APPLICATION OF DYNAMIC VIBRATION ABSORBER
IN HALF-CAR MODEL
BASED ON AMPLITUDE RESPONSE

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Abstract

One of the topics that is often discussed and developed is the comfort in driving. There are many methods that are developed to increase the comfort in driving, for example active suspension with fuzzy logic optimization. This final project report proposed a passive car suspension model with the addition of the dynamic vibration absorber (DVA). The model that is being used is half car model with four degree of freedom. Parameters of the car that will be used in the simulation is derived from Daihatsu data for passenger car. The method to design this final project is as follows: studying the literature on topics related, designing the simulation with all mathematical equation that is being used, finding the appropriate absorber’s parameter, and taking the vibration data from the car body. From the simulation, the appropriate parameter of the dynamic vibration absorber is $K_{da} = 10000 \text{ N/m}$, $K_{db} = 8000 \text{ N/m}$, $C_{da} = 4000 \text{ N.s/m}$, $C_{db} = 3200 \text{ N.s/m}$, $m_{da} = 30 \text{ kg}$, $m_{db} = 25 \text{ kg}$. Maximum amplitude damping value that is achieved is 11.71%.

Keywords: Dynamic Vibration Absorber; Half-Car Modelling
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