

Modal Dynamic Analysis of a Mechanism with Deformable Elements from an Oil Pump Unit Structure

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Abstract : On this research, experimental analyses have been performed in order to determine the oil pump mechanism dynamics and stability from an oil unit mechanical structure. The experimental tests were focused on the vibrations which occur inside of the rod element during functionality of the oil pump unit. The oil pump mechanism dynamic parameters were measured and also determined through numerical computations. Entire research is based on the oil pump unit mechanical system virtual prototyping. For a complete analysis of the mechanism, the frequency dynamic response was identified, mainly for the mechanism driven element, based on two methods: processing and virtual simulations with MSC Adams aid and experimental analysis. In fact, through this research, a complete methodology is presented where numerical simulations of a mechanism with deformed elements are developed on a dynamic mode and these can be correlated with experimental tests.

Keywords : modal dynamic analysis, oil pump, vibrations, flexible elements, frequency response

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