

CHAPTER I

PREFACE

1.1. Background

Development of the automotive world that is increasingly rapidly, also followed by the development of various components supporting. To improve thermal efficiency to obtain the best power and torque, many motorcycle components with new innovations developed as additional tools to complete the ability of a motorcycle. Engine efficiency can be measured by how efficiently the engines can hold the heat, how the ability of machines to suck the volume of air-fuel mixture, how efficient the engines is able to move all components with minimum friction. Power source of combustion engine is transformation heat energy from combustion process then it will converted to push the piston back down to bottom dead center (BDC) and rotate the crankshaft, then resulting in a strong rotation to move the transmission, next it will be forwarded to the rear wheels.

1.2. Problem Formulation

Subject matter in this research is how many influence of variation intake manifold standard and intake manifold racing about motorcycle performance on Yamaha Jupiter Z 2005 using carburetor Mikuni 26 mm.

1.3. Research Objective

Objective of this research to get and compare performance of the engine motorcycle has used intake manifold standard and intake manifold racing on Yamaha Jupiter Z 2005 using carburetor Mikuni 26 mm, such as engine power (P), torque (T), and specific fuel consumption (SFC).

1.4. Advantage of Research

Advantage of this research to get Yamaha Jupiter Z 2005 motorcycle performance with variation intake manifold standard and intake manifold racing.

1.5. Problem limitation

For not having extended discussion, given the limitations of research as follow:

1. In research, only limitation the influence comparative of application standard intake manifold and intake manifold racing to get performance motorcycle Yamaha Jupiter Z 2005 using carburetor Mikuni 26 mm.
2. Data observed in testing is torque and timing fuel consumption.

1.6. Research Methodology

Research will be done in Mototech Indonesia Dyno Center and Motorcycle Research Support Yogyakarta Laboratory with testing standard intake manifold and intake manifold racing on Yamaha Jupiter Z 2005 to get engine performance.

1. Tools used in research:
 - a. Dynotest/Dynamometer.
 - b. Tool Set.
 - c. Measuring Tools:
 - 1) Tachometer, to measure engine rotation.
 - 2) Burette, to measure the volume of fuel used.
 - 3) Stopwatch, to measure time in experiment.

2. Testing specimen

In testing, the sample used was:

- a. Machine has used is Yamaha Jupiter z 2005 engine motorcycle.
- b. Intake manifold and carburetor used are:
 - 1) Standard intake manifold.
 - 2) Racing intake manifold.
 - 3) Carburetor Mikuni 26 mm.

1.7. Research Location

Mototech Indonesia Dyno Center and Motorcycle Research Support Yogyakarta Laboratory.

1.8. Writing Systematic

Systematic of writing this research has arranged in 5 chapters with systematic writing as below:

CHAPTER I. PREFACE

Includes background, problem formulation, research objectives, advantages of research, problem limitation, research methodology, research location and writing systematic.

CHAPTER II. BASIC TEORY

Includes a literature review, definition of combustion engine, the type of combustion engine, combustion engine components, combustion system, combustion engine planning formula.

CHAPTER III. RESEARCH METODOLOGY

Includes flow charts of research, tools and materials research, preparation and trial step, testing the influence of variation in the intake manifold on a standard piston, taking data.

CHAPTER IV. RESEARCH RESULT AND DISCUSSION

Include the result of data research and discussion of the data from research.

CHAPTER V. CLOSING

Conclusions and suggestions.