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STEERING WHEEL ARRANGEMENT OF A FORMULA 1 RACING CAR

Fillipov T. A., student
Scientific supervisor – Bankovskaya I. N., lecturer
English language department №1
Belarusian National University of Technology
Minsk, Republic of Belarus

Don't click without a hint! What are all these buttons and levers on the steering wheel of Formula 1 for?

The steering wheel of any Formula 1 car is the realm of levers, buttons and petals. But what do they all mean and what secrets are hidden in the “steering wheel”?

In modern Formula 1 cars, the steering wheel is more like a steering wheel. The wheels turn at a limited angle, and it is not necessary to intercept the “steering wheel” – to turn a maximum of three quarters of a turn in each direction, a full circle is no longer needed, therefore the steering wheel is truncated from above and below, and rubberized sectors are made on the sides for better grip with racing gloves.

In addition, this allows you to meet the standard of the international automobile Federation of the FIA for leaving the cockpit in 7 seconds – during this time you need to unfasten your seat belts, remove the steering wheel, get out of the car and install the steering wheel back [2]. Therefore, a mount is installed on the steering column, on which the steering wheel itself is mounted with a round latch – in addition to the physical connection with the shaft, it also provides the docking of electrical connectors with the electrics of the car.

Well, the Renault team made it possible to understand the detailed design of the steering wheel of a modern Formula 1 car, which provided the Renault R.S.18 steering wheel for study, and the team's engineers acted as guides to the controls.

The first thing that catches your eye is the display and a row of LEDs above it and on both sides of it. The screen displays a lot of information about the operation of the car's systems, instructions from the FIA, a flag alarm and even some kind of messenger, since on the pit wall it is possible to send short coded messages on various topics to the pilot's monitor:

from problems with the car to changes in tactics. In Renault, pilots have the ability to switch between three pages on the display.

LEDs on the top of the steering wheel display the engine speed and notify the moment of gear change, three diodes on the right inform about the state of the battery level of the hybrid system, and three diodes on the left show when DRS can be activated – and at the moment when they light up, a buzzer is triggered in the pilot's headphones, so that the moment of turning on the wing can be determined and by ear [1].

Below the display is a Renault branded diamond. Moreover, this is only now a sticker, and before there was a full-fledged nameplate, but it was abandoned in 2015 – then the display from the front wall of the cockpit moved to the steering wheel and it was necessary to choose: either a pretentious logo or a large diagonal screen.

The largest switch is located in the center of the steering wheel. As you can see in the photo, it is a rotating selector that can be set to 14 different values. And if in Renault each of the sectors means one thing, then in the other team both the names and the essence of these meanings are different.

Actually, in each color sector, some kind of message from the racer to the team is encrypted, which only the pilot and his racing engineers can decrypt.

As a rule, we are talking about transmitting data about a malfunction or technical problem with a particular machine system. And no matter how I tortured Renault's engineers, they mysteriously smile and say – the meaning of these abbreviations remains a mystery to the pilot and his team of engineers.

But, apparently, using the switch, you can report, offhand, problems with tires, gearbox, aerodynamics, and this is only if we talk about those designations that are obvious.

References

1. How Does a Formula 1 Steering Wheel Work? [Electronic resource] – Mode of access: <https://www.f1chronicle.com>. – Date of access: 20.03.2024.

2. Formula 1 Racing Car Steering Wheel Design [Electronic resource] – Mode of access: <https://www.championat.com/auto/article-3440821-kak-ustroen-rul-gonochnogo-bolida-formuly-1.html>. – Date of access: 22.03.2024.