

# Correlation of Structural Modal Properties of Go-kart Frame Structure using Different Type of Joint in Finite Element Modeling

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A go-kart structure is the small four wheeled vehicle that usually used in sports and recreation. The frame of go-kart chassis structure usually consists of joints such as welded joints. In design process, finite element analysis is always used in order to predict the behavior of the designed structure under different kind of loading or force before fabricating the actual structure. Joints in structure are usually difficult to model because of inaccuracy in assuming the properties of joints. Therefore, it is come to agreement that finite element analysis is not always accurate. In this work, attempts to correlate several methods of modeling in order to find the best method to model the welded joint available on the go-kart structure is presented. Natural frequencies obtained through finite element analysis are compared to the benchmark data which is the experimental value of natural frequencies. Comparison is made between rigid body element, beam element (CBEAM and CBAR), rod element (CTUBE) and nodes equivalence strategy. By using the data gathered experimentally, the findings suggested that in general that the beam element (CBAR and CBEAM) is the most suitable element to be used in modeling welded joints in structures apart from other rigid elements.

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