COMPUROBOT II

personal file!

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MY MESSAGE TO YOU

Hi there. Did you know that learning can be a great deal of fun? It's true. And I'm so proud to be the Remote Control Programming Robot to show you how. I promise to give your whole family hours of enjoyable entertainment while at the same time show you a brand new kind of fun. I'm so simple to use and understand. Just follow my easy step-by-step instructions and with a little bit of practice, programming me will be as easy as ABC.

I'm no ordinary robot. In fact, how many other robots do you know who can . . .

- *Dance?*
- *Play music?*
- *Play games?*
- *Draw and write?*
- *Teach basic programming?*
- *Remember as many as 64 commands?*

Plus I'm also able to . . .

- *Receive commands from a personal computer (option)*
- *Carry small things for you (accessory)*
- *Avoid objects on my way (accessory)*
- *Keep time and wake you up in the morning (accessory)*

Sound interesting? Just think. These are only a few of the many things which I'm capable of doing. Once you've learned the secret to playing with me, the real fun begins. Surprise and amaze your friends with your programming skills. Remember, the key to enjoying yourself is to let me do all the work and for you to have all the fun, OK?

By the way, I don't have a name. Can you give me one?

SELF-INTRODUCTION

Here's what I look like. Let me tell you about myself.

REMOTE CONTROLLER

GREEN HEADLIGHTS
both headlights will light up
when using the [M] key

YELLOW HEADLIGHT (OPTION)
this headlight will light up a bright yellow
using the [⇄] key

SLIVER BARS –
touch gently to
turn me 'ON'

EYES –
my eyes will light up
a bright red when I am
'ON'

VOICE BOX –
every beep and
music tone will
sound from here

FUNCTION LIGHT –
a flash of light will appear
after each correct key
entry

CUSTOM NAME PLATE –
Place my name here

STRONG MECHANICAL ARMS
made to carry small thing for you

CRAYON HOLDER
Place in a crayon and I
will draw & write
according to your
instructions

FRONT VIEW

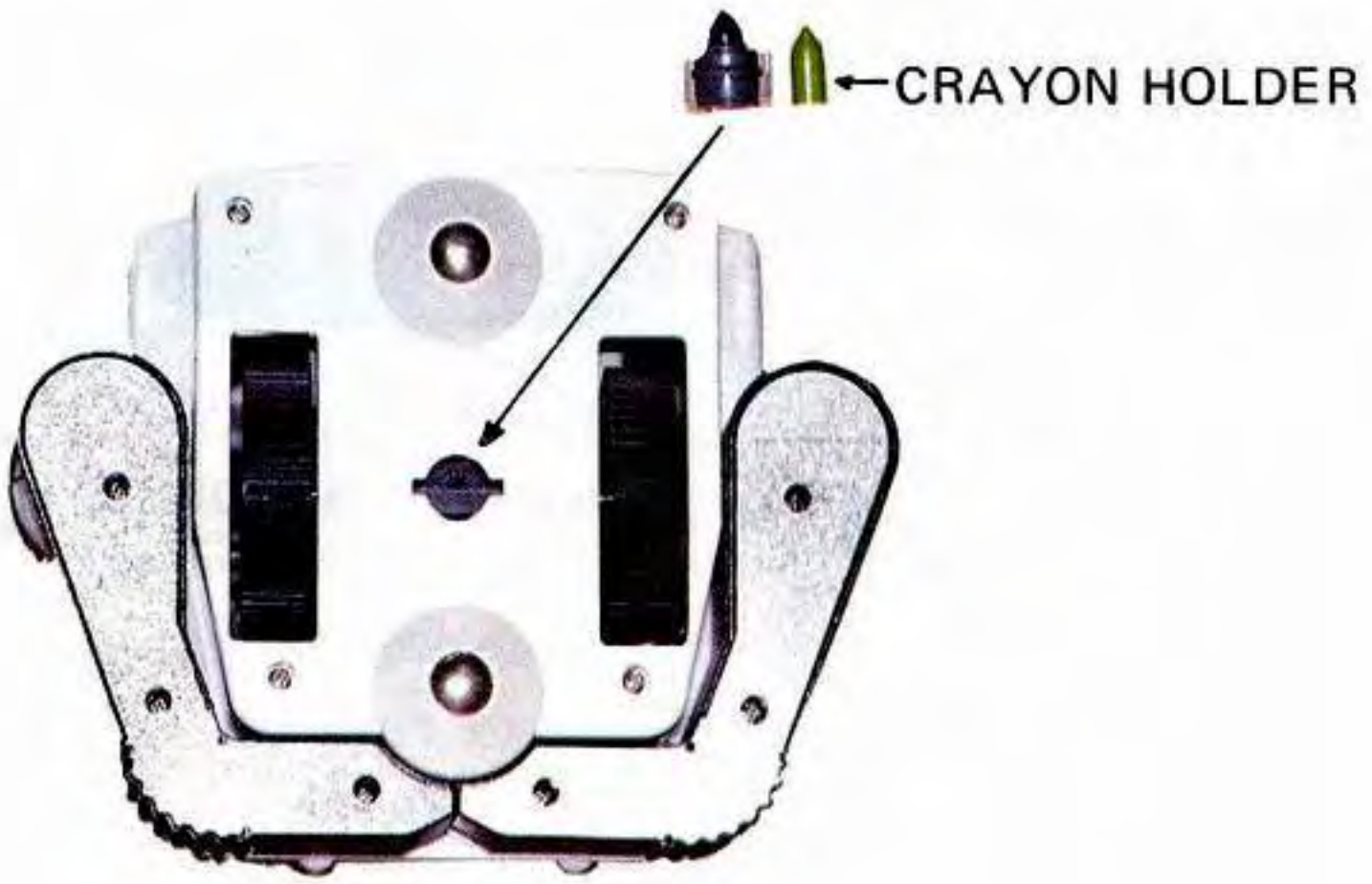
MY PERSONAL BELONGINGS

These are my belongings that come with me in a beautiful gift box:

1) a remote controller
2) a remote controller holder
3) a crayon holder
4) an easy-to-read manual

CRAYON HOLDER

I will draw and write according to your instructions. Want to draw a picture? Just pick out your favourite crayon colour and place it into my crayon holder. Then remote control or program me on a piece of drawing paper. It is fun to see my writing and drawing.



BASE VIEW

REMOTE CONTROLLER HOLDER

Tired of holding my remote controller? Free your hands by simply placing the controller into the remote controller holder which is held in place by my two mechanical arms (see illustration). You will still able to program me this way.
Also, when you have finished playing for the day, you can place the controller into my holder so that it is easily found the next time you wish to play with me.

REMOTE-CONTROLLER HOLDER

INSERTING BATTERIES

I want to be in tip-top working condition. It is very important for you to feed me with the right batteries and for them to be placed in correctly. This is very easy to do. Just follow the pictures below to insure proper placement.

ROBOT

a) Turn me around and pull open the battery door by lifting up on the latch.
b) Place in 4 longlife or alkaline batteries to make me run as long as possible (size C, 1.5 Volts).
c) Make sure they are facing the right way.
d) Replace battery door.

BACK VIEW

REMOTE CONTROLLER

a) Slide open the battery door on my remote controller by pulling downward (follow arrow).

b) Place in 4 longlife or alkaline batteries (size AA 1.5 Volts).

c) Make sure they are facing the right way.

d) Replace battery door.

REMOTE CONTROLLER

I am now fully equipped to follow your commands.

Note: I have no ON/OFF switch. Turn me 'ON' by simply touching the silver bars on my shoulders. I will automatically go to sleep if you don't play with me for 2 minutes.

PREPARATION STEPS

So far so good, I hope. It's time for you to begin playing and programming me. But first, please prepare me for play.

a) Make sure you have a large flat area for me to move around in. I don't want to hurt myself by running and bumping into furniture.

b) Make sure my batteries are properly placed.

c) Now turn me 'on'. Gently touch the silver bars across my shoulders. If everything is OK, my eyes will light up a bright red and a beep will sound.

d) Always point the controller towards the robot.

I AM NOW READY TO BE PLAYED WITH.

Note: 1) A beep will sound after each correct key entry.

2) I will take a command from anywhere in a room (up to 40 feet).

3 WAYS OF PLAYING WITH ME

I) Remote Control Motions

II) Remote Control Programming

III) Playing with a Personal Computer

I. REMOTE CONTROL MOTIONS

This is the easiest and most basic way of playing with me. Let's start off by learning a few simple but important exercises. When you have finished with these, you can go on to the next section and test your skill at the more advanced exercises. By then you'll be able to create your own exercises and games.

These are the motion keys you will use in this section.

By pressing any of the above keys, I will instantly respond to your command. I will keep on moving and will not stop until you press the PAUSE [●] *key. To make me start moving again, simply press any of the above mentioned keys.*

For your own information, all my movements are stored in my memory bank. If you wish to see the previous movements repeated, just touch the GO [●] *key and I will be happy to repeat the movements for you.*

Note: When playing in the Remote Control Motion section, make sure that both my green headlights are off. If they happen to be on, press the [M] *key to turn them off.*

REMOTE CONTROL MOTION EXERCISES

These exercises are simple but fun.

Exercise A) [▲] *MOVE FORWARD*
Enter [▲] [●]

Notice that I keep on moving until you enter [●]

Exercise B) [▼] *MOVE BACKWARD*
Enter [▼] [●]

Try the same exercise using the following keys:

Exercise C)

TURN LEFT	[◀]	[●]
TURN RIGHT	[▶]	[●]
CURVE LEFT	[↶]	[●]
CURVE RIGHT	[↷]	[●]

You can even try a few motions together using the above keys.

Exercise D) *MOVE FORWARD, BACKWARD, CURVE LEFT, TURN RIGHT.*
Enter [▲] [▼] [↶] [▶] [●]

Exercise E) *Want to see the Exercise D) repeated?*
Enter [●]

EASY AS ABC!

II. REMOTE CONTROL PROGRAMMING

Now that you know more about how I work, how would you like to take on a challenge? In this section, your skill at programming me will be tested. Don't worry if you make a few mistakes along the way. After all, trial and error are all part of programming. Programming may be difficult at first, but you will soon see that there is nothing to it. Just take your time and most importantly, HAVE FUN!

PROGRAMS AND COMMANDS

- *A PROGRAM is a COMMAND or a series of COMMANDS which tell me what to do.*
- *A COMMAND is formed by a FUNCTION key followed by a NUMBER key.*

LEARNING THE KEYBOARD

You should take some time to learn the position and use of every key on my keyboard. This will save you time when you begin to program me. Some keys serve more than one function. Lets learn more about each key.

FUNCTION KEYS


– *to move forward for a certain time*


– *to move backward for a certain time*

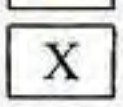

– *to turn left at a certain angle*

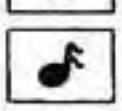

– *to turn right at a certain angle*


– *to pause or hold for a certain time*


– *to curve left for a certain time*


– *to curve right for a certain time*


– *to multiply the previous command by a number*


– *to play or compose music*


– *to dance*


– *to set me in low or high gear*

NUMBER KEYS

There are a total of 8 number keys.

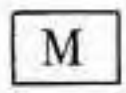
1	2	3	4	5	6	7	8

These number keys are very important because they can perform more than one function. They can represent . . .

a) A certain number of seconds
b) Music tones (Do, Re, Mi, Fa, Sol, La, Ti, Do)
c) Speed (when used with the Gear Key)
d) Certain angles

GO KEY – 

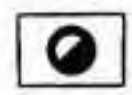
This key tells me to start the program stored in my memory.

MODE KEY – 

This key lets you create and play with programs after both green headlights have been turned on (for COMPUTER option, you can only see one green headlight). This is a toggle key. Touching this key again will turn my headlights off.

ERASE KEY – 

This key erases all memory.

CLEAR LAST COMMAND KEY – 

You can clear the last command if you made an error.

DEMONSTRATION KEY – 

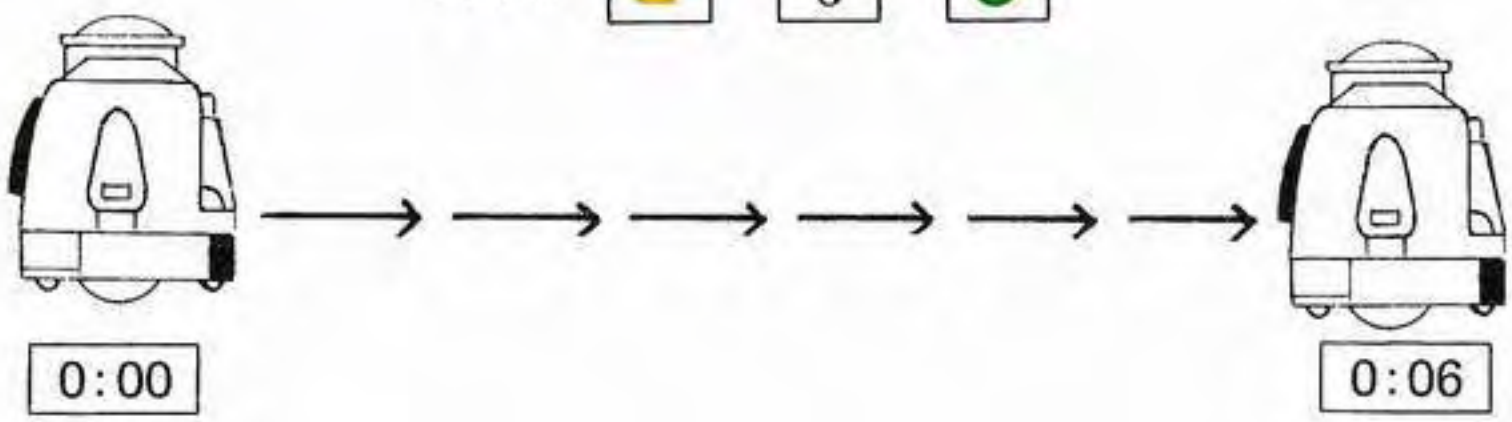
When this key is pressed, I begin to do a little show for you. This show lasts about two minute? I will show you how I move Forward, Backward, Turn Right, Turn Left, Curve Right, Curve Left, Gear (high and low), dance, and will even play Jingle Bells for you. I will even write for you.

PROGRAMMING EXERCISES

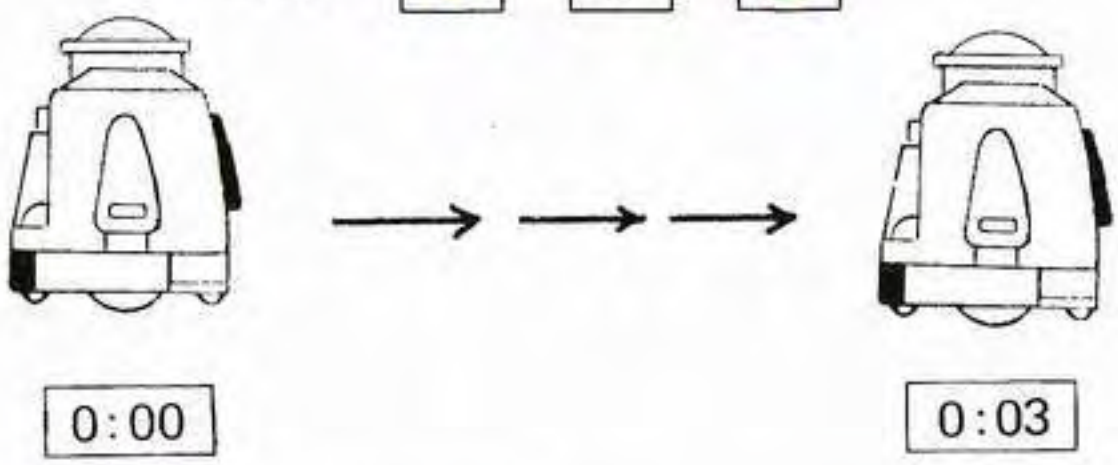
When playing or programming in this section,

- *both my green headlights should be on (Only one green light is on for computer option)*
- *a quick tune is played to indicate beginning of program and a slower tune after end of program.*

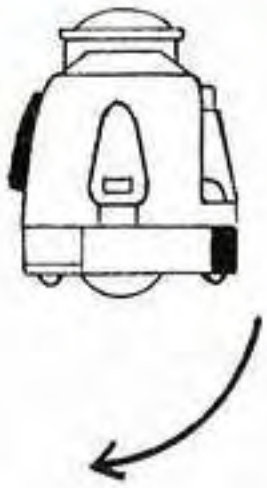
Exercise 1) ▲ *FORWARD*
Move FORWARD 6 seconds.
Enter ▲ 6 ●



Exercise 2) ▼ *BACKWARD*
Move BACKWARD 3 seonds.
Enter ▼ 3 ●



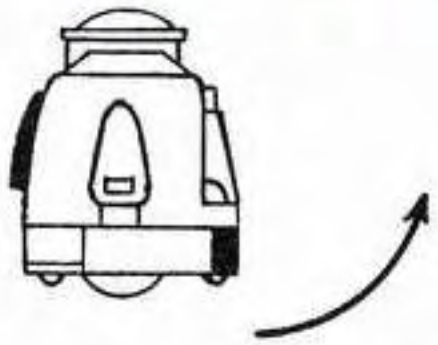
Exercise 3) ▶ *TURN RIGHT*
TURN RIGHT an angle of 5 units
Enter ▶ 5 ●



Exercise 4) [◀] *TURN LEFT*

TURN LEFT an angle of 3 units

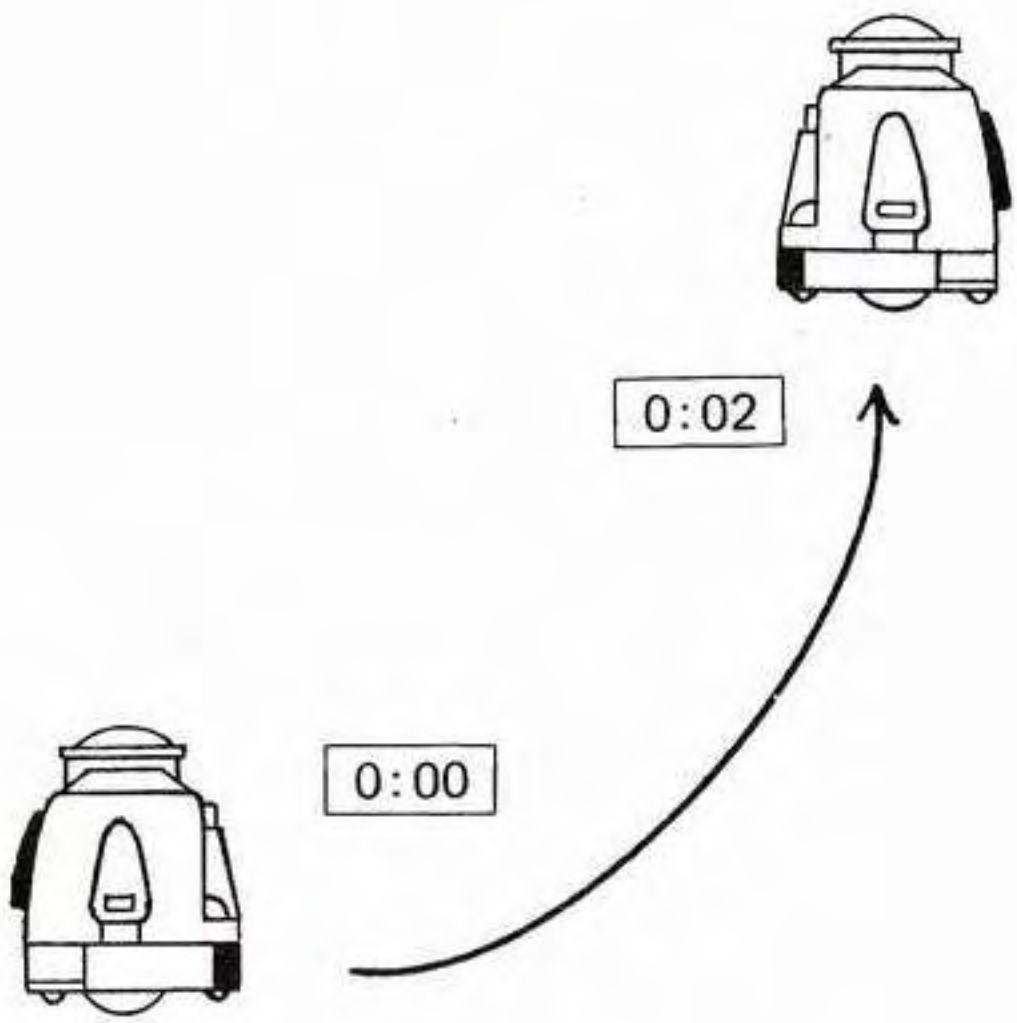
Enter [◀] [3] [●]



Exercise 5) [↰] *CURVE LEFT*

CURVE LEFT 2 seconds.

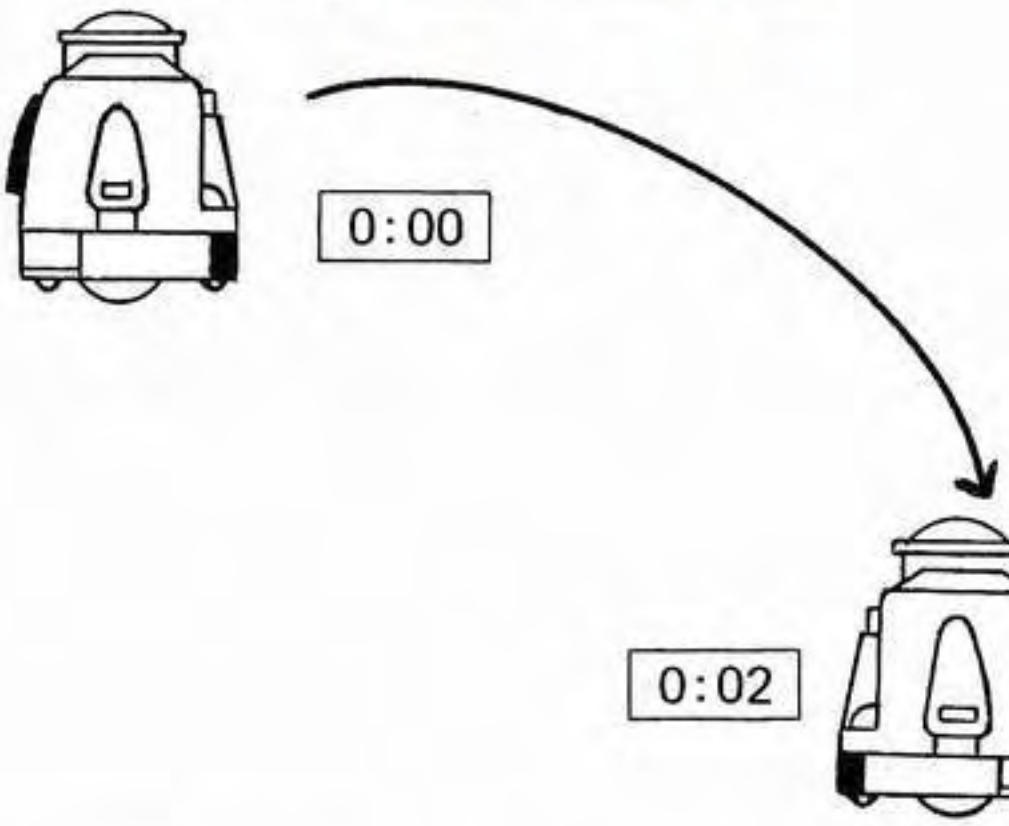
Enter [↰] [2] [●]



Exercise 6) [curve right] *CURVE RIGHT*

CURVE RIGHT 2 seconds.

Enter [curve right] [2] [green]

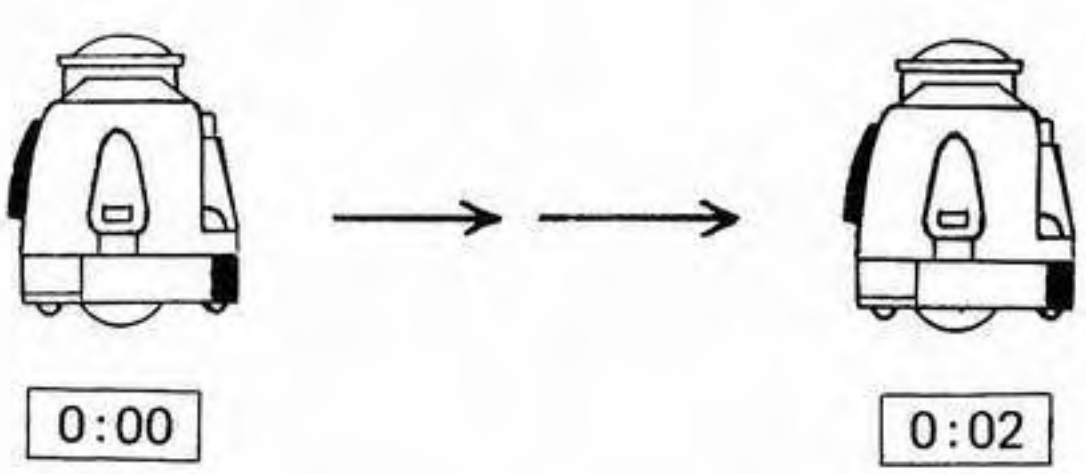


Exercise 7) [gear] *GEAR*

I can move FORWARD and BACKWARD at two different speeds.

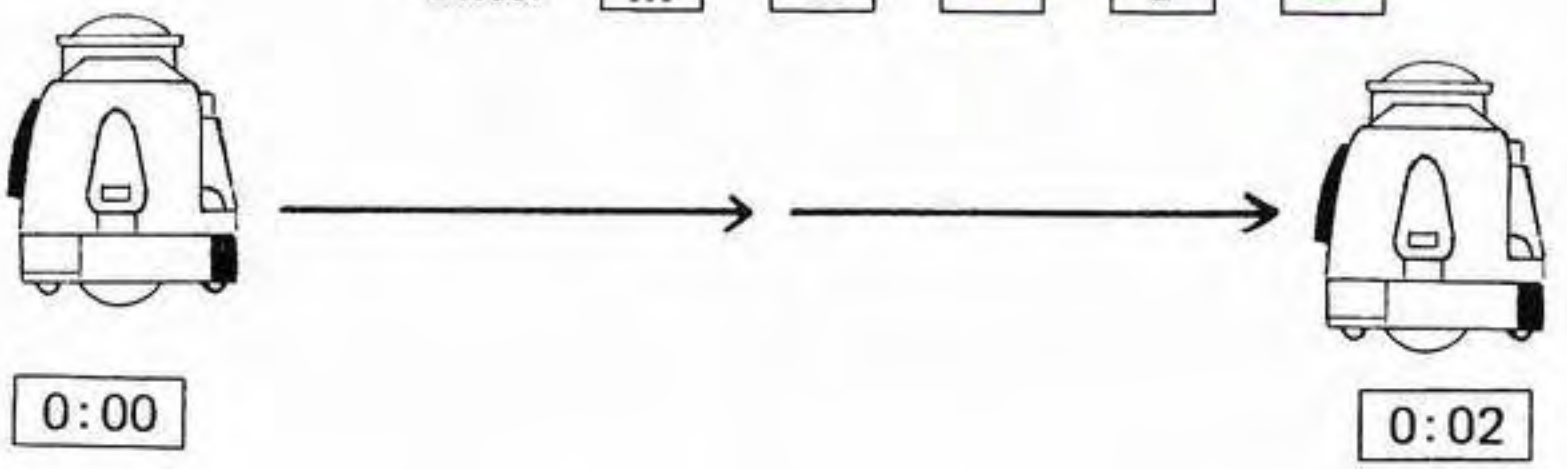
a) Move FORWARD at 1st GEAR (low speed) 2 seconds.

Enter [gear] [1] [yellow] [2] [green]



b) Move FORWARD at 2nd GEAR (high speed) 2 seconds.

Enter [person] [2] [▲] [2] [●]

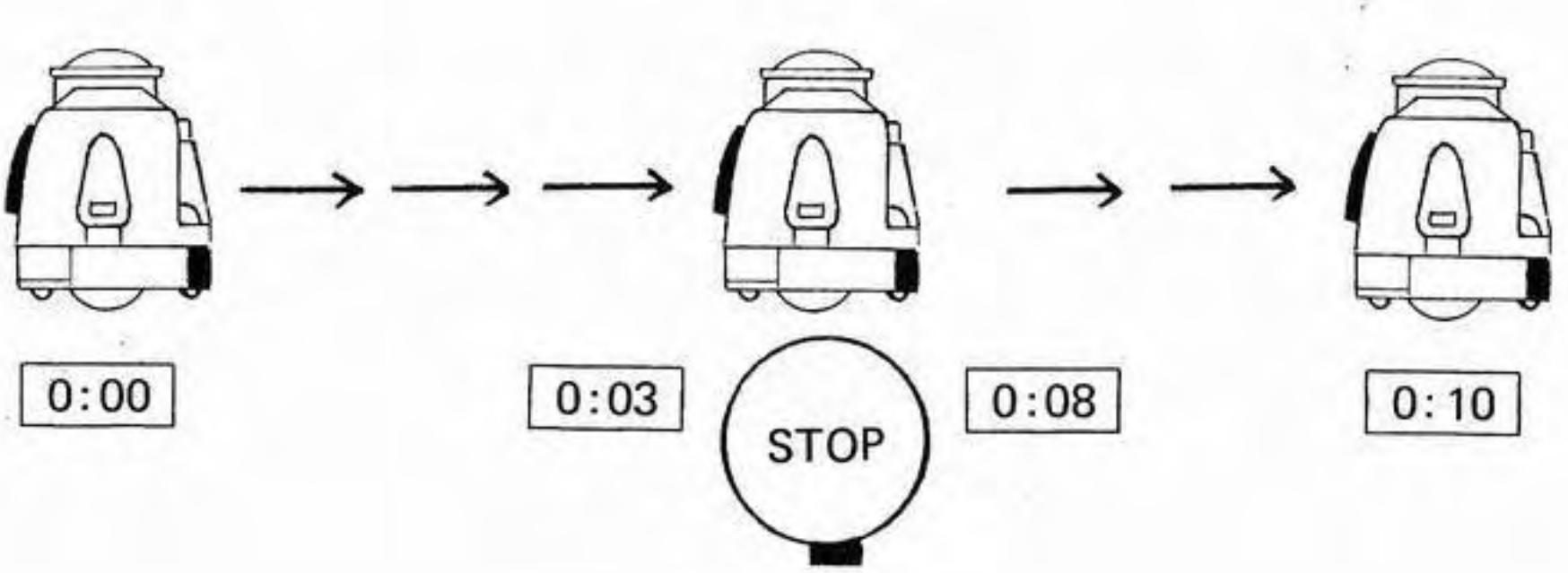


Note: 1) After installing batteries inside me, I always stay at 1st GEAR until you set me to 2nd GEAR.

Exercise 8) [●] *PAUSE*

MOVE FORWARD 3 seconds, PAUSE 5 seconds, MOVE FORWARD 2 seconds.

Enter [▲] [3] [●] [5] [▲] [2] [●]



Exercise 9) [X] *MULTIPLY*

To move me FORWARD 15 seconds, there are many ways of doing this.

a) Enter [▲] [5] [▲] [5] [▲] [5] [●]

b) Enter [▲] [4] [▲] [4] [▲] [7] [●]

c) Enter [▲] [3] [▲] [3] [▲] [3] [▲] [3] [▲] [3] [●]

This may seem a bit repetious, so the easiest way to move 15 seconds would be to use the [X] *key. Just multiply like a calculator.*

a) Enter [▲] [5] [X] [3] [●]

b) Enter [▲] [3] [X] [5] [●]

c) Enter [▲] [3] [X] [4] [▲] [3] [●]

Note: The largest number this [X] *key can come up with is 64. For example,*

Enter [▲] [8] [X] [8] [●]

Exercise 10) [♪] *MUSIC*

The [♪] *key is one of the most fun keys you will be playing with. You can spend many hours at a time composing beautiful music for me to play.*

I have a total of 12 tones. They are represented by the following keys:

[▲]	[▼]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
La (low)	Ti (low)	Do	Re	Mi	Fa	Sol	La	Ti

[8]	[◀]	[ ]
Do	Re (high)	Mi (high)

Try these exercises:

a) Play the scale from Do through Do(high)

Enter [♪] [1] [♪] [2] [♪] [3] [♪] [4] [♪] [5]
[♪] [6] [♪] [7] [♪] [8] [●]

4/4 | 1 2 3 4 | 5 6 7 $\dot{1}$ |

b) Play La(low) Do Mi Sol Ti Re(high)

Enter [♪] [▲] [♪] [1] [♪] [3] [♪] [5] [♪] [7]
[♪] [◀] [●]

2/4 | $\dot{6}$ 1 | 3 5 | 7 $\dot{2}$ |

It is even possible to have the same tone repeated more than once:

a) Repeat the Sol tone 5 times

Enter [♪] [5] [X] [5] [●]

b) Play Fa 3 times, Sol 2 times, Ti once

Enter [♪] [4] [X] [3] [♪] [5] [X] [2] [♪] [7] [●]

REMEMBER, when using the [M] *MODE key, I will always play a quick and slow tune to let you know your program is beginning and ending. To avoid confusing these tunes with the music you compose, you should use the* [●] *PAUSE key.*

For instance: Pause 1 second, play 'Do Re Mi', pause 1 second.

Enter [●] [1] [♪] [1] [♪] [2] [♪] [3] [●] [1] [●]

ANOTHER THING TO KNOW while programming with the [♪] *MUSIC key is that I am not able to move while playing a song. But I am able to move before or after the music is played:*

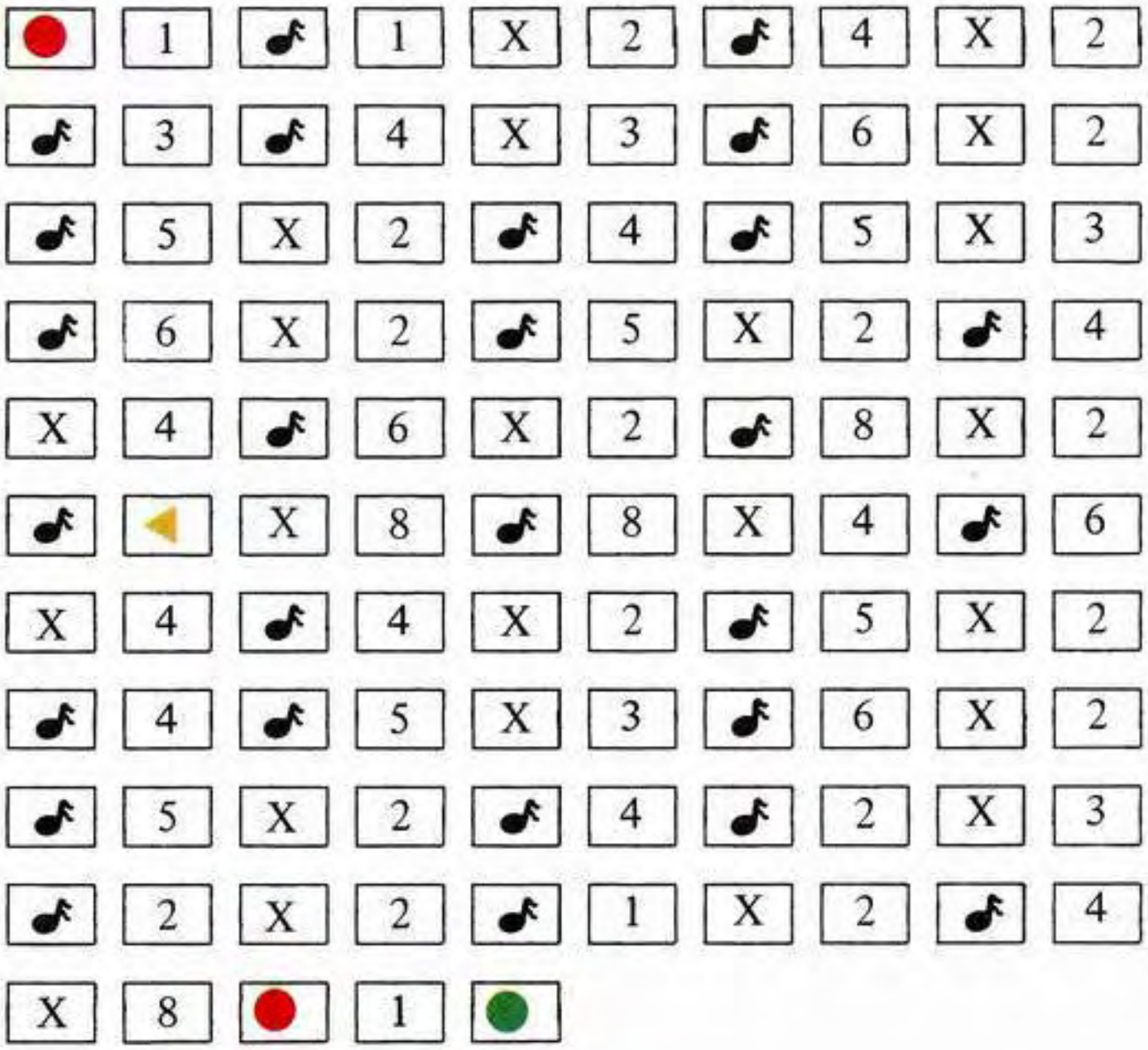
For instance: Move forward 1 second, play 'La Ti', move backward 2 seconds.

Enter: [▲] [1] [♪] [6] [♪] [7] [▼] [2] [●]

Illustrated Songs:

a) AULD LANG SYNE

Enter:



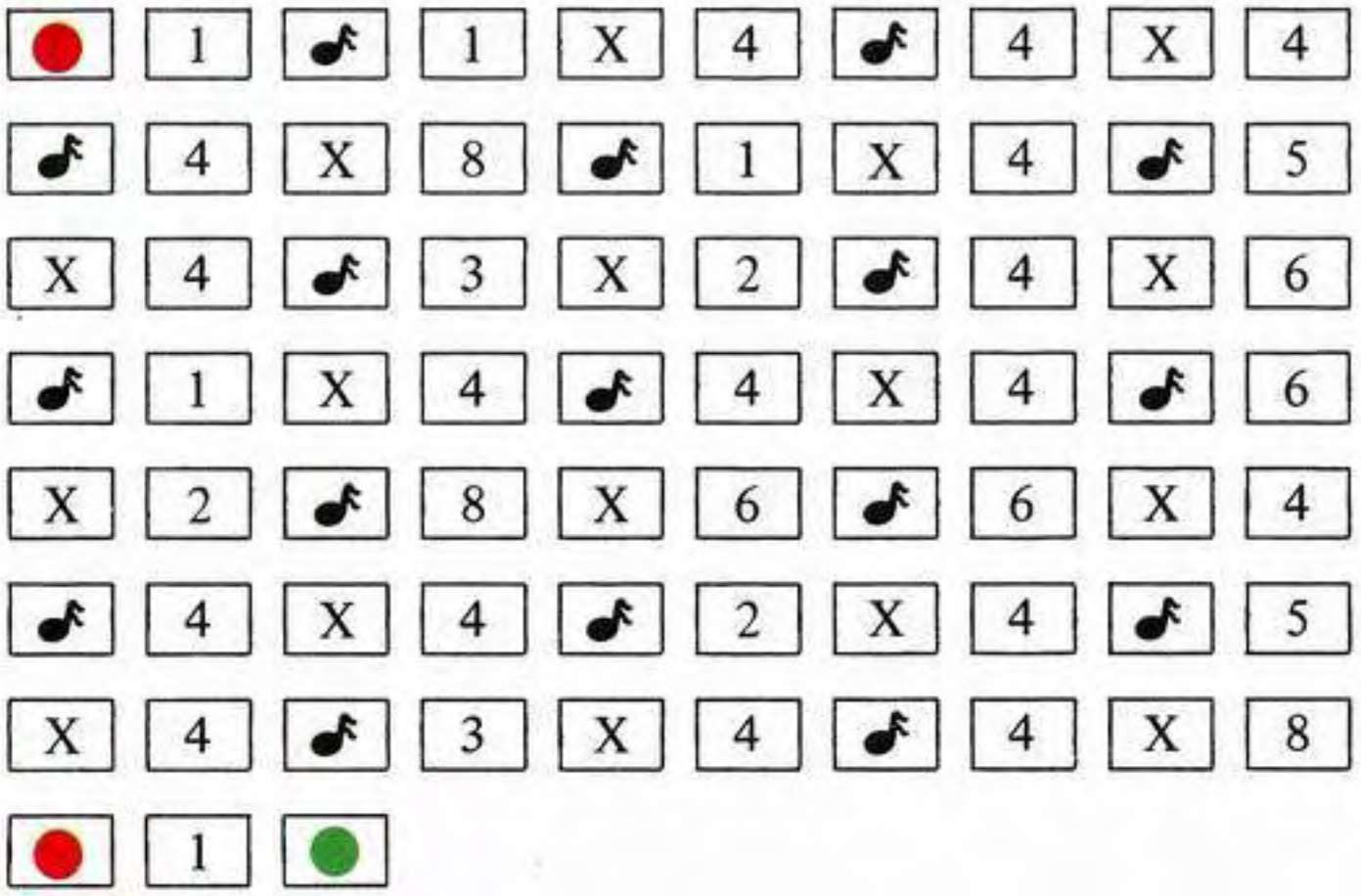
4/4 | 1 _ 4 _ | 3 4 _ _ | 6 _ 5 _ | 4 5 _ _ | 6 _ 5 _ | 4 _ _ _ |

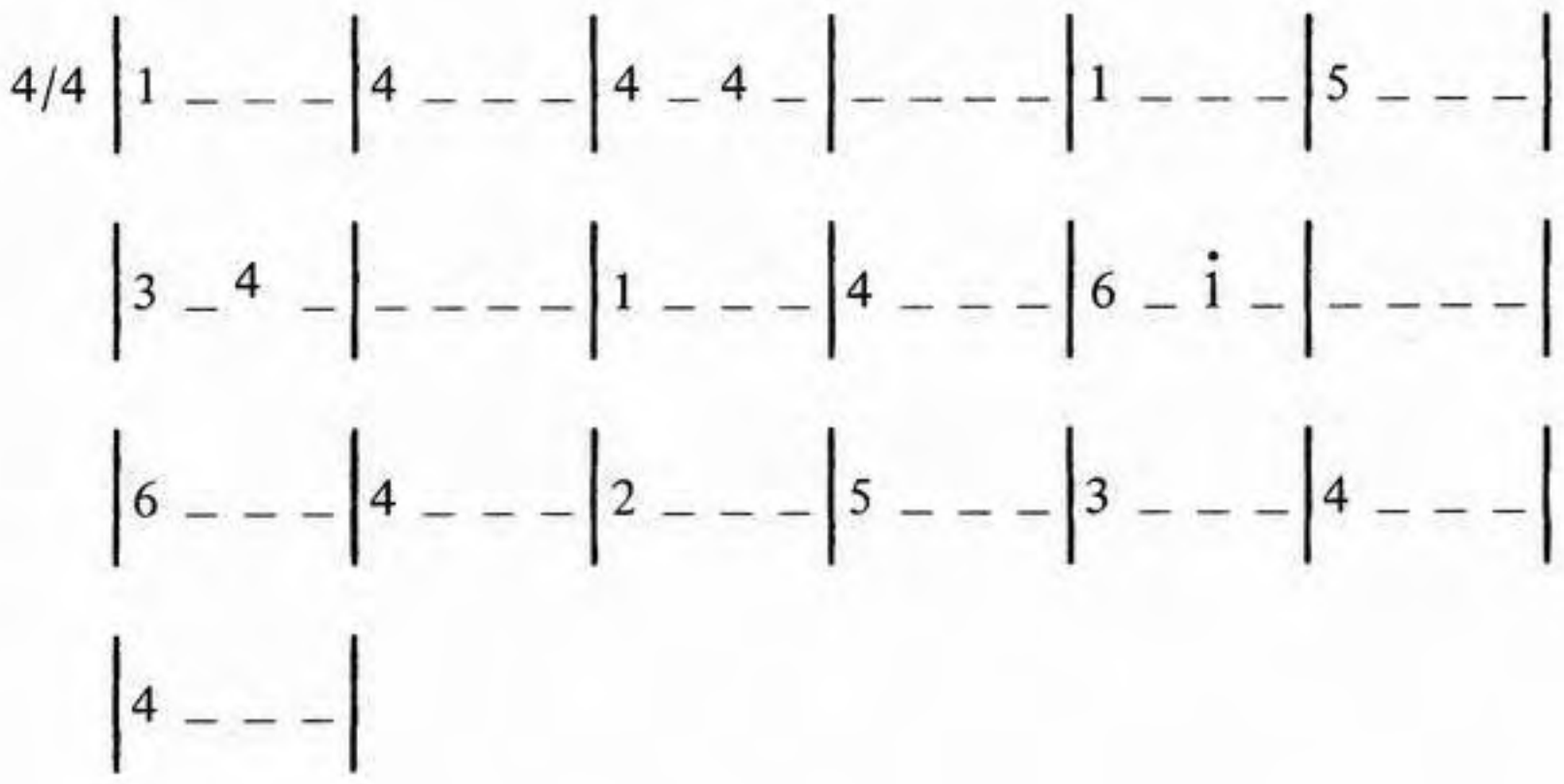
| 6 _ $\dot{1}$ _ | $\dot{2}$ _ _ _ | $\dot{2}$ _ _ _ | $\dot{1}$ _ _ _ | 6 _ _ _ | 4 _ 5 _ |

| 4 5 _ _ | 6 _ 5 _ | 4 2 _ _ | 2 _ 1 _ | 4 _ _ _ | 4 _ _ _ |

b) HERE COMES THE BRIDE

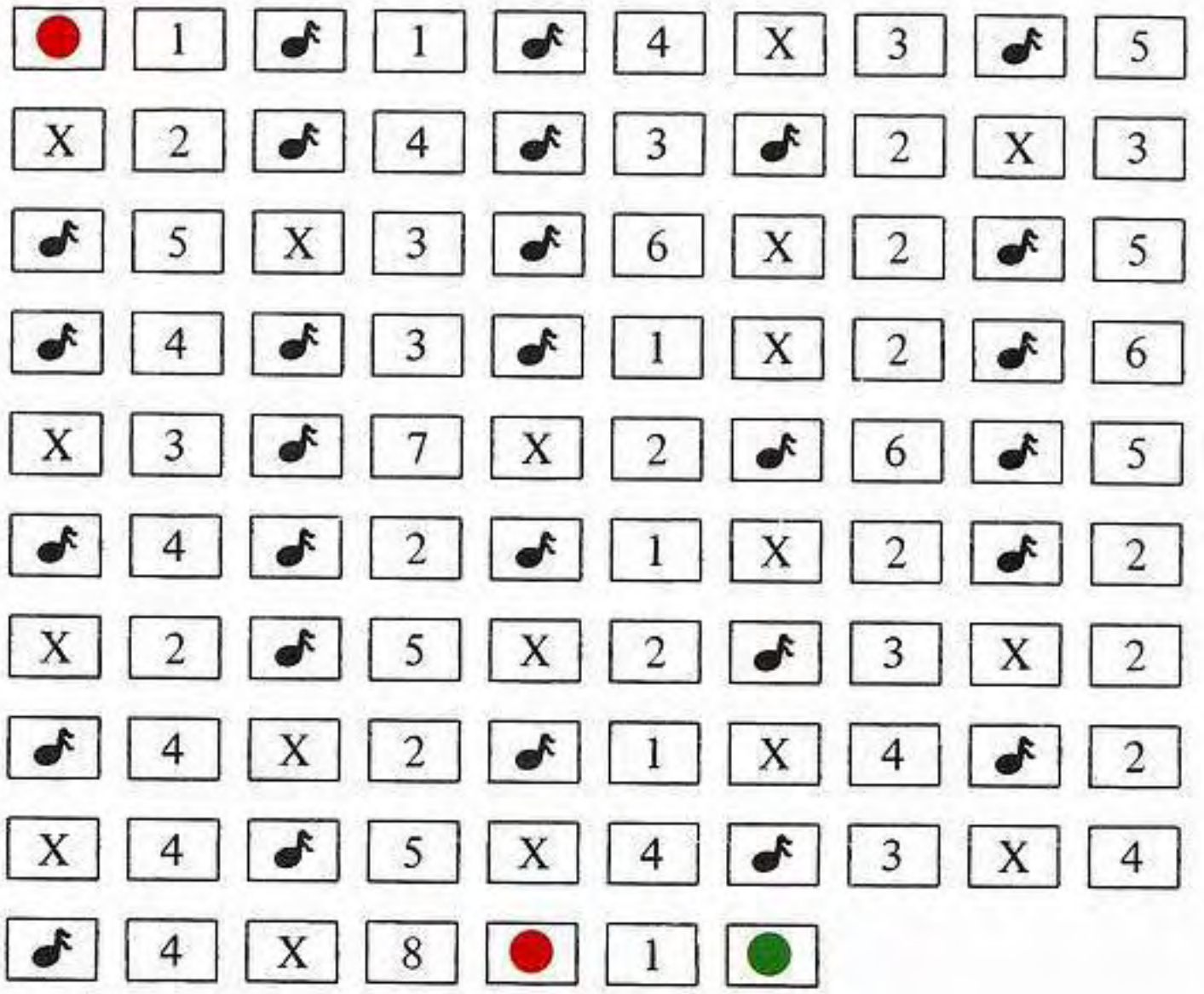
Enter:





c) *WE WISH YOU A MERRY CHRISTMAS*

Enter:



2/4 | 1 4 | 4 _ | 5 _ | 4 3 | 2 2 | 2 5 | 5 _ | 6 _ |

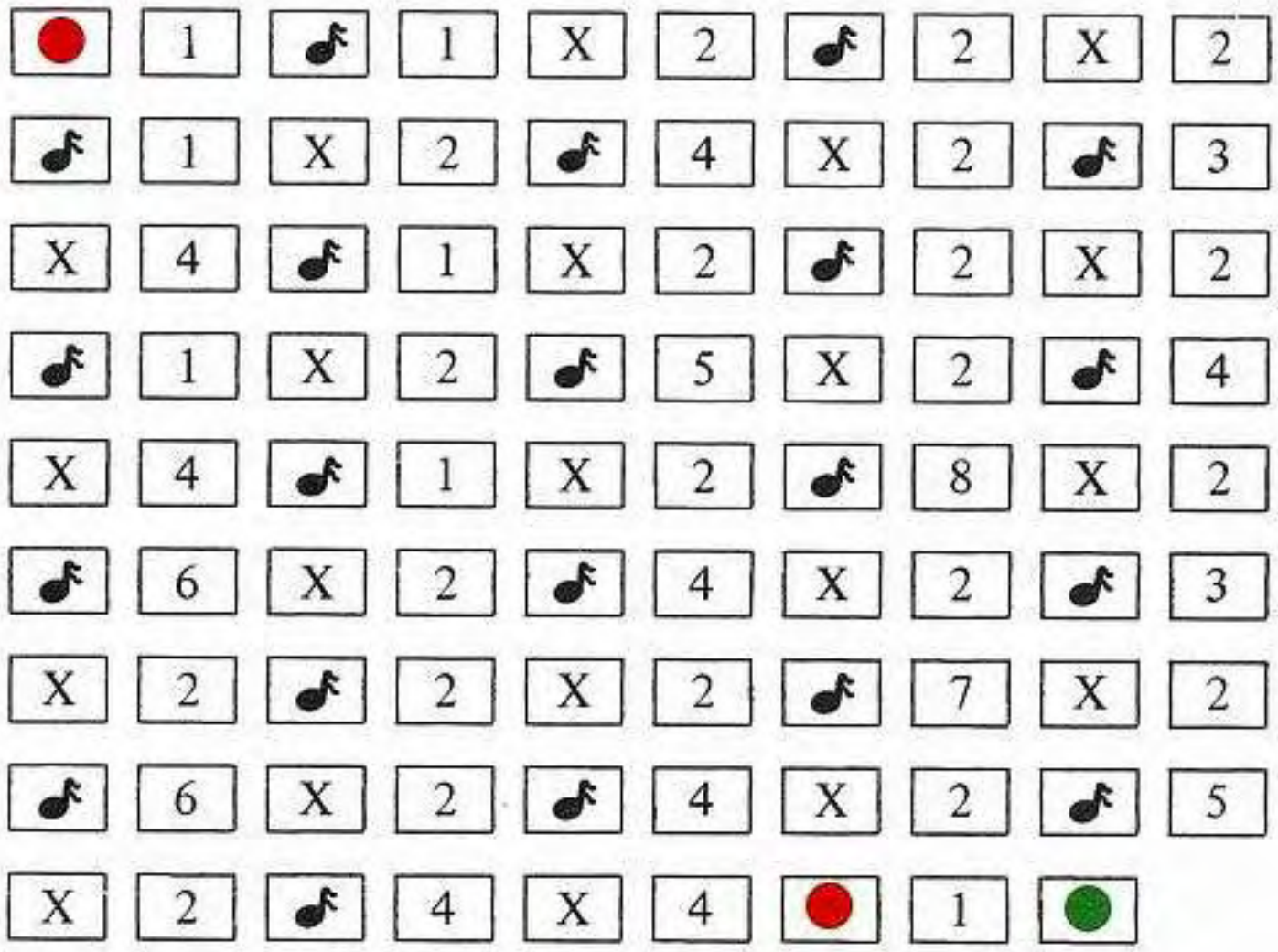
| 5 4 | 3 1 | 1 6 | 6 _ | 7 _ | 6 5 | 4 2 | 1 1 |

| 2 _ | 5 _ | 3 _ | 4 _ | 1 _ | 1 _ | 2 _ | 2 _ |

| 5 _ | 5 _ | 3 _ | 3 _ | 4 _ | 4 _ | 4 _ | 4 _ |

d) HAPPY BIRTHDAY

Enter:



4/4 | 1 1 2 _ 1 _ 4 _ 3 _ _ _ |

| 1 1 2 _ 1 _ 5 _ 4 _ _ _ |

| 1 1 $\dot{1}$ _ 6 _ 4 _ 3 _ 2 _ |

| 7 7 6 _ 4 _ 5 _ 4 _ _ _ |

Exercise 11) [↻] *DANCE*

This is another unique key. Here are some things you should know before programming me to dance:

1) You must always enter the number [1] *key after pressing the* [↻] *key. This will turn on my dance function.*

2) For every dance step you program me to do, I will twist 4 times.

3) Dance 3 times (12 twists)

Enter [↻] [1] [X] [3] [●]

4) Dance 4 times (16 twists), pause 2 seconds, dance 3 times (12 twists).

Enter [↻] [1] [X] [4] [●] [2] [↻] [1] [X] [3] [●]

Exercise 12) [◐] *CLEAR LAST COMMAND*

If you have found that while programming you've been making more mistakes, you will find this key very useful. This key will erase your last command without erasing all memory.

For instances:

Enter [▲] [4] [▼] [5] [↶] [1]

Push [◐] *once and your last command will be automatically erased. You will have this left:*

[▲] [4] [▼] [5]

Push [◐] *again and you will have this:*

[▲] [4]

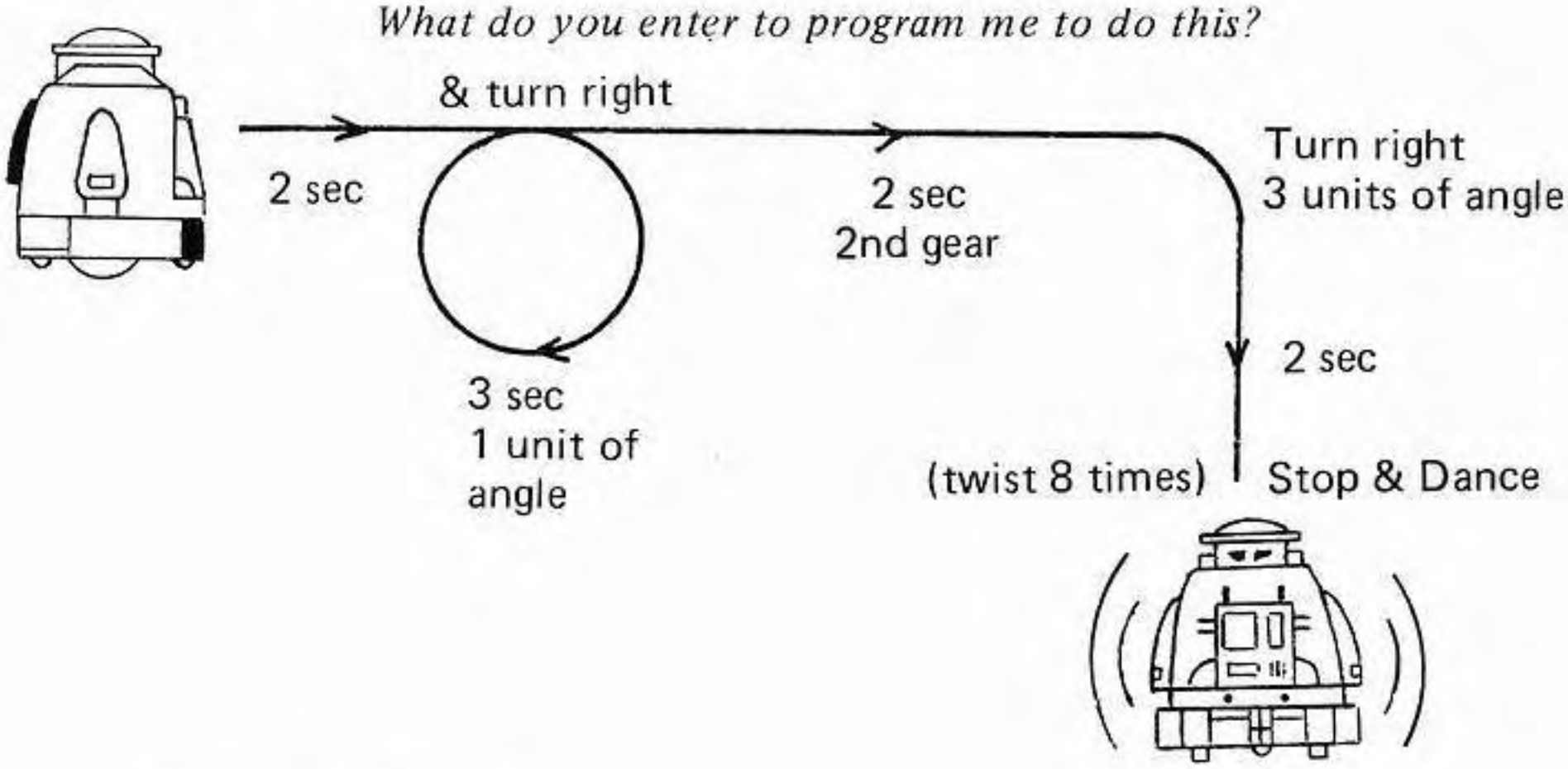
Push [◐] *again and your memory becomes empty.*

ILLUSTRATED GAMES

These games will really test your skill at programming me. If you master these games, there is no stopping you from becoming an expert controller!

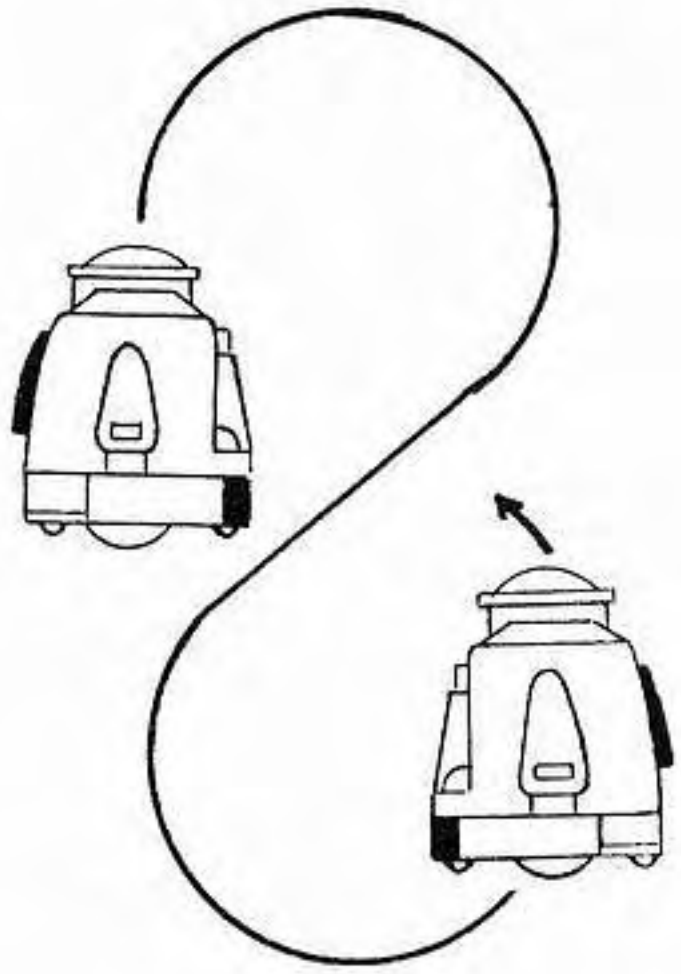
Game 1) Rock N Roll

What do you enter to program me to do this?



Game 2) Figure 8

What do you enter to program me to do this?



Game 3) Row, Row Row Your Boat

Compose Row, Row, Row Your Boat for me to sing. Put in PAUSES, if necessary.

The solutions to these games are found on last page.

COMBINATION EXERCISES

Now that you're familiar with using all my function keys on my keyboard, are you ready to program me by yourself? I have worked out two fun exercises for you to try. First I tell you what I want to do and you try to command me to do it. These exercises are rather complicated so take your time in figuring them out.

Quiz 1) *I want to move FORWARD 5 seconds, TURN RIGHT 3 units of angle, move BACKWARDS 8 seconds, PAUSE 2 seconds, SING Do Re Mi and PAUSE 1 second.*

What do I enter?

Quiz 2) *I want to PAUSE 4 seconds, DANCE 4 times (16 twists), move FORWARD 2 seconds, SING DO three times, PAUSE 3 seconds, move BACKWARDS 8 seconds.*

What do I enter?

Note: The answers to these quizes are found last page.

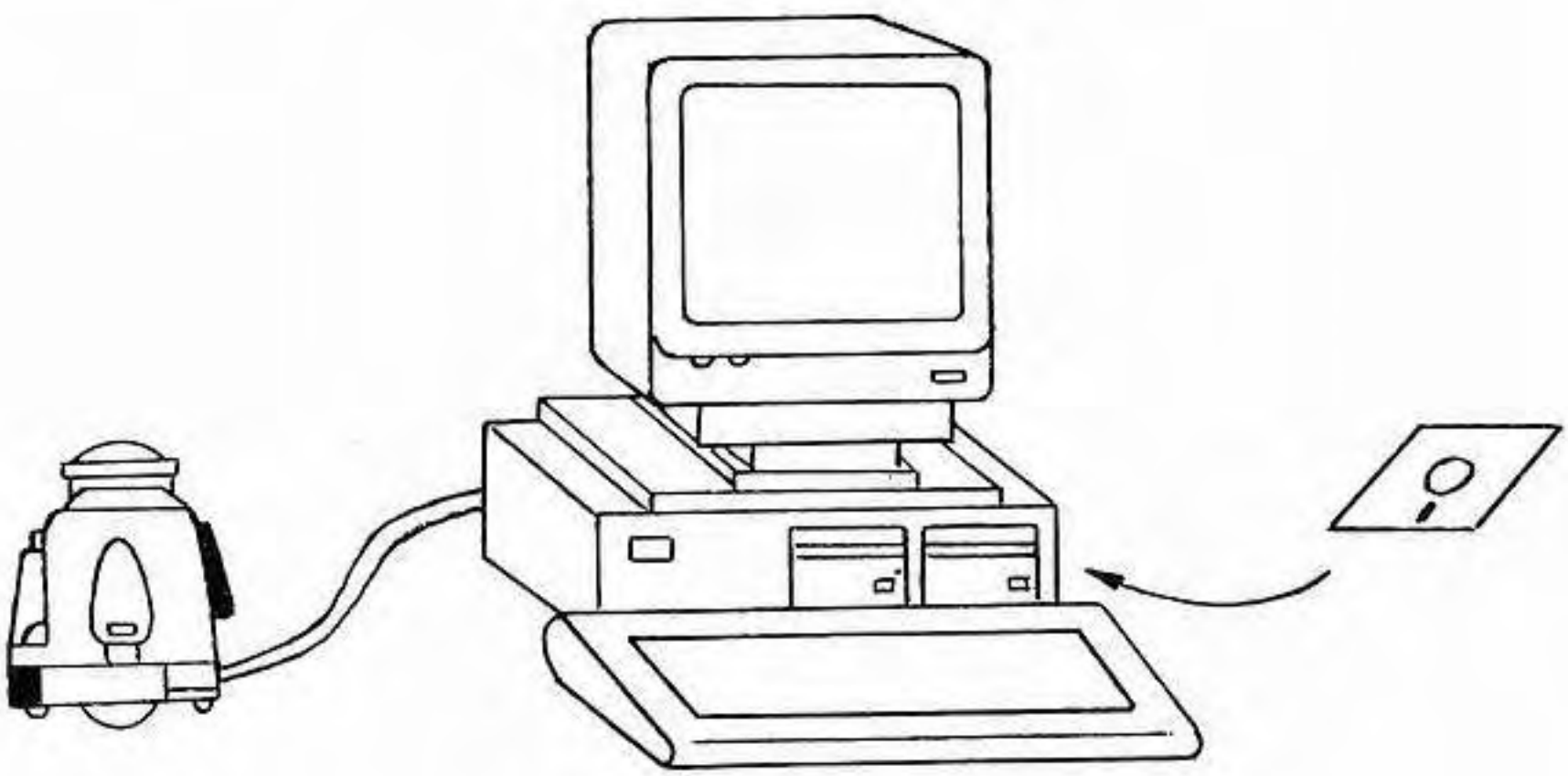
III. PLAYING WITH A PERSONAL COMPUTER (factory built-in option)

To prepare me for play using a personal computer, simply:

- *Insert the given floppy disk into a disk drive.*
- *Load the editing program into computer memory.*
- *Follow instructions on the screen, create or edit your program from your personal computer keyboard.*

After you have finished your program,

- *Connect the RS232 cable from your computer into me.*
- *Press the RECEIVE key* [⇄] *on my remote controller. Both my green and yellow headlights will light up.*
- *Transmit your program to me through the RS232 cable and store it into the disk for latter use.*
- *Disconnect the RS232 cable from me, touch the GO* [●] *key and I will take off obediently.*



PLAY WITH A PERSONAL COMPUTER

ACCESSORIES YOU CAN BUY LATER

Would you believe that there are many more things that I'm able to do? Just look at all the followings available to you:

- *With a BUMPER SENSOR, I will automatically back up and turn around if I come upon any object.*
- *With a beautiful TRAY, I am able to carry small items for you. To really impress your friends, I will even serve them a drink or some snacks.*
- *With a DIGITAL CLOCK, I can keep time for you. I can also wake you up in the morning with my built-in alarm.*

Inquire about these accessories soon.

IMPORTANT THINGS TO KNOW

1) My memory is able to hold up to 64 commands at one given time.
2) When my power is turned off, all the programs that were stored in my memory will be forgotten.
3) The longest program I can handle can last over half an hour long.

CARE FOR YOUR ROBOT

I am very easy to care for. I am a tough little robot, but please don't drop me on the floor. To clean me, all you have to do is wipe me occasionally with a damp cloth. But don't drop me into a bathtub full of water. I'm not made to swim! Also, don't wipe me with any alcohol based products. This could ruin my shiny coat.

TROUBLE SHOOTING

Although I am strongly built to last a long time, there are times when I may become sick and won't perform well. It's up to you to help me get better. Please check to make sure that . . .

- *my old batteries are replaced with new ones.*
- *you haven't pressed the wrong key when programming me.*
- *my tires are on straight and that they are not obstructed by any object.*

These suggestions should clear up any of the problems I'm having.


Love
COMPUROBOT

SPECIFICATIONS:

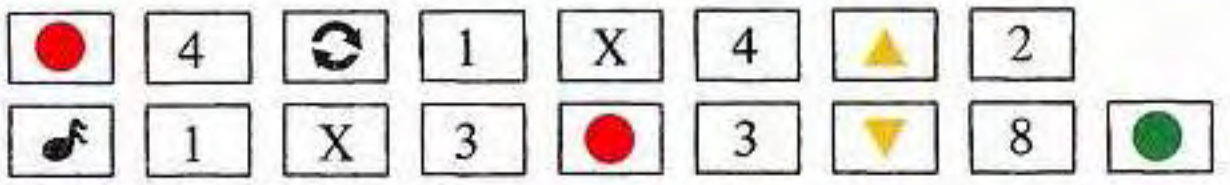
- *Cabinet: ABS plastic*
- *Size: height (23 cm), width (21 cm), depth (17.5 cm)*
- *Processor: Custom-made 4-bit microcomputer*
- *Batteries: 4 size C 1.5V for robot*
  4 size AA 1.5V for remote controller
- *Keys: Conductive rubber keyboard*
- *Motors: Mabuchi RE-260-18130 6900 rpm*
- *Transmission & Reception: Infra-red technique*

ANSWERS TO QUIZES

Quiz 1)

Enter

Quiz 2)



ANSWERS TO GAMES

Game 1) Rock and Roll

Enter

Game 2) Figure 8

Enter

Game 3) Row, Row, Row Your Boat

Enter