

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This project basically wants to validate experimental result with simulation result using Computer Fluid Dynamic (CFD). The model that be used in the simulation was same with the model in the real wind tunnel experiment. The entire dimension on the real model was measured as a reference for the computer model. For single model it found that increasing in speed will give effect on Drag force. The graph show that Drag force and velocity are directly proportional each other.

For double model, different distances between models give different Drag Force. The best position for aerodynamically which is less Drag force was directly behind the other car which at haft width distance (6.25 cm).The Drag force that reacts on second car was lesser because they were considered as one body. In case of safety situation, driving at this position will be dangerous if front car suddenly break, resulting crash from tailing car.

At the one width distance (12.5 cm), it showed higher Drag force leading to harder car control. Increasing Drag force due to aerodynamic changed caused by front car. The turbulent flows that create from front car give more Drag force on back car. This will caused driver to loose control and can caused accident.

For the one half width distance (18.75 cm), the Drag force much less and the distance is safe enough to tailing front car. So the best position for safety and for better aerodynamic condition will be at this distance. From this setup, the back pressure that caused by second car was caused Drag force to be low. At two width distance (25 cm), the Drag force was same as there is no car in front.

5.2 Recommendation

The recommendation for this project is simulation should get the result as same as real experiment for wind tunnel or better than that. If the result is same, the simulation will be continuing with the big scale model which is real size of the car. For further study of this project the distance need to be changed with specific distance to look the effect of this change to the car.