

Appendix G. Mechanical VDR Form



ASC2018 Mechanical VDR Form

School/Team: University of Waterloo / Midnight Sun Solar Car Team Entry # 24

Mechanical VDR/Table of Contents

1.	History of team and vehicle (one paragraph)	page <u>3</u>
2.	Type of vehicle: Single-Occupant (<input type="checkbox"/>) , Multi-Occupant (<input checked="" type="checkbox"/>) check one	
3.	Vehicle weight (estimate) (<u>440</u>); Units (<input checked="" type="checkbox"/>) kg (<input type="checkbox"/>) lbs,	
4.	Vehicle weight distribution (estimate), front (<u>215</u>), rear (<u>225</u>), lbs/kg	
5.	Vehicle description shall be presented by profile and top view drawings showing the placement of major components such as driver, battery, ballast box, crush zone, seat belts mounting points, etc, along with overall dimensions including wheel base and tread	page <u>3</u>
6.	Frame/chassis and roll cage type: tubular frame (<input checked="" type="checkbox"/>) , composite (<input type="checkbox"/>) , check one. Drawing shall show the (1) occupants positioned in the frame/chassis, (2) material specs of all metal components, and (3) compliance with Reg 10.3	page <u>6</u>
7.	Roll cage: Profile and frontal drawings shall include material specs and show compliance with Regs 10.3,10.3.B,10.3.C,10.3.G	page <u>6</u>
8.	Seat Belts: 5 point (<input checked="" type="checkbox"/>) , 6 point (<input type="checkbox"/>) , check one. Drawing shall indicate location of mounting points and compliance with Reg. 10.3.E	page <u>9</u>
9.	Braking system: Front wheel only (<input checked="" type="checkbox"/>) , Front-rear (<input type="checkbox"/>) , check one. Schematic and description of primary braking system shall include parking brake and component specs demonstrating compliance with Regs.10.5 and 10.6	page <u>9</u>
10.	Steering system type: rack and pinion (<input checked="" type="checkbox"/>) , other (<input type="checkbox"/>) , check one. Description shall include component selection and specs	page <u>12</u>
11.	Steering stops: Description/drawing/photos shall show compliance with Reg 10.7.B.	page <u>12</u>
12.	Front suspension: type: a-arm (<input checked="" type="checkbox"/>) , other (<input type="checkbox"/>) , check one. Description shall include drawing/photos, component specs, and engineering analysis demonstrating proper selection and sizing of rod ends with shear loads under applied loads as specified in Appendix F, section F.2	page <u>12</u>
13.	Rear Suspension: type: a-arm (<input type="checkbox"/>) , swing arm (<input checked="" type="checkbox"/>) , other, check one. Description shall include drawing/photos, component specs, and engineering analysis demonstrating proper selection and sizing of rod ends with shear loads under applied loads as specified in Appendix F, section F.2	page <u>14</u>
14.	Tires and rims: Description shall include brand, load, speed, and pressure rating to comply with Regs. 10.2	page <u>14</u>
15.	Hub design: Drawings showing wheel-hub assembly	page <u>13</u>
16.	Crush zone: type: foam (<input checked="" type="checkbox"/>) ; tubular (<input type="checkbox"/>) ,check one. Description/drawing shall support compliance with Reg. 10.3.F	page <u>6</u>
17.	Battery box: Description/drawing to show how battery box is constructed and secured in the chassis as per Reg. 8.4.B	page <u>14</u>
18.	Description/drawing to show independent methods of array attachment as per Reg. 10.1.C	page <u>16</u>
19.	Fasteners: Description of compliance with Reg. 10.4	page <u>16</u>

20. **Vehicle Impact Analysis:** Method: Classical (___), FEA (x), Testing (___)
Analysis shall be performed as per Appendix F Section F.3 and the results shall be presented in terms of factor of safety in tabulated form

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