

DESIGN AND STRUCTURAL ANALYSIS OF TIRE WITH AUTOMATIC PRESSURE MAINTAINING SYSTEM SETUP

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ABSTRACT

It is known that proper exploitation of wheel tires are difficult and it depends on many influencing factors. Tire inflation pressure has a significant importance on their stress and strain distribution. Tire strain influences the size of the contact surface with the rolling track. Low pressure generates an exaggerated flexing of the tire carcass, increasing the rolling resistance of the wheel. Too large pressure causes the decrease of tire adhesion, irregular and faster wear, especially for the driving wheels. For various soil conditions depending on the tire pressure, different soil stress distributions can be obtained. The paper presents an analysis a model of a wheel tire, by means of the Finite Element Method. A model of the tire is developed using solid works software. The study was developed for various tire tire pressures. The results and conclusions obtained from the study are useful to identify the need of any technological invention to maintain car tire Pressure. For that reason, we also show the one practical setup, which fills the tire pressure automatically whenever the tire pressure reduces from its normal value. This also helps to implement safety system which happens due to tire inflation pressure.

Due to the rising awareness of safety aspects the supervision of vehicles tire pressure is a major effort to improve vehicles safety. Gradual tire deflation is big problem in automobile. This problem is maintaining proper tire pressure would save billion gallons of fuel annually extending the lifespan of tires that wear out too early due to under-inflation each year and reducing carbon dioxide emissions in the process. Gradual tire deflation over time is a key factor in relation to on-road safety and reduced fuel economy, not to mention the expensive exercise of replacing tires that wear out before the end of their expected life-span. So, above all problem have been solve by the prototype of the set up for automatic tire pressure maintaining system develop.