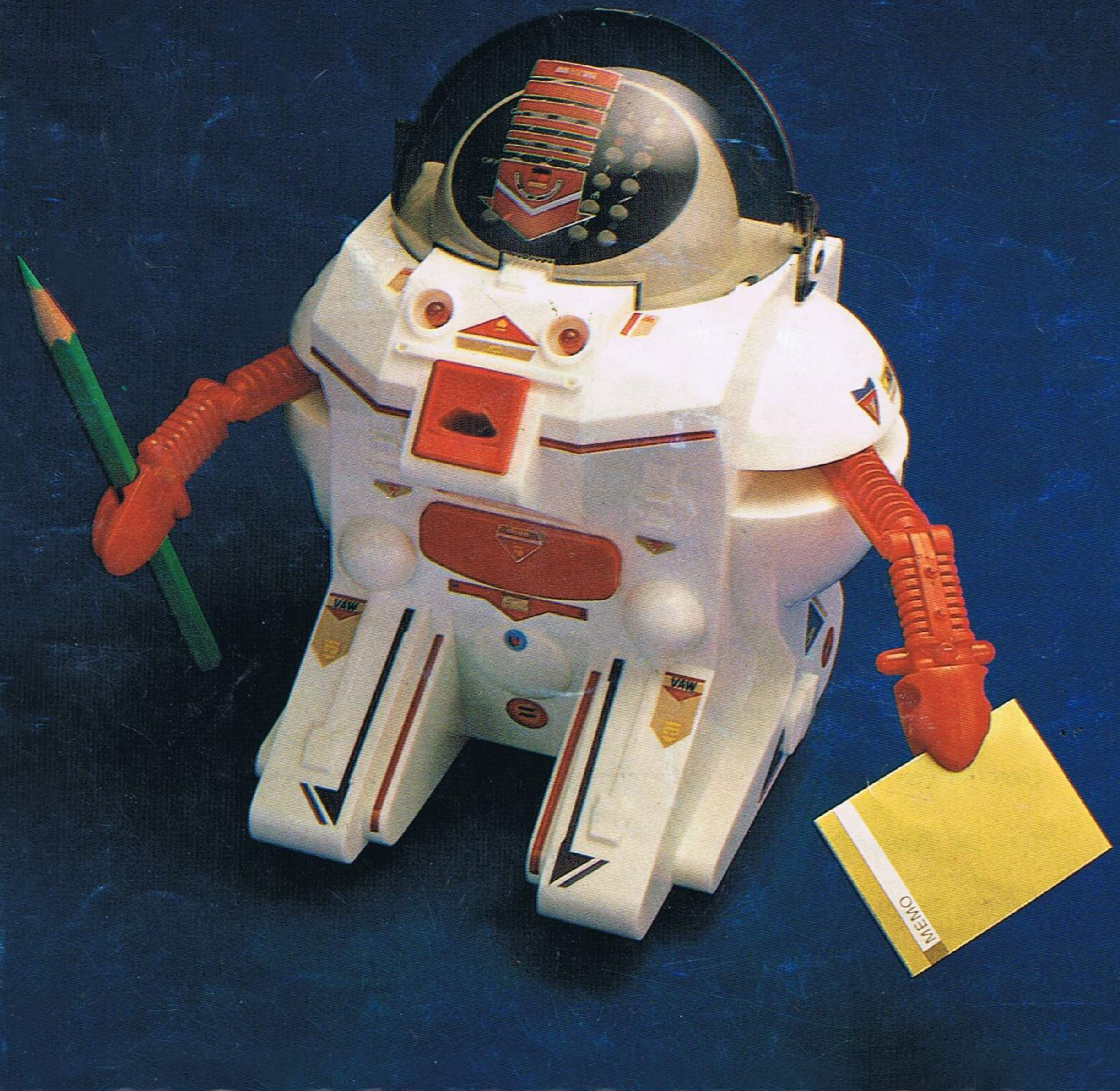
COMPUROBOT III

PERSONAL FILE



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MY MESSAGE TO MY OWNER

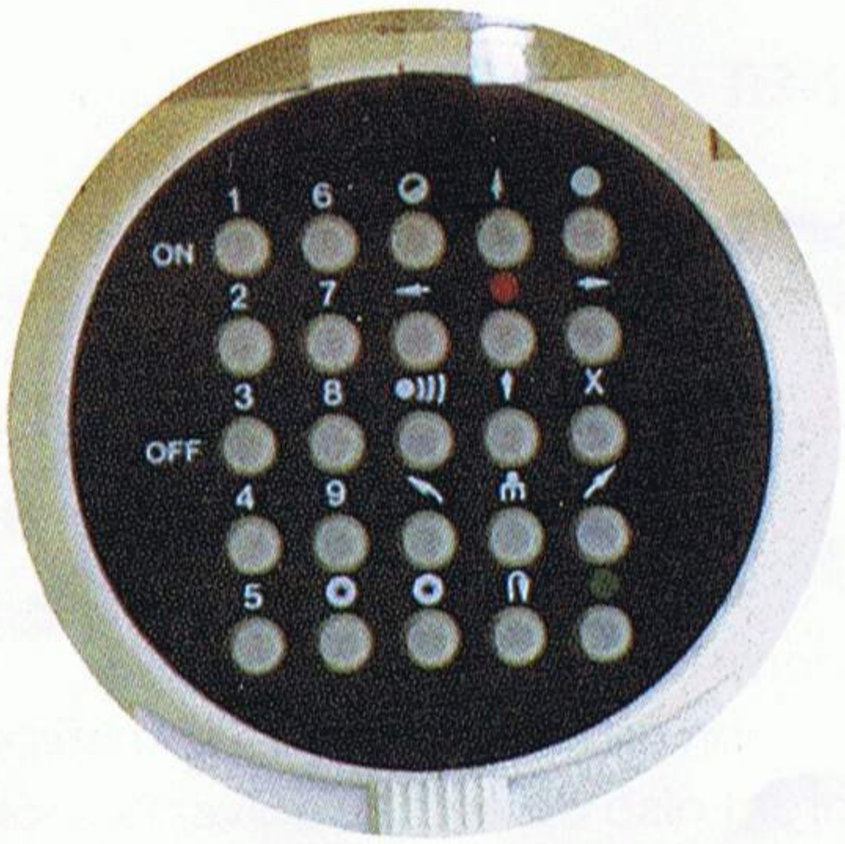
I am designed to be a funful programming teaching aid and I can give you unlimited opportunity to have first hand experience in programming a mobile computer robot.

Above all .... have fun! PROGRAMMING me should be FUN.

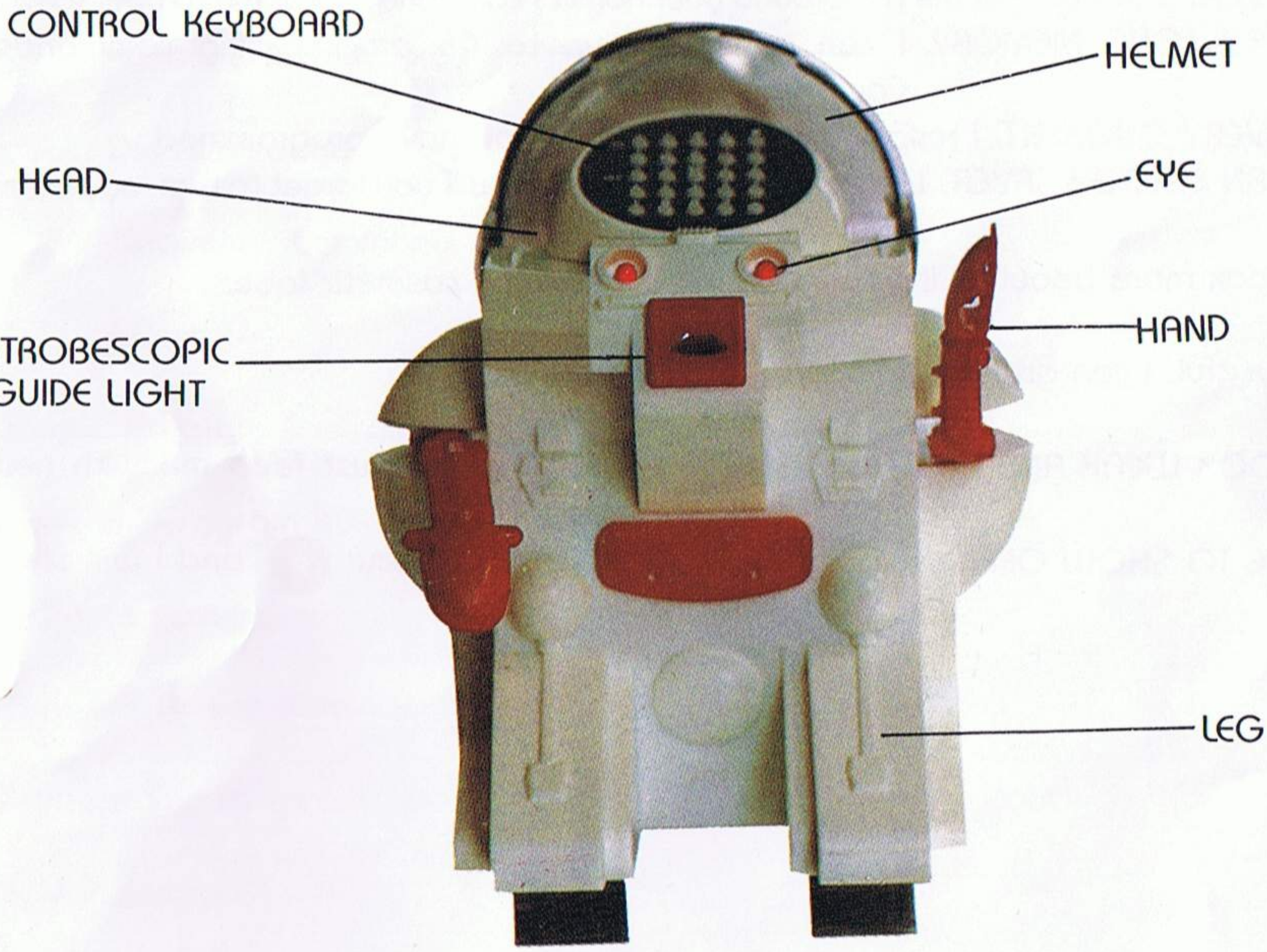
I CAN LIVE VERY LONG if you take good care of me.
I AM TOUGH, but I definitely don't like to be dropped onto the floor or mistreated.
I LOVE CLEANLINESS. Wipe me clean with a damp cloth sometimes. But never immerse me in water. I also do not like solvents or alcohol based cleaning liquid.
I AM VERY EDUCATIONAL. I can help you learn the concept of programming in a very easy manner.
I AM VERY FUNFUL. Let me run around your home. I can bring lots of fun to your family.
I HAVE A LONG MEMORY. I can remember up to 48 programming commands. Could you?
I AM VERY OBEDIENT. I respond exactly to what you have programmed.
I AM AN ENERGY SAVER. I make a noise to remind you if you forget to turn my power off.
I will look more beautiful if you make me up with my cosmetic labels.
I am useful. I can grip a paper note with my hands.

IF I LOOK WEAK AND HUNGRY SOMETIMES don't worry. Just feed me with new batteries.
I LOVE TO SHOW OFF. Just push the DEMONSTRATION key and I will show you everything I know.

CONTROL KEYBOARD



SELF INTRODUCTION



BATTERY INSTALLATION

When feeding me with batteries please make sure you have put them in the correct way, particularly the 9V battery, as if inserted the wrong way I will let you know by sounding my siren continuously.

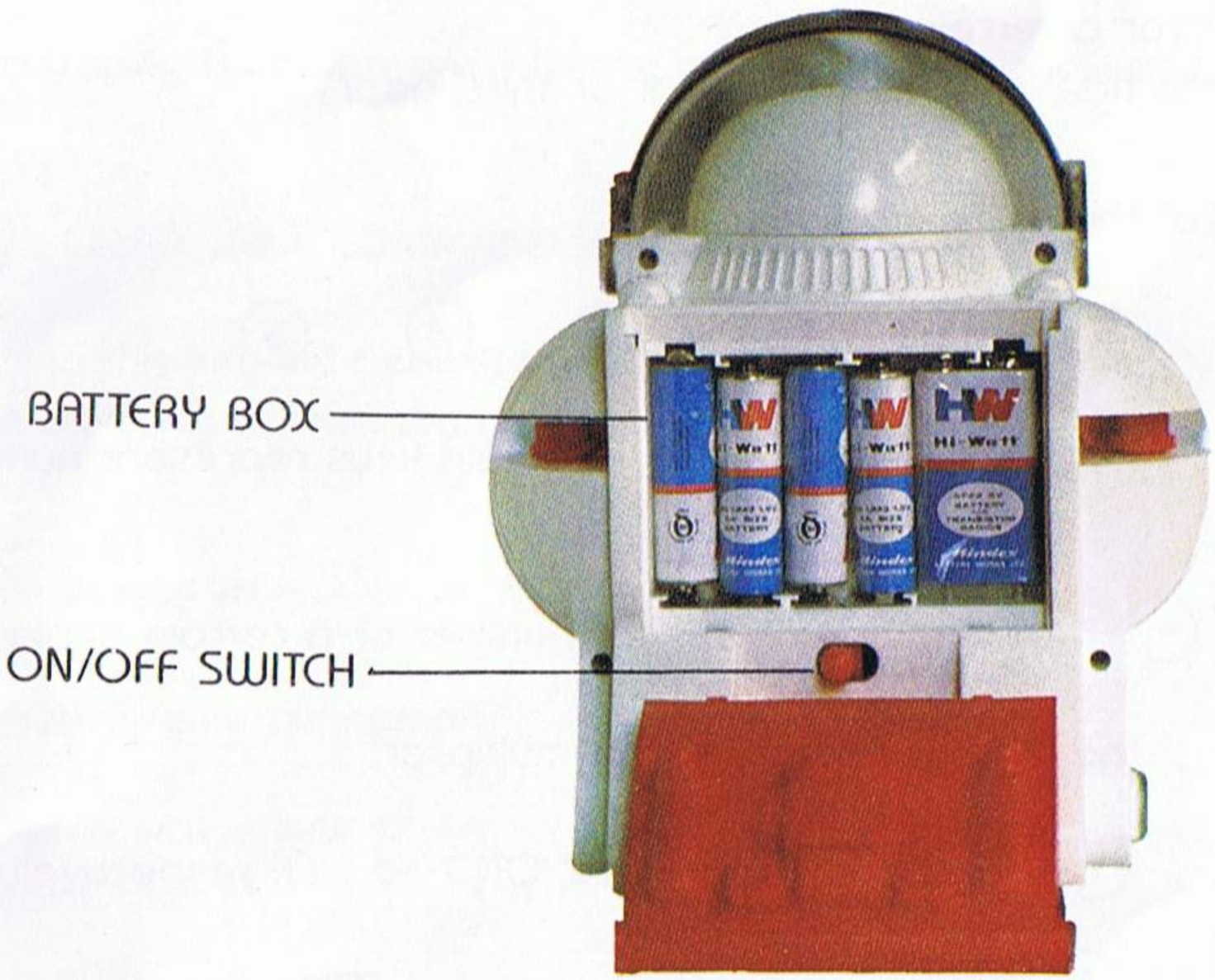
Please follow the pictures below to insure proper placements:

a) Turn me around and slide open the battery door by pulling upward.

b) Place in 4 1.5 Volt (AA size) and 1 9 Volt long life or alkaline batteries which make me run and work for you longer than ordinary batteries.

c) Make sure that they are facing the right way.

d) Replace and lock battery door.



PROGRAM AND COMMANDS

A PROGRAM is a COMMAND or a series of COMMANDs telling me what to do.

A COMMAND is formed by a FUNCTION key followed by a NUMBER key.

KEYS

FUNCTION AND NUMBER keys (On top of my head)

FUNCTION keys consist of the following keys:

- (↑) — to go forward for a certain time.
- (↓) — to go backward for a certain time.
- (→) — to turn right at a certain angle.
- (←) — to turn left at a certain angle.
- (●) — to remain in position for a certain time.
- (X) — to multiply the previous command by a number.
- (•))) — to turn on/off the audio sound.
- (↷) — to curve right for a certain time.
- (↶) — to curve left for a certain time.
- (⑂) — to set me into first gear, second gear or third gear.

NUMBER keys consist of the following keys:

(1) , (2) , (3) , (4) , (5) , (6) , (7) , (8) , (9)

For functions (↑) , (↓) , (●) , (↷) , (↶) , these keys represent number of seconds.

For functions (→) , (←) , these keys represent number of a certain angle.

For the function (X) , these keys represent the multiplier.

For the function (•))) , (1) and (3) represent ON and OFF respectively.

For the function (⑂) , (1) , (2) and (3) represent 'First Gear', 'Second Gear' and 'Third Gear' respectively.

GO KEY

This key tells me to execute the program stored in memory.

RECOLLECT RUNNING KEY

This key enables me to execute the program stored in memory, make an about turn, and execute the same program again but in a reverse manner.

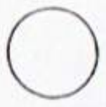
DEMONSTRATION KEY

This key gives me an opportunity to show off all the things I can do. This demonstration lasts for about one minute.

The following two keys provide you error correction facilities during program entry.

CLEAR LAST COMMAND KEY

Pressing this key will clear the last command entered. This is very helpful especially when creating a program by trial and error method.



ERASE KEY

This key erases all memory.

OVER THE PAGE ARE SOME EXAMPLES OF SIMPLE PROGRAM COMMANDS WHICH YOU SHOULD TRY.

SIMPLE PROGRAM ILLUSTRATIONS:

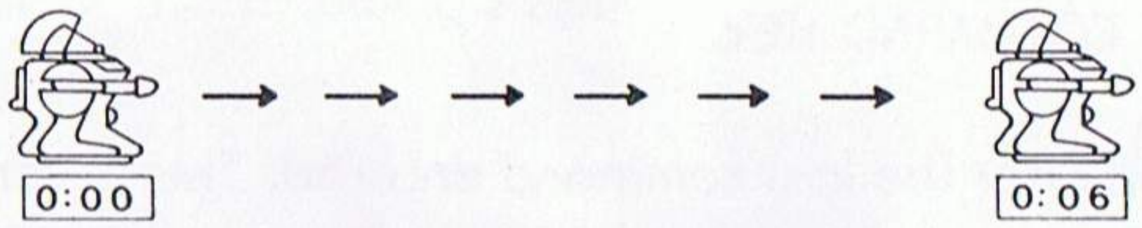
In order to become familiar with me, please try out the following simple programs which consist of a small number of commands. When you feel at home with these programs, you can try out more complex programs in the next section. And then you can start to create your own programs. This is when the real fun begins. Remember, the only limitation of playing with me is your imagination. To start, turn on my ON/OFF switch in my back.

Example 1) (↑) FORWARD

To program me moving FORWARD for 6 times.

Just enter the program (↑) (6)

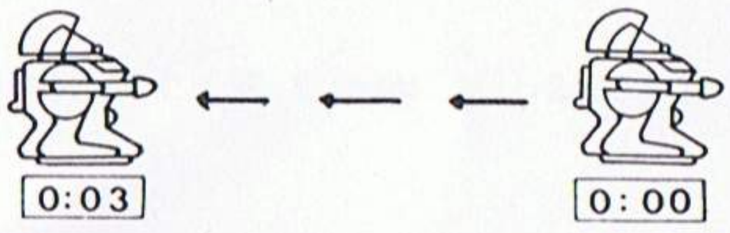
To execute this program, press ● . I immediately respond with some noise, move forward for 6 seconds, then make a different noise to indicate I have completed the task.



Example 2) (↓) BACKWARD

Move BACKWARD for 3 times.

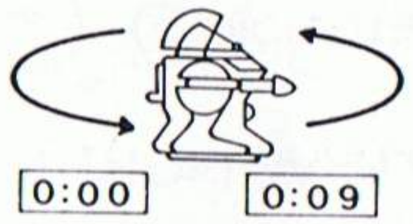
Enter (↓) (3) ●



Example 3) ← TURN LEFT

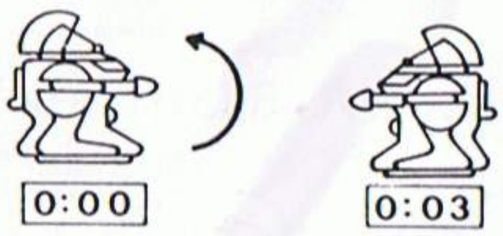
TURN LEFT for 9 times of angle

Enter ← 9 ●



TURN LEFT for 3 times of angle

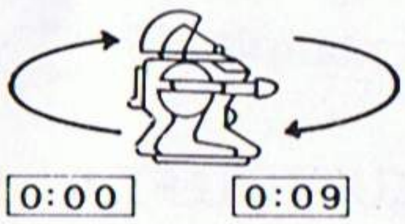
Enter ← 3 ●



Example 4) → TURN RIGHT

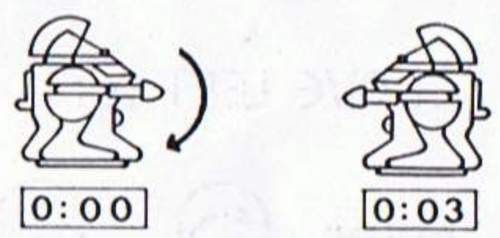
TURN RIGHT for 9 times of angle

Enter → 9 ●



TURN RIGHT for **3** times of angle

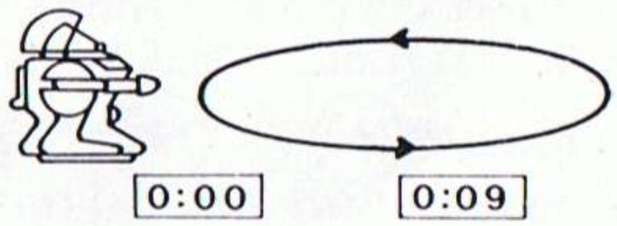
Enter → 3 ●



Example 5) CURVE RIGHT

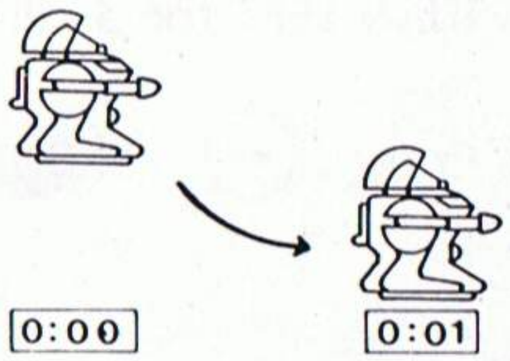
CURVE RIGHT for 9 times.

Enter (CURVE RIGHT) (9) (●)



CURVE RIGHT for 1 time.

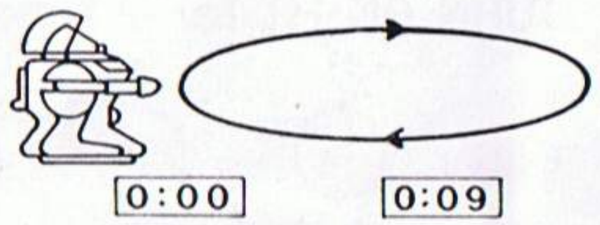
Enter (CURVE RIGHT) (1) (●)



Example 6) CURVE LEFT

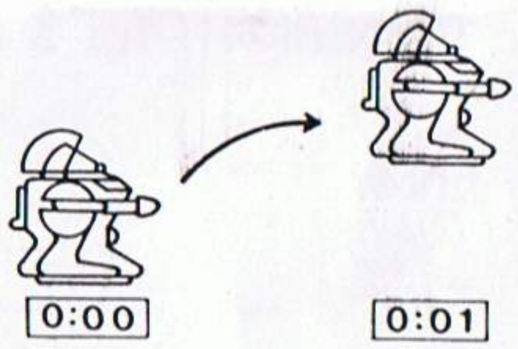
CURVE LEFT for 9 times.

Enter (CURVE LEFT) (9) (●)



CURVE LEFT for 1 time.

Enter (CURVE LEFT) (1) (●)

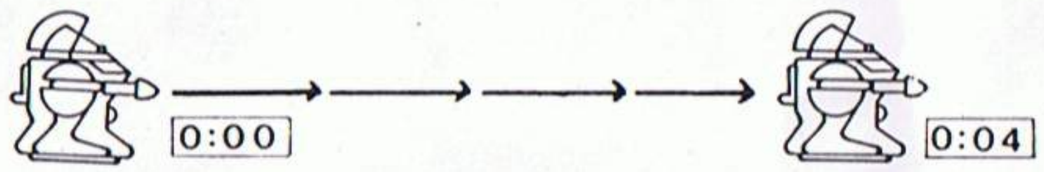


Example 7) GEAR

I can move forward or backward at 3 different speeds.

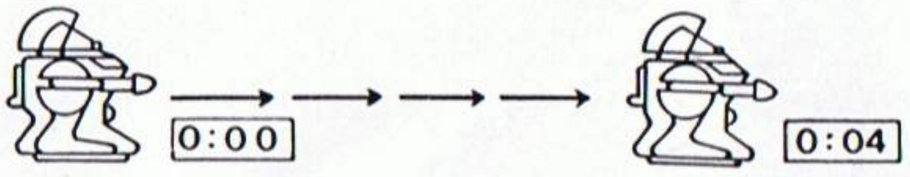
Move forward at 3rd GEAR (high speed) for 4 times.

Enter 3 ↑ 4



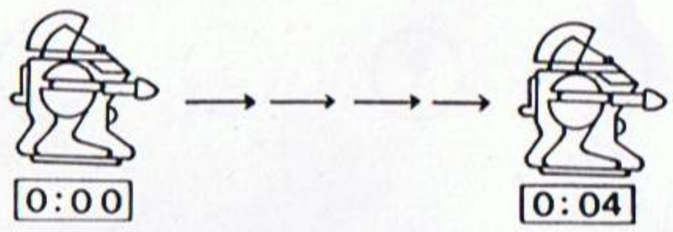
Move forward at 2nd GEAR (medium speed) for 4 times.

Enter 2 ↑ 4



Move forward at 1st GEAR (low speed) for 4 times.

Enter 1 ↑ 4

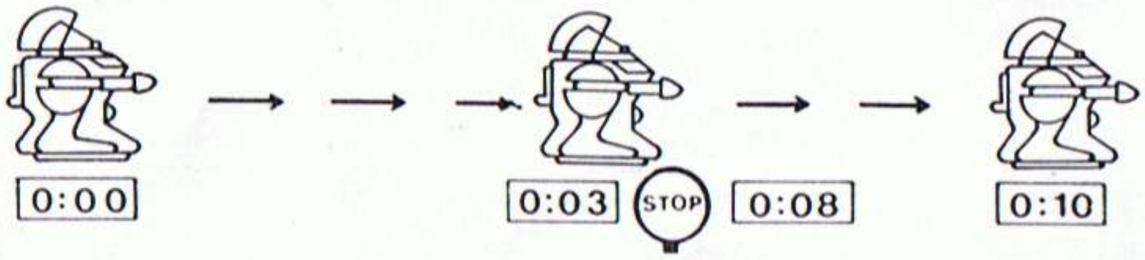


NOTE: Please try me with , at 3 different speeds too!
NOTE: After turning me on, I always stay at 1st GEAR until you set me to higher GEAR.

Example 8) HOLD

Move forward for 3 seconds, HOLD in position for 5 times, then move forward for 2 seconds.

Enter ↑ 3 5 ↑ 2

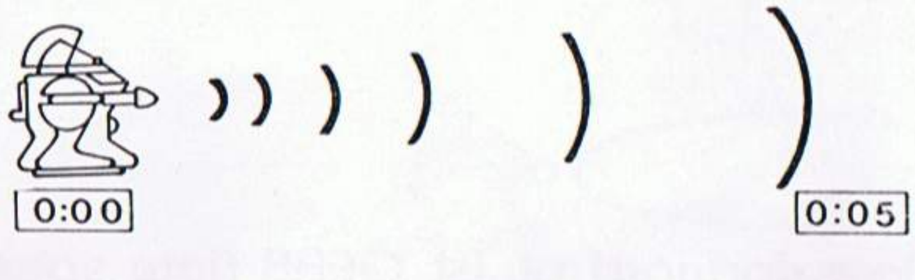


Example 9) AUDIO

Turn on AUDIO, hold in position for 5 times, and then turn AUDIO off.

Enter 1 5 3

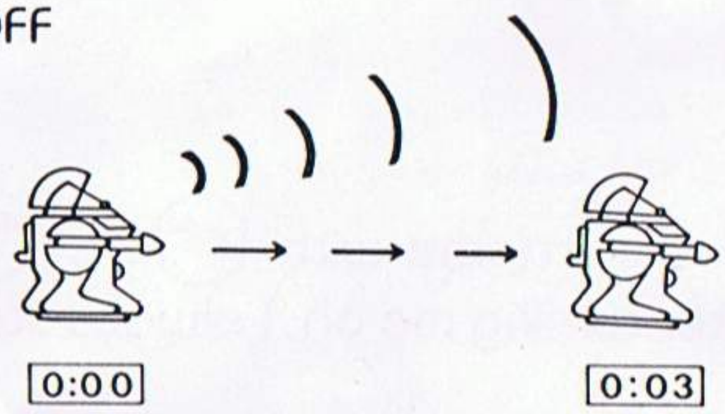
ON OFF



Turn on AUDIO, move forward for 3 times, and then turn AUDIO off.
(Note that the AUDIO is still on while moving forward.)

Enter 1 ↑ 3 3

ON OFF



Example 10) (X) MULTIPLY

If your want me to move forward for about 20 times, there are many ways to do it. For instances.

a) Enter (↑) (5) (↑) (5) (↑) (5) (↑) (5) ●

b) Enter (↑) (9) (↑) (9) (↑) (2) ●

c) Enter (↑) (4) (↑) (4) (↑) (4) (↑) (4) (↑) (4) ●

•
•
•
•

But the easiest way to achieve the same result is by using the (X) key: Just multiply like a calculator.

a) Enter (↑) (5) (X) (4) ●

b) Enter (↑) (9) (X) (2) (↑) (2) ●

c) Enter (↑) (4) (X) (5) ●

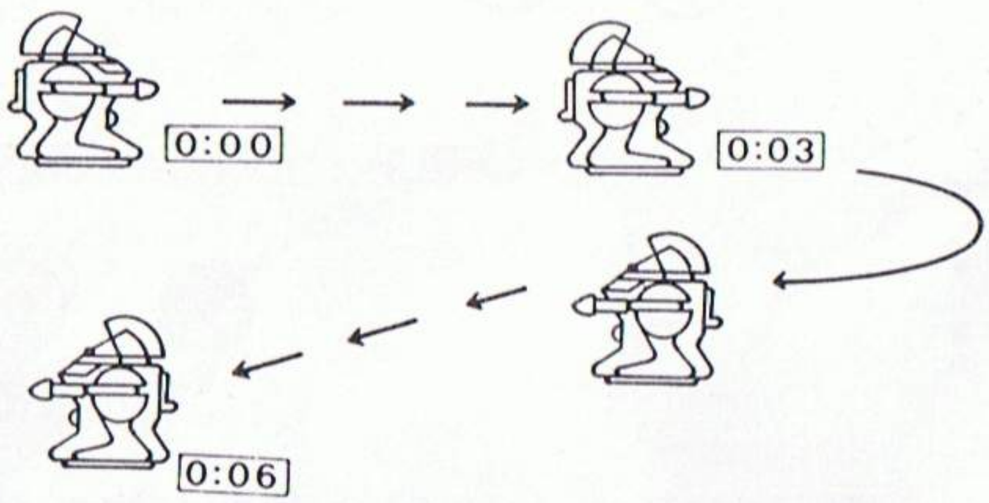
(X) multiplies the previous command by the number followed. Obviously you can now realize the longest duration I have for a single command is 81 time periods.

Example: (↑) (9) (X) (9) ●

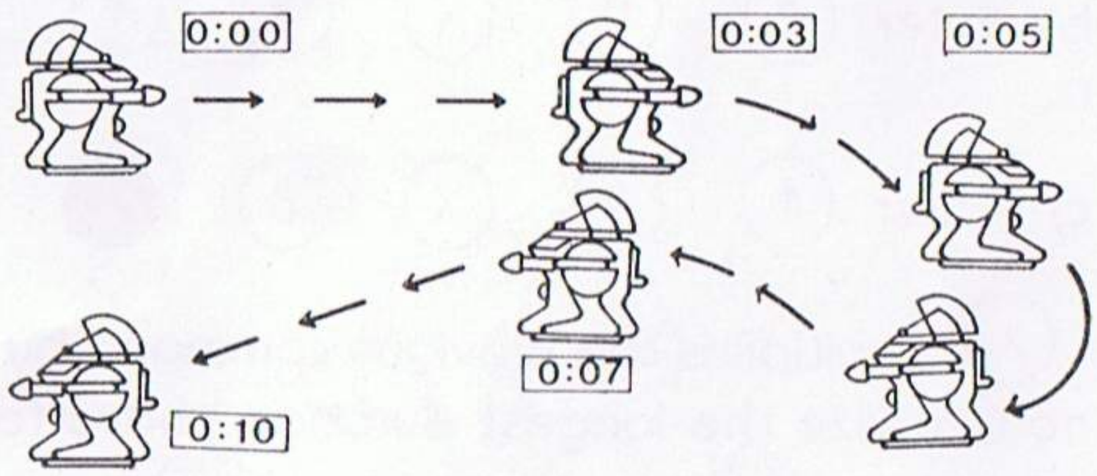
Example 11) (↻) RECOLLECT RUNNING

For all the examples mentioned above, pressing the (↻) key instead of the ● key not only makes me execute the program stored in memory completely, but also make an about turn, and execute the same program again but in a reverse manner.

Enter (↑) (3) (↻)



Enter (↑) (3) (↷) (2) (↻)



Example 12) CLEAR LAST COMMAND

always clears the last command in memory and is very useful for error correction. For instances,

Enter ↑ 3 → 6 ↗ 2

Hit key would make the memory content becomes ↑ 3 → 6

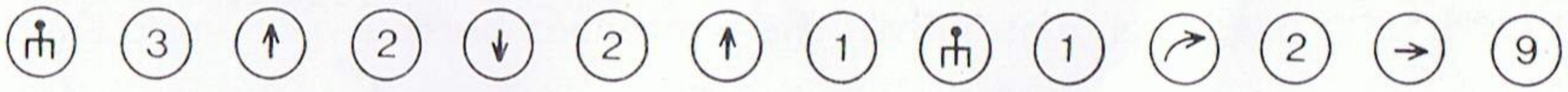
Hit key again would make the memory content becomes ↑ 3

Hit key third time would empty the memory.

COMPLEX PROGRAM ILLUSTRATIONS

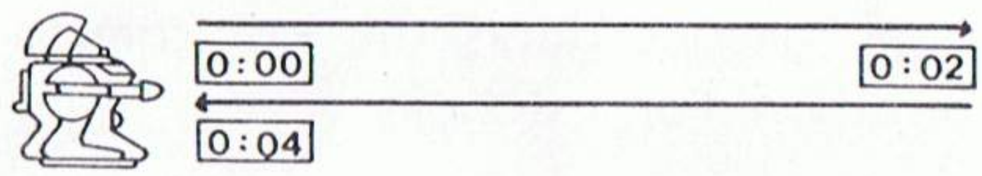
You can always combine the above examples from 1) to 10) in any fashion to create many, many complex and interesting programs up to 48 commands long. In the process of designing a long program, you don't need to enter the whole program all at one time. It's always a good idea to test the program before coming up with a complete program.

Example A) Take this program as an illustration:



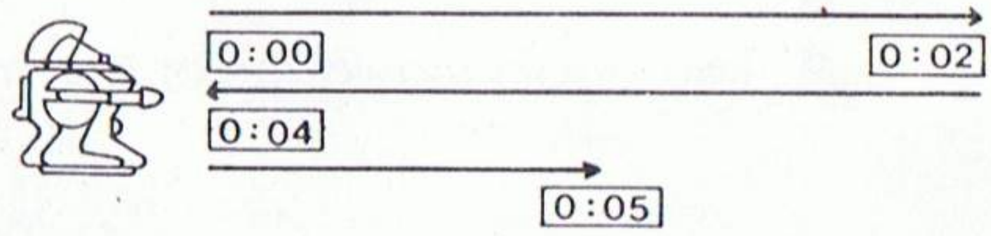
First of all, hit

Enter (person) (3) (↑) (2) (↓) (2) (●)



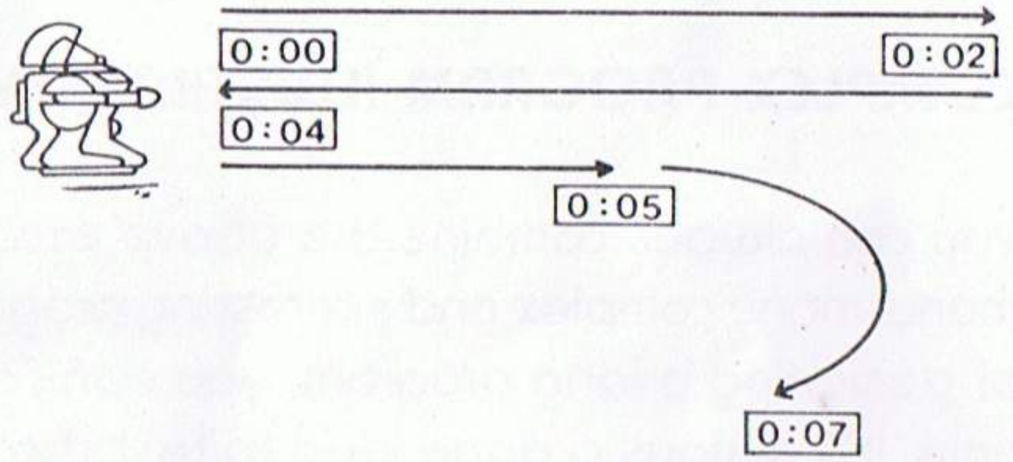
If you don't like the outcome, use (◔) key to help you modify the program until you are satisfied. Then continue the program entry by entering

(↑) (1) (●)

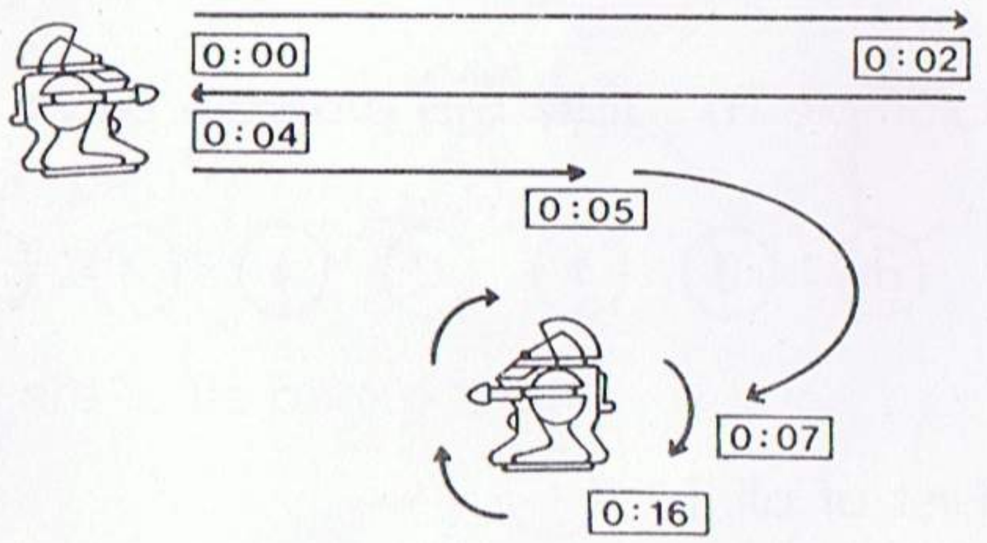


Again when you are satisfied with the outcome, continue the entry by entering

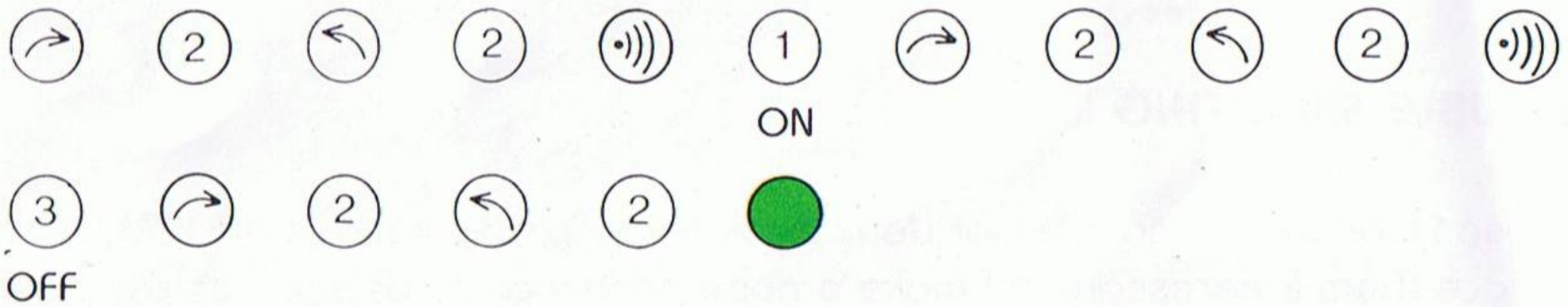
(person) (1) (↱) (2) (●)

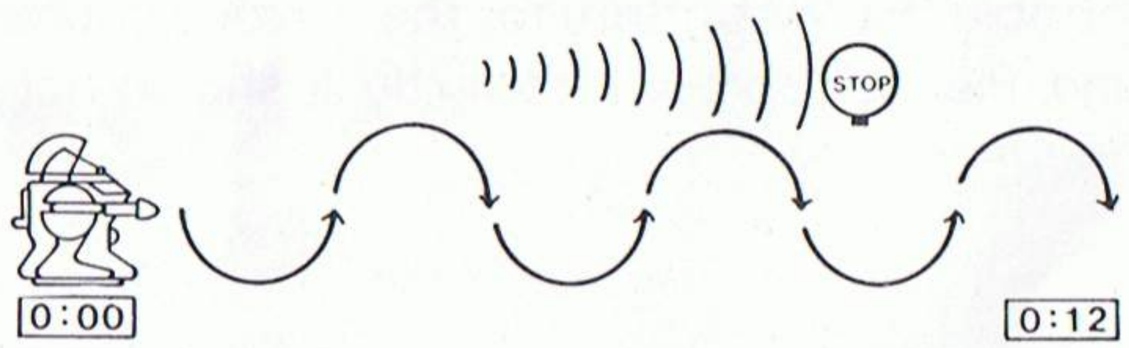


Finally enter (→) (9) (●)

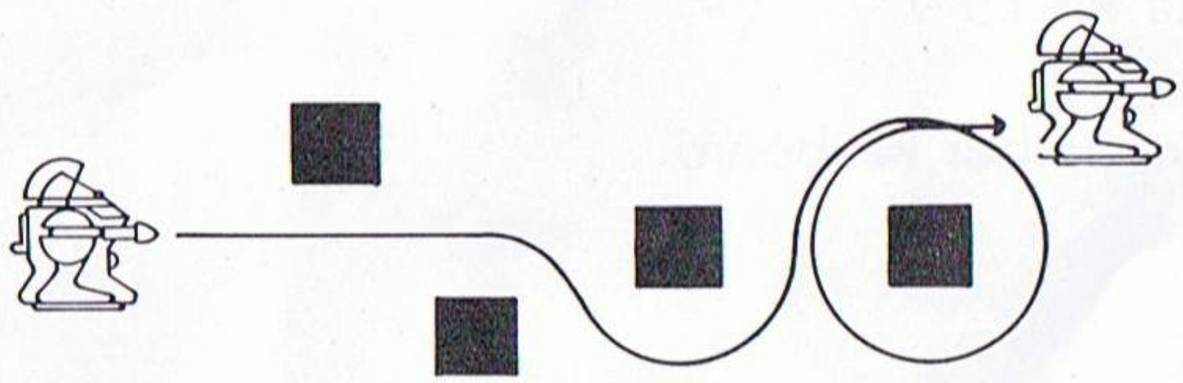


Example B) With the technique mentioned in Example A), let us try this program.





Example C) By now, you should be very familiar with me. Let us play steeple chase — a FUN way to learn PROGRAMMING.



EXTREME CASES:

1) My memory can hold up to 48 commands. When my memory capacity is exceeded I will give you a warning sound and any further entry is ignored.

2) When my power is turned off all the programs stored in my memory are forgotten.

TURN-OFF POWER REMINDER

In case you forget to turn my power off I will remind you by making a noise every few minutes, otherwise I might lose power from my batteries.

TROUBLE SHOOTING

In case I look weak and slow, or don't move linearlly, check those AA 1.5V batteries. Replace them if necessary. If I make a noise continuously as soon as the power is turned on, most probably the 9V battery for the microcomputer is in my battery box the wrong way round. Please replace it correctly. It should not have to be replaced very often.

SPECIFICATIONS

* Cabinet: ABS plastic
* Size: height (16 cm), width (16 cm), depth (20 cm)
* Processor: custom-made 4-bit microcomputer
* Batteries: 4 size AA 1.5 V
  1 9V
* Keys: conductive rubber keyboard

Please handle me with care!

signed

COMPUROBOT II