

CHAPTER 1

INTRODUCTION

1.1 PURPOSE AND SCOPE

This manual contains the information needed to install, maintain, troubleshoot and repair the R2E4 Series I Milling, Drilling, and Boring machine. The information presented covers the tasks and levels of skills needed for the maintenance of a computer controlled milling machine. This manual includes theory of operation, preventive maintenance, troubleshooting, adjustments, and parts replacement. Attendance at Bridgeport Service Training Schools is recommended to acquire a thorough understanding of the R2E4.

1.2 REFERENCE MANUALS

Other manuals dealing with the R2E4 milling machine are:

- Code No. 1-104-0821 — Operating Manual
- Code No. 1-104-0822 — Programming Manual
- Code No. 1-104-0823 — Users Manual
- Code No. 1-104-0825 — Parts Manual

1.3 ORGANIZATION OF MANUAL

This manual has been divided into five sections for quick, easy use. Each section contains all the chapters presenting information on that particular function.

Part I: Installation Procedures are located in the User Manual.

Part II: Theory Of Operation Chapters 3 through 6 provide description of the R2E4 system and theory of operation. Topics presented in these four chapters progress from general subsystems to specific components. This is done so all maintenance personnel can fully understand the information needed for their level of maintenance.

Part III: Maintenance Chapters 7 and 8 provide procedures for troubleshooting and testing the R2E4 controls system. Chapter 9 presents preventive maintenance for the complete R2E4 system.

Part IV: Mechanical Assembly Chapters 10 and 11 provide descriptions of the Base and Head assemblies. Included in these Chapters are adjustments and parts replacements for the milling machine.

Chapter 12 details the auxiliary systems of the R2E4. Adjustment information is also included in this chapter. Chapter 13 covers optional equipment available for the R2E4 system. Included are descriptions and installation information.

Part V: Appendix Appendix A provides R2E4 system specifications.

Appendix B contains information on the safe handling of static sensitive materials.

Appendix C provides communication standards and instructions for connecting peripheral equipment to the R2E4 system using Ports A and B. Specific procedures for connecting an ASR-33 teletype are also included.

1.4 LEVELS OF MAINTENANCE

Level 1 Level 1 personnel are not required to have detailed knowledge of the equipment, nor have any (electrical) tools for maintenance.

Level 1 maintenance consists of keeping the equipment clean and lubricated, ensuring power is turned on, and that proper startup and operating procedures are being followed.

Level 1 personnel are not authorized to make adjustments or replace components.

Level 2 Level 2 service personnel are required to have VOMs, spare fuses, printed circuit boards, etc.

Level 2 maintenance consists of all Level 1 procedures, plus adjustment of power supply voltages and replacement of major subassemblies. Motors, cables, PC boards, and fuses, plus certain individual components (such as contactors, power switches and disconnects) may be replaced by Level 2 personnel.

Level 2 personnel are not authorized to replace individual components other than those listed above.

Level 3 Level 3 Maintenance personnel are trained at Factory Service School. They are expected to have a detailed knowledge of the equipment and its theory of operation.

Level 3 Maintenance personnel are equipped with all the tools available to Level 2 personnel, plus oscilloscopes and logic probes.

Level 3 Maintenance personnel are authorized to perform all Level 2 maintenance functions plus replacement of certain individual components (such as power semiconductors, filter capacitors, and certain low-level semiconductors).