Proposals from F1 Commission for changes to the 2016 F1 Technical Regulations

3.8.1 Other than the rear view mirrors (including their mountings), each with a maximum area of 12000mm² and 14000 mm^2 when viewed from directly above or directly from the side respectively, no bodywork situated more than 330mm behind the front wheel centre line and more than 330mm forward of the rear wheel centre line, which is more than 600mm above the reference plane, may be more than ~~306mm~~ 320mm from the car centre line.

3.8.4 Any vertical cross section of bodywork normal to the car centre line situated in the volumes defined below must form one tangent continuous curve on its external surface. This tangent continuous curve may not contain any radius less than 75mm :

a) The volume between 50mm forward of the rear wheel centre line and 300mm rearward of the rear face of the cockpit entry template, which is more than 25mm from the car centre line and more than 100mm above the reference plane.

b) The volume between 100mm and 300mm rearward of the rear face of the cockpit entry template ~~and the rear face of the cockpit entry template~~, which is more than 125mm from the car centre line and more than 100mm above the reference plane.

c) The volume between 100mm rearward of the rear face of the cockpit entry template and 450mm forward of the rear face of the cockpit entry template, which is more than ~~356mm~~ 360mm from the car centre line and more than 100mm above the reference plane.

d) The volume between the rear face of the cockpit entry template and 450mm forward of the rear face of the cockpit entry template, which is more than 125mm from the car centre line and more than 695mm ~~675mm~~ above the reference plane.

The surfaces lying within these volumes, which are situated more than 55mm forward of the rear wheel centre line, must not contain any apertures (other than those permitted by Article 3.8.5) or contain any vertical surfaces which lie normal to the car centre line.

3.10.1 Other than the bodywork defined in Article 3.10.8, any bodywork behind a point lying 50mm forward of the rear wheel centre line which is more than 750mm above the reference plane, and less than 355mm from the car centre line, must lie in an area when viewed from the side of the car that is situated between the rear wheel centre line and a point 350mm behind it.

With the exception of ~~minimal parts solely~~ the bodywork associated with adjustment of the section in accordance with Article 3.18 :

a) When viewed from the side of the car, no longitudinal vertical cross section may have more than two sections in this area, each of which must be closed.

b) No part of these longitudinal vertical cross sections in contact with the external air stream may have a local concave radius of curvature smaller than 100mm.

Any bodywork associated with the adjustment of the rearmost section in accordance with Article 3.18 must be located either less than 25mm from the longitudinal centre line of car or more than 350mm from the longitudinal centreline of the car.

Once the rearmost and uppermost section is defined, 'gurney' type trim tabs may be fitted to the trailing edge. When measured in any longitudinal vertical cross section no dimension of any such trim tab may exceed 20mm.

The chord of the rearmost and uppermost closed section must always be smaller than the chord of the lowermost section at the same lateral station.

Furthermore, the distance between adjacent sections at any longitudinal vertical plane must lie between 10mm and 15mm at their closest position, except, in accordance with Article 3.18, when this distance must lie between 10mm and 65mm.

3.10.8 Any horizontal section between 600mm and 750mm above the reference plane, taken through bodywork located rearward of a point lying 50mm forward of the rear wheel centre line and less than ~~75mm~~ 100mm from the car centre line, may contain no more than two closed symmetrical sections with a maximum total area of 5000mm^2. The thickness of each section may not exceed 25mm when measured perpendicular to the car centre line.

Once fully defined, the section at 745mm above the reference plane may be extruded upwards to join the sections defined in Article 3.10.1. A fillet radius no greater than 10mm may be used where these sections join.

8.5 Telemetry :

8.5.1 All cars must be fitted with a telemetry system which has been manufactured by the FIA designated supplier to a specification determined by the FIA.

8.5.2 Telemetry systems must operate at frequencies which have been approved by the FIA.

8.5.3 Pit to car telemetry is prohibited.

14.6.3 Whilst he is seated normally the two further areas of padding for the driver's head must be positioned in an area bounded by two vertical lines and one horizontal line through the front, rear and lower extremities of the driver's helmet (on the car centre line), and the upper surface of the survival cell.

Each of these must cover an area greater than ~~33000mm²~~ 35750mm² when viewed from the side of the car and be no less than 95mm thick, this minimum thickness being maintained to the upper edges of the survival cell and over their entire length. The minimum thickness will be assessed perpendicular to the car centre line but a radius no greater than 10mm may be applied along their upper inboard edges.

If necessary, and only for driver comfort, an additional piece of padding no greater than 10mm thick may be attached to these headrests provided they are made from a similar material which incorporates a low friction surface.

15.4.7 Once the requirements of Articles 15.4.4, 15.4.6, 15.5.1, 15.5.2, 15.5.4, 15.5.5, 16.1, 16.2, 16.3, 17.1, 17.2, 17.3, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7 and 18.9 have been met, panels no less than 6.2mm thick must then be permanently attached to the survival cell sides. These panels must :

a) In a longitudinal sense, cover the area lying between the line B-B and a vertical plane 50mm to the rear of the rear edge of the cockpit entry template. A 50mm horizontal linear taper may be included at both ends.

b) In a vertical sense, cover the area lying between two horizontal planes 100mm and 550mm above the reference plane.

Furthermore, when viewed from the side, the panel must cover the cockpit entry template shown in side elevation in Drawing 2. Behind a vertical line which lies 375mm forward of the rear edge of the cockpit entry template a 20mm taper may be included at the top edge of the panel.

c) Be constructed from 16 plies of Zylon and two plies of carbon, precise lay-up details must be followed and may be found in the Appendix to the Technical Regulations.

d) Be permanently attached to the survival cell with an appropriate adhesive which has been applied over their entire surface.

Cut-outs in these panels totalling 35000mm² per side will be permitted for fitting around side impact structures, wiring loom holes and essential fixings. ~~For 2015 only, additional cut-outs totalling no more than 500mm² will be permitted in the parts of the panels which are located more than 550mm above the reference plane~~.

18.5 Cockpit rim tests :

Two pads, each of which is 50mm in diameter, must be placed on both sides of the cockpit rim with their upper edges at the same height as the top of the cockpit side with their centres at a point 250mm forward of the rear edge of the cockpit opening template longitudinally.

A constant transverse horizontal load of 50kN ~~15.0kN~~ will then be applied at 90° to the car centre line and, under the load, there must be no structural failure of the inner or outer surfaces of the survival cell ~~and the total deflection must not exceed 5mm~~.

This test must be repeated at positions 50mm and 150mm forward of the rear edge of the cockpit opening template longitudinally.

20.3.2 Any part provided by the Competitor for the purpose of aligning a camera or camera housing in positions 2 or 3 correctly will be considered part of the camera or housing provided it does not exceed 15mm in width and is being fitted for that sole purpose.

F1 Technical Regulations APPENDIX 4

TABLE 1 token allocation by PU function and "frozen" function by year

Function name		Function description	Tokens	For 2016	For 2017	For 2018	For 2019	For 2020
1	Upper/lower crankcase	Cylinder bore spacing, deck height, bank stagger.	2					
2	Upper/lower crankcase	All dimensions including Cylinder bore position relative to legality volume, water core.	3					
3	Cylinder Head	Except modifications linked to subsequent modifications.	2					
4	Combustion	All parts of parts defining combustion. Included: Ports, Piston crown, Combustion chamber, Valves geometry, timing, lift, injector nozzle, coils, spark plug Excluded: Valves position.	3					
5	Valves axis position	Includes angle but excludes axial displacement	2					
6	Valves drive	From valve to camshaft lobe. Position and Geometry. Exhaust and Inlet. Including valve return function inside the head.	2					
7	Valve drive - Camshafts	From camshaft lobe to gear train. Geometry except lift profile. Includes damping systems linked to camshaft. Exhaust and Inlet.	1					
8	Valve drive	Gear train down to crankshaft gear included. Position and Geometry. Includes dampers	2					
9	Covers	Covers closing the areas in contact with engine oil Cam covers, Cam-timing covers…	1					
10	Crankshaft	Crank throw, main bearing journal diameter, rod bearing journal diameter.	2					
11	Crankshaft	Except Crank throw, main bearing journal diameter, rod bearing journal diameter. Includes Crankshaft bearings.	2					
12	Con rods	Including small and big end bearings.	2					
13	Pistons	Including bearings and pin. Excluding crown.	2					
14	Air valve system	Including compressor, air pressure regulation devices.	1					
15	Ancillaries drive	From ancillary to power source. Includes position of the ancillaries as far as drive is concerned.	3					
16	Oil pressure pumps	Including filter. Excluding internal if no impact on body.	1					
17	Oil scavenge systems	Any scavenging system	1					
18	Oil recuperation	Oil/air separator, Oil tank, catch tank.	1					
19	Engine Water pumps	Include power unit mounted water pipes.	1					
20	Injection system	PU mounted fuel system components: (e.g. High Pressure fuel hose, fuel rail, fuel injectors, accumulators). Excluding injector nozzle.	2					
21	Inlet system	Plenum and associated actuators. Excluding pressure charging, trumpets and throttle associated parts and actuators.	1					
22	Inlet system	Trumpets and associated parts and actuators.	1					
23	Inlet system	Throttles and associated parts and actuators.	1					
24	Pressure charging	From compressor inlet to compressor outlet.	2					
25	Pressure charging	From turbine inlet to turbine outlet.	2					
26	Pressure charging	From Engine exhaust flanges to turbine inlet.	1					
27	Pressure charging	External actuators linked to Pressure charging.	1					
28	Electrical system	Engine mounted electrical components (e.g. wiring loom within legality volume, sensors, alternator). Excluding actuators, ignition coils and spark plugs.	1					
29	Ignition system	Ignition coils, driver box.	1					
30	Lubrication	All parts in which circulates oil under pressure (Oil pump gears, channels, piping, jets) and not mentioned elsewhere in the table.	1					
31	Friction coatings		1					
32	Sliding or rotating		1					
33	MGU-H	Complete. All internals including bearings, casing…	2					
34	MGU-H	Position, Transmission.	2					
35	MGU-H	Power electronics.	1					
36	MGU-K	Complete. All internals including bearings, casing…	2					
37	MGU-K	Position, Transmission.	2					
38	MGU-K	Power electronics.	1					
39	ERS	Wiring loom	1					
40	ES	Cells (Article 5.4.3).	2					
41	ES	BMS.	2					
42	ERS - Cooling/lubrication	Cooling/Lubrication systems (Including ES jackets, pipes, pumps, actuators).	1					

Legend: non-modifiable "frozen" function

TABLE 2 Quota of Tokens allowed for modifications

	2016	2017	2018	2019	2020
Quota of Tokens allowed for modifications	25	20	15	3	3
(reference only) Number of Tokens corresponding to non-modifiable “frozen” items	15	15	23	63	63
(reference only) Total number of Tokens	66	66	66	66	66

This Appendix permits modification of the homologated Power Unit within the homologation period laid out in Article 28.5 of the F1 Sporting Regulations and in accordance with the process described in the Appendix 4 of the F1 Sporting Regulations :

a) For the purposes of this Appendix only, the Power Unit is divided into functions as shown in Table 1 above; each function is named and allocated the number of Tokens as shown.

b) Functions may not be modified according to this Appendix when shown as non-modifiable or “frozen” for the Championship in the year shown in Table 1.

c) Functions may be modified according to this Appendix up to the quota of Tokens allowed for modifications for the Championship in the year shown in Table 2.

d) If a function named in Table 1 is modified thus consuming its allocated Tokens, direct consequential modifications to parts outside the function description may be modified. Provided that the FIA is satisfied, in its absolute discretion, that there is no favourable performance effect outside the initially modified function, these consequential modifications may be implemented without using further tokens.

e) For the avoidance of doubt, no tokens allocated in Table 2 for a particular calendar year may be spent after the 28 of February of that calendar year.