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Study regarding the influence of geometrical characteristics of the distribution system on truck engines efficiency parameters

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Abstract

The present paper aims to analyze the influence of certain parameters specific to the distribution systems on a truck engine performance. The research is focused on how the change in the shape of lobes of a camshaft can influence the vehicle functional parameters. It was considered a non-variable fuel distribution system which represents by itself the controlling part, needed to move the poppet valves in order to ensure engine operating cycles. There have been compared results obtained in the case of different profiles of lobes, taking into account the accelerations during movements, in order to obtain minimum inertia of the distribution system components. By increasing the total height of the lobes, it was observed an increase in engine power and torque. Also, the intake air efficiency was improved by approximately 4%. Furthermore, engine fuel consumption reached higher levels in the case of the modified camshaft, in order to increase engine power.

Keywords: trucks, engines, fuel distribution systems, lobes, poppet valves

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