



# 2024 SINGAPORE GRAND PRIX

## 20 - 22 September 2024

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<b>From</b>	The FIA Formula One Technical Delegate	<b>Document</b>	48
<b>To</b>	The Stewards	<b>Date</b>	22 September 2024
		<b>Time</b>	23:20

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### Technical Delegate's Report

#### Before the Race:

The following parts have been replaced today after 17:55 and before the start of the race:

#### Red Bull Racing Honda RBPT:

Car 11: Headrest

#### Aston Martin Aramco Mercedes:

Car 18: Front brake friction material

Components of all cars were checked and compared with the information supplied by the relevant team's **Used Inventory Incremental List (UUIL)**.

A spare lhs rear corner of the BWT Alpine F1 Team was digitally scanned and the scanned data were compared with the team declared CAD drawings. Further the team declared CAD drawings were also compared with previously submitted versions and checked for conformance with the 2024 Formula One Technical Regulations.

The minimum distance between the adjacent rear wing sections at any longitudinal vertical plane was checked on car numbers 01, 63, 44, 16, 04 and 22.

The uppermost rear wing element adjustable positions were checked on car numbers 01, 63, 44, 16, 04 and 22.

A vertical and angled rear wing mainplane deflection test was carried out on car number 18.

A rear wing flap deflection test was carried out on car number 18.

The front wing gurneys of car numbers 01, 11, 55, 16, 04, 81, 10, 31, 24 and 27 were checked.

A symmetric and asymmetric front wing deflection test was carried out on car numbers 01, 63, 04 and 14.

A front wing flap deflection test was carried out on car numbers 01, 63, 04 and 14.

A fuel sample was taken from car numbers 11, 16 and 23 and analysed during the race.

An engine oil sample was taken from car numbers 16 and 23.

On the grid it was checked that all cars had fitted their tyres and the tyre heating blankets were disconnected, when the "5-Minutes" signal was given.

On the grid the temperature of the LHS and RHS front and rear tyre was checked on car numbers 01, 44, 55, 81, 04, 14, 31, 23, 43 and 20.

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>
01	Red Bull Racing Honda RBPT	Max Verstappen
11	Red Bull Racing Honda RBPT	Sergio Perez
63	Mercedes	George Russell
44	Mercedes	Lewis Hamilton
16	Ferrari	Charles Leclerc
55	Ferrari	Carlos Sainz
81	McLaren Mercedes	Oscar Piastri
04	McLaren Mercedes	Lando Norris
18	Aston Martin Aramco Mercedes	Lance Stroll
14	Aston Martin Aramco Mercedes	Fernando Alonso
31	Alpine Renault	Esteban Ocon
10	Alpine Renault	Pierre Gasly
43	Williams Mercedes	Franco Colapinto
03	RB Honda RBPT	Daniel Ricciardo
22	RB Honda RBPT	Yuki Tsunoda
77	Kick Sauber Ferrari	Valtteri Bottas
24	Kick Sauber Ferrari	Zhou Guanyu

The following aerodynamic component or bodywork areas were checked on car numbers 63, 55 and 14:

- Floor Body - TR Article 3.5.1
- Floor Fences - TR Article 3.5.2
- Floor Edge Wing - TR Article 3.5.3
- Bib - TR Article 3.5.4
- Nose - TR Article 3.6.1
- Forward Chassis - TR Article 3.6.2
- Mid Chassis - TR Article 3.6.3
- Mirror Housing - TR Article 3.6.4
- Sidepod - TR Article 3.7.1
- Coke Panel - TR Article 3.7.2
- Engine Cover - TR Article 3.7.3
- Tail - TR Article 3.8.1
- Front Wing Profiles - TR Article 3.9.1
- Front Wing Endplate body - TR Article 3.9.2
- Front Wing Tip - TR Article 3.9.3
- Front Wing Diveplane - TR Article 3.9.4
- Front Wing Endplate - TR Article 3.9.5
- Rear Wing Profiles - TR Article 3.10.1
- Pylons - TR Article 3.10.2
- Rear Wing Beam - TR Article 3.10.3
- Rear Wing Endplate Body - TR Article 3.10.4
- Rear Wing Tip - TR Article 3.10.5
- Rear Wing Endplate - TR Article 3.10.7

The plank and skid wear was checked on car numbers 01, 04 and 18.

The fuel pressure of all cars during the race was checked.

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

The engine high rev limit bands were checked on all cars.

Fuel flow meter calibration checksums were checked on all cars.

The instantaneous fuel mass flow of all cars was checked.

The partial load fuel mass flow of all cars was checked.

The fuel temperature of all cars was checked.

The plenum temperature was checked on all cars.

The oil consumption was checked on all cars.

The exhaust fluid mass flow of all cars was checked.

The IVT temperatures were checked on all cars.

The ES state of charge on-track limits were checked on all cars.

The lap energy release and recovery limits were checked on all cars.

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

The maximum MGU-K speed was checked on all cars.

The maximum MGU-K torque was checked on all cars.

The maximum MGU-H speed was checked on all cars.

The MGU-K use at the race start was checked on all cars.

It was checked on all cars that the ES was not charged while the car was stationary in the pits.

The torque coordinator demands were checked on all cars.

The torque control 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.

The rear brakes pressure control was checked on all cars.

The brake temperature warnings were checked on all cars.

The steering wheel of all cars has been checked.

The race start data of all cars have been checked.

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

It was checked that no car exceeded 60 km/h when leaving the formation grid prior to the start of the race.

It was verified on all cars that the PCU dash display configuration was not changed during Parc Fermé.

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.

A fuel sample was taken from car number 04.

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 Competition.

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 Competition.

All car weights and the items checked were found to be in conformity with the 2024 FIA Formula One Technical Regulations.

**Jo Bauer**

**The FIA Formula One Technical Delegate**