Ferrari World Theme Park.

The circuit has a unique pit exit. It does not connect to the first corner as it would be too dangerous due to the high speed at which drivers approach the first bend. The exit dips under the main circuit by way of a tunnel.

Track layout

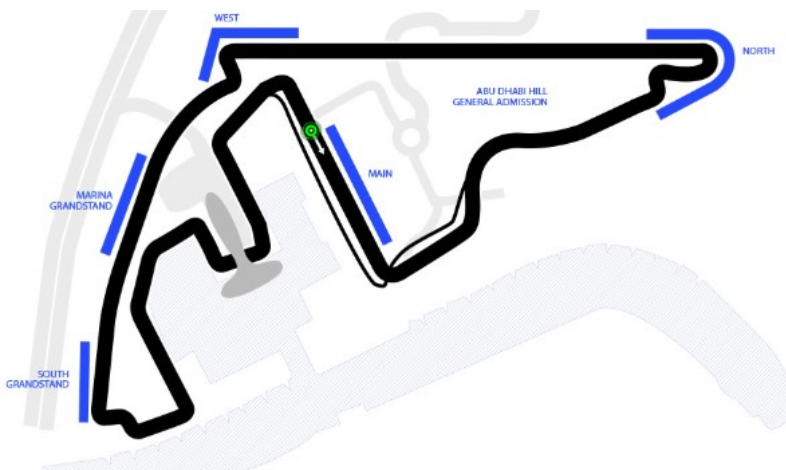
The track with its length of 5.554km is one of the longest tracks on the calendar. The race is 55 laps long, meaning the driver's have to complete a total race distance of 305.355km. The cars circulate anti-clockwise around the Hermann Tilke-designed complex.

There is only a short distance from the first row to the first corner. The pole-sitter has to cover only 300m before it can throw its car into the first high-speed corner. The circuit is made up of 21 bends, 12 of which are left-handed ones.

The track is a real mixture of fast and slow-speed sections. The speed drops below the 100kph mark in 6 corners (T5, T6, T7, T8, T9 and T11) while the cars attain speeds over 250kph in 5 bends: T2, T4, T10, T15 and T16. In fact, turn 4 and turn 10 are not real corners, only slight curvatures.

The top asphalt layer is smooth, hence the tyre degradation is pretty low. The brake wear is at medium level. Drivers apply the brakes 11 times during a lap, four of those applications are heavy.

The engine performance is important as drivers travel approximately 66 per cent of the lap at full throttle. The longest full-throttle section lasts 14.1 seconds.



Haas' appeal dismissed

The American Haas team lost the appeal it filed against its exclusion from the Italian Grand Prix. The stewards decided to disqualify Romain Grosjean from the Monza race after Renault lodged a protest regarding the front corners of the Haas' reference plane. On 5 September 2018, Haas decided to appeal the decision. On 2 November 2018, the Court, after hearing the parties, decided to uphold the stewards' decision, confirming the exclusion of the Haas F1 Team's No. 8 car from the Italian Grand Prix.

Verstappen hails Mercedes' dominance of recent years

After Lewis Hamilton secured his fifth world title, Max Verstappen said that any top driver would have won the 2018 in the Briton's car. "Of course he is extremely good. But Vettel could win with his car, Ricciardo could win with his car, I could win with his car."

Kubica is looking for new roles

While the Williams F1 Team is hesitating about committing to its second driver for 2019, the team's test driver Robert Kubica is weighing up his options for next season. The Grove-based outfit has already confirmed that it reached an agreement with F2 championship leader George Russel for the forthcoming year. The Pole is still waiting for Williams to reveal their plans for 2019. The Krakow-born said that he has been in conversation with different parties amid rumors that he could take over Daniil Kvyat's development role at Ferrari after the Russian was confirmed to rejoin Toro Rosso as a full-time race driver.



Ericsson to join IndyCar

Marcus Ericsson is set to switch to Indycar for 2019. After years in the GP2 series, the Swede made his debut in F1 in 2014 for Caterham before joining the Sauber team in the following year. The 28-year-old spent has spent four years at the Swiss team, but he will leave the outfit at the end of the year as it will start the 2019 season with an all-new driver line-up in the form of Kimi Räikkönen and Antonio Giovinazzi. Ericsson will join America's premier class single-seater series with the Schmidt Peterson Motorsport squad.

Quick news round-up

Deletraz to drive for Haas Ferrari

Swiss driver Louis Delétraz will pilot a Formula One car for the first time in his career when he tests for Haas F1 Team Nov. 28 at the Yas Marina Circuit in Abu Dhabi. The 21-year-old is the son of former Formula One and Le Mans 24 Hours driver Jean-Denis Deletraz. The young talent currently competes the F2 Championship where he has had two podium finishes this year and is currently lies in 11th position in the standings.



First laps with an F1 car for Tatiana Calderon

Sauber Alfa Romeo's Team's test driver Tatiana Calderon completed a promotional event around the Autodromo Hermanos Rodriguez after the Mexican Grand Prix. The Columbian driver covered a total of 23 laps in the Sauber C37 which saw her driving a Formula One car for the first time in her career. Calderon is currently contesting in the GP3 series and has collected a total of nine points so far in 2018.

Rob Smedley to leave Williams

Rob Smedley has confirmed he is leaving Williams GP Racing at the end of the season. Smedley has been at the Grove based squad since 2014 in the role of "head of performance engineering". His career has seen him employed at Jordan and Ferrari. He is the third high ranking engineer to leave Williams this season following the exits of Dirk de Beer and Ed Wood.



New destinations on the horizon

Formula One is rumored to expand its current calendar with new destinations. Having last held a race in 1985, the Dutch Grand Prix could make a return to the sport as soon as in 2020. According to the rumors, Liberty Media has already made a concrete offer to the Zandvoort track owners who are keen to revive their Grand Prix because of Max Verstappen's success in F1. Another venue, Vietnam is also interested in hosting a race. The new race could make its surprising debut as early as in 2020.

Ferrari desperately seeks for answers for its innovative floor



Ferrari's unique floor has become a big tech talking point in the American Grand Prix. The Italians raised eyebrows when they trialled a new floor with a series of fins fitted on its outer edge.

These fins are expected to seal the edge of the floor from the turbulence created by the front tyres. Furthermore, the fins can also divert rubber debris from slots right in front of the rear wheel. This innovative floor has been proved difficult to integrate to the current aerodynamic concept of the SF71H.

New trials during the free practice sessions for the Mexican Grand Prix brought answers to some questions according to the Maranello-based outfit, but it still elected against racing it. In a record amount of time, Ferrari's rival Red Bull brought a few fins from Milton Keynes to Mexico City and glued to the floor of its car to emulate the effect of this unique solution.



Old floor without fins



Mercedes' innovative
wheel rim

The tech controversy around Mercedes' wheel rims and hub continues to provide for unanswered questions. After the summer break, Toto Wolff revealed that Mercedes would leave no stone unturned to in a bid fight back following Ferrari's strong pace through the summer races.

The Austrian did not reveal the exact details of his outfit, but the extent of Mercedes' push for improving its pace became clear when it turned up with a new wheel-rim design at the Belgian Grand Prix. It featured large fins on its outer edge. These additions helped use the airflow to control the rim's temperature. In Singapore, two races after the Belgian Grand Prix, Mercedes introduced a further development in form of a redesigned wheel hub. It featured a series of holes which – in conjunction with the fins on the wheel rim – contributes to manage the rear-tyre temperatures.

Interestingly, Mercedes started dominating in Singapore and carried the form over to Russia and Japan. In Austin, however, the Brixworth- and Brackley-based outfit filled the controversial holes with silicone because it feared that its rival Ferrari would lodge an official post-race protest. In Mexico, the stewards gave the green lights to the design.

Ferrari and other rival teams thought the aggressive wheel rims are deemed as moveable aerodynamic device, similar to Red Bull's blown axle concept which was banned in 2012. The governing body, the FIA thinks that the two cases are different as Mercedes' holes are drilled into the axle which is not moving.

The matter is not closed yet as both Mercedes and its rivals are awaiting further clarification to decide how much they should invest in this development path. Renault's technical boss Nick Chester suggested if the holes were completely cleared then teams might start pushing for very aggressive design of such a concept for next year. FIA race director Charlie Whiting wants to clarify the situation in Brazil this weekend.

POWER UNIT USAGE

As the 2018 season is nearing its conclusion, the power unit allocation for drivers has already reached its limit for every competitor.

Since the introduction of the hybrid power units in 2014, the power unit is deemed to consist of six separate elements: the internal combustion engine (ICE), the motor generator unit-kinetic (MGU-K), the motor generator unit-heat (MGU-H), the energy store (ES), turbocharger (TC) and control electronics (CE). Competitors have been limited in how many PUs they use throughout a season.



Drivers have been struggling for completing the season without exceeding their PU allocations since the dawn of the new hybrid era. For 2018, the governing body implemented an even stricter clampdown on the maximum number of PU components. Each driver is permitted to use only three ICE, MGU-H and TC, and only two ES, CE and MGU-K during a the whole 2018 season, any combination of which may be fitted to a car at any one time.

Only ten of the twenty drivers have managed to survive the first 19 races of the 21-race-long season without being forced to introduce a PU element out of their allocation. Of the six drivers of the top three teams, only Kimi Räikkönen, Sebastian Vettel and Lewis Hamilton have been able to complete the season without any new elements. Interestingly, Kimi Räikkönen had an engine failure back over the Spanish Grand Prix weekend, losing a turbocharger. The Finn was set to take on a fourth turbocharger later on in the season, but his team Ferrari has managed to avoid the grid-drop penalty for that so far.

Toro Rosso stands out on the list. The Faenza-based outfit has been hungry for Honda power units all season long. The derivate of the former Minardi team ditched the Renault power unit and joined forces with Honda for 2018. While the total number of permitted PU elements is 15 for the entire season, Brandon Hartley has used a total of 38 elements while his team-mate Pierre Gasly has also needed 36 elements. Toro Rosso's team

principal Franz Tost and Red Bull's team boss Christian Horner sounded confident that the reason behind Honda's shocking numbers is the constant evaluation work and experimenting with new upgrades which should make the Sakura-based engine manufacturer stronger and more prepared when it will supply Toro Rosso's parent team, the Red Bull squad next season.

Driver	Team	ICE	TC	MGU-H	MGU-K	ES	CE
Hamilton	Mercedes	3	3	3	2	2	2
Bottas	Mercedes	4	4	4	3	3	3
Vettel	Ferrari	3	3	3	2	2	2
Räikkönen	Ferrari	3	3	3	2	2	2
Ricciardo	Red Bull	5	5	5	5	4	4
Verstappen	Red Bull	4	4	4	4	3	3
Perez	Force India	3	3	3	2	2	2
Ocon	Force India	3	3	3	2	2	2
Stroll	Williams	3	3	3	2	2	2
Sirotkin	Williams	3	3	3	2	2	2
Hülkenberg	Renault	5	6	5	4	4	4
Sainz	Renault	4	4	4	3	3	3
Hartley	Toro Rosso	8	8	8	7	3	4
Gasly	Toro Rosso	8	8	8	6	3	3
Grosjean	Haas	3	3	3	2	2	2
Magnussen	Haas	3	3	3	2	2	2
Alonso	McLaren	4	4	4	4	3	3
Vandoorne	McLaren	4	4	4	3	3	3
Ericsson	Sauber	4	3	3	2	3	2
Leclerc	Sauber	3	3	3	2	2	2

Standings after 19 races

Drivers' Championship

1	Lewis Hamilton	358
2	Sebastian Vettel	294
3	Kimi Raikkonen	236
4	Valtteri Bottas	227
5	Max Verstappen	216
6	Daniel Ricciardo	146
7	Nico Hulkenberg	69
8	Sergio Perez	57
9	Kevin Magnussen	53
10	Fernando Alonso	50

Constructors' Championship

1	Mercedes	585
2	Ferrari	530
3	Red Bull Racing	362
4	Renault	114
5	Haas	62
6	McLaren	59
7	Force India	47
8	Sauber	36
9	Toro Rosso	33
10	Williams	7

21-race calendar for 2019 confirmed

Lately, the World Motorsport Council confirmed a 21-race F1 calendar for 2019. For the moment, the new Commercial Rights' Holder hesitated to expand the calendar above the current limit of 21 races.

With this number of Grands Prix, the 2019 season will see the same record-equalling number of events as the 2016 and 2018 season. However, FOM looks beyond that number for the near future as it looks set to conclude contracts with new venues like Vietnam, Miami or Denmark.

The 21-race-long calendar is shockingly long considering that the inaugural season of the sport saw only seven races. This number has gradually increased over the years. Until 1972, twelve races was the norm. The 1977 season featured the first ever season with 17 venues, a record which remained unbeaten until 2004 when the season stretched over 18 races. In the following year, the 2005 world championship season consisted of 19 races. 2012 set a new record with 20 races which was then defeated by the 2016 campaign when the F1 Championship was contested over 21 races.

The increase of races over the history of Formula One is evident when comparing the first and last decade of the sport. In the first ten years, between 1950 and 1959, 84 Formula One championship races were held while the last decade, between 2010 and 2019, will see a total of 198 events by the end of 2019.

Next season will kick off in Australia on 17th of March and come to an end in Abu Dhabi on the 1st of December, becoming the Grand Prix held at the latest date so far.

17 March	Australia	Melbourne
31 March	Bahrain	Sakhir
14 April	China	Shanghai
28 April	Azerbaijan	Baku
12 May	Spain	Barcelona
26 May	Monaco	Monaco
9 June	Canada	Montreal
23 June	France	Le Castellet
30 June	Austria	Spielberg
14 July	Great Britain	Silverstone
28 July	Germany	Hockenheim
4 August	Hungary	Budapest
1 September	Belgium	Spa
8 September	Italy	Monza
22 September	Singapore	Singapore
29 September	Russia	Sochi
13 October	Japan	Suzuka
27 October	Mexico	Mexico City
3 November	USA	Austin
17 November	Brazil	São Paulo
1 December	Abu Dhabi	Yas Marina

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