International Journal of Application or Innovation in Engineering & Management (IJAIEM)
Web Site: www.ijaiem.org Email: editor@ijaiem.org
Volume 6, Issue 6, June 2017 **ISSN 2319 - 4847**

Design and Optimization of Rear axle Gears for Commercial Vehicles

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Abstract

This research addresses responses of single stage hypoid rear axle gears to geometrical analysis and optimization. The entire analysis is done for single stage hypoid rear axle gears .The method used is Finite element modeling by using ANSYS 12.1 and analysis for which the inputs are obtained from gear standard ANSI/AGMA 2005-D03.The responses to geometrical analysis of hypoid gear caused by stress levels are determined .Components which are much affected by the running and loading conditions are identified. Taguchi optimization method is used for hypoid gear to increase efficiency and life of it. Finally conclusions based on results and recommendations which can be extensions of this research are also presented.

Keywords: Hypoid gear, Geometrical analysis, optimization, ANSYS, AGMA, Taguchi