

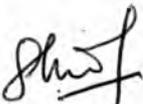


**Gasoline Direct Injection – Three Dimensional  
CFD Study Employing Fluent V 4.25**

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APRIL 2002**

“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

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## **ABSTRACT**

After more than 15 years of research, the Mitsubishi GDI engine is a historic breakthrough. The new 4G93 GDI engine combines the outstanding performance of a petrol engine with the fuel economy of a diesel, while significantly reducing CO<sub>2</sub> emissions. In conventional engines, fuel and air are mixed outside the cylinder. This ensures waste between the mixing point and the cylinder, as well as imperfect injection timing. But in the Mitsubishi GDI engine, petrol is injected directly into the cylinder with precise timing, eliminating waste and inefficiency. My project title is Gasoline Direct Injection – Three Dimensional CFD Study Employing Fluent V 4.25. Features tested variation of flow and efficiency of combustion The gasolines direct injections are new technologies in fuelling consumption. In order to justify the truth or the myth of the GDI engine, a simulation had been conducted. Changing the geometry of the valves hopefully can create a better view in the improvement of the modern technologies in engine combustion. Similarly, the Z-wall (piston head) displacement was the moving plane with speed 13.91 m/s and 27.81 m/s. The temperature of the Z-wall is 423K and the W-wall 393K. The flow was model as turbulence and swirl. Relevant file names Command files, Log files, Geometry files, Grid files, Case files and Data files.

## TABLE OF CONTENTS

CONTENTS	PAGE
ACKNOWLEDGEMENT	i
ABSTRACT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	x

### CHAPTER I INTRODUCTION

1.0	Introduction Of Project	1
1.1	Objective Of Project	2
1.2	Scope Of Project	3

## **CHAPTER II THE INTRODUCTION of IN-CYLINDER GASOLINE DIRECT INJECTION ENGINE (GDI)**

2.1	Abstract	4
2.2	Introduction	4
2.3	In-cylinder gasoline direct injection engine	5
2.4	GDI basic technologies	7
	2.4.1 Basic features	
2.5	Injector	9
2.6	Basic Control Principle	12
2.7	Other New Technologies	13
	2.7.1 Air Bypass valve	
	2.7.2 Electronic EGR control	
2.8	Output performance	14
2.9	Fuel consumption in vehicle testing	15
2.10	Advantages and Disadvantages of Gasoline Direct Injection	16
	2.10.1 Advantages of using GDI	
	2.10.2 Disadvantages of GDI	
	2.10.3 Alternatives	
2.11	Summary	18

## **CHAPTER III COMPUTATIONAL FLUID DYNAMICS**

3.1	Basic Concepts of Fluid Flow	19
	3.1.1 Introduction	19
	3.1.2 Approaches to Fluid Dynamical problems	22
	3.1.3 What is CFD	24
	3.1.4 Possibilities and Limitations of Numerical Methods	25
	3.1.5 Components of a Numerical Solution Method	27