"FEA ANALYSIS AND OPTIMIZATION OF TWO-WHEELER BIKE MONO SUSPENSION SYSTEM"

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ABSTRACT

Most of the Indian roads are pathetic in nature and 2 wheelers are the worst hit of this. So it is very essential to have a very good suspension system for the 2 wheeler to avoid accidents and improve the ride quality. The modern motorcycle uses suspension to accomplish several things; it provides a smooth comfortable ride absorbing bumps and imperfections in the road. This paper deals with analysis of mono suspension spring by using FE approach. Considering the highest level safety and ride control by shock waves and dissipated kinetic energy, some concepts were built in mono shock absorbers and later they were compared with the existing functioning systems adopted in the 2 wheeler. 3 concepts were developed where considering in starting helical spring alone and then hydraulic damping, gas damping systems were built to achieve the best 0.8 damping ratio for mono suspension system. Starting with single helical spring only suspension later advanced hydraulic with gas accumulator is studied in detail. Maximum damping value of 0.8 is achieved with combined spring, hydraulic and has accumulator design concept. Response curve is plotted against dynamic loads and three different loads 200 Kg, 250 Kg and 300 Kg is studied.

KEYWORDS: Mono Suspension, Dampers & Shock Absorber

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