

INTERFACING AN ENGINE  
LATHE AND A MICROCOMPUTER

by

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A MASTER'S THESIS

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requirements for the degree

MASTER OF SCIENCE

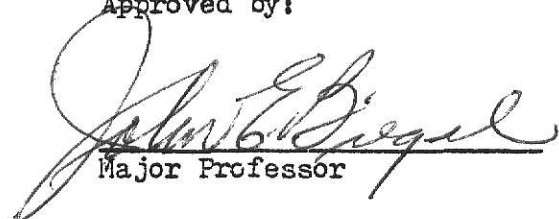
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## TABLE OF CONTENTS

	Page
LIST OF FIGURES	ii
LIST OF TABLES	iii
ACKNOWLEDGEMENT	iv
CHAPTER 1. INTRODUCTION	2
1.1 HISTORY OF THE LATHE	2
1.2 HISTORY OF NUMERICAL CONTROL	6
1.3 PROBLEM STATEMENT	9
1.4 PURPOSE	9
1.5 METHOD	9
1.6 EQUIPMENT	10
CHAPTER 2. DESIGN	13
2.1 GENERAL CONCEPT OF OPERATION	13
2.2 MACHINABILITY DATA	13
2.3 BASIC OPERATION OF THE MMD-1	15
2.4 DECODER CIRCUIT	16
2.5 COUNTER CIRCUIT	22
2.6 INPUT CIRCUIT	30
2.7 MOTOR DRIVE CIRCUIT	34
2.8 SUMMARY OF THE ELECTRONIC CIRCUITRY	39
CHAPTER 3. CONSTRUCTION	43
CHAPTER 4. TESTING	46
CHAPTER 5. PROGRAMMING	49
CHAPTER 6. RESULTS	62
CHAPTER 7. FURTHER RESEARCH	64
REFERENCES	65
APPENDICES	
A. X-MOV SUBROUTINE	68
B. Z-MOV SUBROUTINE	71
C. MOVE-CHECK SUBROUTINE	74
D. SEMICIRCLE SUBROUTINE	77
E. MAIN PROGRAM	85

## LIST OF FIGURES

Figure		Page
1.	Essential Components of a Lathe	3
2.	General Concept of Operation	14
3.	Decoder Circuit	17
4.	Counter Circuit	23
5.	Input Circuit	31
6.	AC Motor Drive Relay Circuit	36
7.	AC Motor Drive Circuit	38
8.	Test Part	47
9.	X-Mov Subroutine Flow Chart	51
10.	Move-Check Subroutine Flow Chart	52
11.	Semicircle Subroutine Flow Chart	55
12.	Generalized Program Flow Chart	60

## LIST OF TABLES

Table	Page
1. Machinability Data for Acrylic Plastic	13
2. Logic Table for the 74154 IC Chip	19
3. Logic Table for a 74L04 IC Chip	20
4. Logic Table for an AND Gate (7408)	22
5. Logic Table for a 7490 Decade Counter	25
6. Logic Table for Two Cascaded 7490's	27
7. Logic Table for an 8212 IC Chip	32
8. Logic Table for a 7474 IC Chip	39
9. Microcomputer Codes for Device Selection and Operation	40
10. BCD Numeral Conversion	53
11. X and Z Moves for a Semicircular Arc	57

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CHAPTER 1

INTRODUCTION

## INTRODUCTION

### 1.1 HISTORY OF THE LATHE

"It is conceded that of all the machines employed by the mechanic to aid him in his work, the lathe holds the honor of having been the first machine tool. From it, in one way or another, all other machine tools have been developed."\*

This quote from Oscar E. Perrigo's book, Lathe Design, sums up the importance of the lathe to the development of all machine tools (2).

A lathe is a machine which rotates a workpiece around a central axis against a fixed tool. The essential components of a lathe are the headstock, tailstock, carriage, and frame. Figure 1 shows these components in block form. The headstock is the device which transmits rotation to the workpiece. The tailstock is used to support the end of the workpiece opposite to the headstock. The carriage or cross-slide is the mechanism which supports and moves the cutting tool. It can travel along the Z axis (between the headstock and the tailstock) and it supports the cross-feed which can travel along the X axis (perpendicular to the Z axis or moving into or away from the workpiece). The carriage may also support a compound rest. The compound rest is similar to the cross-feed mechanism except that it has a much shorter length of movement. It is used for making angular cuts and short tapers. The frame is the part of the machine which holds and supports the rest of the lathe. It consists of the bed and legs. The legs support the bed and the bed supports the tool and the work. The bed also absorbs the forces associated with the cutting of the workpiece. These are

\* Oscar E. Perrigo, Lathe Design, The Norman W. Henry Publishing Co., New York, NY, 1917