ABSTRACT

Semi active suspension using multi stage damper has some feebleness in the actuator. In this final project, a design is formulated to construct a semi active suspension using throttling valve as the actuator. A quarter car models with two degrees of freedom are used for the analysis. The objective of this research is to design the suspension system with neglecting the control system of the actuator. Throttle valve is divided into three positions: one, two and three. The 1st position presents the lowest value of suspension constant. A hydraulic experiment has been established as well as exciter experiment to calculate the shock absorber constant. The exciter experiment also used to find the total respond of the system. The valve opening has significant influence to adjacent damping ratio, and the magnification factor. The c value from the experiment for each position are : 3rd position 784.753N.s/m; 2nd position 539.875N.s/m and 1st position 272.50123 N.s/m.

Keywords: semi active suspension, shock absorber, damper constant, exciter