**Vehicle Dynamic Analysis Of Wheel Loaders**

**Abstract:**

The aim of the project is to model oil pan, designing a casting tool and generate CNC program for the same and reduction of weight will be done at unnecessary areas. Initially data will be collected to design mold tool and for the conditions of analysis. In next stage a model will be generated using catia v5 for further study. The performance of an IC engine has an ionic bond with the performance of lubricating oil system. Oil sump and Oil Suction Pipe is one such assembly. The oil sump acts as partially filled reservoir of lubricating oil. The oil pump sucks the oil through the oil strainer which is immersed inside the oil sump. Design of oil sump involves designing for capacity, layout, and engine tilt angles[3]. Due to these forces, the oil is pushed towards oil sump sides depending on the resultant of the above forces. This resulting oil movement may have serious implications on the engine performance, if the oil strainer is not immersed in oil and the pump sucks air into the lubricating oil system. The resultant forces acting on the lubricating oil system are difficult to calculate using classical design approach since it involves sloshing type fluid structure interactions. Since the problem is highly non linear and considering the importance of this design aspect, the verification has been attempted using Fluid-structure interaction capability.

Keywords: Oil Sump, Tilting, Fluid Structure Interaction.