

FINAL YEAR PROJECT REPORT

COST ESTIMATING OF PEDAL BRAKE ASSEMBLY MANUAL TRANSMISSION WIRA 1.6 G.L

**BY:
KHADAFI BIN MOHAMAD
(93392651)**

DIPLOMA IN MECHANICAL ENGINEERING

**MECHANICAL ENGINEERING DEPARTMENT
FACULTY OF
MECHANICAL ENGINEERING
MARA INSTITUTE OF TECHNOLOGY
SHAH ALAM, SELANGOR**

MARCH 1998

ACKNOWLEDGEMENTS

It gives me a great deal of pleasure to acknowledge the assistance and support of many people without whom this project would not have been possible.

I wish to convey my sincere thanks and gratitude to my project advisor, Tuan Hj Md Fuad Bahari for his advice, guidance, encouragement and critics towards the completion of this project.

I also would like to thank En Mohd Khairi Zakaria, Manager of Product and Vendor Development (PVD) department from Tracoma company for the references and ideas. Thanks are due to En Mohd Khairi Zakaria assistants, En Malik and En Khairul, who have contributed much in helping and providing expert advice specially in manufacturing process.

My heartiest thanks also goes to those who are involved in assigning and giving suggestions regarding to this project.

**KHADAFI BIN MOHAMAD
DIPLOMA IN MECHANICAL ENG.
MARA INSTITUTE OF TECHNOLOGY**

PREFACE

This project report attempts to provide a unified overview of cost estimating fundamentals. It addresses cost engineering in manufacturing processes and explains the principles and techniques for manufacturing processes in industry. The manufacturing tasks include a discrete sequence steps, which vary by both, the type of manufacturing industry and the type of product produced. Completion of the processing sequence usually results in a durable product with fixed physical configuration.

This project report is divided into two parts :

Part 1 : The introductory chapters, which covered the basic principles of cost estimating, which is for motivational purpose, outlines the manufacturing factors that be considered in cost estimating. Also clarifies the introduction to manufacturing processes and the definitions.

Part 2 : Covering the thesis of cost estimating by manufacturing for pedal brake assembly manual transmission Wira 1.6 G.L. Also clarifies the manufacturing processes and the calculation method to get a selling price of one finish product for pedal brake assembly manual transmission Wira 1.6 G.L.

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
Title page	I
Project approval	II
Acknowledgement	III
Preface	IV
Table of contents	V
1.0. AN INTRODUCTION OF COST ENGINEERING	1
2.0. THE BACKGROUND AND CONCEPTS OF COST ESTIMATING IN MANUFACTURING	2
3.0. TOOLING COST	3
4.0. MATERIAL COST	4
4.1 Variation with order quantity and time	
4.2 Selecting the proper purchase price	5
5.0. COST AND PRICE RELATIONSHIPS	7
6.0. THE FUNCTIONS OF COST ESTIMATING	10
6.1 Establish bid price recommendations for customer quotations	11
6.2 Check quotations from suppliers from suppliers	
6.3 Aid the make or buy decision	
6.4 Evaluate product design alternatives	
6.5 Assist long term financial planning	
6.6 Help control manufacturing costs	12
6.7 Provide standards for production efficiency	
7.0. INTRODUCTION INTO THE THESIS OF COST ESTIMATION	14
8.0. MACHINE RATE PER HOUR	15
9.0. MANUFACTURING COST	19
9.1 Technical drawing	24
9.2 Picture of pedal brake	26
9.3 Manufacturing process name and illustration	29
10.0. MATERIAL COST	41
11.0. PURCHASE PART COST	43
12.0. COST SUMMARY DETAILS	45
13.0. CONCLUSIONS AND DISCUSSIONS	46

1.0 AN INTRODUCTION TO COST ENGINEERING

Cost engineering is a field that encompasses virtually all of the traditional engineering disciplines. Cost engineering has been described by Clark and Lorenzoni (1978) as that area of engineering practice where engineering judgment and experience are utilized in the application of scientific principles and techniques to the problems of cost estimation, cost control and profitability.

The consideration of costs has always been an important factor in all-engineering tasks. As technology has advanced, the problems of cost estimation, cost control and cost analysis have assumed even greater dominance in economic and engineering decisions. Jelen (1970) attributes this increase in importance to three factors. He states that technological advances have resulted in larger enterprise, keener competition and a reduced time scale for decisions and resultant action. In addition, these advances have released personnel from ordinary production tasks. These personnel now have time and available tools with which to perform cost studies through a variety of analysis and optimization methods. Finally, as technological advances have resulted in greater precision in both design and manufacturing, it is necessary to be able to calculate and predict costs with greater accuracy in order to remain competitive.

Cost engineering projects fall primarily into five basic areas, these are:

- 1.Process plants
- 2.Building/Road/Bridge construction
- 3.Mining
- 4.Manufacturing
- 5.Engineering research projects

For this project we concentrate in estimated cost manufacturing. The product known as a pedal brake assembly manual transmission Wira 1.6 G.L produced by the Tracoma Company have to be estimated to know the cost of one complete finish product. The cost that estimated are used in establish the price of the product, this price are the selling price to the customer.

All the manufacturing cost that involved in this product are stated in this report. The formula and calculations are also shown.