



2024 EMILIA ROMAGNA GRAND PRIX

17 - 19 May 2024

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- Enclosed 2024 Emilia Romagna Grand Prix Car Presentation Submissions.pdf

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Car Presentation – Emilia Romagna Grand Prix ORACLE RED BULL RACING

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Front Wing	Performance - Local Load	Endplate leading edge repositioned and profiles 3 and 4, flap elements redesigned to extend the chord.	More load has been extracted from the flap by extending the chord length. In changing the moving flap geometry, the fixed flap elements into the nosebox had to be revised as the parts cannot be treated in a modular fashion. The endplate leading edge revison improves the stability in yaw.
2	Floor Edge	Performance - Local Load	Shedding edges of the forward portion of the edge wing re-positioned.	From CFD research the shedding edges under the wing were re-positoned to extract locally more load whilst maintianing the flow stability criteria.
3	Rear Corner	Circuit specific - Cooling Range	rear wheel bodywork revised to improve the brake cooling exit condition.	More efficient rear brake cooling has been achieved by re-profiling the exit duct geometry for a given intake. By consequence the local winglets adjacent to the exit were re-optimised.
4	Floor Body	Performance - Flow Conditioning	the upper surface ahead of the edge wing has been slightly lowered	Again from CFD, the upper surface of the floor has been revised to improve the onset flow to parts downstream improving the load generated.
5	Nose	Performance - Local Load	fairings on the nosebox revised to meet the revised flap elements and the camera stubs revised	Consequentially to the flap elements revision, the nosebox fairings were revised to meet and blend the nosebox junction. Camera stubs have been revised to be better suited to the local flow.

















MERCEDES-AMG PETRONAS F1 TEAM

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Floor Fences	Performance - Flow Conditioning	Small modification to fence alignment.	Improves flow quality to the rear of the floor, which in turn improves diffuser and rear load throughout the ride height range.
2	Floor Body	Performance - Local Load	Modification to the floor tunnel volume.	The tunnel volume change alters the trajectory of the fence and floor edge vortex systems, the result being increased local load.
3	Rear Wing	Circuit specific - Drag Range	Modification to upper wing tip shedding detail.	Increasing the length of the flap tip shedding edge results in more local load and upper wing efficiency suited to this circuit.
4	Beam Wing	Circuit specific - Drag Range	New biplane beam wing.	Biplaning the beam wing improves its local efficiency and also how it interacts with the upper wing and the diffuser.
5	Front Corner	Circuit specific - Cooling Range	Improved internal brake ducting.	Improved design of the internal duct feeding the front brake disc resulting in reduced pressure drop and increased mass flow.

















SCUDERIA FERRARI

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Front Wing	Performance - Flow Conditioning	Updated flap profile, adjuster position and tip details	Minor front wing update with revised flap and tip loadings, aiming at improving performance and efficiency across the polar range. This goes in conjunction with the rest of the car upgrades
2	Rear Wing	Performance - Drag reduction	Swept flap tip and enlarged mainplane to endplate roll junction	Not specific to the Imola circuit requirements, the rear wing tip / mainplane roll junction have been re- designed in order to improve the overall efficiency
3	Sidepod Inlet	Performance - Flow Conditioning	New P-shape inlet, forward top lip and updated cockpit device	The new bodywork features a new sidepod and inlet that improves flow quality over the floor edge. A new cockpit device has also been implemented on the side of the halo to manage better losses travelling downstream
4	Coke/Engine Cover	Performance - Flow Conditioning	Reduced volume and reworked cooling exit	The engine cover volume has been reduced, improving flow quality towards the back of the car. Cooling exit topology evolves but main modulation remains via gills arrangement.
5	Floor Edge	Performance - Flow Conditioning	Revised rearward slot and trailing edge volume	In conjunction with the bodywork evolution, a revised floor edge is introduced, turning the sidepod onset benefits into better flow energy delivery to the diffuser
6	Diffuser	Performance - Local Load	Updated channel profile and outboard diffuser expansion	Working together with the rest of the upgrade and the upstream changes, the diffuser expansion has been re-optimized and offers a load increase in return





7	Rear Suspension	Performance - Local Load	Reprofiled rear top wishbone triangle fairing	Taking the benefits of the bodywork changes, rear suspension top wishbone fairing have been further developed, with positive interaction on rear wing and rear corner performance, resulting in a small
	Suspension	Local Load		and rear corner performance, resulting in a small
				load increase













MCLAREN FORMULA 1 TEAM

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Rear Wing	Circuit specific - Drag Range	More loaded Rear Wing Assembly	A new, more loaded Rear Wing Assembly has been designed with the aim of efficiently increasing Downforce suitable for low isochronal circuits.
2	Beam Wing	Circuit specific - Drag Range	More loaded Beam Wing Assembly.	In conjuction with the more loaded Rear Wing Assembly, a new Beamwing has been designed, which supports to increase the overall efficiency of the assembly.













ASTON MARTIN ARAMCO FORMULA ONE TEAM

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Front Wing	Performance - Local Load	Central section of the wing has a revised front view shape and incidence to the first element along with some changes to the slot gap separator arrangement.	The changes create a revised loading distribution on the lower surface of the wing to improve performance through the operating range.
2	Nose	Performance - Local Load	The tip of the nose has some volume added to suit the FW changes.	The changes to the nose are cosmetic at the tip to suit the revised front wing surfaces and slot gap separator layout.
3	Floor Body	Performance - Local Load	The main body of the floor has evolved slightly with the fences and floor edge.	The revised shapes improve the flowfield under the floor increasing the local load generated on the lower surface and hence performance.
4	Floor Fences	Performance - Local Load	The fences are redistributed across the LE of the floor with revised curvature.	The revised shapes improve the flowfield under the floor increasing the local load generated on the lower surface and hence performance.
5	Floor Edge	Performance - Local Load	Small changes to the details of the floor edge wing and the main floor inboard of this.	The revised shapes improve the flowfield under the floor increasing the local load generated on the lower surface and hence performance.
6	Diffuser	Performance - Local Load	The diffuser is a slightly modified shape with revised top surface.	The changes to the shape modify the expansion in the diffuser to improve flow characteristics and the load generated on the surfaces.
7	Coke/Engine Cover	Performance - Local Load	Revised central trim to the centre of the engine cover, smaller than the previous trimmed version.	This is a cooling option and reduces the massflow allowed to exit in this area, use will depend on the cooling requirements of the event.
8	Rear Suspension	Performance - Local Load	The external fairings are revised, but the structural components are not changed.	The rear suspension and corner work together to improve the flow around the rear wheel to generate load and increase car performance





9	Rear Corner	Performance - Local Load	Reduced inlet area and a revised inboard face with a more distinct exit and revised vanes.	The rear suspension and corner work together to improve the flow around the rear wheel to generate load and increase car performance
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BWT ALPINE F1 TEAM

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Floor Edge	Performance - Flow Conditioning	Floor flank 'stay' will be tested on Friday that increases floor stiffness in front of the rear tyre.	This reduces floor deflection at high-speed, which affects the flow around the rear tyres. This will be tested on one car on Friday







WILLIAMS RACING

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Floor Body	Reliability	There are no geometric differences to the aerodynamic surfaces but the laminate has been changed to reduce the mass of the floor.	The update only delivers a mass reduction, which is done without compromising the aerodynamic performance of the floor. Reduced weight improves the performance in all regards.















VISA CASH APP RB FORMULA ONE TEAM

No updates submitted for this event.





STAKE F1 TEAM KICK SAUBER

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Floor Fences	Performance - Flow Conditioning	Floor fences forward extension, changes to forward floor volume	The extension of the floor fences, as well the redefined surface in the front part, increases downforce and improves the aerodynamic efficiency of the package.











MONEYGRAM HAAS F1 TEAM

	Updated component	Primary reason for update	Geometric differences compared to previous version	Brief description on how the update works
1	Front Wing Endplate	Performance - Flow Conditioning	Re-shaped FW Endplate	Aim of this geometrical change is to influence the flow impacting the front tyre, by reducing the wake of the tyre itself and re-directing high energy flow towards the rear end of the car.
2	Rear Suspension	Performance - Flow Conditioning	Re-shaped top wishbone fairings	The top wishbone fairings were reshaped to be more compliant with the incoming flow and with the updated brake drum devices.
3	Rear Corner	Performance - Local Load	Lower winglet layout	The FIA prescribed lower winglet cluster was re- positioned to better work in conjunction with the diffuser and also to extract more local load.





