

SUMMARY

Oktavianus, Department of Mechanical Engineering, Faculty of Engineering, University of Brawijaya, July 2016, Comparison of Fuel Consumption of Pertamax Plus and CNG on Urban Concept Vehicle, Academic Supervisor : Eko Siswanto and Ari Wahjudi.

Human need for energy will be rise, especially in transportation. The number of vehicles increased every year, resulting in amount of fuel will be decrease. Additionally exhaust emissions produced as a result of its use, prone resulting in air pollution environment. From the problems we have to find ways to covered them, without reducing the number of existing vehicles. One way that can be applied to solve it is to replace the oil fuel into gas fuel. One type of gas fuel is Compressed Natural Gas (CNG). Need a study to compare the fuel consumption values. Performed on dynamic testing using urban concept vehicle, with purpose of approaching the real situation.

In this study pertamax plus fuel will be compared the fuel consumption in urban concept vehicle. Urban concept is a vehicle design by student, which is expected to reduce fuel use. Using the motor 1 cylinder, 4 stroke petrol, Honda GX160 standards ignition, mounted on a chassis and body Marsela Apatte62. Testing do by circling a track along 1,532 km and measure the weight of the fuel used, the load variation of 0 kg, 5 kg, 10 kg and 15 kg on day and night conditions.

The results showed that the addition of load effect on fuel consumption by about 12-28%. Value of CNG consumption over saving 44-45% of Pertamax plus in all loading. In different test conditions, the use of daylight saving Pertamax Plus over 4%, while the use of CNG is 22% more efficient. SFC value for CNG 63% lower than Pertamax Plus. The calorific value of the fuel input on CNG 52% higher than Pertamax Plus.

Keywords: Fuel Concumption, Pertamax Plus, CNG, Urban Concept

