

THE OFFICIALS NEWSLETTER

2019 FORMULA 1 EMIRATES UNITED STATES GRAND PRIX





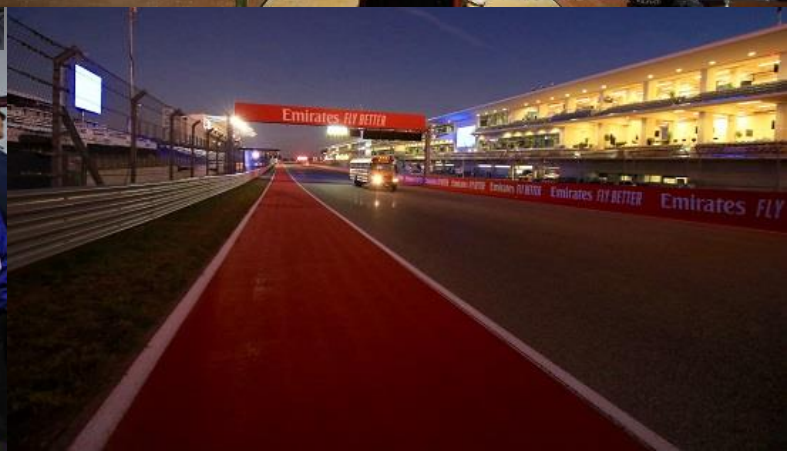
















EXTRICATION PRACTICE

At every F1 weekend the FIA Medical Staff conduct Extrication Practice with the local medical/safety crews. Each race it is held with a different team, and each team has to do it twice a year. For USGP it was with McLaren, who provided the bubble-wrapped car of Carlos Sainz. The practice is supervised by FIA Medical Delegates, Dr. Alain Chantegret and Dr. Ian Roberts of England. Other doctors involved include USGP Chief Medical Officer, Dr. Greg Summerville, well-known in the US from his work with IMSA, SRO, World Challenge, Blancpain GT, etc. Positioned around the circuit are three Medical Intervention Vehicles with doctors and medical personnel. At Start-Finish Roberts sits in the Medical Car with driver Alan van Der Merwe. They are all trained in extrication techniques.

An appropriately sized mechanic fills in the role of driver, complete with suit, HANS, etc. This year the extrication includes a new factor - the Halo, which is a permanent fixture on the cockpit. This means those doing the extrication have to stand tall and pull straight up and high when lifting the driver from the cockpit. Long arms on the staff are helpful also, as it's a long reach for the extractors to insert the leg straps under the driver's legs for the pull up. The driver is then carefully placed on an inflatable mattress which is wrapped around him like a cocoon and pumped up











BIOMETRIC GLOVES

What would you talk about while you sit in the front seat of the FIA Medical Car during a F1 session? Dr. Ian Roberts and Alan van Der Merwe discussed ways to improve the medical care to drivers by careful monitoring. The idea of biometrics came to them and they formed Signal Biometrics in 2016 to produce the technology, which is now available to the four FIA-approved drivers glove manufacturers - Alpinstar, Puma, OMP, and Sparco. They collaborated with the Global Institute, which worked with FIA and is now incorporated into it.



This year FIA has mandated that all F1 and FE drivers wear biometric gloves. They had been used by some teams in the past, but this year they are compulsory in FIA's two top-tier series. Basically, they are the standard F1 racing gloves with sensors on the palms embedded into micro fabric. The sensors are fireproof and similar to hospital sensors, such as those used to measure O2 levels. The biometrics are integral into the glove. The electronic pack is transferable, so it can be moved from one set of gloves to another.

The captured data, which is encrypted for security, includes the oxygen levels in the blood, pulse and hand motion. The data is transmitted from a transmitter in the glove to the doctor in the medical car. The information will go to a small app on the doctors' smart phone. When the phone app is paired to the driver it pulls all the data to the present. The miniature transmitter and core electronics make the gloves a proper clinical instrument.

The self-contained battery, which fits into a pocket in the wrist of the glove, has to be charged overnight - wirelessly by laying on a pad. Eventually the two inventors hope to have a battery which can go for the entire race weekend or longer. The gloves are washable, and can last up to six months. Some drivers wear theirs for a long time, while others, such as Lewis Hamilton, change gloves daily.
The next battery to be homologated will be smaller - half as large but twice as powerful.

The two inventors have been working on better software to provide better communication with the Medical Car and the Medical Delegate in Race Control. At this event, that person is Dr. Alain Chantegret (FIA) who is accompanied by Dr. John Sabra, USGP Chief Medical Office. Specifics on the upgrade can't be discussed yet, but Dr. Roberts is hopeful have more news by the race in Brazil or Abu Dhabi.



While there has been no interest yet shown by any American racing series, there has been contact by American glove manufacturers. The Signal Biometrics company has been looking at other uses for biometrics. They already produce the radio ear pieces used by the F1 drivers for their helmets, as well as ear accelerometers. The ear pieces contain some sensors and telemetry as well as radio connections.

Alan van der Merwe is a South African race car driver now based in London, and he has been the F1 Medical Car Driver since 2009. His racing background includes many forms of open wheel racing and test driver for BAR Honda F1 team. Dr. Ian Roberts, a British consultant in anesthesia based in London, has been the F1 Medical Delegate for the past seven years; and he is also the FIA Medical Rescue Coordinator - he organizes the F1 Extrication practice which is held in pit lane the day before the first F1 practice. This year at USGP that practice will be in the McLaren garage area. Roberts is a member of the FIA Medical Commission, as well as the FIA Land Speeds Commission. Riding in the back seat of the Medical Car at USGP is Dr. James Kempema. Dr. Roberts and van Der Merwe attend all Grands Prix. The USGP CMO and 'back seat doctor' are only for USGP.

BRAKING BY BREMBO

The Texas track stands out for its impressive uphill straightaway that leads to the first left-hand turn: the drivers don't see the corner until the very last second, so there is great risk of getting the braking point wrong.

A similar problem could occur at turn 11, but the opposite could happen on other points of the track.

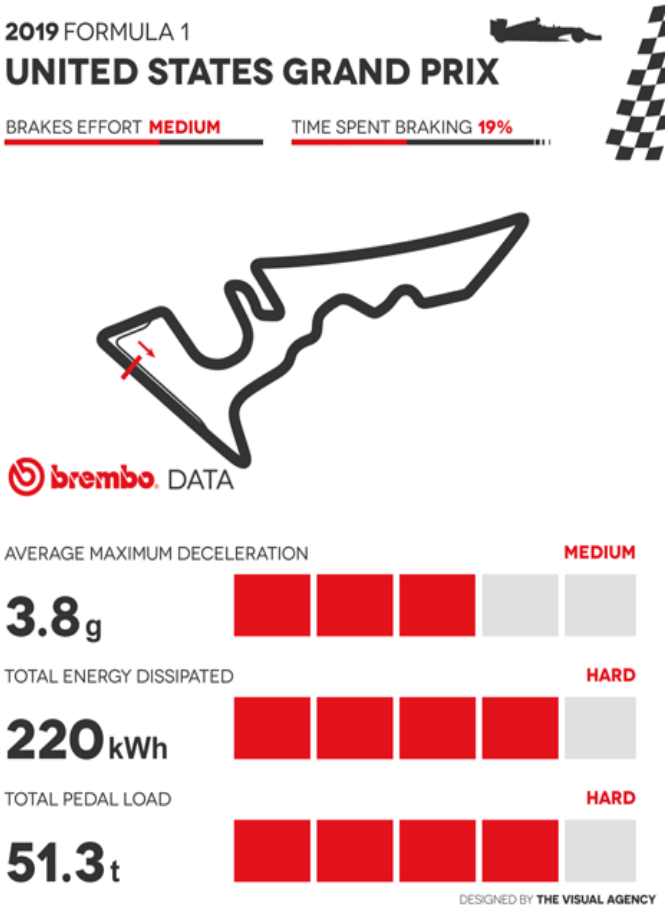
The elevation gain between the lowest stretch of the track and the highest is 41 meters (135 feet).

According to Brembo technicians, who have ranked the 21 World Champion circuits, Circuit of the Americas presents a mid-level difficulty on the brakes. On a scale of 1 to 5, it earned a 3 on the difficulty index.

The Formula 1 drivers use their brakes on only 9 of the 20 corners, which is three less than the MotoGP riders.

The grip guaranteed by the four tires means the cars don't need to brake on turns 3, 6 and 16.

To complete one lap on the Austin track, the brakes on each Formula 1 car are applied for 17 seconds, compared to the 37 seconds the MotoGP bikes need. On average during the United States GP, the Formula 1 cars apply their brakes for 16 minutes, which is 19% of the overall duration of the race. The average peak deceleration per lap is 3.8 G, but there are four corners where this gets up to at least 4.7 G. The energy dissipated in braking throughout the GP by one single-seater however, is high: 220 kWh, which is the same of the Bahrain GP. Instead the load applied to the brake pedal by each driver from the starting line to the checkered flag is not among the heaviest in the World Championship: 51.3 tons, which is a quarter less that of the Singapore GP. In other words, each driver is required to apply a force



Of the 10 braking sections on Circuit of the Americas, Brembo technicians have classified three as demanding on the brakes, one is medium difficulty and five are light. The cars approach turn 12 after having traveled the long straightaway and taken advantage of the DRS system. The single seater speed loose almost 240 km/h (149 mph) in order to set the braking point up right. They go from 333 km/h (207 mph) to 94 km/h (58 mph) in just 2.52 seconds and 125 meters (410 feet). To perform like this, the drivers are subject to 5.8 G in deceleration and apply a load of 188 kg (414 lbs). on the brake pedal. The speed lost in braking on the first corner is just below this, but since this stretch is uphill, it requires time to complete the operation: 2.35 seconds are needed to go from 319 km/h (198 mph) to 104 km/h (65 mph) in 118 meters (387 feet). The load on the brake pedal is 158 kg (348 lbs). and the deceleration is 5.2 G. A little shorter but just as significant is the braking on turn 11: 295 km/h (183 mph) to 81 km/h (50 mph) in 2.62 seconds and 113 meters (371 feet). with an average deceleration of 5.2 G. Braking on the last corner requires 92 meters (302 feet). On the contrary, only 45 meters (148 feet). are needed for the small braking section at turn 8.

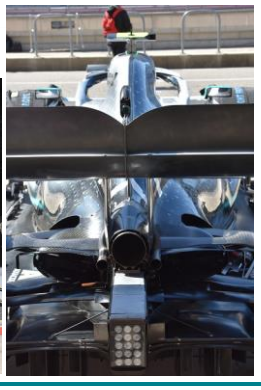
Single-seaters with Brembo brakes have won the last six United States GP races contested on Circuit of the Americas. More generally, Brembo brakes have been victorious at 23 GP races held in the United States, 13 of which were with Ferrari.

Article source Brembo (www.brembo.com)

























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FORMULA 1 EMIRATES UNITED STATES GRAND PRIX 2019

AUSTIN - SELECTED SETS

DRIVER	WHITE HARD C2	YELLOW MEDIUM C3	RED SOFT C4
#44 HAMILTON	2	3	8
#77 BOTTAS	1	4	8
#5 VETTEL	2	3	8
#16 LECLERC	1	3	9
#33 VERSTAPPEN	1	4	8
#23 ALBON	1	4	8
#3 RICCIARDO	1	2	10
#27 HULKENBERG	2	1	10
#20 MAGNUSSEN	2	2	9
#8 GROSJEAN	1	3	9
#55 SAINZ	2	3	8
#4 NORRIS	2	3	8
#11 PEREZ	2	2	9
#18 STROLL	2	2	9
#7 RAIKKONEN	1	3	9
#99 GIOVINAZZI	2	2	9
#26 KVYAT	1	3	9
#10 GASLY	2	2	9
#63 RUSSELL	2	2	9
#88 KUBICA	1	3	9

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