AX170

USER MANUAL

MSX صخر

PERSONAL COMPUTER

ARABIC - ENGLISH

AX170

PERSONAL COMPUTER

MSX

PREFACE

This Personal Computer is designed to operate with MSX-BASIC as its language, and ROM Cartridges and cassettes are available for various applications. This model is ideal for beginners, who wishes to learn about computers. It also helps in learning process through educational programs developed and produced by Alalamiah, specially for students. At the same time it suits those interested in games, and other applications at home.

Here is a list of this model's outstanding features:

- MSX-BASIC interpreter that enables you to use this model as a common MSX computer.

- Modified MSX-BASIC interpreter specially designed for handling strings of Arabic characters.

- International/Arabic Keyboard.

- Four Built-in Programs:
  - Calendar Program
  - Graphics Program
  - English Editor
  - Arabic Editor

These Operating Instructions explain how to connect this computer to its peripherals, how to use it, and how to use its built-in programs efficiently.

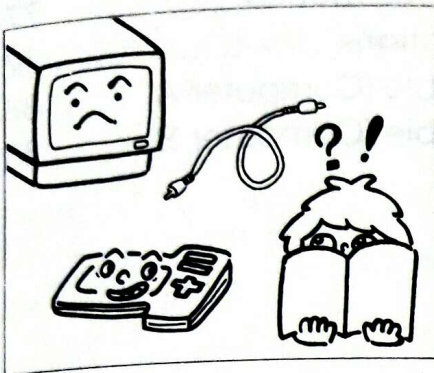**Note:**

1 - These Operating Instruction should not be copied or published either in whole or in part without permission from Alalamiah.

2- These Operating Instructions may be revised or changed without notice.

3- We assume no responsibility if you should suffer any pecuniary loss due to, or caused by your reliance upon the results or responses you have obtained from all our programs.

(1/87)

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INPORTANT SAFETY NOTICE

PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS CONTAINED IN THIS MANUAL AND THOSE ON YOUR APPLIANCE. RETAIN THIS MANUAL FOR REFERENCE.

- **Do not attempt to disassemble this unit for any reason.**

  Should the unit fail, send it back to your dealer from whom you purchased this unit. Replacement of the power supply cord requires special tools. So do not replace it by yourself for your own safety. Never add accessories that have not been specifically designed for use with this appliance.
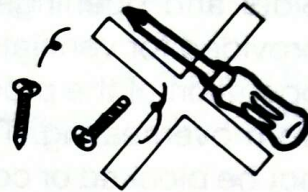
- **Do not open the cabinet.**

  There are no user serviceable parts inside. Never open the cabinet which prevents electric shock and damage to this unit.

- **Do not give any abnormal shock to the unit.**

  Do not subject the unit to an excessive mechanical shock and do not place your appliance on an unstable cart, stand, shelf or table. Serious injury to an individual, and damage to the appliance may result if it should fall.
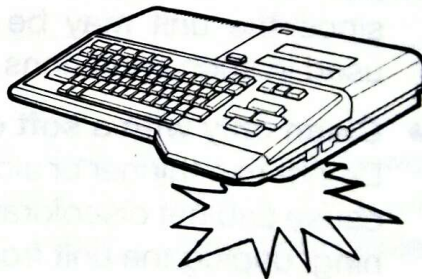
- **Do not bend the cord.**

  Do not pull or bend the power supply cord with an excessive strength and do not place any heavy materials on top of cord as this can result in fire or electrical shock. When disconnecting, be sure to disconnect with holding the plug,.
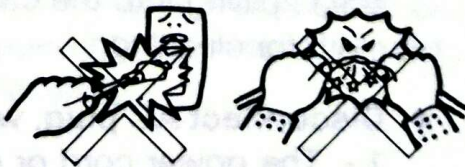
- **Keep the unit clean and cool.**

  Avoid placing the unit in location with high temperature, high humidity, direct sun light, or dusts.

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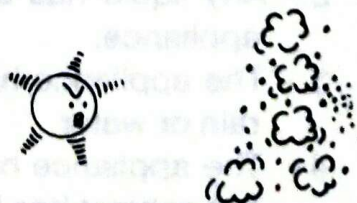
- **Avoid rain or water.**
  Do not expose the appliance to rain or use near water, such as, bath tub, kitchen sink, wet basement etc., and never spill any liquid on the computer. If this happens, unplug the power supply, and immediately contact he dealer from whom you purchased this unit.

- **Do not cover or block the opening.**
  Slots and openings on the cabinet are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never b blocked by placing the product on a bed, sofa, rug, or other similar surface.

- **Do not insert any metal objects into the vents provided on the cabinet.**
  If any of such metal objects as pins or clips should get into the vents, unplug the power supply cord, and contact the dealer from whom you purchased this unit since the unit may be damaged when used in such conditions.

- **Clean only with a soft dry cloth.**
  Do not use thinner or alcohol since it may cause cabinet discoloration. Before cleaning, unplug the unit from the wall outlet. Do not apply liquid cleaners or aerosol cleaners directly to the unit to avoid possible spilling into the cabinet. Use damp cloth for cleaning.

- **Disconnect AC plug, when;**
  1 - The power cord or plug is damaged or frayed.
  2 - Any liquid has been spilled into the appliance.
  3 - The appliance has been exposed to rain or water.
  4 - The appliance has been dropped or the cabinet has been damaged.

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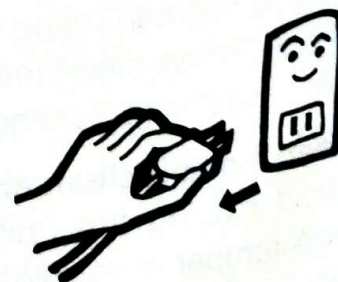
5 - Any abnormality is noticed with the computer upon turning the power switch on, such as smoke, odd smells, or noise etc.

6 - The unit is not in use for a long period of time.

INPORTANT:

Connect power cord to the wall outlet supplying 110-127/220-240 Volt, 50/60 Hz alternating current (AC).

Before connecting your new computer to an AC outlet, be sure the voltage selector is properly set. Improper voltage may damage the Computer.

When utilizing 220-240 Volt power supply, it is necessary to add an adaptor plug delivered with this unit.
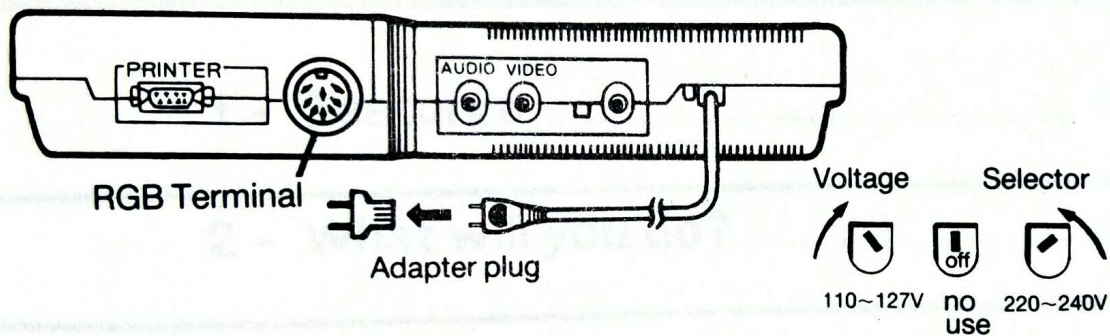
● **Check the type of power supply.**
This appliance should be operated only from the type of power source indicated on the unit or as indicated in this Manual. If you are not sure of the type of power supply in your home, consult your dealer person or your local power company.

● **Make sure of the power cord.**
If an extension cord in used with this unit, make sure that the total of the ampere ratings on the appliances plugged into the extension cord do not exceed the extension cord ampere rating.

BEFORE OPERATION

- MSX BASIC
- TWO CARTRIDGE SLOTS

GAME

Immediate start with the «CARTRIDGE»

HIGH - SCORE
4750   10000
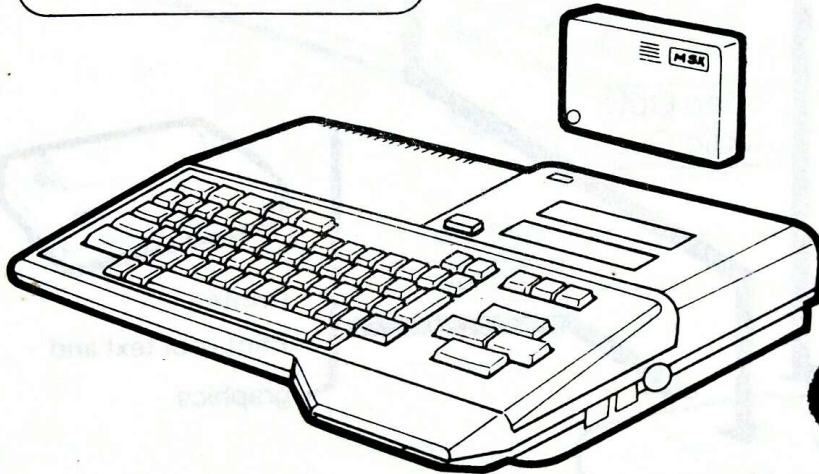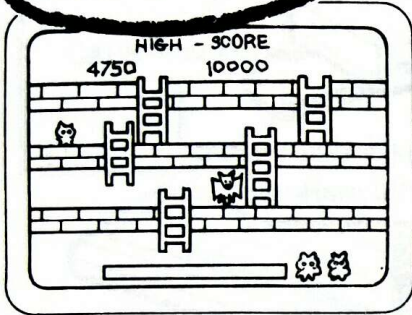
Wonderful Colors
SPRITE with
16 colors
32 frames
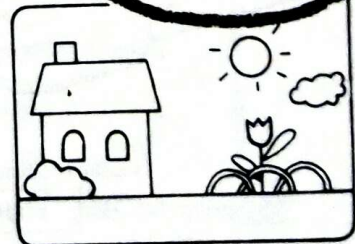
Sound
8 octaves,
Triple chord

F2 F3 F4 F5

DOWN UP tempo=120

1 2 3 4 5 6 7 8
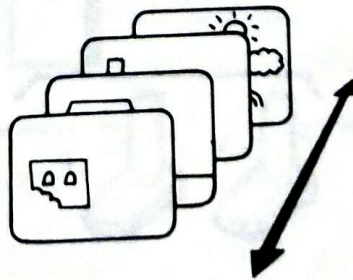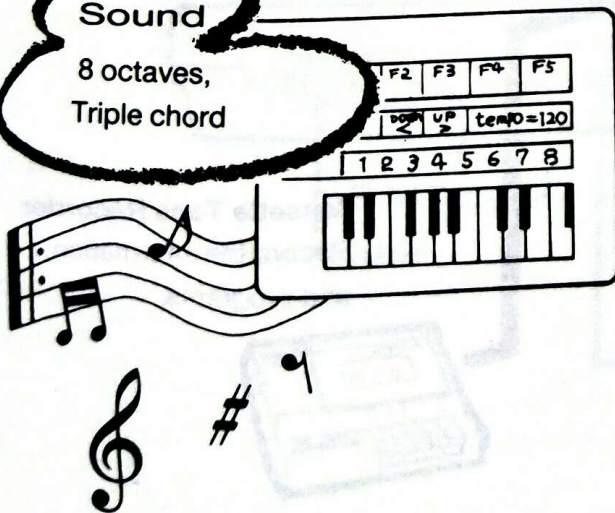
Connect the peripherals for your purpose.
(Be sure to turn off each power switch before connecting).

TV/Monitor

CARTRIGE

FDD
(Optional and
separately sold)

Antenna

Video IN

The games, educational software and
so on are available in the market.

Video Out
Audio Out

Printer

Printer
Print your text and
graphics

RF Out

Cassette

Port

Cassette Tape Recorder
Record the information
and programs.

Joysticks
You can enjoy
the game by
using them.

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POWER
OFF | ON

Reset Button

Cartridge Slot

CODE Indicator

Power Supply
Pilot Lamp

CAPS Indicator

Joy Stick Terminal No.1

Joy Stick Terminal No.2

Cassette Recorder
Terminal

Power Supply Cord

RF Output Terminal

PRINTER

AUDIO VIDEO RF

RGB Terminal

Printer Terminal

Voltage Selector

Video Output Terminal

Audio Output Terminal

Before connecting to this unit, be sure to turn off the power switch of this unit and peripheral equipment, and make sure that these voltage specifications correspond to the voltage of your AC outlet.

■ CONNECTION TO TV

1 - In case of TV with VIDEO and AUDIO INPUT TERMINALS equipped: Connect VIDEO and AUDIO OUTPUT terminals of the computer to both Video and Audio Input Terminals of a TV set as shown below.

TV or Monitor

To Video and Audio Input Terminal

Video and Audio Output

Video

Audio

Audio/Video cable
(Optional and separately sold)
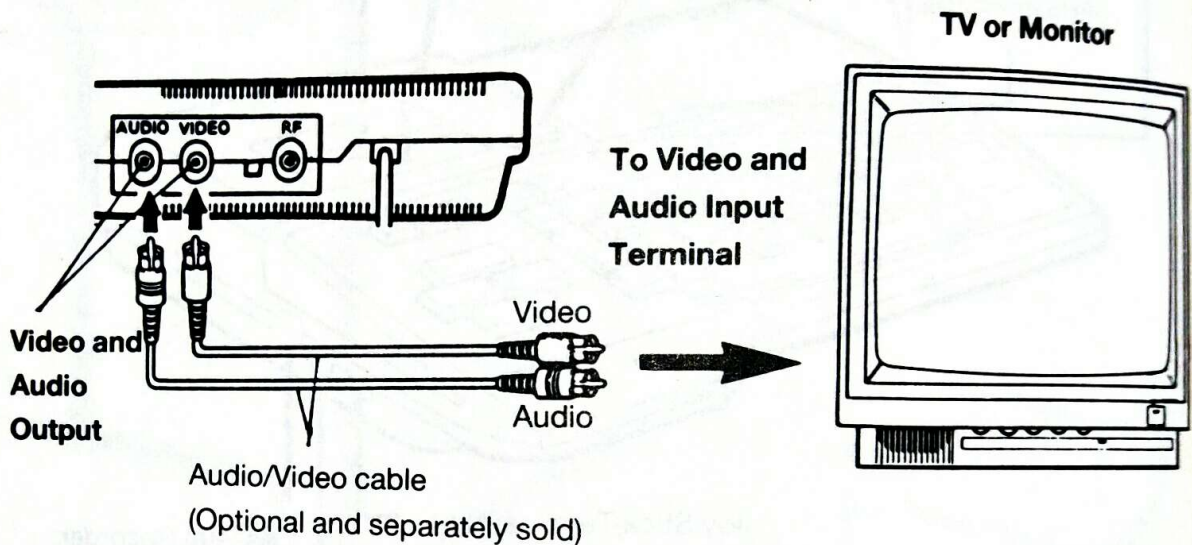
2 - In case of TV without AUDIO AND VIDEO INPUT TERMINALS:
   • Connect RF Output Terminal of the computer to Antenna Terminal (75 ohm) of TV Set with RF cable.
   • Set the TV channel to UHF channel 36.

TV

To antenna Terminal

RF Output Terminal

RF cable
(Supplied with the unit)
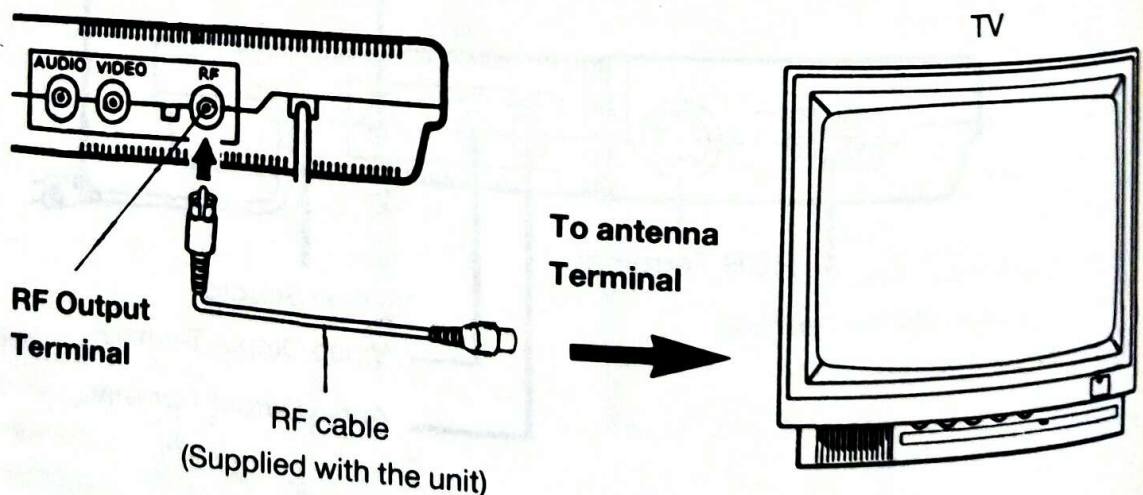
3 - In case of MONITOR with RGB INPUT TERMINAL:
Connect RGB terminal of the computer to RGB Multi terminal
of a monitor as shown below.

MONITOR

RGB cable (Optional and separately sold)
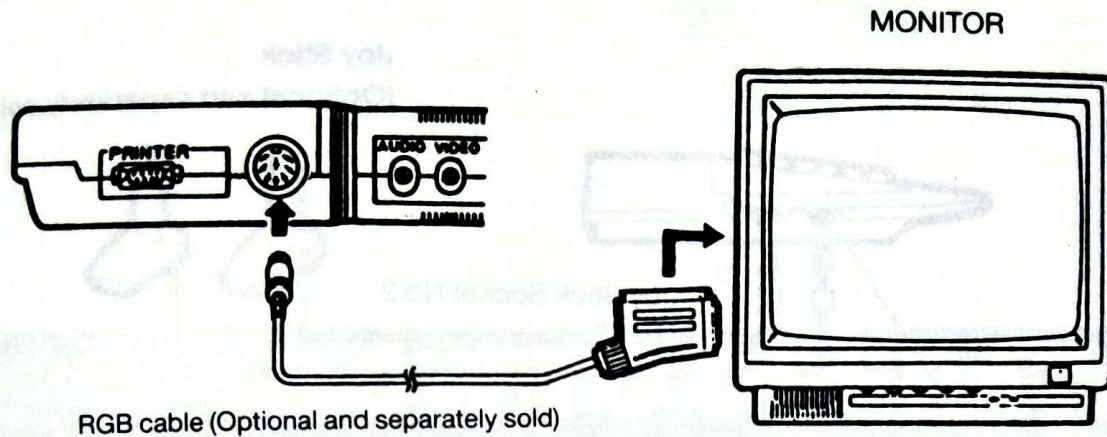
■ CONNECTION TO PRINTER

Printers based on the Centronics Specifications (optional and separa-
tely sold) can be used with this computer. Please consult with your dea-
ler from whom you purchased this unit as to what is the most suitable
printer.

Printer Terminal

Printer
(Optional and separately sold)

PRINTER

RGB Terminal

Printer Cable
(Optional and separately sold)

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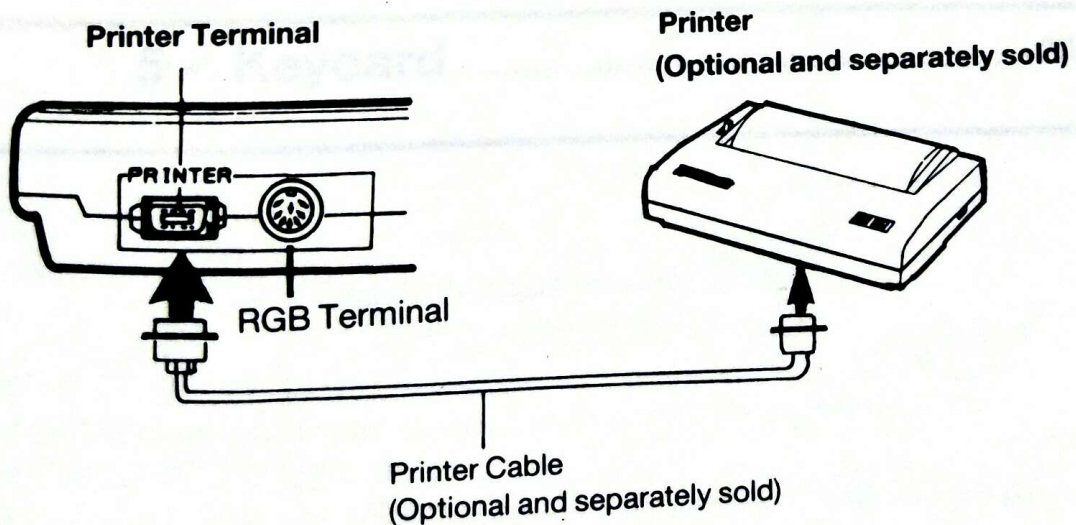
■ CONNECTION TO JOY STICK or MOUSE

Two Joy Sticks (or Mouses) available in the general market can be used with this computer. Also please consult with your dealer for the proper Joy Sticks (or Mouse).
Careful reading of the Operating Instructions provided with ROM Cartridge, etc. will b also helpful.
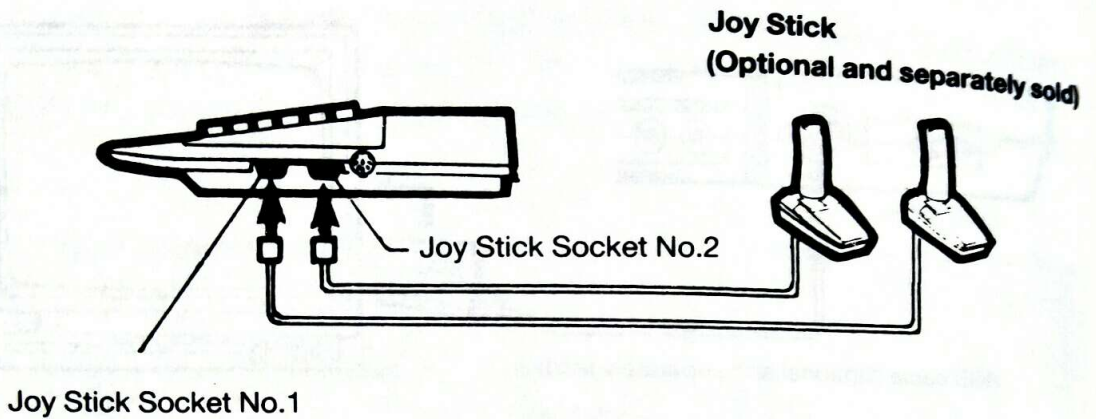
**Joy Stick
(Optional and separately sold)**

Joy Stick Socket No.2

Joy Stick Socket No.1

HOW TO OPERATE

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1 - FUNCTIONAL CHECK

■ STARTING

1 - Turn off the Power Switch of all equipments connected to the computer.

2 - Remove the ROM cartridge, from the slot, if being inserted.

3 - Verify that all equipments are properly connected.

4 - Turn on all the peripherals. (Turning on the computer prior to its peripherals may lead to malfunctions, though in a low probability).

5 - Turn on the computer. About 4 seconds later, the copyright message of MSX-BASIC will appear successively in 2 frames, then the built-in progreams menu will appear. If no message appears or the picture on the screen is unstable, depress the RESET button on the top of the cabinet. If the computer still does not operate properly, read «Before calling for service». Before turning off the Power Switch, please read «To Turn Off Power Switch».
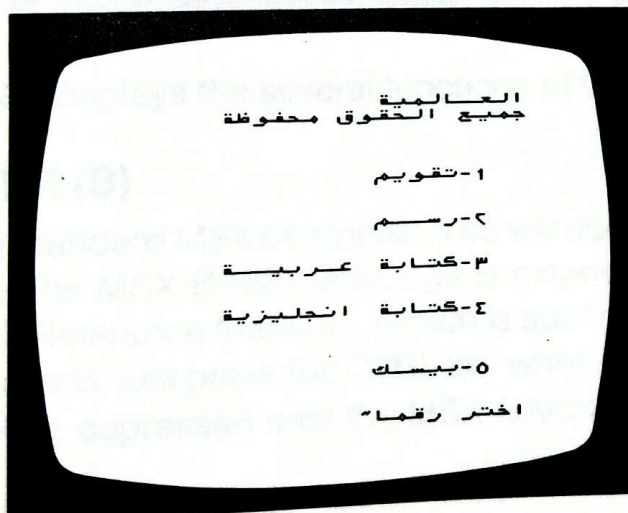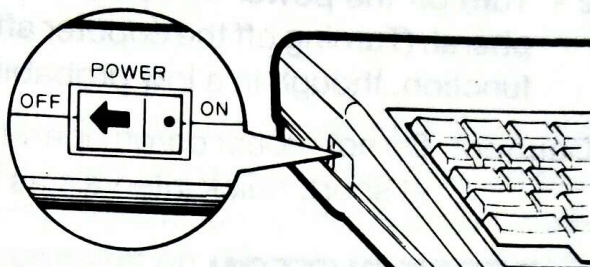
Build-in Programs menu

Note:

● If a cartridge is loaded when performing fuctional check, the picture may be adversely affected.
● The left and right margins of the screen may be missing on some Television Sets.

■ TO TURN OFF POWER SWITCH

1 - Save the program stored in RAM memory of the computer before turning off the power switch, since the program will be lost completely.

2 - Turn off the power switch of the computer before that of any peripheral. (Turning off the coputer after its peripherals may lead to malfunction, though in a low probability).

Caution: Do not repeat on/off operations of computer or its peripherals at short, quick intervals as it may cause malfunctions.

■ RESET BUTTON

The reset button is located on the top of the cabinet. One push of this reset button will result in:

1 - The destruction of all the programs stored in the computer RAM.

2 - The restoration of the aforementioned copyright statement if no ROM or RAM cartridge or FDD is connected.

3 - The restoration of the initial position, if RAM or ROM cartridge or FDD is connected.

RESET BUTTON
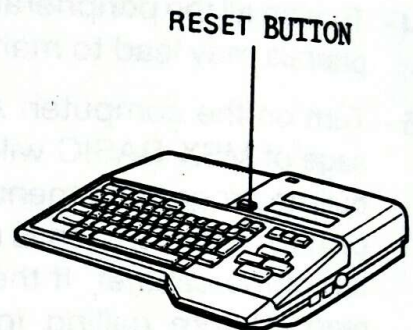
2 - SELECTING COMPUTER MODES

This computer actually contains two computer modes. We sill call them Computer A and Computer B.

■ COMPUTER (A)

Computer A is an MSX computer specifically designed to display and process Arabic texts. It also includes two word processor programs, a calendar, and a graphic application program. Computer A is automatically selected when you turn the computer on. The display you already know appears after a few seconds.
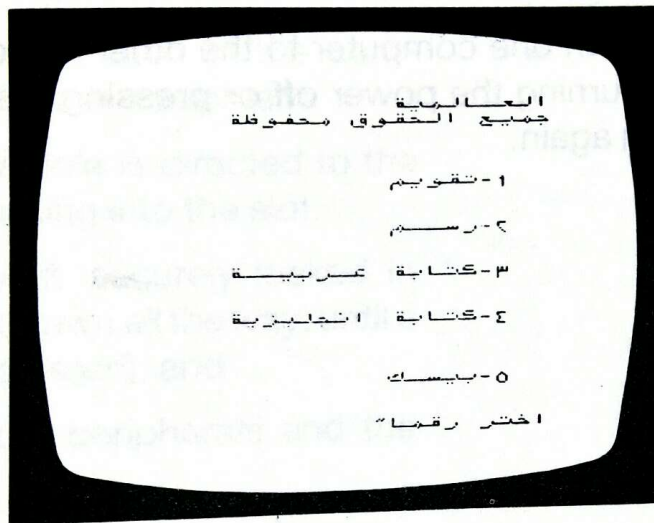
The above MENU displays the several functions of Computer A.

■ COMPUTER (B)

Computer B is a standard MSX computer. You will use it to run standard MSX programs. The MSX BASIC language is extensively explained in the «MSX BASIC Reference Manual», (which is sold separately). To select Computer B, just press the CTRL key while switching the computer on and hold it depressed until the MSX-SAKHR display disappears.

The initial screen of Computer B will appear as follows:

Keep this key depressed while switching on.


```
MSX BASIC version 1.0
Copyright 1983 by Microsoft
28815 Bytes free
Ok




color auto  goto  list  run
```
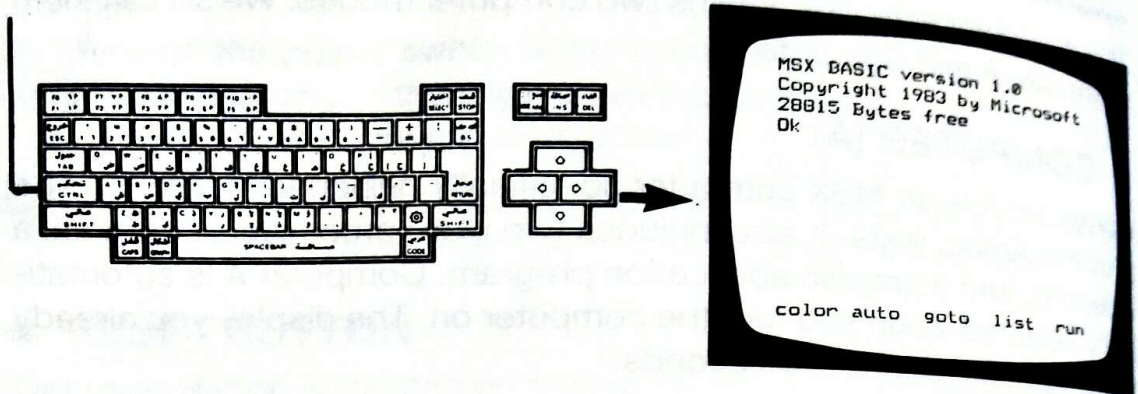
Note: Switching from one computer to the other can only be accomplished by turning the power off or pressing the RESET button and starting again.

3 - TO LOAD ROM CARTRIDGE

Do not remove or insert a cartridge before turning off the computer. Otherwise the destruction of information stored in the cartridge may result.

Insert a ROM Cartridge (optional and separately sold) into the slot provided at the top right corner of the cabinet. The lid of the slot need not be removed as it will give in inside the slot, with the insertion of the ROM Cartridge. Make sure that:

HOLE

SLOTS

1 - Turn off power switch of the computer and pripheral equipment.

2 - The cartridge hole is directed to the left when inserting into the slot.

3 - The cartridge is securely locked in place (Push it down all the way, until a click sound is heard), and

4 - Turn on all the peripherals and the computer.

An improper contact (or insertion) of the cartridge may damage the computer and/or the ROM Cartridge.

When having finished using the computer, turn off the computer, then remove the cartridge.

Note: This computer has two cartridge slots provided. The one closer to you is operated prior to the other.

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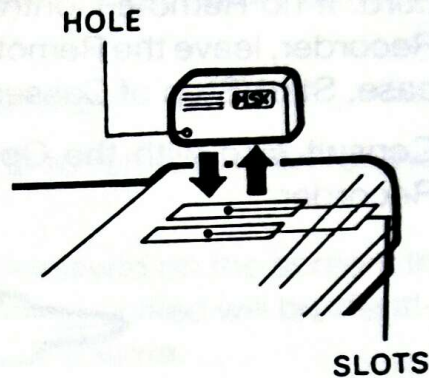
4 - TO SAVE OR LOAD PROGRAMS

(USE CASSETTE TAPE RECORDERS)
CONNECTING TO THE CASSETTE RECORDER

Connect this computer to a cassette tape (data) recorder with a patch cord. If no Remote Control terminal is provided on the Cassette Tape Recorder, leave the Remote Jack (Black) of the patch cord, open. (In this case, Start/Stop of Cassette Tape Recorders must be made by hand).

Consult also with the Operating Instructions provided with Cassette Recorder.

Cassette cable (Patch Cord)
(Optional and separately sold)

Terminal for
Cassette Recorder

Remote
(Black)

Load
(White)

Save
(Red)

REMOTE   LOAD   SAVE
(EAR)   MIC

Cassette tape recorder
(Optional and separately sold)
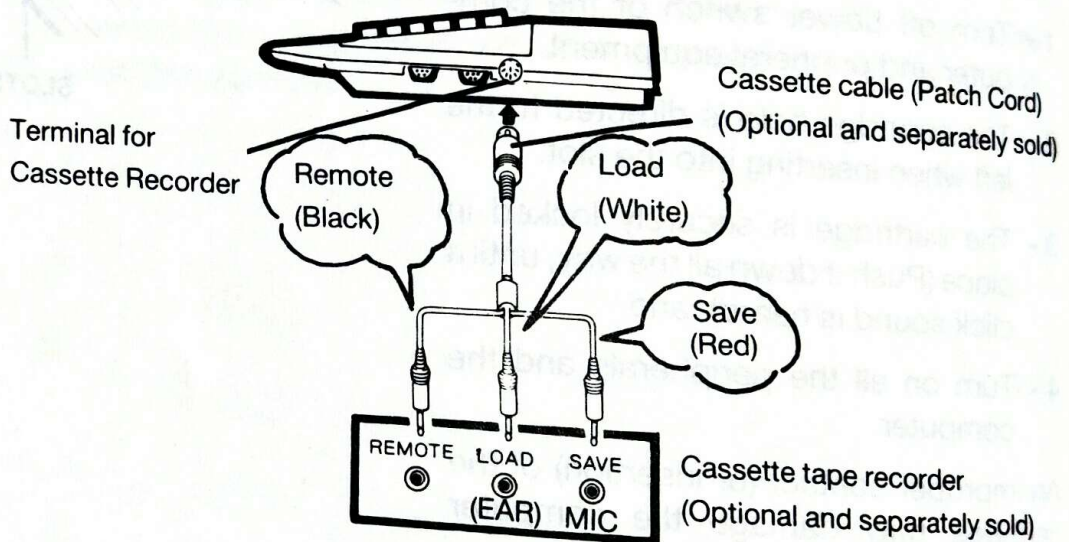
■ WHEN A DATA RECORDER IS USED:

1 - Set the thumb wheel volume knob at the maximum position.

2 - Turn off the pause switch.

3 - Set the mode switch to DATA mode.

■ WHEN A CASSETTE TAPE RECORDER WITH AUDIO CONTROLS IS USED

1 - Set the volume control knob to the mid position, neither too low nor too high.

2 - Set the tone control knob (if provided) to the mid position, neither too low nor too high.

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4 -1 LOADING PRERECORDING PROGRAM ONTO COMPUTER

1 - Place the cassette tape in the cassette tape recorder.

2 - Rewind the Cassette all the way to the starting position.

3 - Type as CLOAD "DEF" if the program is named DEF,. and thenPress the `RETURN` key.

4 - Depress the PLAY key of cassette tape recorder.

5 - With a small «click» sound, the tape starts to run to search for the specified program.

6 - FOUND: (the specified file name) will be displayed on the screen. In this search mode, any file other than the one specified will be identified on the screen as Skip followed by the file name.

Example: If the program with the file name of DEF is preceded by another one with the file name of ABC, the screen will display:

```
cload "DEF"    ← File (or program) name specified.
Skip   :ABC   ← Being searched
Found : DEF   ← The file found.
OK
■              ← Cursor
```

7 - Any program saved by means of CSAVE can be loaded by typing only CLOAD, (Note: The quotation mark (") must not follow CLOAD) if the file name is forgotten or unknown. All preceding file names will be found and loaded one after another by repeating CLOAD. Any file programmed in the machine language, saved under BSAVE command, cannot be loaded without typing the exact file name.

8 - To discontinue the search mode, by CLOAD, push CTRL and STOP keys simultaneously.

9 - Adjust the volume level of the Cassette Tape Recorder between mid and low range, if the loading by CLOAD has not been successful.

4 - 2 SAVE AND LOAD PROGRAM ON THE TAPE

Save Program

1 - Set the cassette tape

> Make sure that the existing program may be erased.
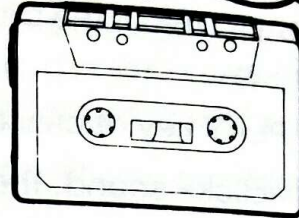
2 - Enter CSAVE" and program name.

Program name
↓

CSAVE ▪ MSX▪

3 - Press RECORD key of cassette tape recorder.
4 - Press **RETURN** key.
- "OK" will be displayed after the program has been saved.

```
csave "MSX"
Ok
```

5 - Rewind the tape to make sure as follows that the program has been saved.

6 - Input CLOAD? **RETURN**
- When the program has been saved completely, "OK" will be displayed.

```
csave"MSX"
Ok
cload?
Found:MSX
Ok
□
```

> A correct saving proved

- If the saving program fails, either "Verify error" or none will be displayed.

"Verify error"

> Save the program again.

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Load Program

1 - Set the Cassette tape.
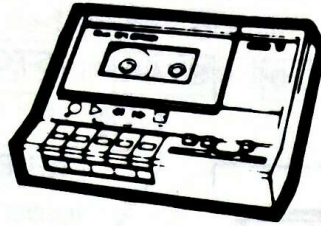
Set the cassette tape a little ahead of the recorded program.

2 - Enter CLOAD C L O A D •

3 - Input the program name.

Be precise with capital and small letters.

cload"⬚

4 - Press RETURN key.

5 - Press PLAY key of the cassette tape recorder.
- When the program is found, "Found:" is displayed on screen.

Skip:⬚

Other program skipped.

Found:⬚

Now, the program caught.

- "OK" will be displayed after the program has been completely loaded. (EX):

```
cload"DEF"
Skip:ABC
Found:DEF
Ok
□
```

6 - Press F5 key to start or execute the program.

Be sure to distinguish between the confusingly similar characters, and numbers:

Numbers   zero **0**   one1

Characters   LMNOPQ   little   L   hijk/HIJK
                 0

① F1 - F10 Keys Commands a predetermined operations. For further explanation, see Note below.

Note: This computer has 10 pre-defined Function Keys. The function of these keys are displayed on the bottom line on the screen and can be redefined by program with KEY statement. The initial function (or definition) key is:

Computer A:	F1	color		F6	_dcolor
	F2	_arb1		F7	_arb2
	F3	goto		F8	_engl
	F4	list		F9	list.
	F5	run		F10	(CLS) run

Computer B:	F1	color		F6	color 15,4,4
	F2	auto		F7	cload"
	F3	goto		F8	cont
	F4	list		F9	list.
	F5	run		F10	(CLS) run

② ESC Key (escape) is not usually used, as it needs a special program not supported by MSX-BASIC.

③ STOP Key Stops a program running. Another push will restore the running. A push of STOP key while pushing CTRL key will interrupt (or cancel) the program run.

④ BS Key- while on English String it will delete a character on the immediate left of the cursor and moves those on the right to the left.

Example:

0 1 2 3 7 4 5

↑
Cursor

↓

0 1 2 3 4 5
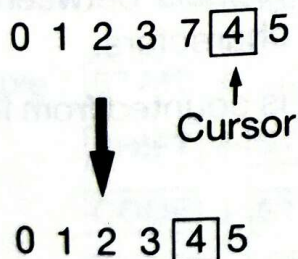
On Arabic String BS will delete charecter under cursor Position.

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⑤ **CLS HOME** moves the cursor to the upper left corner of the screen, or Home Position. If pressed in conjunction with SHIFT key, screen clears and the cursor will move to the Home Position.

⑥ **INS** key - Inserts one character where the cursor lies. Example (When wishing to insert number a between 4 and 5):

Original .... 1 2 3 5 6 □
Move the cursor to
No.5 .... 1 2 3 5̄ 6
Push **INS** key .... 1 2 3 �5 6
(The cursor height will reduce).
OPush **4** .... 1 2 3 4 �5 6

When Arabic Mode is ON pressing **INS** key will toggle between two types of inserting Arabic text: left or right insertion modes.

⑦ **DEL** Key - On English String it deletes a character at the cursor position.
Example (When wishing to delete No.7)

Characters on the right of the cursor move by one position to the left.

0 1 2 3 7̄ 4 5
↑
cursor

0 1 2 3 4̄ 5

⑧ **SELECT** Key - in English mode it has no Functim in BASIC Editor. when Arabic mode in ON the select key toggels between direct mode and insertion mode in writing Arabic charecters.

⑨ **TAB** Key - Gives 8 spaces. (Note that the 8 is counted from the left-most).

Example 1:

1̄ 2 3 4 5 6 7 8 9 0 1 2 3

9̄ 0 1 2 3

Example 2:

1 2 3 $\boxed{4}$ 5 6 7 8 9 0 1 2 3

↓

1 2 3 $\boxed{9}$ 0 1 2 3
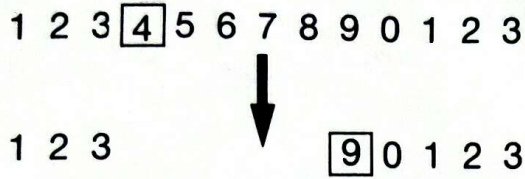
⑩ $\boxed{\text{CTRL}}$ Key - Controls key functions. See APPENDIX.

⑪, ⑫, ⑬, ⑯. See APPENDIX.

⑭ $\boxed{\text{RETURN}}$ Key - Stores in the on-board memory all the inputs displayed on the screen when in program mode. It is also referred to as ENTER.

⑮ Cursor keys - Move the cursor in the arrowed direction.

- To move the cursor continuously, keep pushing the key.

- When the cursor reaches the right screen edge it will move over to the left screen edge of the next line.

- When the cursor reaches the left screen edge, it will move over to the right screen edge of the preceding line.

⑰ $\boxed{\text{SPACEBAR}}$ deletes the character at the cursor position. Characters on the right of the cursor stay still.

Example :
0 1 2 3 $\boxed{3}$ 4 5 ⟶ 0 1 2 3 $\boxed{4}$ 5
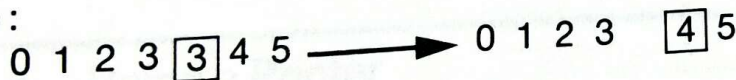
⑱ $\boxed{\text{STAR}}$ Key - Computer A: no effect
Computer B: Puts on umlaut and various accent symbols by depressing $\boxed{\text{SHIFT}}$, $\boxed{\text{GRAPH}}$ and/or $\boxed{\text{CODE}}$ keys then this key before pressing applica ble alphabetical keys, that is, a, e, i, o,u or y.

Example : $\boxed{\text{STAR}}$, e .... è
$\boxed{\text{SHIFT}}$ + $\boxed{\text{STAR}}$, e .... é
$\boxed{\text{CODE}}$ + $\boxed{\text{STAR}}$ e .... ê
$\boxed{\text{SHIFT}}$ + $\boxed{\text{CODE}}$ + $\boxed{\text{STAR}}$, e .... ë

Note: "+" represents a continuous push of the fuction key, while ⊕ a push and release of the function key.

THE HYBRID BASIC

1 - GETTING STARTED WITH THE HYBRID BASIC

The Hybrid BASIC is an expanded form of the MSX BASIC. That is, you may rely on your BASIC manuals for most of the programming. However, important modifications have been introduced in order to allow for the processing of Arabic character strings.

These modifications are:

English/Arabic keyboard — The CODE key allows you to select English or Arabic characters.

Display of the Arabic characters — A special Full Page Editor allows for writing Arabic strings from right to left.

Printer interface — This allows for the printout of Arabic text.

Special Arabic commands — Several handy commands allow for easier processing of Arabic text.

2 - THE ENGLISH/ARABIC KEYBOARD

The CODE key is used to select English or Arabic characters and cannot be used to obtain the special characters of a standard MSX keyboard.

■ ENGLIS MODE

When the CODE indicator is unlit, your keyboard is very similar to the international keyboard. There are however some differences:

- The STAR key is deactivated.
- The GRAPH key is used to obtain the most frequently used MSX-BASIC Commands, 12 table characters and π.
- The effect of the CAPS key is cancelled by the SHIFT key (to obtain lowercase characters when the CAPS indicator is lit, press SHIFT while typing).

■ ARABIC MODE

The layout for Arabic characters is similar to Arabic typewriter layout where each letter of the Arabic alphabet appears once on the keyboard.

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The selection of the shape of the character is done automatically. Arabic characters are obtained when the CODE indicator is lit. Following are some points to remember:

- The GRAPH key does not affect the Arabic input.
- The CAPS lock mode does not affect Arabic. To obtain the Arabic shifted symbol, press SHIFT while typing.
- The STAR is deactivated.

■ FUNCTION KEYS

The function key labels are displayed in English. F2 , F6 , F7 , and F8 are not assigned the same definition as in the international MSX BASIC: these keys correspond here to special Arabic commands:

F2 _arb1 (CALL ARB1)

F6 _dcol (CALL DCOLOR)

F7 _arb2 (CALL ARB2)

F8 _engl (CALL ENGL)

These commands will be explained latSHIFT while typing.

3 - DISPLAYING ARABIC CHARACTERS

■ DISPLAYING CHARACTERS IN TEXT SCREENS

When you select BASIC from the Main Menu, the display is set in Screen 1 mode. The reason for this is to display the Arabic characters in the 8x8 mode.

The normal editing mode is therefore SCREEN1. By default English characters are displayed in white foreground on dark blue background and Arabic characters are displayed in grey on black. This is to easily differentiate English from Arabic. When this default is modified by using the COLOR Command, it is always possible to reset it by using the CALLable Command DCOLOR which is also provided on function key F6.

■ THE SIZE OF ARABIC CHARACTERS

The height of the displayed character can be selected:

```
   (CALL ARB0)
F2 (CALL ARB1)   reduced size (6x8 points)
F7 (CALL ARB2)   normal  size (8x8 points)
               double  size (8x16 points)
```

The default 8x8 mode which can be reset by the CALLable Command ARB1 is provided on function key F2. If used within a program, the command ARB1 will set the cursor to move from right to left.

The 6x8 mode can be obtained by using the CALLable Command ARB0. This mode can be used in a program but will be reset when execution ends on text screen 0.

The 8x16 mode can be obtained by using the CALLable Command ARB2. This mode can be used in a program but will reset when execution ends.

The action of ARB0, ARB1 and ARB2 may be cancelled by using the command CALL ENGL provided on function key F8.

■ THE EDITOR

The editor is a Full Screen Editor based on the MSX-SAKHR Editor. Special handling for Arabic strings was added to enter Arabic in an acceptable way. In order to provide for a right to left orientation when writing Arabic, a pseudo-insertion mode was implemented where Arabic characters are entered at the cursor position and shifted to the right. When switching from English to Arabic, the cursor moves left one position and Arabic characters can be entered.

When switching from Arabic to English, the cursor jumps after the last Arabic character in the following string.

Pressing RETURN will switch back to English and the cursor moves to the left margin.

■ SHAPE OF THE CHARACTERS

The Code Concatenation Analysis (CCA), which generates the correct shape of an Arabic character depending on its position inside a word, is done automatically before displaying a character on the screen. The neighbouring characters are corrected since their shape might change due to the newly entered character.

The (CCA) can be inhibited by using the CALLable Command NOCON. Then the isolated shape will be used for the Arabic character displayed next. The (CCA), can be resumed by using the CALLable Command RECON. Both commands will not modify the characters already displayed on the screen unless their left or right neighbours were modified.

■ THE SHAPE OF THE CURSOR

The cursor has five different shapes depending on the language:

• A filled box in the direct English mode.

- An underline in the English insert mode.
- An empty square in the direct Arabic mode.(☐)
- An empty half square in the Arabic insert mode ( ]).
- An empty half square in the Arabic insert mode ([ ). to insert characters to the right of the character.

The cursor shape is defined by a flag in RAM CSTYLE at &HFACC.

0	solid filled box	1	underline
2	empty square	3	half square

The cursor moves from left to right in the English mode and from right to left in the Arabic direct mode. The cursor movement is defined by the flag ARBFLG at &HFCAD.

■ DISPLAYING CHARACTERS IN GRAPHIC SCREENS

The normal way of displaying characters in graphics screens consists in OPENing <<GRP:>>. However, this cannot be used for displaying Arabic strings. A new CALLable command is provided, GPRINT, having the following format:

CALL GPRINT (<list of expressions>)

The list of expressions includes strings of formulas separated by commas or semicolons. A comma works like a semicolon.

The CCA is executed on Arabic strings if RECON is in action but characters already displayed are not modified.

The cursor moves from right to left and a carriage return makes it jump two lines down to the right margin.

Diacritics are displayed over or under the character.

If you want to print Arabic text that is generated by an Arabic BASIC program, please read the following carefully. Four different modes of printing are available and these modes are selected by the last parameter of the SCREEN statement. This parameter can take the value 0,1,2 or 3. You may change this parameter without changing the other parameters of the SCREEN statement by writing four commas at the left of the parameter.

- SCREEN,,,,0 (The Default Setting: Standard MSX Printer)

This command will assume that a standard Japanese or English MSX printer is connected. English characters are printed normally while Arabic characters are printed in graphics mode. CCA is done automatically if RECON is in action. Since the first character of an Arabic string has to be printed to the farthest righthand position, Arabic characters are stored in a buffer in VRAM then sent to the printer starting from the last character. In this way, Arabic strings will look on the printer.

The default number of characters per line on the printer is set to 80 but this can be modified by poking the new value at RAM address F418H.

e.g. POKE&HF418,40

- SCREEN,,,,1 (Arabic MSX Printer)

This command assumes that a customized Arabic MSX Printer is connected. Hence there is no need to print Arabic characters in graphics mode and they are sent as patterns directly to the printer which has the patterns in ROM. CCA and buffer inversion are done as in the previous option.

- SCREEN,,,,2 (Arabic Printer)

This command assumes that an ordinary 7 bits code printer is connected. No CCA is done on Arabic characters because the printer is a standard Arabic printer that has this capability.

- SCREEN,,,,3

In this mode, codes are sent to the printer without any modification. This mode should be set for printing a hard copy where the code has no logical meaning but is just a physical distribution of the dots to be plotted.

5 - SPECIAL COMMANDS OF THE HYBRID BASIC

Here is a description of the CALLable commands of the Arabic BASIC. The word CALL itself may always be abbreviated by- (Underline).

– CALL MENU

The main menu is brought back in order to select one of the built-in programs. If BASIC is selected again, the program in memory is not affected.

– CALL ARB0

This command is used in SCREEN 0 to call the 6x8 Arabic character mode, cursor moves from right to left.

– CALL ARB1

Invokes the 8x8 Arabic right to left mode.
The PRINT statement moves the cursor from right to left.
INPUT is modified to work within a line

– CALL ARB2

Invokes the 8x16 Arabic right to left mode.

– CALL ENGL, CALL LATIN

Resets the normal English mode.

– CALL NOCON

Inhibits the Code Concatenation Analysis. Arabic characters are displayed in their isolated shapes.

– CALL RECON

Resets the Code Concatenation Analysis after being inhibited by a CALL NOCON Command.

– CALL INDVAL

Uses the Indian notation for the numbers of the first part of the ASCII Code Table (30H-39H).

– CALL ARBVAL

Uses the Arabic notation for the numbers of the first part of the ASCII Code Table (30H-39H).

– CALL ARBNUM

Uses the Arabic notation for the numbers of the second part of the ASCII code Table (B0H-B9H).

– CALL INDNUM

Uses the Indian notation for the numbers of the second part of the ASCII Code Table (B0H-B9H).

– CALL DCOLOR

Resets the default colors. English characters are displayed in white on blue, Arabic characters in grey on black.

– CALL ASTR (string 1,X$)

Transforms the English representation (string1) of a number to the equivalent Arabic representation (X$).

Numerals with codes from 30H-39H are transformed to B0H-B9H.

The representation is inverted so that the last byte becomes the first. This command can also be used on Arabic strings in order to invert them.

– CALL ESTR (string 1,X$)

Transforms the Arabic representation (string1) of a number to the equivalent English representation (X$)

Numerals with codes from 30H-39H are transformed to B0H-B9H.

The representation is inverted so that the last byte becomes the first. This command can also be used on Arabic strings in order to invert them. It can also be used on an Arabic string written in the internal code (ASMO shifted by 80H) to transform it to an ASMO string.

– CALL PRESORT (string 1,X$)

(X$) is a copy of (string1) where diacritics and tatweel were erased and the lamalef characters expanded to lam+ the corresponding alef in order to conform to the ASMO specifications.

– CALL PRESEND (string 1,X$)

(X$) is a copy of (string 1) where lamalefs were expanded to lam + the corresponding alef in order to have standard ASMO code, since lamalef are not included in the standard.

– CALL COMPRESS (string 1, X$)

(X$) is a copy of (string 1) where the pairs lam and alef were compressed into the corresponding lamalefs.

- **CALL GPRINT (<list of expressions>)**

This command is valid in SCREEN 2,3, and will generate a syntax error if used in SCREEN 0 and 1. Its purpose is to display Arabic superimposed in graphics screens. The display is in 8x16 and the cursor jumps every two lines. The cursor moves from right to left. CCA is done on a string before displaying it and no modification is done on the text already on the screen.

- **CALL FNKEY**

resets the default definition of the function keys.

- **CALL HCOPY**

Printout of the screen (in SCREEN 0,1,2).

- **CALL CHCOPY**

Same as HCOPY but is used with color printer and in SCREEN 1,2.

- **CALL SPAINT**

Paints a specified area in SCREEN 2.

USING THE BUILT-IN PROGRAMS

USING THE BUILT-IN PROGRAMS

In addition to BASIC Language, from Microsoft, and the abilities of the bilingual MSX-SAKHR Computer, AX-170 Provides you with built-in programs. These programs are easy to use and enable direct utilisation of the system.

Such programs display the different and various abilities that MSX-SAKHR provides, confirming the reality that the MSX-SAKHR Computer is a useful tool for many applications.

Thes programs are:

■ CALENDAR COVERSION

Using this program you can get any Hijri or Gregorian date starting from the first year till 9999. In both calendars you can convert Hijri date to the Gregorian date and vice versa considering the first year of Hijri as a minimum and year 9999 Gregorian as a maximum. You can also have a printout copy for any monthly calendar on the screen using the printer.

Note: Hijri calendar may differ one day according to the crescent appearance

■ GRAPHICS

This program turns the screen into a graphic pad where you can draw colourful graphics directly on the screen using 16 colors and the available simple shapes (lines, boxes, circles, squares..etc). You can select any of the ten available brushes. Moreover, you may save and print your artistic designs in black/white or colors.

■ ENGLIS/ARABIC EDITOR

AX-170 is equipped with two professional editors that allow you to write anything on the screen and make all modifications before you print it out. You con also save your text on a diskette, a quick disk or a cassette.

Put your computer ON. The following main menu appears (Fig.1).

العالمية
جميع الحقوق محفوظة

١ - تقويم

٢ - رسم

٣ - كتابة عربية

٤ - كتابة انجليزية

٥ - بيسك

اختر رقماً
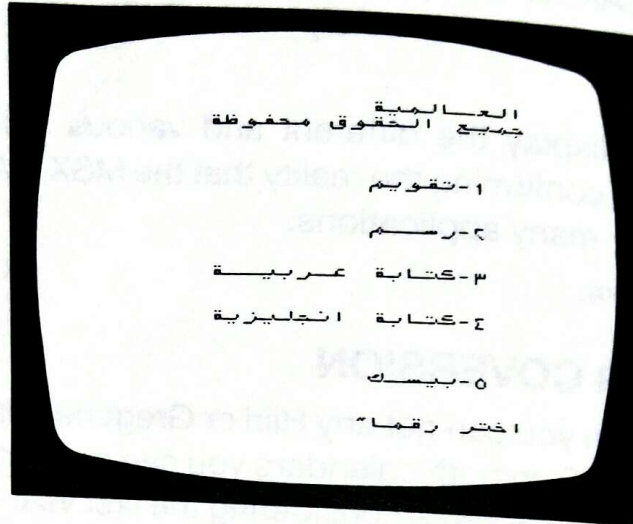
Fig.1

- Press the ⬚1⬚ key to choose the Calendar Program. The screen below will appear. It contains the calendar of the month that is specified by the system. Above it appears the days of the week, and below the table there are two dates, Gregorian and Hijri (Fig.2).

سبت	أحـد	إثنين	ثلاثاء	أربعاء	خميس	جمعة

● ميلادي : / /
● هجري : / /

١ - أرقام طبـع انجليزي وطنية. دينية

Fig.2

- At the bottom of the screen you'll find instructions equivalent to the function keys, these are: NUMBERS, PRINT, ENGLISH, NATIONAL, RELIGIOUS.

- Use spacebar, or arrow keys, and RETURN key to choose (Gregorian or Hijri).
- Use Number keys and RETURN key to enter date, month and year (either in Gregorian or in Hijri).
- In case of faults use ESC or BS for correction.
- The name of the month will appear near both the Gregorian and Hijri.

Note:
> Sometimes there is no equivalent date, then a message will appear: «date cannot be converted». This happens because of the following:
> 1 - The date of the month is not correct, as 29/2/1985 AD or 35/9/1986 AD.
> 2 - Any Gregorian date before 15/7/622 has no equivalent in Hijri.

- In the table, the calendar of the month which you selected will appear as well as the national and religious festivals, in two colors-red and green.
- The name of the month and the year will also appear above the screen.
- If the national and the religious festivals are on the same day, the color which appears is green.
- Press F1 to get a list of religious festivals.
- Press F2 to get a list of national festivals.
- Press F3 to have the equivalent of the days of the week in English.
- Press F4 to get a hard copy of the current screen.
- Press F5 to change the indian numbers into Arabic and vice versa.
- If you wish to change the chosen date, press spacebar, arrow keys and RETURN key to rewrite on the previous date and repeat the above operation.
- Press ESC + CTRL + SHIFT to return to the main menu.

Notes :
> -When starting to write any date, the program will not accept the number zero (0), so enter the date correctly.
> -While entering the month, the program will not accept any unmber greater than 12.

Keys	Function
ESC	• To return to the previous menu. • To change the previous date.
ESC+CTRL+SHIFT	To return to the main menu.
BS	To clear or change the date.
F1	To list religious festivals.
F2	To list national festivals.
F3	To recall the English equivalent days.
F4	To print screens contents.
F5	To change indian numbers into Arabic and vice versa..
RETURN	To enter data.
SPCBAR or ↑ ↓	To select Hijri / Gregorian.

2 - THE CRAPHICS PROGRAM

• If you select «Graphics», you will be transferred to screen (Fig.3)

التحكم
١- بالأسهم وعصا التحكم
٢- بالأسهم ولوحة الرسم
٣- بالأسهم والفأرة
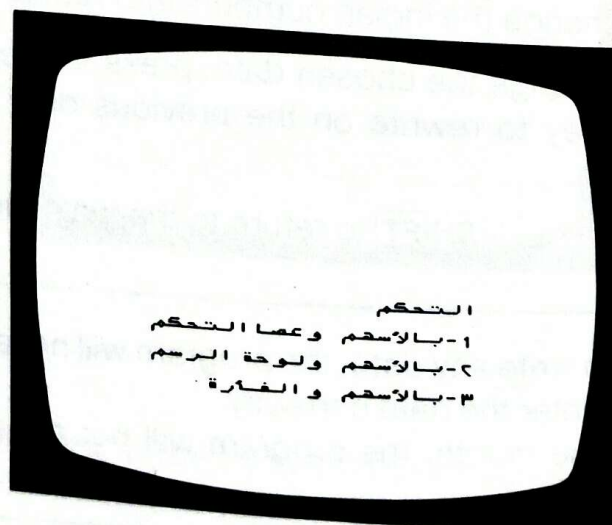
Fig.3

- Select the program control option you want to use. Press No. (1) if you want to use the arrows with a joystick or No. (2) if you want to use the arrows with a Graphic tablet or No. (3) if you want to use the arrows with the mouse.

- After making your selection, you will move to the drawing screen (Fig.4).

<div dir="rtl">

طبع	دوائر	مربعات	صبغ	خطوط
تحميل	دوائر	مربعات	حفظ	رسم

</div>
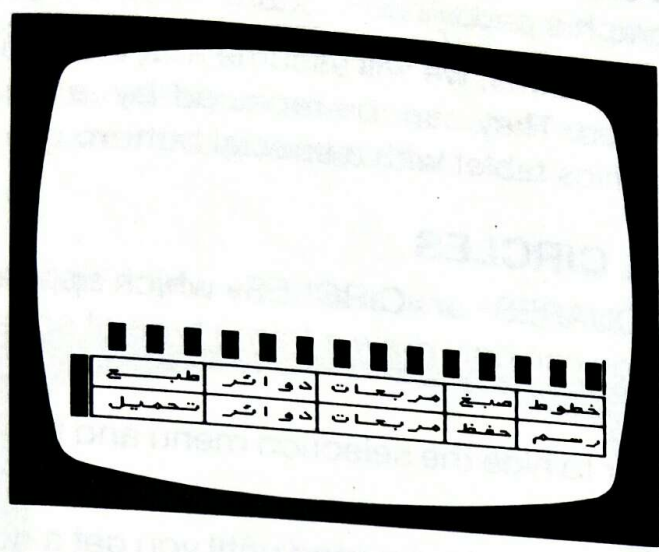
Fig.4

- You can go back to the main menu at any point by pressing (SHIFT + ESC + CTRL).

- The following table will appear at the bottom of the drawing screen.

PRINT	CIRCLES	SQUARES	PAINT	LINES
LOAD	CIRCLES	SQUARES	SAVE	DRAW

- «DRAW» is the default selection specified in the program.

- To switch the screen to the drawing mode, press the spacebar continuously until the selection menu disappear. When the selection menu appears you will not be able to draw even if you place the cursor on the appearing black part of the screen.

- Use the F1 and F2 keys to change the colors by moving the cursor to the left and to the right simultaneously. You will notice the change of the screen's frame color, depending on the color used in the drawing.

- Use the arrow keys to move the cursor on the screen.

- If you wish to change your selection from the menu, use the arrow keys to place the cursor on the new selection then hit the spacebar to fix your selection. The red triangle will move to the upper left corner of the new selection.

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- You can also change the shape and the size of the drawing brush at any stage in the program by pressing Nos. 0-9 . It is possible to use any of these shapes for different purposes depending on the user wish.

- If you want to erase the screen, press CLS (SHIFT+HOME) key to have a blank graphic pad.

- In the following sections, we will assume that the arrow keys and the spacebar are used. They can be replaced by a joystick with a fire button or a graphics tablet with a special button.

■ SQUARES & CIRCLES

- If you select «SQUARES» or «CIRCLES» which appear on the screen in white color, you can only draw a frame type of squares and circles on the screen.

- Use the spacebar to hide the selection menu and to move to the drawing mode.

- Press the spacebar for a short period until you get a dot on the screen determining the center of a circle or one of the angle's corners.

- Move the cursor to another position to complete drawing the circle or the square.

- Change the size of the brush by pressing any No. from 0-9 and notice the efect of using different types of brushes.

- If you select «SQUARES» or «CIRCLES» which appear in the colour of the screen, you can draw circles or squares by any color you select.

- Follow the previous steps to draw different types of coloured squares & circles.

■ LINES & DRAW

- Use the option «LINES» or «DRAW» to draw lines on the screen in the same manner as mentioned previously.

- You can draw thin or thick lines by changing the size of the brush.

- The difference between using «LINES» or «DRAW» is that with «LINES» you draw a line by connecting two points, while with «DRAW» you draw continuously by moving the cursor.

- You can stop drawing in the «DRAW» option by pressing the spacebar, then you can move freely on the screen without drawing.

■ PAINT

- If you select «PAINT», place the cursor inside the shape that you want to paint then press the spacebar lightly to start the painting process by the color you selected.

- You must have a closed shape when you are in the painting mode, otherwise the color will go over other areas of the graphics pad.

- Press the spacebar lightly in order to stop painting and to prevent the color from going over the graphics pad.

■ SAVE

- If you select «SAVE», you will move to screen (Fig.5).

FILE TO SAVE :   [RET]

F1:CAS   F2:DISK   F3:QDISK
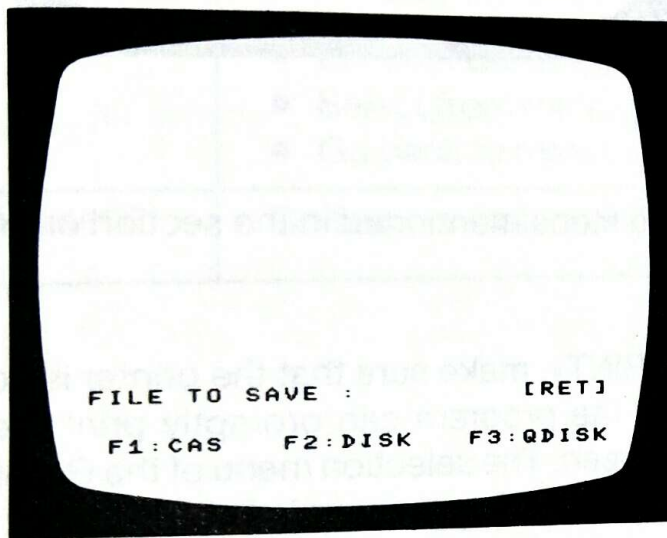
Fig.5

- The «Disk Drive» (F2) is the default selection specified in the program and will be shown on the screen surrounded by red brackets.

- Enter a name for the file (the drawing you want to save) as long as it does not exceed eight characters, then press (RETURN).

- Press F1, F2 or F3 depending on the media used to save the program.

- If you press RETURN before entering the name of the file or if you enter a name of a file which is not available on the disc or if the disc drive was disconnected, the message «Wrong File Name (RETURN) appears. Press RETURN to go back to the selection menu of the Graphics section.

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■ LOAD

● If you select «LOAD», you will move to screen (Fig.6).

```
FILE TO LOAD :              [RET]

   F1:CAS    F2:DISK   F3:QDISK
```
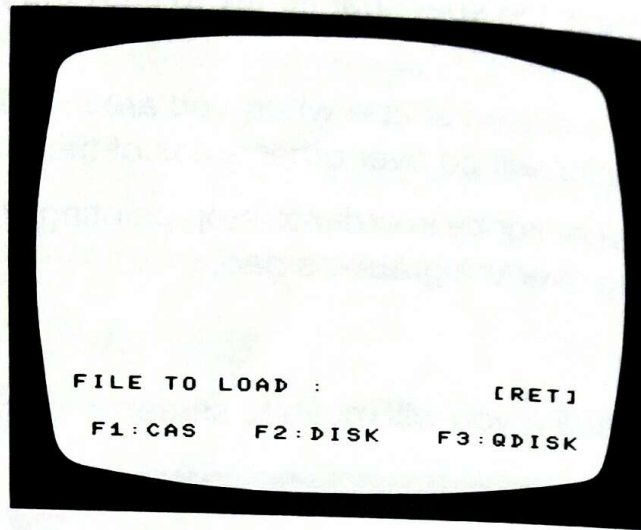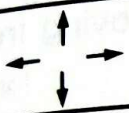
● Follow the same steps mentioned in the section on «SAVE».

■ PRINT

● If you select «PRINT», make sure that the printer is connected to the console so that the program can promptly print the drawings displayed on the screen. The selection menu of the Graphics section will reappear when the printing process is finished.

● Press ESC to stop the printer at any time during operation.

● If the printer is not properly connected, the program will not execute the printing instruction and the menu will disappear for a short period then reappear again.

● You can print colored drawings by using a colored printer and pressing F9 (SHIFT+F4).

- The following is a Quick Reference Guide including a list of all usable keys in this section.

Keys	Function
F1 + F2	Change the color of the brush.
F9 (SHIFT+F4)	Print drawing on colored printer.
NO. 0-9	Change the shape of the brush.
ESC	Go back to previous screen.
CLS (SHIFT+HOME)	Clean the drawings off the screen.
← ↑ ↓ →	Move the cursor in the direction pointed by the arrow.
SPACEBAR	• Execute drawings. • Select from menu. • Go back to menu.
CTRL+ESC+SHIFT	Go back to main menu.

3 - ENGLISH EDITOR

- If you select«English Editor»fromthe main menu of built-in programs press no. F4 ,you will move to the screen (Fig.7). Start entering your data.

العالمية
جميع الحقوق محفوظة

١-تقويم

٢-رسم

٣-كتابة عربية

٤-كتابة انجليزية

٥-بيسك

اختر رقما-
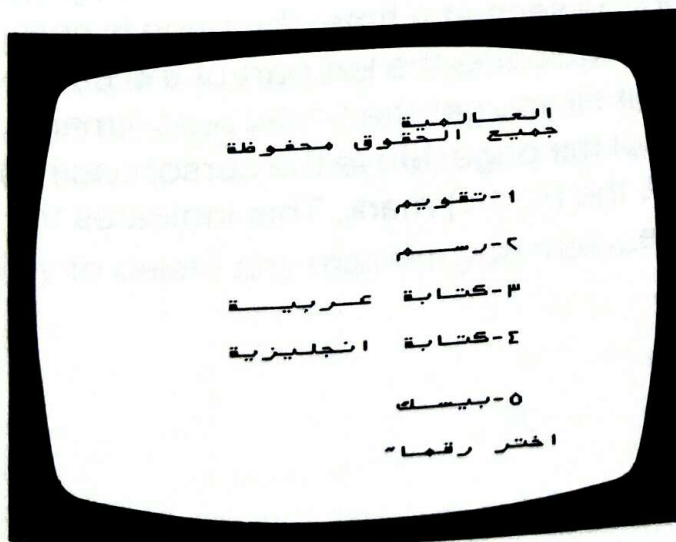
Fig.7

- Your can shift from ENGLISH EDITOR to ARABIC EDITOR by pressing the keys (CTRL+G) simultaneously.

- At any time you can go back to the main menu by pressing the keys (ESC+CTRL+ SHIFT) simultaneously. You should use this feature with caution since it will delete all the text you have entered.

■ STATUS LINE

- The Status Line, actually two lines long, is at the top of the display. It tells you where the cursor is in the file, on what page, what percentage of typing space you have left and the tab and margin settings. The Status Line contains the following items: (moving from left to right).

Line one:

S indicates the screen you are in. A screen equals 64 columns by 20 lines.

C indicates Column. The width of a column is one character.

L indicates Line. The length of a line is 64 characters.

P indicates Page. A page contains 50 lines.

Therefore S:1, C:5, L:10, P:1 would indicate that the cursor is in the first screen in column 5, line 10 of the first page.

The number at the top right corner indicates the exact typing space you have left, e.g. 6336 would be 6.336 KB or 6336 bytes.

Line two defines:

1 Rulers: Rulers are means for setting margins and tabs. In this program, the margins and tabs are preset and cannot be changed. Margins are preset every five spaces and Tabs are preset every eight spaces.

2 Page Part: Each screen page is 64 columns by 20 lines. Since 64 columns cannot be seen at a time, the page is split into three parts. The mark (>>>) indicates the left part of the page Move the cursor towards the right till you get the (<<<>>>) marks. These indicate the middle part of the page. Move the cursor once again towards the right till you get the (<<<) mark. This indicates the last or the right part of the page.

■ FUNCTION KEYS

Below are the function keys which are divided into three sets. The following are the first set of function keys which appear everytime you start the English Editor.

F1	F2	F3	F4	F5
+scrn	- scrn	insbl	insln	delln

The second and third sets of function keys can be seen by pressing the **SELECT** key.

The second set of function keys are:

F1	F2	F3	F4	F5
mark1	mark2	copy	move	erase

The third set of function keys are:

F1	F2	F3	F4	F5
save	load	find	replace	print

Remark
The function keys will be explained in various sections of this manual.

■ Create a File

- in this exercise you create a file and later use the different functions provided to perform specific tasks.
- Before typing in the exercise below, notice the following marks which appear at the extreme right of the screen:
  A (:) indicates a new paragraph and will appear every time you press the **RETURN** key.
  A (.) indicates an unused line.
  No mark indicates the continuation of a line to the next line.
- When you approach the end of a line and cannot fit in the last word, move to the next line by pressing the spacebar to continue typing.
- Now type in the following with all the typographical errors starting at the home position (C:1, L:1) You will edit this exercise in the next chapter.
- Use the **BS** key to delete any mistake you make.

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■ ENGLISH EDITOR

This is a sample of the printing capabilities of the English Editor in the MSX SAKHR system which can type in both Arabic and English. Folowing are se of its capabilities:

1. 64 colnums editor:
   full screen editor
   - modify
   - delete
   - insert
   - wrapp arnoud on the paragraph level
   - Cassette Reccoorder
2. Delete line
3. Insert line
4. Insert blank line
5. Move line
6. Copy line
7. Move block of text
8. Copy block of text
9. Delete block of text
10. Print a block
11. Print the whole file
12. Printing with page mumbering
13. Save and Load from:
    - Floppy disk drive
    - Quick Disk
    - Cassette Tape
14. Search string
15. Replace String

- Before proceeding any further, save this exercise. Refer to the section on «Saving Your File» for saving instructions.

■ INSERTING ARABIC TEXT

- You can add Arabic text within the English text by pressing the CODE key at the point where you want Arabic to be inserteds.
- First use DEL key to delete the word «SAKHR» in the first line.
- Press the CODE key to convert the keyboard from English to Arabic. Type in the word «صخر»
- To return to the English mode, press the CODE key again.

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■ EDITING YOUR FILE

- The editing features are the most important functions of the English Editor. They allow you to delete, insert, modify, copy and move the text. The next paragraphs will cover all the editing functions available.

■ TEXT INSERTION

- Move the cursor to the word «folowing». Place the cursor on the letter «L». Press `INS` (insert) once. Notice that a space is inserted. Now type the letter «L». Try adding the letters «om» to the letters «se» to make it read «some». You now know how to insert a character(s).

■ TEXT DELETION

- Move the cursor to the word «wrapp». Place the cursor on the letter «p» then press `DEL` (delete) once. Notice that the «p» is deleted. Try deleting the letters «co» in the word «Reccoorder» to make it read «Recorder». You can also use the spacebar or the `BS` key to delete character.

■ TEXT MODIFICATION

- Move the cursor to the word «colnums». Type the letters «umn» over «num» to make it read «columns». Repeat the same steps with the word «arnoud» to make it read «around».

- Press the `HOME` key twice. The cursor will move to the top left corner of the screen (C:1, L:1). This is the HOME POSITION.

- Before you proceed any further, practice by inserting, deleting and modifying text. When you are sure you have mastered these functions, you can resave the exercise.

- Press `SELECT` to rotate the function keys till you get the following.

F1	F2	F3	F4	F5
+scrn	- scrn	insbl	insln	delln

- Place the cursor in its home position, if not already there.

■ SCROLLING

- Press `F1` (plus screen) to scroll forward (down) 16 lines. Press `F1` again and the screen will once again scroll down another 16 lines. This type of scrolling enables you to move over larger number of lines at a time.

- Press `F2` (minus screen). The screen will scroll backward (up) 16 lines. Press `F2` again and the screen will scroll to its original position with the cursor in the home position.

- Press HOME then TAB .Notice that the cursor has scrolled to the extreme right of the screen. Hit the left arrow key to return to the first part of the screen.

- Press HOME then F1 .Notice that the cursor has moved to the end of the file. Press HOME then F2 to return to the beginning of the file.

- Press HOME then the right arrow.Notice that the cursor moves to the right of the screen, Press HOME twice so that the cursor returns to the home position. You can move the cursor to the four corners of the screen by pressing the HOME key and the arrow keys.

■ INSERT BLANK LINE

- With the cursor in the home position, press F4 (insert blank line). Notice that one blank line is inserted.Press F3 again to insert another line.

■ LINE DELETION

- Now press F5 (delete line) and notice that one of the blank lines inserted previously is deleted. Press F5 again to delete the other blank line. You are back to your original position.

- You can delete part of a line by placing the cursor at that part of the line you want to delete and pressing the keys CTRL + E togther.

■ LINE INSERTION

- This function F4 (insert line) allows you to copy or move one line of text to another location or regain a line of text if you have deleted it by mistake.

- Place the cursor on the line «English Editor» and press F5 (delln). Notice that the line is deleted. Now press F4 and the deleted line reappears. You can copy this line in another location by pressing F4 again.

- The Function F4 memorises only one line of text at a time. Everytime you delete a line of text with the F5 function, It will replace the previously deleted line. A deleted line will remain in the memory of the computer as long as the computer is ON.

■WRAP AROUND

- The Wrap Around function works on the paragraph level. This means that you can move the word and the following lines in the text.

- Position the cursor on the word «This» then press INS twice. Notice that the text in the paragraph has moved two spaces and the words «editor» and «print» can be easily recognized.

- Before proceeding further, practice scrolling, deleting and inserting lines of text When you are sure you have mastered these functions resave the exercise.

■ Marking Text

- The ENGLISH EDITOR allows you to copy, move, erase and print text. But for the Editor to perform these functions, you must first mark the text otherwise you get a message «Block Undefined Press (ESC)». F1 (Mark1) and F2 (Mark2) work hand in hand whereby F1 marks the beginning of the block of text and F2 marks the end of the block of text.

- Load the exercise if not already loaded. Refer to the section on «loading your file» for loading instructions.

- Press SELECT to rotate the function keys till you get the following functions:

F1	F2	F3	F4	F5
mark1	mark2	copy	move	erase

- Press F1 with the cursor in the home position. Notice that an asterisk (*) appears to the left of the word MSX. Now move the cursor five lines down so that the cursor is on the word «print» then Press F2. Another asterisk appears on the extreme right of the screen. Your block of text is now marked. You can copy, move, erase and even print this block of text. The next three sections will show you how to copy, move and erase marked text. Marked text can be unmarked by simply pressing the same function keys (F1 and F2) again.

- When marking blocks of text, you must press the F1 key first then the F2 key otherwise you will get the error message: «Block Undefined Press (ESC)».

■ COPY TEXT

- In order to copy a block of text you must first mark it. Let's see how this function works. Mark the block of text as mentioned in paragraph 4 of «Marking Text».

- Now move the cursor to the end of the file and position it on C:1, L:48 then Press F3 to copy the marked text. Press F5 (erase) to erase the text you just copied.

■ MOVE TEXT

- Like copy, the text that you would like to move must be marked. Move the cursor to the beginning of the line that says «Cassette Recorder». Press F 1 then F 2 in order to mark the line.
- Now move the cursor down to the point No. 13 and position the cursor on the line below the word«Quick Disk». Press F 4 (move). Notice the words «Cassette Recorder» have moved from their original position (C:1, L:17) to (C:1, L:44).
- Press F 1 then F 2 to release the marks, then resave the file.

■ ERASE TEXT

- Like Copy and Move, the text you would like to erase must also be marked.
- Press F 1 (mark1) with the cursor in the home position. Move the cursor to the last line of the file then press F 2 (mark2).Before pressing F 5 (erase) which will erase the whole file, make sure you have saved the file. Now press F 5.The whole file will be erased and the screen will be blank.
- You should use this function with caution to avoid erasing an important part by mistake.

■ FIND

- The function FIND allows you to find a group of characters such as a word or a phrase called the «string», meanwhile F 8 (SHIFT+F3) can do the same thing several times. For example, let us find the word «line».
- Load the exercise if not already loaded and SELECT the function FIND.
- Press SELECT to rotate the function keys till you get the following:

F1	F2	F3	F4	F5
save	load	find	replace	print

- Press F 3 with the cursor in the home position. A message: «String to Find:» appears. Type in the word «line» and press (RETURN). Notice that the cursor has moved to the first word «line» (Point No. 2). Keep pressing F 8 (SHIFT+F3) till you find all the words «line». If you press F 4 after the last «line» is found, you will get a message: «String Not found! Press (ESC)». This is because no more «line» exists in the file. Press ESC.
- To move to the beginning of the file, Press SELECT then HOME and F 2.

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■ REPLACE

- To find a set of characters and replace it by another set of characters use F4 «Replace Function». Use F9 (SHIFT+F4) to repeat the replacement of the same string several times. For example, use this function to replace the word «line» by the word «row».
- With the cursor in the beginning of the file, Press F4 .Notice the message «Replace a string:» displayed on the screen. Print the word «line», then press RETURN . Notice the message «Replace it with:» displayed on the screen. Print he word «row», if it is found the message «Replace (Y/N): Y» will appear. Press «Y» or RETURN . Press «N» or any other key to confirm and surpass the process.
- Press F9 (SHIFT+F4) to repeat replacement of the same string. To find another string press F4 and follow the same steps as mentioned before.
- Notice that the length of the string should not exceed 10 characters.

■ JOINING

- You can join two paragraphs by simply pressing the spacebar at the end of a pragraph line. For example, lets join points number 2 and 3 of the exercise.
- Position the cursor on point number 2 (C:1, L:18) and move the cursor to the end of that line (Column 64). Press the spacebar once. The cursor jumps to C:1, L:19. Point numbers two and three are now joined.
- To check this, place the cursor on point number 2 and press the INS key. Notice that both points move at the same time if there were any characters in the end of the first line.
- Practice by joining point number 1 with point number 2

■ SAVING YOUR FILE

- You can use any of the following three devices for saving your files: (1) Cassette Recorder (2) Disk Drive (3) Quick Disk.
- If you have only one of the above three devices hooked up to your computer, you can just type the name of the file and press RETURN . If you have more than one device attached e.g. disk drive and cassette recorder, the computer will first address the disk drive then the cassette recorder. So if you need to save your file on a cassette recorder, you must type the code (CAS:) before the file name e.g, CAS:TEST, The same applies for the quick disk. Use the code (QD:) to save your file on a quick disk.
- If disk does not exist you will get a message «Input Error Press ESC».

- Press the $\boxed{\text{SELECT}}$ key till you get the following function:

F1	F2	F3	F4	F5
save	load	find	replace	print

- Press $\boxed{\text{F 1}}$ and the program will prompt you to enter the file name you would like the file to be saved under.
- Type TEST, press $\boxed{\text{RETURN}}$ and the file will be saved.
- If you are saving your file on a cassette recorder, it is good practice to note down the counter numbers at the beginning and the end of each file. This way you can position the cassette tape to the beginning of a particular file and thus save loading time.

Note:
ENGLISH EDITOR does not warn you if there is a file under the same name already exist. If you save a file under a name that already exists, the old file will be overwritten by the new file. It is necessary to keep a list of the file names that you save so as to refer to it everytime you save a new file.

- In case of using the disk drive in loading, and a name already used for another program, you will get the following message «File exists...Re-save it? Y/N: Y» press «Y» or $\boxed{\text{RETURN}}$ for confirmation. Press any other key to exit and replace file name.

■ LOADING YOUR FILE

- Rotate the function keys by pressing $\boxed{\text{SELECT}}$ till you get the LOAD command, (F2).
- Press $\boxed{\text{F 2}}$ and enter the name of the file, then press $\boxed{\text{RETURN}}$. The file will load into the memory of the computer and appear on the screen.
- You can load a file from a disc drive, a cassette or a Quick Disk drive in the same manner as mentioned in the section on «Saving Your File».
- Using any of the two functions (load) or (save) the program will keep the last, loaded or saved, file name to avoid writing file name each time. Noticing that the file name will appear whenever the program is asked to load or save, if you want to replace it write the new filename. Press any key and you'll notice that the old file name is overwritten. Press $\boxed{\text{RETURN}}$ to use the same file name.
- If the disk does not exist you'll get an error message «Input Error Press ESC».

■ PRINTING YOUR FILE

- Press the SELECT key till you get the print command.

- Press F5 and the program will ask you if you would like to print a particular block or the whole file. Press F5 if you would like to print the whole file. If your printer is turned OFF or not connected, you will get an error message: «Printer Not Ready Press (ESC)».
- If you would like to print a block of text only, mark that block, then press F4. If the block is not marked you will get an error message: «Block Undefined! Press (ESC)». Refer to the section on marking the text for instructions.
- The ENGLISH EDITOR automatically prints the page numbers which can be seen on the printout.

■ WRITING PROGRAMS

- The English Editor can be used, in writing or modifying programs written in English BASIC and then running it on MSX-SAKHR. Run the following procedures and notice the result.

First: Writing a new program:
1. Select English Editor from the main menu.
2. Write the following program:
   10 PRINT «This program is written by the English Editor».
   20 PRINT «Then it will be transferred to MSX-BASIC».
   30 GOTO 10
3. Save the file under the name of (TEST1).
4. Press (SHIFT + CTRL + ESC) to return to the main menu. Select BASIC from the main menu. (Fig.1)
5. While you are in the BASIC Editor, Load the program (TEST1). Then ask for listing or running the program. You'll notice that dealing with the program is the same as any other BASIC program.

Second: Modifying an existing program:
1. Modify the same previous program as follows:
   10 PRINT «This program is written by the BASIC Editor»
   20 PRINT «Then it will be transferred to the English Editor»
   30 GOTO 10
2. Save the file under the name of (TEST2). The program should be saved in ASCII Code, otherwise, The English Editor will not be able to understand it. Use the following form in saving the program:
   SAVE «TEST2», A
3. Call main menu using the call command (CALL MENU). Yoy'll get the main menu. Select the English Editor.
4. Load the file (TEST2) and you'll find it displayed, like any other file. Now, you can modify it by deleting or adding any thing, then resave it.

■ DEALING WITH THE DISK DRIVE

In this way, BASIC is considered an extension of the program, where you can use BASIC commands in dealing with the disk drive and performing any of the following operation:

1 . To obtain a list of the files existing on the disk:
     To print the list of files run the commands (FILES) or (LFILES).
2 . To delete one of the files existing on the disk: run the command
     KILL "file name"
3 . To replace a file name: run the command
     NAME "Old file name" as "New file name".
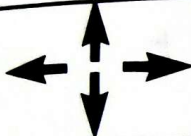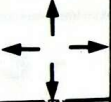4 . To prepare the disk : run the command CALL FORMAT.

Note:

You should use this command with caution since it will delete all files existing on the disk.

---

5 . To know the remaining space on the disk: run the command
     PRINT DISKF (1).

The following is a QUICK REFERENCE GUIDE including a list of usable keys in order to refer easily to it in this section:

QUICK REFERENCE GUIDE

KEY	FUNCTION
ESC	Go back to normal editing mode.
BS	Delete the previous character which falls on the left side of the cursor.
DEL	Delete the character which falls under the cursor.
INS	Gain one blank space in the line..
TAB	Move the cursor 8 spaces to the right.
CTRL +E	Delete a part of a line.
CTRL + G	Transfer to Arabic Editor.
CTRL+ESC+SHIFT	Go back to Main Menu.
← ↑ → ↓	Move the cursor in the direction pointed by the arrow.
HOME+ HOME	Move the cursor to the upper left side of the screen.
HOME + ↑ ← → ↓	Move the cursor to the last position on the screen in the direction pointed by the arrow.
SELECT	Change Function Keys operations.
F1	● + Scrn : Move to the next screen ● Mark1 : Specify a paragraph. ● Save : Save a file.
F2	● - Scrn : Move to previous screen ● Mark1 : Specify a paragraph. ● Load : Load a file.
F3	● Insbl : Add a blank line ● Copy : Copy a paragraph. ● Find : Search for a part of a paragraph.
F4	● Insln : Add a deleted line ● Move : Move a paragraph. ● Again : Search again for a part of a paragraph.
F5	● delln : Delete a line ● erase : Erase a paragraph. ● Print : Print part of or a whole paragraph of a file.

MORE INFORMATIONS
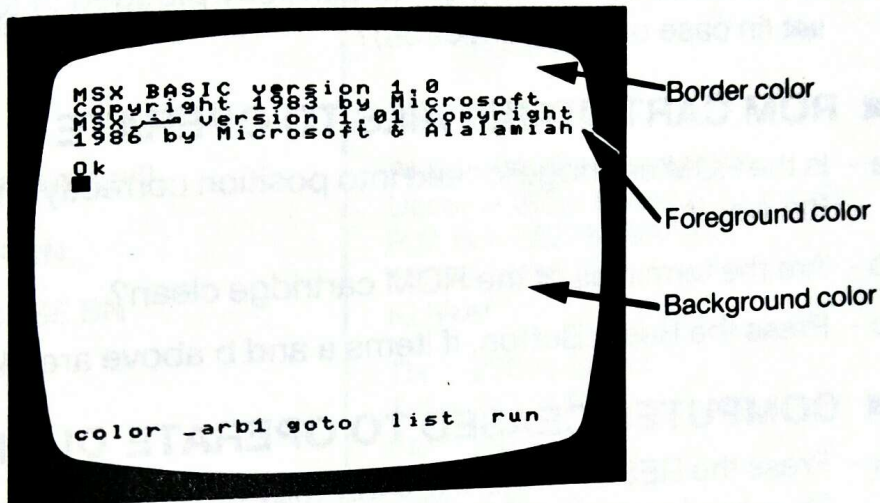
1 - COLOR TV ADJUSTMENT

Color quality is greatly affected by how the contrast, brightness, tint and color of the color TV set are adjusted. Adjust these controls to the optimum setting.

When the power switch is turned ON and the Basic mode is sellected, the background and the border colors are automatically set to dark blue and the foreground (alphanumeric characters) to white.


```
MSX BASIC version 1.0
Copyright 1983 by Microsoft
MSX-- version 1.01 Copyright
1986 by Microsoft & Alalamiah

Ok
```

— Border color
— Foreground color
— Background color

`color _arb1 goto  list  run`

2 - BEFORE CALLING FOR SERVICE

If you have encountered some trouble, before asking your authorized store for service, please go through the following check list and make your own diagonosts. If the computer still dose not work properly, refer servicing to the nearst authorised distributor listed in this manual.

■ NO PICTURE
a - Is the power supply pilot lamp lit? If not, check the power supply cord connection.

b - Is your television set turned on?

c - Is the RGB output, video output or RF output correctly connected?

d - Is ROM cartridge (if loaded) properly loaded? Unload it and then load it again.

e - Are the brightness and contrast controls set at optimum positions?

■ NO SOUND
a - Is the RGB output, Audio output or RF output correctly connected?

b - Is the volume set to the optimum position?

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■ THE PICTURE ROLLS OR INPUT SIGNAL IS WEAK

a - Is the input signal channel of the television set corresponding to the output signal channel of the computer? (in case of RF connection). If not, set the TV's channel to 36ch.

b - Is the fine tuning control of the television set properly adjusted? (in case of RF connection).

c - Is horizontal and vertical holds of the television set properly adjusted?

d - Is the video connecting cable correctly plugged in to the television set (in case of AV connection)?

■ ROM CARTRIDGE FAILS TO OPERATE

a - Is the ROM cartridge locked into position correctly? If not, push it all the way in.

b - Are the terminals of the ROM cartridge clean?

c - Press the Reset Button, if items a and b above are ok.

■ COMPUTER CEASED TO OPERATE DURING USE

a - Press the RESET button. (Power may have been temporarily cut off for a brief moment, or noise from other electrical equipment may have entered the computer.)

b - Are the peripheral equipments such as printer and cassette tape recorder correctly connected to the computer?

c - Aren't there errors in the program?

■ LOADING OR SAVING WITH CASSETTE TAPE RECORDER FAILS

a - Is the patch cord correctly connected at both ends?

b - Is the operation performed as specified in Section6?

c - Are the batteries of cassette tape recorder ok?

d - Are the tone and the volume levels of cassette tape recorder ok?

e - Is the cassette tape recorder appropriate for the loading of the specific tape? The cassette tape saved in 2400 baud can only be loaded with cassette tape recorders specifically designed for DATA recording.

3 - SAKHR DISTRIBUTORS IN THE ARAB WORLD

ALGERIA

Entreprise Nationale des Systèmes Informatiques (ENSI),
Rue Nationale No 5 Cinq-Maisons,
ALGER.

Tlx : 64219 ENSI DZ
Tel : 751201

BAHRAIN

Alzayani Investments wll,
P.O.Box : 5553,
Manama , BAHRAIN.

Tlx : 8290 ZHOUSE BN
Tel : 531177
Fax : 530659

EGYPT

Projects Investments & Consulting Co. (PICO),
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Zamalek,
Cairo, EGYPT.

Tlx : 21475 / 21166 DIAB UN.
Tel : 3555440

IRAQ

The State Establishment for Trading of Precision Instr.,
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Baghdad , IRAQ.

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Tel : 7196432

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Minato-Ku,
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Tel : (3) 4366845
Fax : (3) 4366849

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Amman , JORDAN.

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Tel : 679616
Fax : 606900

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13098 Safat,
KUWAIT.

Tlx : 22694 EIL KT
Tel : 2414140
Fax : 2464225

LEBANON

Microcomputer Systems.,
Maqdes Street, Alhamra,
P.O.Box : 113 - 5470,
Beirut, LEBANON.

Tel : 340824

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Tripoli , LIBYA.

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Rabat , MOROCCO.

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Muttrah,
Sultanate of OMAN.

Tlx : 3711 KIT ON
Tel : 704334

QATAR

Computer Arabia,
P.O.Box : 2750,
Doha , QATAR.

Tlx : 4806 CMPARB DH
Tel : 428555

SAUDI ARABIA

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Alalamiah Electronics Est.,
Shaikh Saed Bin Abdulla Bldg.,
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Riyadh (11432),
SAUDI ARABIA.

Tlx : 401530 ALAMIA SJ
Tel : (1) 4780594
Fax : (1) 4784893

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Madeena road,
Jeddah (21452),
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Tel : (2) 6651273
Fax : (2) 6694816

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Saleh Alquorashi Bldg,
King Abdulaziz Str.,
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Khobar (31952),
SAUDI ARABIA.

Tlx : 871366 EIL SJ
Tel : (3) 8952364
Fax : (3) 8948287

SYRIA

Arabic Computer Centre (ACC),
P.O.Box : 16046,
Damascus , SYRIA.

Tlx : 412135 UNIGRO SY
Tel : 246282

TUNIS

Société des Ordinateurs et du Logiciel
4 Rue de l'Alhambra,
Tunis (1002),
TUNIS.

Tlx : 13393 / 13768
Tel : 289809 / 783234

U.A.E.

Alyousuf Computer Systems,
P.O.Box : 25,
Dubai , U.A.E.

Tlx : 45436 HABIB EM
Tel : 224261
Fax : 233268
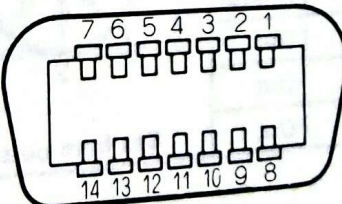
APPENDIX

1 -	CPU	Z-80A Compatible (3.58 MHz)
2 -	Memory	ROM 64KB (MSX BASIC+ MSX-SAKHR O.S.with built-in software) User RAM 64KB Video RAM 16KB
3 -	Keyboard	73 Keys
4 -	Display	Text1: 24 Lines x 40 Characters, 16 colors Text2: 24 Lines x 32 Characters, 16 colors Ggraphic : 256x192 dots, 16 colors Multi Color : 64 x 48 blocks, 16 colors
5 -	Color	PAL color system
6 -	Sound	8 ocaves, Triple chord output
7 -	Interface	
	• Video	1.0 VP-P, 75 ohms, RCA phono connector
	• RF	RCA phono-DIN 75 ohms connector (UHF CH36, 591.25MHz)
	• Audio	1.26 VP-P, 600 ohms, RCA phono connector
	• Joystick	2 ports, 14 pin connectors
	• Cassette	8 pin DIN connector FSK method, 1200/2400 bauds
	• Printer	14 pin connector, 8 bit parallel
	• Cartridge	2 slots (50 pin MSX type)
	• RGB output	8 pin DIN connecter
8 -	Power Supply	110 ~ 127 Volts, AC 50/60 Hz 220 ~ 240 Volts, AC 50/60 Hz
	Power Consumption	14W
9 -	Dimensions	415W x 266D x 63H mm.
10 -	Weight	Net weight 2.3Kg

• The manufacturer's name, model No., supply voltage and frequency, and power consumption are indicated on the bottom of the cabinet.

• Specifications are subject to change without notice.

■ TERMINALS SPECIFICATIONS
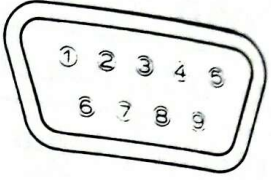
● Cassette Tape Recorder Terminal

Pin No.	Name		Pin Connection
1	GND	−	
2	GND	−	
3	GND	−	
4	CMTOUT	Output	
5	CMTIN	Input	
6	REM+	Output	
7	REM−	Output	
8	GND	−	
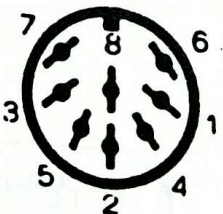
● Printer Terminal

Pin No.	Name	Pin Connection
1	PSTB	
2	PDB0	
3	PDB1	
4	PDB2	
5	PDB3	
6	PDB4	
7	PDB5	
8	PDB6	
9	PDB7	
10	NC	
11	BUSY	
12	NC	
13	NC	
14	GND	

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● Joy Stick Terminal

Pin No.	Name		Pin Connection
1	FWD	Input	
2	BACK	Input	
3	LEFT	Input	
4	RIGHT	Input	
5	+5V	—	
6	TRG1	Output	
7	TRG2	Output	
8	OUT	Output	
9	GND	—	

● RGB Output Terminal

Pin No.	Name		Pin Connection
1	GND	—	
2	SOUND	Out	
3	AV	H level	
4	SYNC	Out	
5	YS	H level	
6	R	Out	
7	G	Out	
8	B	Out	

See from outside

2 - KEYBOARD VARIOUS MODES

KEYBOARD MODES (COMPUTER A)

■ Note: "+" represents a continuous push of the function key, while "⊕" a push and release of the function key.
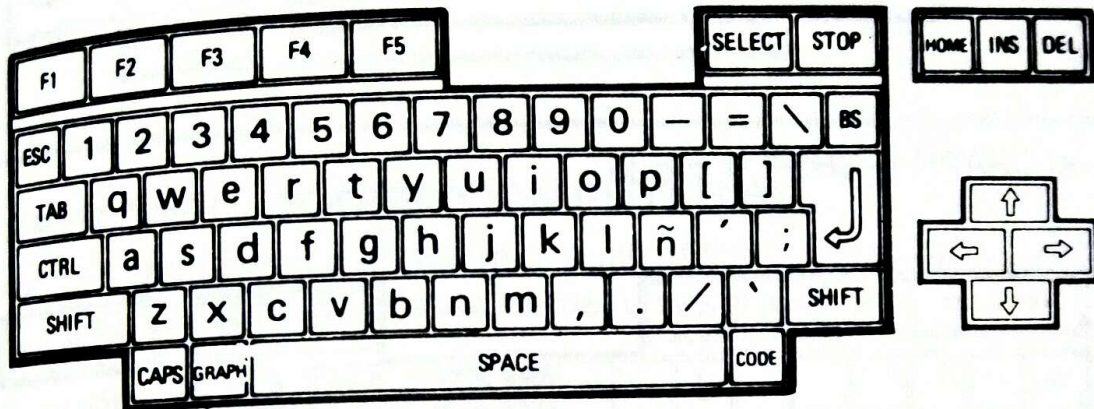
1 - in NORMAL mode

2 - in SHIFT + mode

3 - in CAPS ⊕ mode

4 - in GRAPH + mode

5 - in GRAPH + SHIFT + mode

6 - in CODE + mode
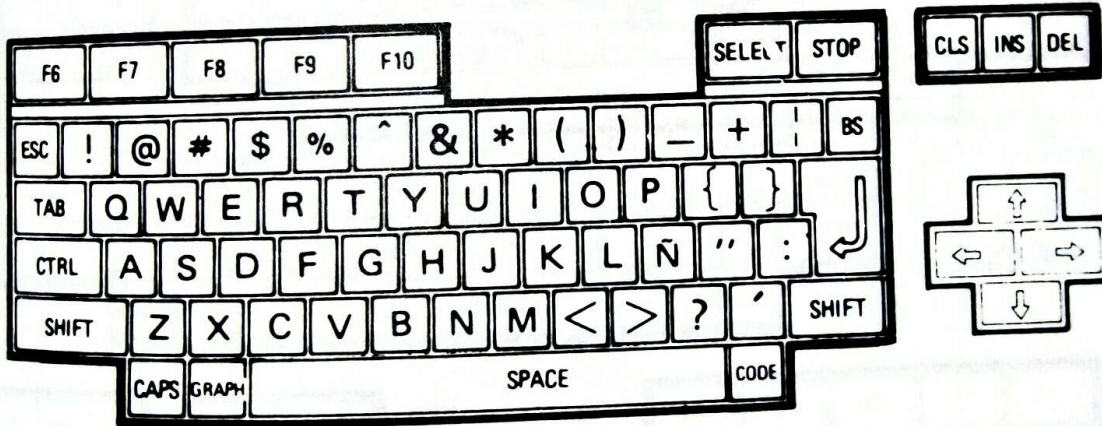
7 - in CODE + SHIFT + mode

■ KEYBOARD MODES (COMPUTER B)

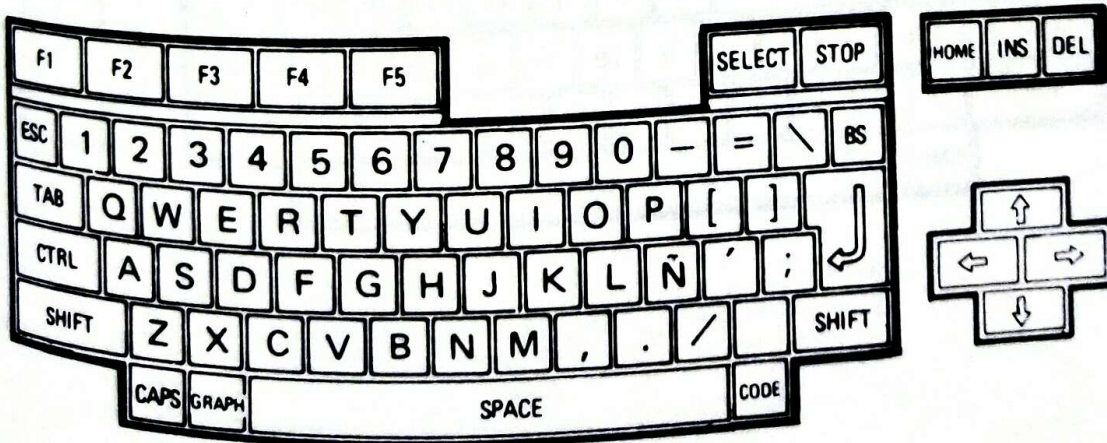**Note:** "+" represents a continuous push of the function key, while "⊕" a push and release of the function key.
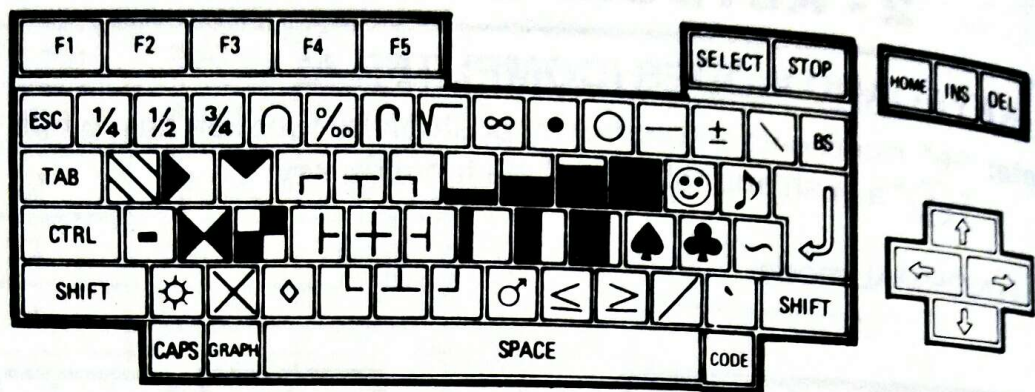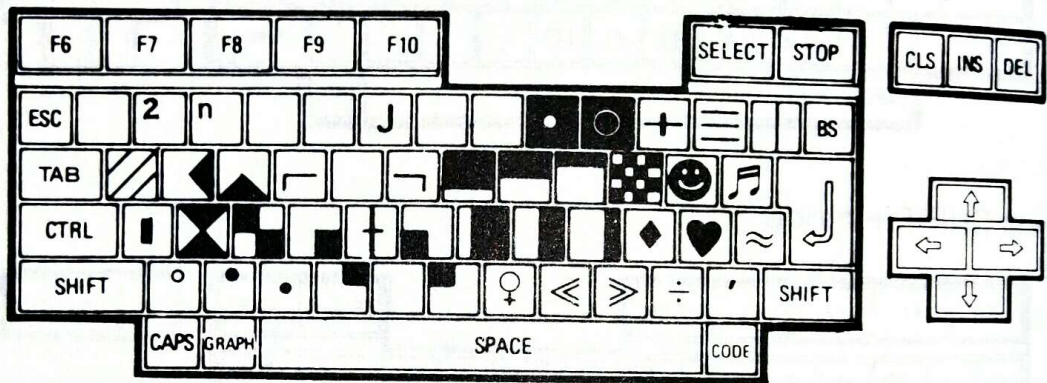
1 - in NORMAL mode

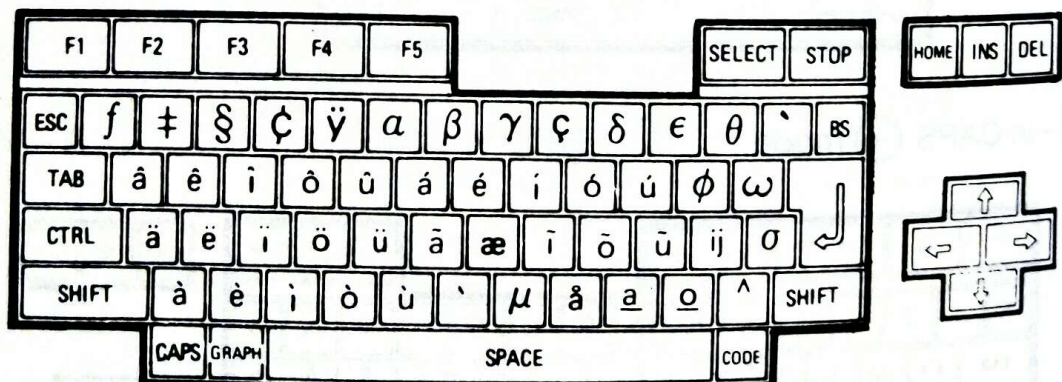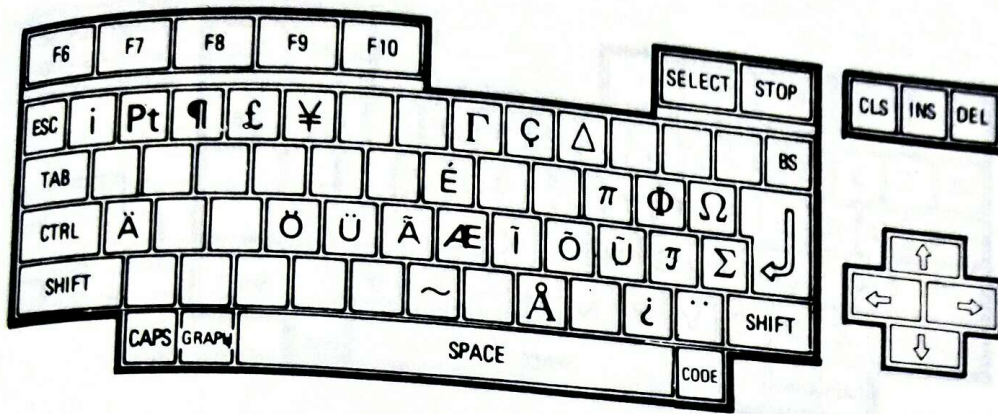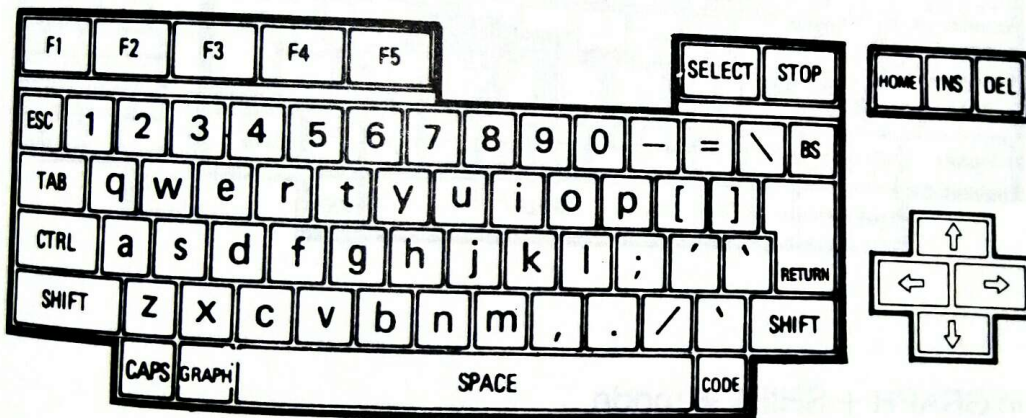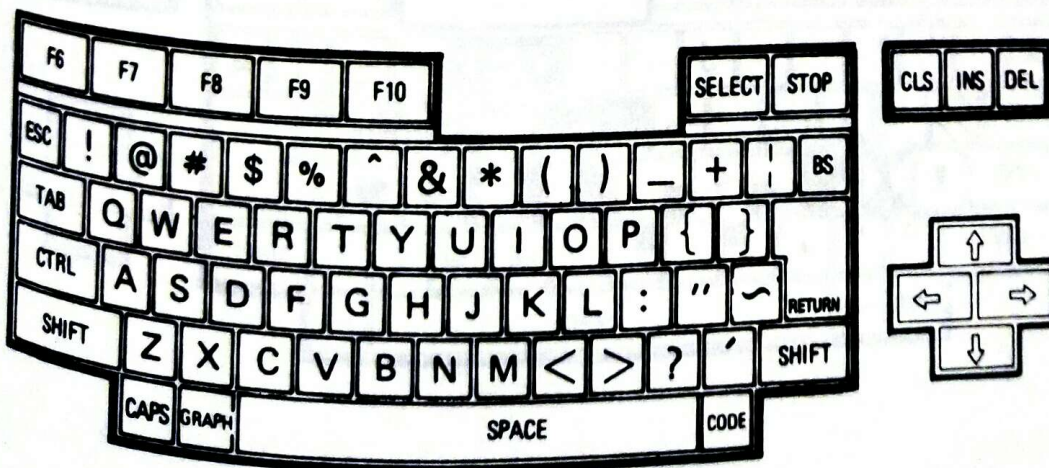## 2 - in SHIFT + mode

3 - in CAPS ⊕ mode
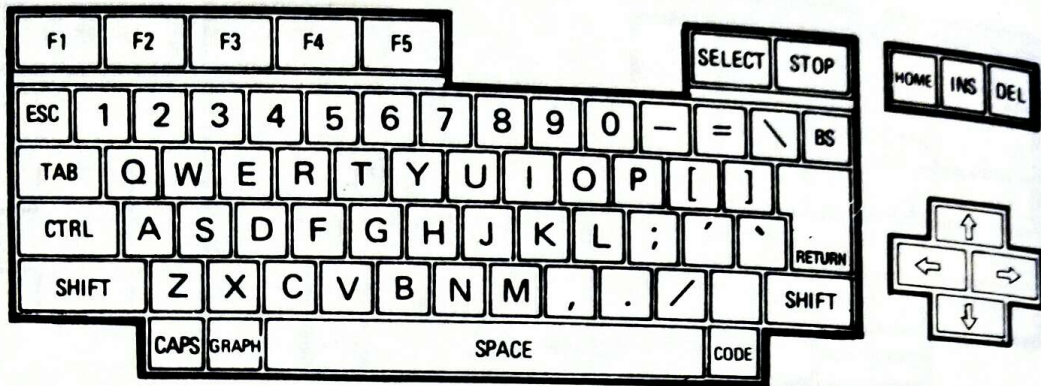
4 - in GRAPH + mode
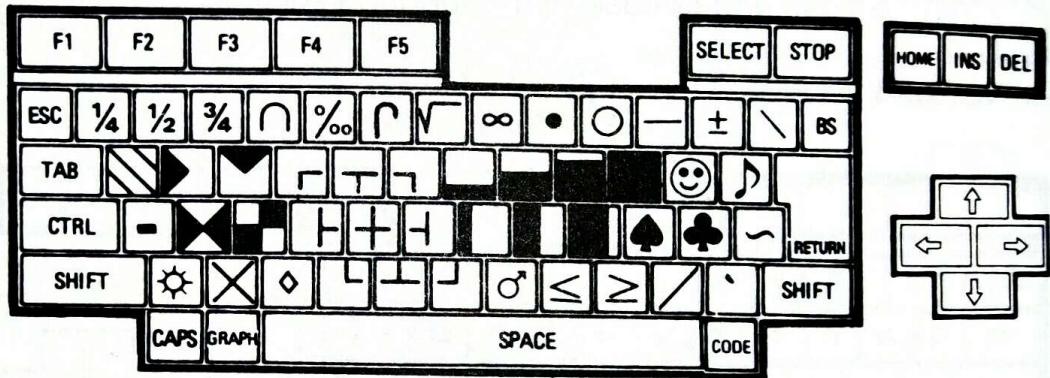
5 - in GRAPH + SHIFT + mode
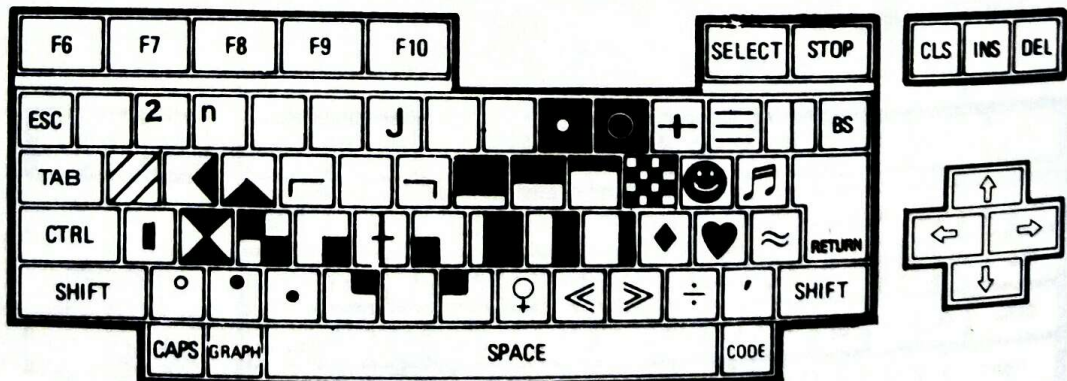
6 - in CODE + mode
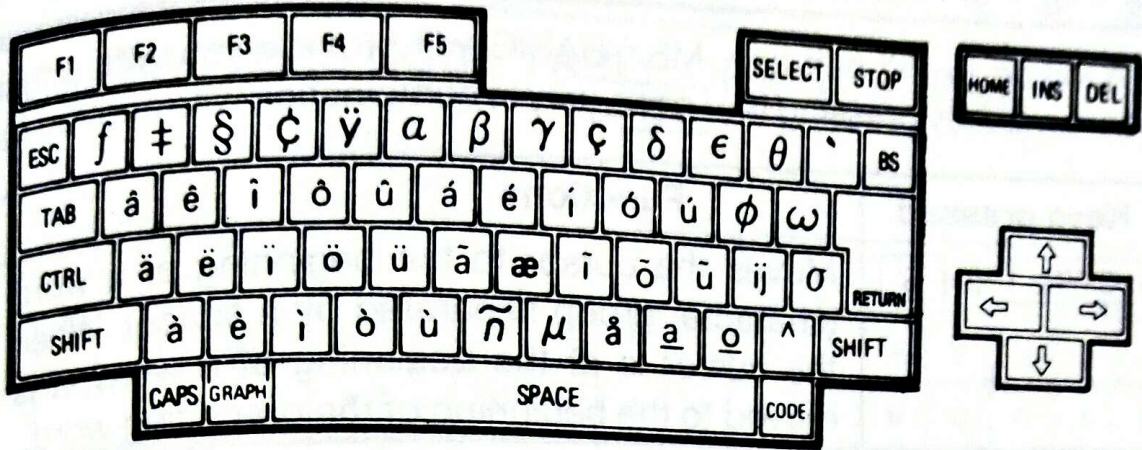
7 - in CODE + SHIFT + mode
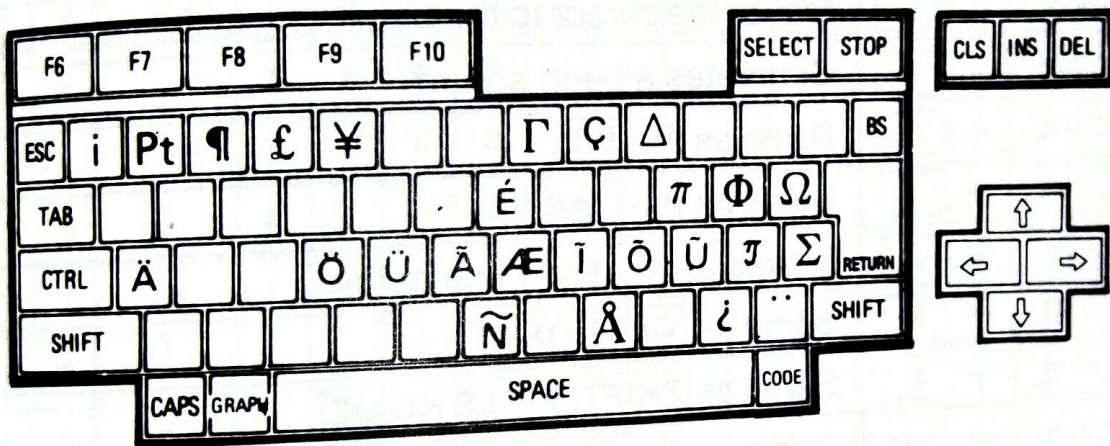
In addition to the edit key, MSX-BASIC will provide you with special function just by pressing the CTRL key in combination with another key.

Keys pressed	Functions
CTRL + B	Moves the cursor to the beginning of a word (character group separated by a space). When the cursor is at the beginning of a word, it is moved to the beginning of the preceding word.
CTRL + C	Cancels the input wait state or returns to the command wait state when in automatic line number feeding mode.
CTRL + E	Erases all the characters after the cursor location.
CTRL + F	Moves the cursor to the beginning of the next word.
CTRL + G	Generates a beep sound.
CTRL + H	Same as the BS.
CTRL + I	Same as the TAB.
CTRL + J	Moves the cursor 1 line below.
CTRL + K	Same as CLS HOME .
CTRL + L	Same as SHIFT + CLS HOME
CTRL + M	Same as the RETURN
CTRL + N	Moves the cursor to a location next to the last character in the line.
CTRL + R	Same as the INS
CTRL + U	Erases all the characters on a line.
CTRL + X	Same as SELECT . Undefined in MSX-BASIC.
CTRL + \	Same as → cursor key.
CTRL + [	Same as ESC . Undefined in MSX - BASIC
CTRL +]	Same as ← cursor key.
CTRL + ^	Same as ↑ cursor key.
CTRL + _	Same as ↓ cursor key.

4 - CHARACTERS TABLE (COMPUTER A)

■ CHARACTERS CODE TABLE OF MSX SAKHR

	٠	١	٢	٣	٤	٥	٦	٧	٨	٩	ا	د	ذ	ر	ز	و
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
٠ 0		π	SP	0	((	P	`	p			SP	.	((	ذ	—	'
١ 1		⊥	!	1	A	Q	a	q			!	١	ء	ر	ف	·
٢ 2		⊤	"	2	B	R	b	r			"	٢	آ	ز	ق	ه
٣ 3		⊣	#	3	C	S	c	s			#	٣	أ	س	ك	لآ
٤ 4		⊢	$	4	D	T	d	t			$	٤	ؤ	ش	ل	لأ
٥ 5		+	%	5	E	U	e	u			%	٥	إ	ص	م	لإ
٦ 6		|	&	6	F	V	f	v			&	٦	ئ	ض	ن	لا
٧ 7		—	'	7	G	W	g	w			'	٧	ا	ط	ه	
٨ 8		⌐	(	8	H	X	h	x			)	٨	ب	ظ	و	
٩ 9		¬	)	9	I	Y	i	y			(	٩	ة	ع	ى	
١ A		∟	*	:	J	Z	j	z			*	:	ت	غ	ي	
د B		⌐	+	;	K	[	k	{			+	؛	ث	]	"	}
ذ C		×	,	<	L	\	l	|			،	>	ج	\	،	{
ر D			-	=	M	]	m	}			-	=	ح	[	^	{
ز E			.	>	N	^	n	-			.	<	خ	^	.	,
و F			/	?	O	—	o	DEL			/	؟	د	—	,	

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■ MSX SAKHR CHARACTER PATTERNS TABLE

		٠	١	٢	٣	٤	٥	٦	٧	٨	٩	١	د	ذ	ر	ز	و
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
٠	0	ج	π	SP	0	@	P	`	p	SP	٠	@		س	عـ	نـ	ء
١	1	م	⊥	!	1	A	Q	a	q	!	١	ء	سـ	شـ	عـ	نـ	إ
٢	2	م	⊤	"	2	B	R	b	r	"	٢	ئ	شـ	صـ	غـ	هـ	ا
٣	3	يـ	⊣	#	3	C	S	c	s	#	٣	يء	شـ	صـ	غـ	ه	آ
٤	4	ى	⊢	$	4	D	T	d	t	$	٤	ب	صـ	غـ	يـ	ة	ؤ
٥	5	ـى	+	%	5	E	U	e	u	%	٥	ب	صـ	ـغـ	ضـ	د	ئ
٦	6	و	│	&	6	F	V	f	v	&	٦	ت	ضـ	ضـ	فـ	ي	ر
٧	7	إ	─	'	7	G	W	g	w	'	٧	ث	ضـ	طـ	فـ	ذ	ز
٨	8	ح	⌐	(	8	H	X	h	x	)	٨	ث	طـ	ظـ	قـ	آ	ـر
٩	9	س	¬	)	9	I	Y	i	y	(	٩	ج	ظـ	قـ	قـ	آ	ز
١	A	ق	└	*	:	J	Z	j	z	*	:	ج	عـ	جـ	قـ	أ	و
د	B	ل	┘	+	;	K	[	k	{	+	؛	ح	عـ	عـ	كـ	أ	—
ذ	C	لا	✕	,	<	L	\	l	|	،	>	ح	حـ	حـ	كـ	ك	لا
ر	D	بـ	.	-	=	M	]	m	|	،	=	خ	حـ	حـ	لـ	ل	ـ
ز	E	ي	·	.	>	N	^	n	}	-	<	خ	خـ	خـ	لـ	ل	لأ
و	F	لإ	SP	/	?	O	—	o	Curs	/	؟	س	خـ	خـ	سـ	م	لا

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	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			┼		0	@	P	`	p	Ç	É	á	Ã	▬	◄	α	≡
1	☺		⊥	!	1	A	Q	a	q	ü	æ	í	ã	▟	⊠	β	±
2	☻		⊤	"	2	B	R	b	r	é	Æ	ó	Ĩ	■	⋈	Γ	≧
3	♥		⊣	#	3	C	S	c	s	â	ô	ú	ĩ	■	▪	Π	≦
4	♦		⊢	$	4	D	T	d	t	ä	ö	ñ	Õ	▪	▮	Σ	∫
5	♣		┼	%	5	E	U	e	u	à	ò	Ñ	õ	■	▮	σ	∫
6	♠		│	&	6	F	V	f	v	å	û	ª	Ũ	▌	▪	µ	÷
7	•		─	'	7	G	W	g	w	ç	ù	º	ũ	▞	▦	γ	≈
8	◘		┌	(	8	H	X	h	x	ê	ÿ	¿	IJ	█	Δ	Φ	○
9	○		┘	)	9	I	Y	i	y	ë	Ö	⌐	ij	▌	‡	θ	●
A	◎		└	*	:	J	Z	j	z	è	Ü	¬	¾	█	ω	Ω	δ
B	♂		┐	+	;	K	[	k	{	ï	¢	½	~	▨	■	∞	√
C	♀		×	,	<	L	\	l	¦	î	£	¼	◇	▧	▮	φ	n
D	♪		/	−	=	M	]	m	}	ì	¥	¡	‰	▼	▮	ε	²
E	♫		\	.	>	N	^	n	~	Ä	Pt	«	¶	▲	■	η	▮
F	☼		+	/	?	O	_	o	△	Å	ƒ	»	§	►	■		