

Effect of vibration and noise on spark ignition engines of methanol fuel blended with gasoline

Erdiwansyah^a, Mahidin^a, Sani M S M^b, Mamat Rizalman^b, Gani, Asri^a, Munawir^a, Susmanto^a

^a Faculty of Engineering, Universitas Serambi Mekkah, Banda Aceh 23 245, Indonesia

^b Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600 Malaysia

ABSTRACT

Nowadays, various types of engines are manufactured by the automotive industry, especially for cars that have huge demand all over the world in general, and Malaysia in particular. The vibration and noise continue to be a significant problem among the various issues that exist in the engine to date. In this research, tests were performed on a four-cylinder gasoline engine of methanol fuel blended with gasoline fuel at distinct quantities (between 5% and 10%) and motor speeds of 1000, 1200, and 1400 rpm. The findings indicate that the methanol gasoline combination has the highest vibration and noise between 1200 and 1400 rpm, while gasoline has the lowest vibration and noise between 1000 and 1400 rpm. The modifications in the combustion system owing to the characteristics of the fuel mixture used have an essential impact on the engine's vibration and noise.

KEYWORDS

Combustion; Fuel blends; Modification; Noise level; Vibration

ACKNOWLEDGMENTS

This research is supported by PNBP Universitas Syiah Kuala, Research institutions, and community service with the contract number of (166/UN11/SPK/PNBP/2021).