FINAL YEAR PROJECT REPORT

DIPLOMA IN MECHANICAL ENGINEERING

SCHOOL OF ENGINEERING

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM, SELANGOR

WHITWORTH QUICK-RETURN MENCHANISM ANALYSIS

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NOV 1992

ABSTRACT

This report describes an interactive computer program which is an analysis to Whitworth Quick-Return Mechanism. This program describes how the mechanism really works when certain speed were given to the link and then computer calculate the displacement, velocity and acceleration of the slider.

This program can tell you what happen to the ratio of the Whitworth Quick-Return Mechanism when certain link is expend. This program used CHAIN files to chain one and another to solve memory problems. The coding of this program was done in POWER BASIC.

ACKNOWLEDGEMENT

We would like to express our gratitude to all who had helped us in producing this work. We are particularly indebted to En. Mohd Azmi bin Ayob, our project advisor for sparing his valuable time to discuss with us on every stages of this project.

We gratefully acknowledge the assistance of Tuan Hj. Yaacob Abdul Rahman, Puan Razidah, Peridah and En. Khalili for their help.

We are also gratefull to En. Mohd Fakri Shaari and Dr. Dahlan for their contractive criticism and their valueble advice.

Last but not least our deapest appreciation and highest gratitude to our friends who have unselfishly shared long working hours with us, in duration of the project.

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1.0 INTRODUCTION

This project is an analysis on Whitworth Quick-Return Mechanism. This mechanism is normaly found in shaper machine, pumps and mechanism that needs slow feed and a fast return. It is constrained only to the kinematic analysis. From our analysis we find that there are many variables, so a computational approch will eliminate the tediuos andtime cosuming manual method calculation. Therefore this project cocentrate on creating a computer programing to solve problems regarding the mechanism.

Given the physical parameters of the mechanism are known to the user. This program will compute the displacement, velocity and acceleration of the mechanism.

Such computation requares the convertion of equation on mechanism parameters into algorithms readily understood by the computer.

This program has been created a such that the user will be prompted for input, and approched will aloud the design to create a number of posible options before he finalises his choise. This can be done refering to the graph that is generated for every program. Moreover he will be able to answer the "What if....." question.

The second objective of this project or the minor objective of this project is to produce a lab sheet for this apparatus at the Dynamics Lab.