COMPUTER AIDED DYNAMIC ANALYSIS
OF A
PISTON ENGINE

by

Nicolas Avraam

Project Report
Submitted to
the Department of Mechanical Engineering
of the Higher Technical Institute

Nicosia Cyprus

in partial fulfillment of the requirements
for the diploma of
TECHNICIAN ENGINEER

in

MECHANICAL ENGINEERING

Project No. M/520

May 1990

HIGHER TECHNICAL INSTITUTE | PROJECT NO 1700

Computer aided Dynamic Analysis of a piston engine

by
Nicolas Avraam

SUMMARY

The scope of this project is to find the forces and torque output of a crank-piston mechanism which is widely use in internal combustion engines today.

This project is devided into four chapters. Chapter 1 introduce us to the word of computers and how these affect technology. In Chapter 2 the concept of motion, kinematics and kinetics of planar mechanisms is discussed. In Chapter 3 the formulae governing the crank-piston mechanism are derided. In Chapter 4 the programming language is selected and the program flowchart is constructed. Then there is the program listing and user manual. After that the program is tested and the results are shown.

Dispite the relative simplicity of the analysis for the kinematics and kinetics of the crank-piston mechanism the results are very good compared with actual ones but with the presupposition that the engine under test is small (that is, the weight of the piston connecting rod, etc is not big) and is running at low speed.

Contents

Page

CHAPTER 4: COMPUTERISING THE FORMULAE