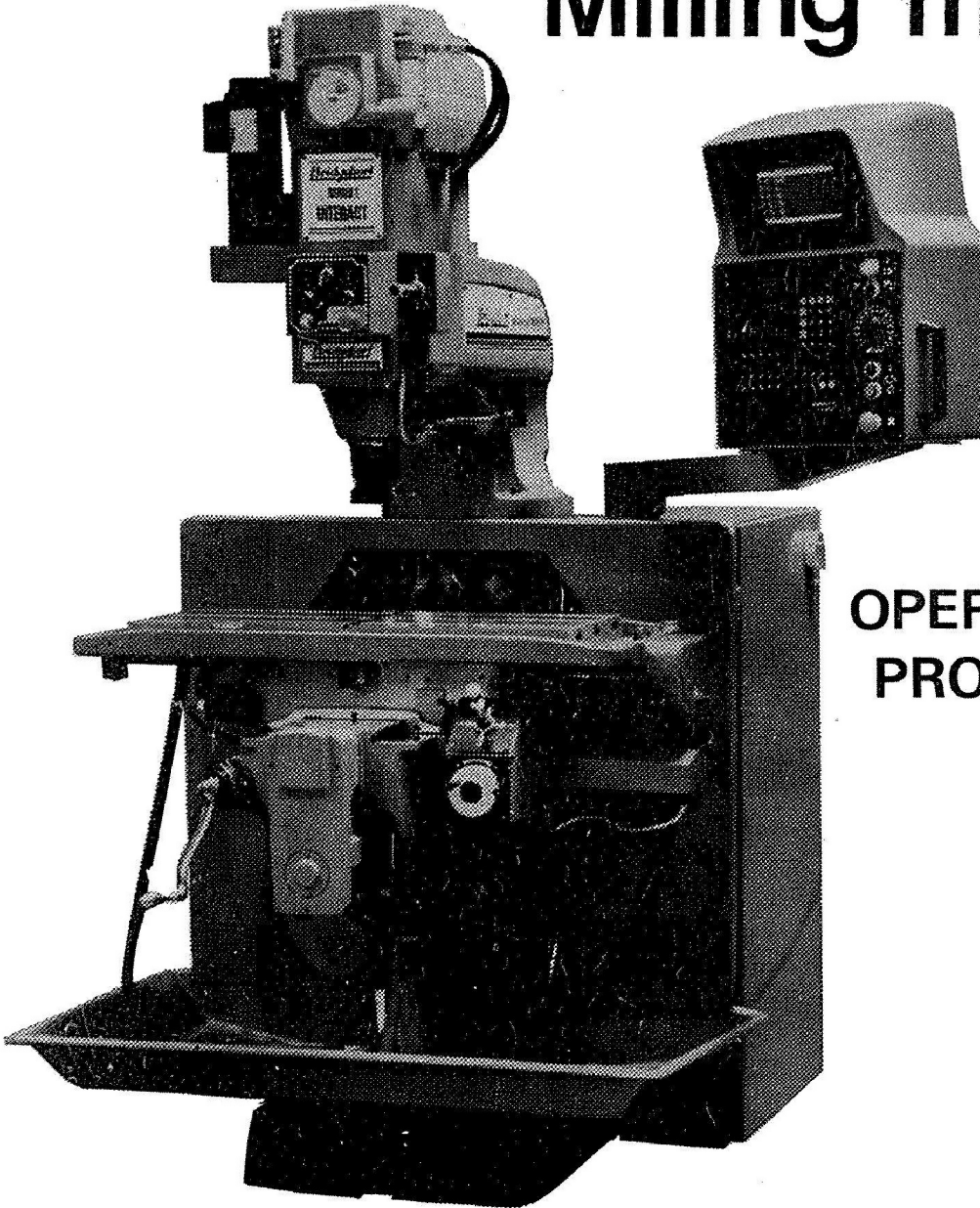


Bridgeport

Series I INTERACT Milling machine



OPERATING AND PROGRAMMING MANUAL

Part No. 0266351

Bridgeport **TEXTRON**

CONTENTS

1. INTRODUCTION

1.1 MACHINE CONCEPT	1-1
1.2 BASIC DESCRIPTION OF CONTROL	1-1
1.3 MACHINE TRAVEL ENVELOPE & CO-ORDINATE SYSTEM	1-2

2. MACHINE OPERATION

2.1 CONTROLS FOR MANUAL OPERATION	2-1
2.1.1 Axis Manual Control	2-2
2.1.2 Knee Elevation	2-2
2.1.3 Axis Power Feed Control	2-2
2.1.4 Quill Feed Control	2-2
2.1.5 Table & Cross-slide Feed Control	2-2
2.2 ELECTRICAL OPERATING CONTROLS	2-3
2.3 SPINDLE CONTROLS	2-4
2.3.1 Spindle On/Off Switch	2-4
2.3.2 Emergency Stop	2-4
2.3.3 Spindle Off Light	2-4
2.3.4 Brake Control Switch (Option)	2-5
2.3.5 Speed Increase/Decrease Control (Option)	2-5
2.4 MACHINE FUNCTION CONTROLS	2-6
2.4.1 Power Enable Button	2-6
2.4.2 Coolant On/Off Switch	2-6
2.4.3 Feed Rate Selection Potentiometer	2-6
2.4.4 Cycle Start/Stop Buttons	2-6
2.4.5 Emergency Stop Button	2-6
2.5 INITIAL CONDITIONS AT POWER ON	2-7

3. PENDANT CONTROL

3.1 OPERATING MODE KEYS	3-1/2
3.2 PROGRAMMING KEYS	3-3
3.3 AXIS SELECTION & ENTRY VALUE KEYS	3-4
3.4 EDITING KEYS	3-4
3.5 MULTIPLE AXIS KEYS	3-4

4. CONTROL PROGRAMMING

4.1 AXIS VALUES	4-1
4.1.1 Absolute & Incremental Dimensions	4-1
4.1.2 Rules for Position Value Key In	4-1
4.1.3 Battery Change	4-1
4.1.4 Machine Switch On	4-2
4.1.5 Setting Component Datum	4-2
4.1.6 Traversing Over Axis Reference Marks	4-2
4.1.7 Finding Datum After Power Failure	4-2
4.2 PROGRAMME BLOCK TYPES	4-3
4.2.1 Tool Definition	4-3
4.2.2 Tool Call	4-4
4.2.3 Single Axis Positioning Block	4-5
4.2.4 Multiple Axes	4-6
4.2.5 Multiple Axis	4-6
4.2.6 Multiple Axis (Circular Milling)	4-7/8/9
4.2.7 Polar Co-ordinate	4-10/11/12/13
4.2.8 Cycle Definition	4-14/15
4.2.9 Cycle Call	4-15
4.2.10 Labels	4-16/17
4.2.11 Block for Program Stop	4-18
4.2.12 Clearing Program	4-18
4.3 AUXILIARY (MISCELLANEOUS) FUNCTIONS	4-19
4.4 FEED RATE VALUES	4-20
4.4.1 Metric Input	4-20
4.4.2 Inch Input	4-20

CONTENTS (cont.)

4.5	TOOL CHANGE	4-21
4.6	TOOL LENGTH & RADIUS COMPENSATION	4-21
4.6.1	Tool Length Compensation	4-21
4.6.2	Tool Radius Compensation	4-22
4.7	SUB PROGRAMMES & PROGRAMME PART REPEATS	4-23
4.7.1	Principles of Operation	4-23
4.7.2	Nesting of Sub Programs	4-24
4.8	FIXED PROGRAMM CYCLES	4-25
4.8.1	Cycles Available	4-25/26
4.8.2	Cycles Selection	4-27
4.8.3	Three Dimensional Line	4-28
4.8.4	Cycle 'Pecking'	4-29
4.8.5	Cycle 'Tapping'	4-30
4.8.6	Cycle 'Slot Milling'	4-31
4.8.7	Cycle 'Pocket Milling'	4-32
4.8.8	Cycle 'Circular Pocket'	4-33
4.8.9	Cycle 'Datum Shift'	4-34
4.8.10	Cycle 'Mirror Image'	4-35
4.8.11	Cycle 'Dwell Time'	4-36
4.9	INPUT FOR AUTO/MANUAL POSITIONING	4-37
5.	PROGRAMME FORMATION	
5.1	SLIDEWAY POSITION TRANSFER	5-1
5.2	PROGRAMME DATA TRANSFER	5-2
5.2.1	Programming From Drawing With Machine Movements	5-2
5.2.2	Data Input and Output From/To a Remote Device	5-3/4
5.2.3	Clearing Programme	5-4
5.3	PROGRAMME CHECK	5-5
5.3.1	Checking Without Machine Traverse	5-5
5.3.2	Positioning to Programme Without Tool	5-6
5.4	PROGRAMME EDITING	5-7
5.4.1	Call Up of a Required Programme Block	5-7
5.4.2	Editing Individual Words	5-7/8/9
5.4.3	Search Routines	5-9
5.4.4	Insertion of Programme Blocks	5-10/11
5.4.5	Deleting Programme Blocks	5-12
6.	PROGRAMME EXECUTION	
6.1	PROGRAMME RUNNING	6-1
6.1.1	Search for Programme Start	6-1
6.1.2	Start for Single Block Operation	6-1
6.1.3	Start for Automatic Programme Run	6-2
6.1.4	Interruption of Programme Run	6-2
6.1.5	Involuntary Interruption of Programme	6-3
6.1.6	Programme Interruption for Correction	6-4/5
7.	COMMON ERRORS IN CONTROL OPERATION	7-1/2
8.	PROGRAMMING EXAMPLES	
8.1	WORKPIECE WITH HOLES	8-1/2
8.2	WORKPIECE WITH HOLE MATRIXES	8-3/4
8.3	WORKPIECE WITH HOLE MATRIX	8-5
8.4	MILLING OPERATION	8-6
8.5	SLOT MILLING OPERATION	8-7
8.6	PROFILE AND POCKET MILLING OPERATION	8-8/9
8.7	PROFILE AND CIRCULAR POCKET MILLING OPERATION	8-10
9.	MACHINING EXAMPLE	
9.1	DEMONSTRATION PIECE	9-1
9.2	PROGRAM FORMAT	9-2/3/4/5
10.	LUBRICANTS	
10.1	AUTOMATIC LUBRICATION	10-1
10.2	AIR BRAKE/AIR ASSISTED SPEED CHANGE	10-2
11.	30 INTERNATIONAL QUICK CHANGE SPINDLE	11-1