ABSTRACT

MODIFYING THE CYLINDER CAPACITY ON HONDA SUPRA 100CC FROM 100CC TO 125CC BY USING CYLINDER AND HEAD CYLINDER OF HONDA SUPRA X 125CC

By
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Motorcycle modification has been done many times to new motorcycles, such as Honda Supra X 125cc that was first released in 2004 and old motorcycles, such as Honda Supra 100cc that was first released in 1997. Honda Supra 100cc with engine base 100cc is very popular in the market. But, there are many weaknesses, for example: the performance and the fuel efficiency of Honda Supra 100cc are lower than of Honda Supra X 125cc.

There are several techniques to increase the acceleration and power of a motorcycle. One of them is increasing the volume of the cylinder capacity and increasing the compresion ratio. But the impacts which were resulted in the process of modification, such as the increase in fuel consumption and the decrease in the motorcycle lifetime. In this research, the researcher modified the cylinder capacity on Honda Supra 100cc into the same capacity as Honda Supra X 125cc by using cylinder block cylinder, cylinder head, crankshaft and tensioner from Honda Supra X 125cc. And then it was tested by as: testing of fuel consumption in stationary condition, testing of fuel consumption in tandem and without tandem, testing of acceleration, and testing of speed and machine maximum rotation.

The result of the modification shows that the modification has decreased the fuel consumption up to 19.63% in the stationary condition; in the rotation at 1400 rpm and 4000 rpm. For fuel consumption testing, when there has tandem or not, the modification has decreased the fuel consumption up to 27.19%. In the acceleration test of 0-80 km/h, the modification has decreased time allocated to accelerate at 3.91 seconds or about 20.03%. In the acceleration test of 60-80 km/h, the modification has decreased time allocated to accelerate at about 37%. And in the testing of maximum speed and rotation, the result shows that the modification has increased the speed at about 3.7% and increased the maximum rotation at about 1.66% from the original condition of Honda Supra 100cc.

Keywords: Modification, Engine Efficiency, Fuel Efficiency.