SUMMARY

Rafdhika Rachmadhani, *Department of Mechanical Engineering, Faculty of Engineering, Brawijaya University, November 2016, Observation Of Fuel Type Variation Towards Torque, Energy and Fuel Consumption On Ignition Six-Stroke Engine. Academic Supervisor : Eko Siswanto and Bayu Satriya Wardhana*

The increasing their use internal combution vehicle engine in industry automotive, the internal combustion engine is well known as the most widely used. Nowadays, almost all of the internal combustion engine operate with the four-stroke Otto cycle. The main reason four-stroke Otto cyclemore popular and commonly used than the two-stroke one is the fuel efficiency. Therefore, it may be possible to arguethat six-stroke internal combustion enginewill be more efficient than the four-stroke.

This study aims to initiate the development of the six-stroke internal combustion enginebased onaddition of durationmasses diffusion of air-fuel mixture and the duration of thermal diffusion from cylinder wall component to mixture. By testing the performance of the six-stroke internal combustion engine,also performing the enlarging method of the variation gasoline fuel as commonly applied in four-strokeOtto cycle in order to increas the performance. the usage mixture gasoline fuel Pertamax RON 92 and Ethanol RON 111. With 500 rpmintervals of rotation speedand the throttle opening was conditioned constantlyat 35% during the test. The performance was assessed from the crankshaft's torque, power and specific fuel consumption effective. Then both of the variation fuel performances were compared, this study also compared the performance of the developed six-stroke internal combustion enginewith theconventional four-stroke Otto.

The results obtained, the usage mixture gasoline fuel Pertamax RON 92 and Ethanol RON 111 was increase the average value of torque, power and SFCe, and rotation speed respectively 20%, 20% and 16%.

Keywords : Ignation CDI gasoline fuel Pertamax and Ethanol, Six-stroke Internal Combustion Engine, Performance