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AN OVERLOOK OF THE DRIVING CYCLE SIMULATION METHODS

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Abstract

Improvement of fuel consumption has been for many years the most important challenge in automotive development. In order to estimate the vehicle's fuel consumption, it is common to perform some driving cycle simulations. On the one hand, we can prescribe the vehicle's speed to exactly follow a function of time. Such an analysis is quasi-stationary i.e. the transient behavior of the system is not fully taken into account. The direction of cause and effect is unnatural. On the other hand, we have a let's say driver controlled model, where a so-called driver tries to achieve the driving cycle speed by choosing a proper position for the accelerator. Such a model requires transient analysis. Thus, the paper presents a comparison between these two methods of simulation in order to be able to fully understand the need for more accurate simulations.

Keywords

Vehicle, modeling, simulation, analysis, driving cycle, fuel consumption