

Study of Effect of Steering Column Orientation and Operator Platform Position on the Hand Vibration in Compactors

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Abstract : Heavy machinery especially compactors has more vibrations induced from the compactor mechanism than the engines. Since the operator's comfort is most important in any of the machines, this paper shows interest in studying the vibrations on the steering wheel for a double drum compactor. As there are no standard procedures available for testing vibrations on the steering wheel of double drum compactors, this paper tries to evaluate the vibrations on the steering wheel by considering most of the possibilities. In addition to the feasibility for the operator to adjust the steering wheel tilt as in the case of automotive, there is an option for the operator to change the orientation of the operator platform for the complete view of the road's edge on both the ends of the front and rear drums. When the orientation is either +/-180°, the operator will be closer to the compactor mechanism; also there is a possibility for the shuffle in the modes with respect to the operator. Hence it is mandatory to evaluate the vibrations levels in both cases. This paper attempts to evaluate the vibrations on the steering wheel by considering the two operator platform positions and three steering wheel tilting angles.

Keywords : FEA, CAE, steering column, steering column orientation position

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