INTRODUCTION

LAYING THE FOUNDATION

BASIC RCL COMMANDS

Certain RCL commands are important to all robot programs. Here is a list of these commands and how to use them. It is important to read these FIRST, before proceeding to the activities, because you use these commands from the very start.

1. **PREPARE THE ROBOT:** This command goes at the beginning of all new robot tasks and "wakes" RB5X up.

2. **WAIT:** This command asks you how many seconds the robot should wait before doing something else or repeating the task. **WAIT** is also helpful when using the sensing devices.

3. **WAIT RANDOMLY:** This command lets you select the maximum time the robot waits. If you select five seconds, the robot may wait no longer than five seconds, but may continue after some shorter time.

4. **CALL:** This command asks for a name that must begin with a quotation mark. It tells the robot where to start over in the task when it has finished the original program.

5. **JUMP:** This command asks for a name that must begin with a quotation mark and must be the same as the name you selected in **CALL.** It tells RB5X to look in its memory for that spot in the program and to go back to that part of the program.

6. **BUILD AND LOAD:** Use this command when you have finished writing a robot task and want to see how it works. When you see the computer's ready message, type in **BUILD AND LOAD.** The computer asks you for the name of the task. Once you have entered the name, the computer translates your English commands into the Tiny BASIC that RB5X understands. When the task is ready for the robot, a message appears on the screen. Be sure the RS-232 cable is plugged into the robot and that the power is on. Follow the instructions given by the computer.

7. **BEGIN A LOOP:** A loop is a set of robot instructions that RB5X repeats some number of times. This command specifies where the repeated instructions start. The program gets out of the loop through an EXIT instruction some place in the loop.

8. **REPEAT THIS LOOP:** This command tells the robot where the loop ends and instructs it to go back to the beginning of the loop.

9. **BEGIN A COUNTED LOOP called (1) beginning at (2) and ending at (3):** A counted loop repeats a set number of times. You insert the loop name at point (1), tell the robot where to start counting by putting a number value at (2), and tell the robot when to stop with another number value at (3). Variable (2) can be any number, but (3) must be larger than (2) or an error occurs. Each time the loop is repeated, a "loop counter" value is increased by 1. The program gets out of the loop through an **EXIT** instruction or when the count gets to value (3).

10. **REPEAT A COUNTED LOOP:** This command tells RB5X where the counted loop ends and instructs the robot to go back to the beginning of the loop.

HOW TO USE THESE ACTIVITIES

There are two ways to use these activities. They are divided into five sections that address a specific type of robot ability with a sixth section that combines all of the different abilities to allow RB5X to perform more difficult tasks. Each section contains ten activities and each group

of activities is arranged in order of difficulty or complexity, with Activity 2 building on what you have learned in Activity 1.

You may complete each section before going on to the next or you may complete Activity 1 in each of the six sections before going on to Activity 2 in each of the six sections. In the latter case, you may want to use commands from other sections.

You will want to save on diskette most of the tasks you create because this gives RB5X many useful and entertaining things to do as well as making your future programming of the robot faster and easier. As you proceed through the activities, you will see how this works.