



**COMPREHENSIVE STUDY OF
POWER VALVE SYSTEM**

**MOHAMAD ADLI IDRIS
(2000415049)
810914-02-5015**

**NOR AZMI ISMAIL
(2000638662)
820120-02-5055**

**SHAMSUL BAHRI SHAMSUDDIN
(2000424516)
820514-14-6503**

**DIPLOMA IN MECHANICAL ENGINEERING
UNIVERSITY TECHNOLOGY MARA
APRIL 2003**

“We declared that this final year project is the result of our own work except the appendix that mostly we get from the Internet and other resources. The final year project has not been accepted for any diploma and is not concurrently submitted in candidature of any diploma.”

MOHAMAD ADLI IDRIS

2000415049

Signed : 

Date :

NOR AZMI ISMAIL

2000638662

Signed : 

Date :

SHAMSUL BAHRI SHAMSUDDIN

2000424516

Signed : 

Date :

TABLE OF CONTENTS

CONTENT	PAGE
PAGE TITTLE	i
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	vi- vii
LIST OF FIGURES	viii
LIST OF TABLES	viii
CHAPTER 1	INTRODUCTION
1.1	Objectives 1
1.2	Procedures to Achieve Objectives 2
CHAPTER 2	INTERNAL COMBUSTION ENGINES
2.1	2-Stroke Engine 3
2.2	4-Stroke Engine 5
2.3	Disadvantages of 2–Stroke Engine 6

CHAPTER 3 YAMAHA POWER VALVE SYSTEM

3.1	General Principle	7
3.2	How the System Works	8
3.3	Opening Steps of the Power Valve	11
3.3.1	Table of Power Valve Opening	12
3.4	How to Increase the Power Valve Efficiency	13
3.5	Differences between 2-Stroke Engines With And Without YPVS	14

CHAPTER 4 PHOTOGRAPHS AND DIAGRAMS

4.1	Procedures Of Opening YAMAHA TZM Engine	15
4.1	Photographs Of YAMAHA TZM Engine	17
4.2	AUTOCAD Drawing Of YAMAHA TZM Engine	37

CHAPTER 5 CONCLUSION AND REFERENCES

5.1	Conclusion	38
5.2	References	39

CHAPTER 1

INTRODUCTION

As we know, 2-strokes engine has a fault that is the incomplete expulsion of exhaust gases and the partial expulsion of the fresh air-fuel mixture with the exhaust gas. This fault has been improved by a research that results in developing the power valve system. One of the main companies that have developed this system is Yamaha.

1.1 Objectives

There are 4 main objectives of doing this project:

1. To understand Yamaha's Power Valve System
2. To enhance our knowledge about internal combustion engine.
3. To compare and analyze 2-stroke engines with and without the power valve.
4. To complete a report so that people will understand how the system works.
5. To improve the present power valve system.