

# **MECHANICS OF STRAIN PROPAGATION IN MEMBERS OF A PLATFORM STRUCTURE DEvised FOR INTENSE PAYLOAD**

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## **ABSTRACT**

This research paper deals with the mechanics of mechanical strain and its propagation in a steel structure through experimental analysis of a distinctive platform integrated with vehicle chassis. Dynamic values of strain components are evaluated on all constituents of the platform structure at various critical locations. Strain gauge classification for experimentation of the platform structure is described. Different nature of stresses at significant locations is evaluated with the aid of linear and rosette gauges.

Present-day data acquisition systems are utilized for acquiring the strain values. Static and dynamic strain values are evaluated for constant speeds on cross-country track. The experimentation reveals exact strain values, as there are no assumptions for measurement. Cross-country road characteristics are exactly simulated for this measurement process.

The optimum vehicle speed is maintained for the entire measurement process. Tri-axial values of strains are calculated using rosette reduction technique. Linear strain values are evaluated on longitudinal members of the platform structure. Values of strain acquired different locations reveal the critical areas of the structure for possible design modifications.

**KEYWORDS:** Platform Structure, Strain Signal, Data Acquisition Systems, Tri-Axial Stresses, Dynamic Strain