

CHAPTER I

INTRODUCTION

1.1 Background

There are many parameters that can increase engine power such as increasing the maximum volumetric and thermal efficiency of the engine, or by changing the exhaust system on the machine. Important variables that can improve engine performance, are the performance of the gas flow through the engine, and the flow rate gas flow coefficient in the engine (Blair, 1999).

The performance of the gas flow on the four-stroke engine is the process of being, through, and exiting the machine. The gas is a shaky compound where the pressure, temperature, and velocity of the gas particles in a channel are proportional to time. In case of flue gas flow, unstable gas flow behavior is due to the overlapping work of cylinder pressure falling on the exhaust valve work, this provides a fluid pressure on the exhaust pipe. In the case of induction flow, the timing of the inflated inlet valve causes the pressure of the pipe to enter into the cylinder pressure, since the cylinder pressure that is affected by the piston motion causes a volumetric change in space.

Energy generated from the combustion process that occurs there are three main components needed in the combustion process of air, fuel, and heat. Of the three main components of combustion will produce the rest of the combustion of exhaust gases, where the residual gas brings heat energy from the rest of the combustion in the vehicle. In a four-stroke engine cycle, only one stroke of four is beneficial which is a stroke power. The other three strokes of intake, compression and exhaust will absorb some of the power generated during a power stroke. If the amount of power from the idle stroke can be minimized, then more power will be obtained to drive the wheels, this is the machine that should be done (Mohideen, 2008).

The design quality of a disposal system requires an understanding of its contribution to both the engine's overall power output and noise attenuation (Blair, 2009). To support optimal results on performance / performance of the engine, the

exhaust or called exhaust system is one of the vital parts of a motorcycle. Therefore in the automotive field this product has increased significantly and has increased customers, especially at this time many exhaust manufacturers that make design racing exhaust design that provides a lot of promise with good performance testimony and acceleration. The main function of the exhaust is to remove the residue from the combustion in the internal combustion engine. The exhaust system consists of several components, consisting of at least one exhaust pipe. However, until now the research on exhaust is so rare that people in general do not know what parameters that affect the goodness of a disposal system, and the effect of performance in the exhaust on the standard or exhaust racing.

The design changes the dimensions of the racing exhaust itself from both the header pipe and silencer diameter so that the racing exhaust can increase engine power. This is because the racing exhaust more smoothly in delivering the combustion gas. Variations of racing exhaust form can be selected like the type of free flow and megaphone, in general racing muffler can be distinguished by the form of racing exhaust shape and short form. Long shape, if the exhaust has a silencer is almost at the tip of the stern of the motor, while the short exhaust if the silencer exhaust does not reach the stern. The long form is effective for obtaining the upper air, while the short form is otherwise effective for obtaining power at low speeds or, in other words, easy torque achieved at low rotation at each throttle turn.

It is also important to understand the mechanisms that allow such contributions and significance. A wide variety of sources are studied to determine current exhaust theory, design and analytical methods.

1.2 Statement of The Problem

How the effect of engine performance gained on the use of racing muffler and exhaust standard on motor vehicles.

1.3 Objective of Study

The purpose of this research is:

To determine the comparison of power performance and torque obtained between the use of a standard exhaust with racing muffler on a standard four-step motorized vehicle.

1.4 Benefit of Study

This research is expected to provide good benefits for writers, the public and the world of education, among others:

1. Provide new knowledge about the performance that will be obtained when using racing muffler on a standard motorized vehicle.
2. Able to provide knowledge or reference for the general public to choose a suitable exhaust for motorized.

1.5 Scope of The Study

Systematic plan of writing Final Project is:

Chapter 1 Introduction describes the background, problem formulation, research objectives, and research benefits.

Chapter 2 Literature Review, describes the basic theory used to support an understanding related to Racing Exhaust System.

Chapter 3 Research Methodology describes the stages of research including calculation and testing dynotest to obtain data analysis.

Chapter 4 Results and Discussion describes the results of the test and the discussion of test results on the performance of the machine.

Chapter 5 Conclusion describes the conclusions and suggestions of the results of research on the test of engine performance against standard exhaust with racing exhaust.