

## Designing an Aerodynamic Braking in Order to Increase Power and Speed of Braking System of Vehicles

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**Abstract :** In this paper a special kind of aerodynamic system as a spoiler has been designed and tried to show effects of this device on braking system of vehicle. Moreover, position of this spoiler has been considered in order to find optimum point from safety and highest rate of braking view for spoiler. Fluent software is our main tool to calculate rate of extra force that is produced by spoiler and this article has been tried to use various figures that are showed effects of spoiler at different speeds, angles and also heights. Other major points in this paper are static pressure of vehicle at different speed and statuses. Undoubtedly, shape of spoiler would be very important, so in this investigation spoiler has been designed and proposed after a lot of simulation for different shape of spoiler. In the end, there is very important part as validation since these simulations must be validated by experimental way to prove our claims. In this case, a special kind of BMW has been simulated and results have been compared by experimental results that have been presented by BMW Company. Difference between simulation results and experimental results are very little and it could be a suitable validation for this project.

**Keywords :** drag force, down force, vehicle, spoiler

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