

FINAL YEAR PROJECT REPORT
DIPLOMA IN MECHANICAL ENGINEERING
SCHOOL OF ENGINEERING
MARA INSTITUTE OF TECHNOLOGY
SHAH ALAM, SELANGOR

AUTOMCTIVE TEACHING AID
WITH INSTRUMENTATION FOR MORRIS MARINA
(3L. ENGINE PART 3)

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SYNOPSIS

The aim of this project is to get a better engine with good petrol consumption and with the add of a electrical wiring with instrumental for a 1970 Morris Marina 1.3 cc four stroke engine.

To achieved better consumption the cylinder chamber, inlet part and intake manifold have been carefully and thoroughly grounded and polished and engine should properly tuned according to specification.

When this project was completely done it can be used for teaching practically for a subject of Automobile Technology.

<u>CONTENTS</u>	<u>PAGE</u>
Synopsis	i
Acknowledgement	ii
Contents	iii
1.0 Introduction.	1
2.0 Theory of four stroke petrol engine.	2
3.0 Top- overhaul.	6
4.0 Cooling System.	37
5.0 Ignition Circuit.	45
6.0 Charging Circuit.	56
7.0 Electrical System and Testing Aid.	60
8.0 Exhaust System.	76
9.0 Engine Trouble Shooting Chart.	79
10.0 Discussion.	81
11.0 Recommendation.	82
12.0 Conclusion	83
13.0 Appendix.	84
14.0 Reference.	95

1.0. INTRODUCTION

The internal combustion engine (spark ignition) is considered to be consuming too much fuel, at best 14.7 kg air/1 kg fuel.

It is believed that atomization (i.e breaking-up into a fine spray to assist in evaporation of the fuel so that the mixture entering the cylinders is homogenous) would be better, if inlet ports and combustion chambers surface are smooth, efficient flow and distribution of air-fuel mixture could be evenly as possible, to each cylinder. If the fuel is not fully vapourized it can form droplets in the combustion chamber. These droplets would come out as unburnt gases at the exhaust end - thus wanted.

The combustion chamber has room for both the intake and exhaust ports so that the engine has maximum gas flow into and out of each cylinder giving relatively high power at high engine revolution per minutes.

2.0. THEORY OF FOUR-STROKE PETROL ENGINE.

Almost all automobile engines used are the four-stroke or OTTO cycle, fig.1. A cycle is a sequence of events, usually repeated over and over. A sequence of four strokes of the piston is used to convert the combustion process into power, and this cycle of four strokes is repeated continually while the engine is running. Refer to fig. 2 and follow the sequences of operation as described below.

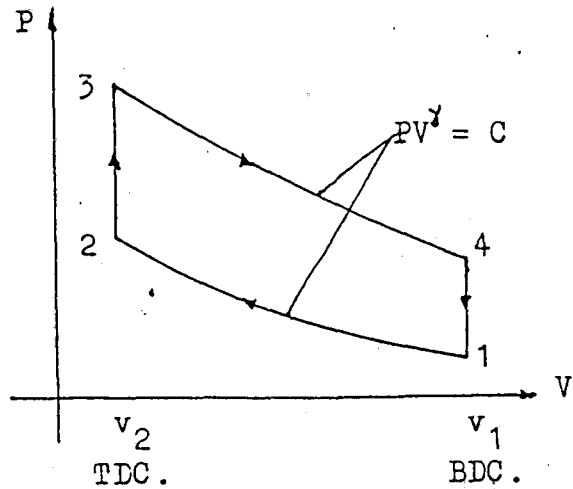
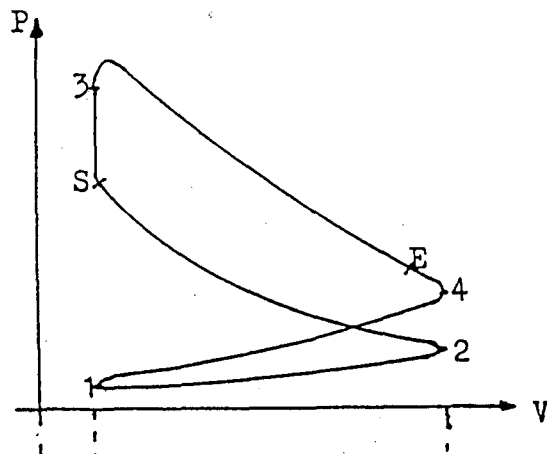


FIG. 1

(a) Theoretical - Closed System.



(b) Actual - Open System.