

2019 SPANISH GRAND PRIX

9 - 12 May 2019

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| From | The FIA Formula One Technical Delegate | Document | 23 |
| To | The Stewards | Date | 11 May 2019 |
| | | Time | 19:10 |

Technical Delegate's Report

Before the third free practice session:

An engine oil sample was taken from car number 07.

During the third free practice session:

The tyre starting pressures of all cars during P3 were checked.

The IVT temperatures were checked on all cars.

The instantaneous fuel mass flow of all cars was checked.

The fuel temperature was checked on all cars.

The plenum temperature was checked on all cars.

The MGU-K power model was checked on car numbers 77, 33, 10, 03, 27, 55, 04, 11 and 88.

The ES power model was checked on car numbers 77, 33, 10, 03, 27, 55, 04, 11 and 88.

Before the qualifying practice session:

An engine oil sample was taken from car numbers 05 and 88.

It was confirmed for all cars that the gear ratios used during the remainder of this Event belong to the gear ratios declared to the FIA technical delegate at or before the first Event of the 2019 Championship.

The thickness of the brake discs of all cars taking part in the qualifying session was checked.

During the qualifying practice session:

Car numbers 44, 77, 16, 03, 20, 55, 04, 11, 99 and 88 were weighed.

The weight distribution was checked on car numbers 44, 77, 16, 03, 20, 55, 04, 11, 99 and 88.

Car numbers 11 and 99 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) Stepped bottom
- 9) Diffuser height
- 10) Diffuser width
- 11) Overall height
- 12) 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 11 and 99.

The minimum distance between the adjacent rear wing sections at any longitudinal vertical plane was checked on car numbers 11 and 99.

It was confirmed for car numbers 11 and 99 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 11 and 99.

The front and rear brake air duct dimensions were checked on car numbers 11 and 99.

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

Fuel samples were taken from car numbers 27 and 23

After the qualifying practice session:

Car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26 were weighed.

Car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26 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) Stepped bottom
- 9) Diffuser height
- 10) Diffuser width
- 11) Overall height
- 12) Overall width

The chassis identification transponders have been confirmed for car numbers 44, 77, 05, 16, 10, 03, 20 and 26.

The profile of the prescribed front wing section in Article 3.3.1 of the 2019 Formula One Technical Regulations was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The minimum distance between the adjacent rear wing sections at any longitudinal vertical plane was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26

It was confirmed for car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26 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 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The front and rear brake air duct dimensions were checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

A front floor deflection test was carried on car numbers 77, 33 and 08.

The flatness of the reference and step plane and their position to each other was checked on car numbers 77, 33 and 08.

The uppermost rear wing element adjustable positions were checked on car numbers 44, 05, 10, 03, 20 and 26.

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 qualifying sessions.

Torque sensor software version checks have been carried out on all cars.

Torque sensor calibration checks have been carried out on all cars.

The plenum temperature was checked on all cars.

The oil consumption was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

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

The IVT temperatures were checked on all cars.

The ES state of charge on-track limits were checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The lap energy release and recovery limits were checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The maximum MGU-K speed was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The maximum MGU-K torque was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The MGU-K power limits were checked on all cars.

The maximum MGU-H speed was checked on car numbers 44, 77, 05, 16, 33, 10, 03, 08, 20 and 26.

The MGU-K power model was checked on all cars.

The ES power model was checked on all cars.

Gear shift data checks have been carried out for car numbers 05, 16 and 03.

It was checked that all cars did not exceed 15000 rpm during the qualifying practice session.

The fuel pressure of all cars during the qualifying session was checked.

The logged pressure within the engine cooling system during the qualifying session was checked on all cars.

The tyres used by all drivers during the sessions 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 fuel temperature of all cars was checked.

Fuel samples were taken from car numbers 05, 33 08

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

The results of 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.

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.

The following software versions have been used by the teams during the qualifying sessions:

| Team | FIA Standard ECU system version |
|----------------------------------|--|
| Mercedes AMG Petronas Motorsport | SR1112 + B108 |
| Scuderia Ferrari Mission Winnow | SR1112 + B108 |
| Aston Martin Red Bull Racing | SR1112 + B108 |
| Renault F1 Team | SR1113 + B108 |
| Rich Energy Haas F1 Team | SR1112 + B108 |
| McLaren F1 Team | SR1113 + B108 |
| SportPesa Racing Point F1 Team | SR1112 + B108 |
| Alfa Romeo Racing | SR1112 + B108 |
| Red Bull Toro Rosso Honda | SR1112 + B108 |
| ROKiT Williams Racing | SR1112 + B108 |

All the above items were found to be in conformity with the 2019 FIA Formula One Technical Regulations.

Jo Bauer

The FIA Formula One Technical Delegate