**ANALYSIS AND DESIGN MODIFICATION OF MOTOR CYCLE WHEEL SPOKES**

**ABSTRACT**

Spoke is one of some number of rods radiating from the center of a wheel connecting the hub with the round traction surface. The term originally referred to portions of a log which had been split lengthwise into four or six sections. The radial members of a wagon wheel were made by carving a spoke into their finished shape. Eventually, the term spoke was more commonly applied to the finished product of the wheelwright's work, than to the materials he used. The radial, lateral, and tangential stiffness of spokes motorcycle wheels depends upon the rim’s bending inertia, torsion inertia, the spoke sizes, and the spoke geometry. The spokes of three rear bicycle wheels of different spoke patterns were instrumented with strain gauges in order to investigate the effect of the spoke pattern on the spoke strain and fatigue resistance properties of the wheels. Spoke strains due to radial loads Spooked bicycle wheels are efficient, highly evolved, structural systems. A useful analogy for a bicycle wheel supporting vertical loads is that of a circular beam on a pre stressed elastic foundation, fixed at the center and loaded radially at the circumference. Analytical and numerical studies show that spoke strains due to radial loads and in service conditions are insensitive to the spoke pattern. Small variations in the spoke strains between the wheels in the road tests can be attributed to variations in the loads, but do not significantly affect the fatigue life of the wheels. Here, we use SOLID WORKS PREMIUM 2014 SOFTWARE for both modeling and simulation.