Analysis of Intake Manifold Hole Diameter Modifications on the Performance of 160 Cc Motorcycles Using Pertamax 92 Fuel

by
Ahmad Fikrih Saiful Imam
Study Program of Automotive Engineering, Majoring of Engineering
The State Polytechnic of Jember

ABSTRACT

This research aims to determine the effect of modifying the intake manifold hole diameter on the performance of a 160 cc motorbike using Pertamax 92 fuel. The method used in this research is an experiment by testing the intake manifold with a modified hole diameter using the porting method in the respective section. Enlargement and polishing are also carried out to avoid excessive turbulence in the intake manifold. In this research, there are several variations, including standard sizes of 26 mm, 27.50 mm and 28.50 mm. This research focuses on looking for performance in the form of torque and power that is stable and continues to increase in both lower, middle and upper engine speeds. The best torque and power test results and continued improvement were obtained by an intake manifold hole diameter of 27.50 mm. The torque test result at lower engine speed (4000) produces 11.50 Nm, and the torque result at medium engine speed (5000) is 11.65 Nm, then at top engine speed (6000) it produces 11.92 Nm of torque. Meanwhile, from the test results, the power also increased with the power value being 11.4 hp at the bottom engine speed (4000), while the middle engine speed (5000) produced 11.5 hp, then the top engine speed (6000) produced a power of 11.8 HP.

Keywords: : *intake manifold modification, engine rotation torque and power.*