

ON THE ANALYSIS OF THE EFFECT OF DIFFERENT TYPES OF BUMPS ON THE CAR

Miriana Flity, Bassem Atwi, Ahmad Al Takash, Ali Mohsen and Youssef Abbani

Structure Dynamics Materials Group, Mechanical Department, School of Engineering,
International University of Beirut (BIU)
Mousetbeh, Beirut, Lebanon

e-mail: ahmad.takash@liu.edu.lb , ali.mohsen@liu.edu.lb
and youssef.abbani@liu.edu.lb

ABSTRACT

In nowadays world, the need to control and limit the vehicle's speed spotted the attention of many researchers. To point out, scholars in mechanical, safety, and civil engineering have contributed critical knowledge and data concerning road bumps. Roads are full of speed bumps or humps regardless of their locations, usage, and scientific design. This issue has an impact on the car dynamics specifically the passive suspension system in addition to the comfort of the passenger. To produce efficient bumps and clearly understand the effect of bumps on the car we propose in this paper to combine the use of theoretical study and experimental data. Based on this study, we will be able to analyze the effect of different bumps by using a mathematical model for the ideal response simulation and proposing counter measurements in an ideal real case scenario, where a real car will be crossing a bump executed in Lebanon. Measurements will be taken to relate out the study to real suffering by analyzing the vibration to determine the effect of road bumps on a vehicular system.

Keywords: Bumps; Car dynamics; Suspension system, vehicle speed