

## 2019 AZERBAIJAN GRAND PRIX

25 - 28 April 2019

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<b>From</b>	The FIA Formula One Technical Delegate	<b>Document</b>	49
<b>To</b>	The Stewards	<b>Date</b>	28 April 2019
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### Technical Delegate's Report

#### Before the race:

Clutch paddle linearity checks have been carried out on car numbers 44, 77, 05 and 33.

A front wing deflection test was carried out on car numbers 11, 07 and 26.

A front wing flap deflection test was carried out on car numbers 11, 07 and 26.

A fuel sample was taken from car numbers 44, 10 and 55 and analysed during the race.

An engine oil sample was taken from car numbers 55 and 99.

On the grid it was checked that all cars had fitted their tyres when the "3-Minutes" signal was given.

On the grid the temperature of the LHS and RHS front and rear tyre was checked on car numbers 77, 16, 20, 04 and 23.

On the grid the minimum tyre starting pressure of the LHS and RHS front and rear tyre was checked on all cars.

#### After the race:

The following cars were weighed:

<b>Number</b>	<b>Car</b>	<b>Driver</b>
44	Mercedes	Lewis Hamilton
77	Mercedes	Valtteri Bottas
05	Ferrari	Sebastian Vettel
16	Ferrari	Charles Leclerc

33	RBR Honda	Max Verstappen
27	Renault	Nico Hülkenberg
20	Haas Ferrari	Kevin Magnussen
55	McLaren Renault	Carlos Sainz
04	McLaren Renault	Lando Norris
11	Racing Point Mercedes	Sergio Perez
18	Racing Point Mercedes	Lance Stroll
07	Alfa Romeo Ferrari	Kimi Räikkönen
23	Toro Rosso Honda	Alexander Albon
63	Williams Mercedes	George Russell

The steering wheel of all classified cars has been checked.

Car numbers 16, 55, 18 and 07 were checked for the following:

- 1) Bodywork around the front wheels
- 2) Front wing height and overhang
- 3) Rear wing height and overhang
- 4) Front and rear wing width
- 5) Rear wing configuration
- 6) Rear bodywork area
- 7) Rear winglet height
- 8) Skidblock thickness
- 9) Stepped bottom
- 10) Diffuser height
- 11) Diffuser area
- 12) Overall height
- 13) Overall width

The profile of the in Article 3.3.1 of the 2019 Formula One Technical Regulations prescribed front wing section was checked on car numbers 16, 55, 18 and 07.

The minimum distance between the adjacent rear wing sections at any longitudinal vertical plane was checked on car numbers 16, 55, 18 and 07.

It was confirmed for car numbers 16, 55, 18 and 07 that any vertical cross section of bodywork normal to the car centre line and situated in the volumes defined in Article 3.5.7 form one tangent continuous curve on its external surface with a radius no less than 75mm.

The concave radius of sections of the two rear wing elements which are in contact with the external air stream was checked on car numbers 16, 55, 18 and 07.

The front and rear brake air duct dimensions were checked on car numbers 16, 55, 18 and 07.

A front wing flap deflection test was carried out on car numbers 16, 55, 18 and 07.

It was confirmed for car numbers 77 and 04 that the minimum weight of 743 kg was respected at all times during the race.

It was checked that car numbers 44, 77, 05, 16, 33, 03, 27, 08, 20, 55, 04, 11, 18, 99, 26, 23 and 63 did not exceed 80 km/h when leaving the formation grid prior to the start of the race.

The race start data of all cars have been checked.

The units locking status was checked on all cars.

The session type has been confirmed for all cars.

Chassis FIA checksum was checked on all cars taking part in the race.

Single clutch paddle use for the race start has been checked on all cars.

The plenum temperature was checked on all cars.

The oil consumption was checked on car numbers 44, 77, 05, 16, 55, 04, 11, 18 and 07.

The IVT temperatures were checked on all cars.

The IVT code and calibration checksums were checked on all cars.

The MGU-K use at the race start was checked on car numbers 44, 77, 05, 16, 33, 55, 04, 18 and 07.

It was checked on car numbers 44, 77, 05, 16, 33, 55, 04, 18 and 07 that the ES was not charged while the car was stationary in the pits.

The ES state of charge on-track limits were checked on car numbers 44, 77, 05, 16, 33, 55, 04, 11, 18 and 07.

The lap energy release and recovery limits were checked on car numbers 44, 77, 05, 16, 33, 55, 04, 11, 18 and 07.

The maximum MGU-K speed was checked on car numbers 44, 77, 05, 16, 33, 55, 04, 11, 18 and 07.

The maximum MGU-K torque was checked on car numbers 44, 77, 05, 16, 33, 55, 04, 11, 18 and 07.

The MGU-K power limits were checked on car numbers 44, 77, 05, 16, 33, 03, 27, 55, 04, 11, 18 and 07.

The MGU-K power model was checked on car numbers 44, 77, 05, 16, 33, 03, 27, 55, 04, 18, 07, 63 and 88.

The ES power model was checked on car numbers 44, 77, 05, 16, 33, 03, 27, 55, 04, 18, 07, 63 and 88.

The maximum MGU-H speed was checked on car numbers 44, 77, 05, 16, 33, 55, 04, 18 and 07.

It was verified on all cars that the MD5 checksum of the PCU8 (dash board display) used on the car matched the configuration lodged with the FIA prior to the qualifying session.

The tyre starting pressures of all cars during the race were checked.

The tyres used by all drivers during the race today have been checked.

Fuel flow meter calibration checksums were checked on all cars.

The instantaneous fuel mass flow of all cars was checked.

The total fuel mass consumed by all cars during the race was checked.

The fuel temperature of all cars was checked.

A fuel sample was taken from car number 11.

The fuel samples have been checked for density and analysed by gas chromatography.

The results of all the fuel analyses show that the fuels were the same as ones, which had been approved for use by the relevant competitors prior to the Event.

Further the density change of the fuel samples taken today was within the permitted limits.

An engine oil sample was taken from car number 04.

The engine oil samples have been analysed by FTIR spectroscopy and viscometry.

The results of the FTIR analyses show that the sampled oils were consistent with reference engine oil samples which had been approved for use by the relevant competitors prior to the Event.

Apart from the front wing flap deflection test on car number 07 (see document 33), all car weights and the items checked were found to be in conformity with the 2019 FIA Formula One Technical Regulations.

**Jo Bauer**

**The FIA Formula One Technical Delegate**