



Document F1SWC09doc#7

Specification Sheet

To be submitted with two race cars to the Event Director or his nominee no later than 18:00 on Sunday 13th September 2009

Team Name: _____
Team Country: _____
Designed using (CAD): _____
Manufactured using (CNC): _____

N.B. Each team will start with 20 points per car and will lose one (1) point for failure to meet each specification on each car unless otherwise indicated in the scoring column. This specification sheet runs to three pages (3). Please ensure each page is identified with Team name, number and country and the sheets are securely stabled together.

		CAR 1	CAR 2
	Working Drawing submitted with cars (2 points deducted if omitted)		
	Side Pod sticker attached (2 points per car deducted if omitted)		
	2 race cars submitted. No 1 and No 2 (reserve) (2 points deducted if omitted)		
	Body and Side Pod Regulations	Measurement Value (mm)/g	Measurement Value (mm)/g
1a	All cars must be designed using a CAD/CAM package. Your F1 car must be manufactured on a CNC machine.	(2 points)	(2 points)
1b	Only a limited amount of hand finishing is allowed. e.g. removal of machining scallops. All cars should be completed and finished painted to a high standard	(2 points)	(2 points)
2a	Full Body Length Min: 170 mm / Max: 210 mm (measured between front and rear extremities of the body)	170mm - 210mm	170mm - 210mm
2b	Body to Track Clearance Min: 3 mm / Max: 15 mm (excluding eyelets, but including side pods and wings. Measured from track surface to the car body - This applies to the underside of the car measured between the axles and side pods including the slot.)	3mm - 15mm (2 points)	3mm - 15mm (2 points)
2c	Width at Side Pods Min: 50 mm / Max: 65 mm (The completed design must include 2 side pods. These are measured from side to side of the car body. The side pods are defined as a feature on the car between the front and rear wheels that exists between the 50 mm minimum and 65 mm maximum tolerances. Any part less than a width of 50 mm is considered to be car body only. Viewed from the side, a side pod must present a surface measuring not less than 30 mm wide by 15 mm high. A sticker of this size will be applied and must be 100% visible from the side view)	50mm - 65mm	50mm - 65mm
2d	Total Car Width Including Wheels Min: 60 mm / Max: 85 mm (Measured between outside edges of the wheels or body, whichever is widest)	60mm - 85mm	60mm - 85mm
2e	Body Weight Without the CO ₂ cartridge Min 55.0 grams	min 55g	min 55g
2f	No part of the body or side pods should be less than 3.5 mm thick. All edges must have a radius of at least 1.5mm when the adjoining surfaces angle is less than 90 degrees		
2g	Maximum Body Height (including aerofoils) - 60 mm	max 60mm	max 60mm
2h	The car body including side pods must be machined from a single piece of balsa wood		
2i	No implants or hidden voids in the car body are allowed		

Team Name: _____ Team Country: _____			
2k	Viewed from the top a projected rectangular surface of 30mm x 50mm minimum must exist in the area bound by the side pod extremities.	(2 points)	(2 points)
Wheel Regulations			
3a	All F1 cars must have 4 wheels, two at the front, two at the rear and all wheels must be cylindrical and must fit the following criteria		
3b	Front Wheel Diameter Min: 26 mm / Max: 34 mm [Measured to the extreme outer edges of each wheel]	26mm - 34mm	26mm - 34mm
3c	Front Wheel Width Min: 15 mm / Max: 19 mm [At surface contact point. Measured between the extreme edges]	15mm - 19mm	15mm - 19mm
3d	Rear Wheel Diameter Min: 26 mm / Max: 34 mm [Measured to the extreme outer edges of each wheel]	26mm - 34mm	26mm - 34mm
3e	Rear Wheel Width Min: 15 mm / Max: 19 mm [At surface contact point. Measured between the extreme edges]	15mm - 19mm	15mm - 19mm
3f	All 4 wheels must touch the racing surface at the same time across the full width of the wheel.		
3g	Wheel dimensions must be consistent with the whole diameter/circumference of the wheel +/- 0.1mm.		
Wheel to Body Regulations			
4a	Front Wheel Visible (from the plan/side view)		
4b	Rear Wheel Visible (from the plan/side view)		
Power Plant Regulations			
5a	CO ₂ cartridge chamber diameter 19.5 mm +/- 0.5mm		
5b	Lowest point of chamber to the track surface Min: 22.5 mm / Max: 30 mm (Measured from track surface to lowest surface part of the CO ₂ chamber)	22.5mm - 30mm	22.5 - 30mm
5c	Depth of hole Min: 50 mm / Max: 60 mm	50mm - 60mm	50mm-60mm
5d	Wall thickness around cartridge Min: 3.5 mm (Clear space surrounding the CO ₂ cartridge below 3 mm and the car will not be allowed to race and lose marks accordingly)	min 3.5mm	min 3.5mm
5e	No paint is allowed inside the chamber (Please seal off or protect the chamber while painting)		
Tether Line Guide Regulations			
6a	Each car must have two (2) screw eyes/plastic inserts/tether line guides firmly secured at the front and rear of the car body, running along the car body base centerline. The track tether must pass through the two screw eyes/plastic inserts.		
6b	Tether line guides must not make contact with the racing surface.		
6c	Inside diameter of screw eyes/plastic inserts Min: 3.5 mm / Max: 5 mm (Referring to the hole in the screw eye/plastic insert itself. Teams can make their own inserts if required)	3.5mm - 5mm	3.5mm - 5mm
6d	Distance apart [at furthest point] Min: 120 mm / Max: 190 mm (The longest distance between the outside edge of the screw eye or tether line guides).	120mm - 190mm	120mm - 190mm

Team Name: _____ Team Country: _____

Aerofoil Regulations

		Aerofoils identified	Aerofoils identified
7a	The design of the completed R-TYPE car should resemble an actual F1 car through inclusion of an aerofoil on the front nose of the car and an aerofoil on the rear of the car. To assist with scrutineering – the surface defining both front and rear aerofoils could be painted in a different colour from the rest of the surrounding car OR identified clearly on the dimensional drawing		
7b	The front aerofoil and rear aerofoil may be machined from a separate non-metallic material e.g. ABS. This applies also to supporting structures. The car body must be manufactured from a single piece of balsa wood. The front aerofoil and any part of the car forward of the vertical centreline of the front axle can be made from a separate non-metallic material		
7c	Front/Rear Aerofoil Span Min: 40 mm / Max: 65 mm (Where the aerofoil is intersected by the car body, the span is the sum of the two parts. The measurement is made parallel to the track surface, on the top or bottom surface of the aerofoil, whichever is the shortest.	40mm - 65mm (4 points)	40mm - 65mm (4 points)
7d	Front/Rear Aerofoil Chord Min: 15 mm / Max: 25 mm (The aerofoil chord minimum/maximum dimensions must be within the dimensions that define the aerofoil span).	15mm - 25mm (4 points)	15mm - 25mm (4 points)
7e	Front Aerofoil Thickness Min: 1.5 mm / Max: 12 mm (The aerofoil thickness minimum/maximum dimensions must be within the dimensions that define the aerofoil span and wing chord)	1.5mm - 12mm (2 points)	1.5mm - 12mm (2 points)
7f	Rear Aerofoil Thickness Min: 1.5 mm / Max: 12 mm (The aerofoil thickness minimum/maximum dimensions must be within the dimensions that define the aerofoil span and wing chord).	1.5mm - 12mm (2 points)	1.5mm - 12mm (2 points)
7g	The whole of the Front Aerofoil when viewed from the side must be in front of the centre line of the front axle.		
7h	The whole of the rear Aerofoil when viewed from the side must be behind the centre line of the rear axle.		
7i	IMPORTANT – The bottom surface of the Rear Aerofoil must be higher than the highest point of the rear wheel when measured normal to the track surface.		
DEDUCTIONS TOTAL PER CAR			

DEDUCTIONS GRAND TOTAL	
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Measurement Tolerance Limits ± 0.1 mm
Weight Tolerance Limits ± 0.5g

SPECIFICATION TALLY			
[Completed by Judging Administrator and checked by Chair of Judges]			
	Max Points available	Deductions	Total
Specification	40		=