TOSHIBA

MSX

FM-SYNTHESIZER UNIT
OWNER'S MANUAL
MODEL HX-MU900
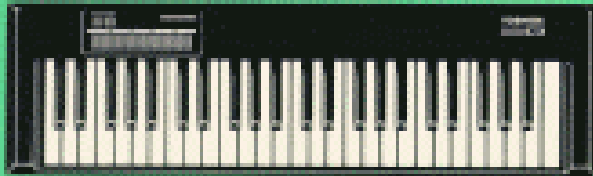
TABLE OF CONTENTS

① MSX Music-System Outline

The MSX Music-System is a comprehensive expansion system for MSX computers that enables them to create sounds and music. The MSX Music-System can be used as a nine-note digital polyphonic keyboard system, capable of recreating the sounds of 65 different instruments and sound effects. Equipped with extensive bass ans chord accompaniment functions, it also incorporates an auto rhythm function with a choice of 20 different rhythm patterns. In fact, the MSX Music-System can do more than many professional keyboard systems costing many times its price. The MSX Music-System can be used with MSX versions 1.0 and 2.0.

1-1 Controls and Connections

(1) FM-Synthesizer Unit HX-MU900

| Front | | Rear |

Audio output socket (white)
Stopper
Audio output socket (red)
Music keyboard terminal
Terminal
Notch

(2) Music Keyboard Unit HX-MU901

| Front |

ENTER key
STOP key
Connector cable — Connect the connector cable to the keyboard terminal of FM synthesizer unit.
:i-sensor
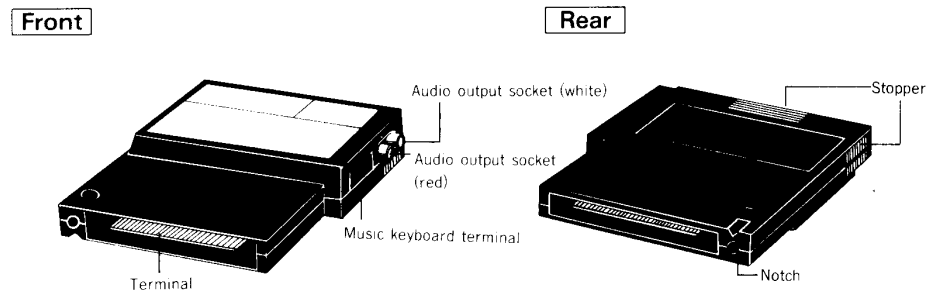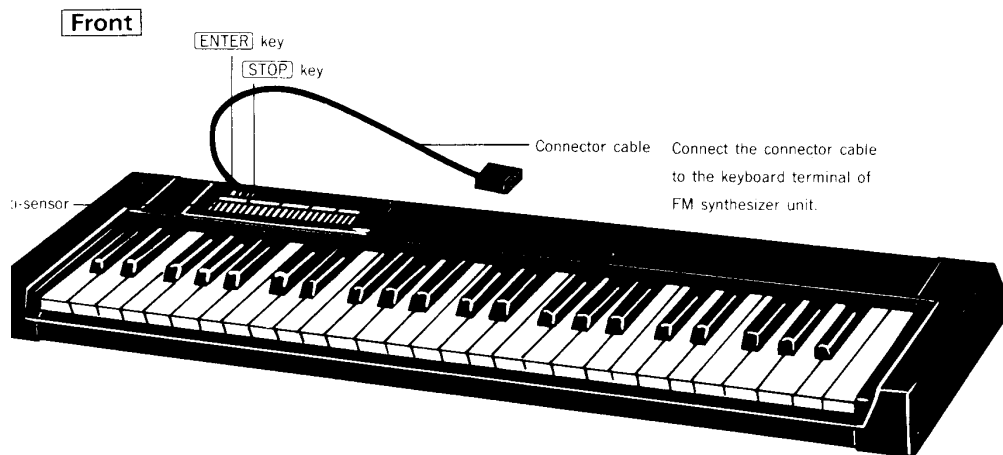
1-2 Necessary Equipment

The heart of the MSX Music-System is the FM-Synthesizer Unit, which plugs into the cartridge slot of your MSX computer. However, the following equipment will be required to complete the MSX Music-System in addition to the FM-Synthesizer Unit.
- MSX computer (RAM capacity 32 Kbytes or more)
- Monitor television or CRT display
- TOSHIBA Music-Keyboard Unit (HX-MU901)
- Any connectors and cables required.
- Keyboard amplifier or stereo system with external input sockets. (Not necessary if your television is equipped with audio speakers and you are satisfied with the sound quality.)

Although not absolutely necessary, you will find it convenient to have on hand an external memory device, such as one of the following units.
- Cassette recorder
- Floppy disk unit

Monitor television
CRT display

Keyboard amplifier
Stereo system

Floppy
disk unit

FM-Synthesizer Unit
HX-MU900

Music-Keyboard Unit HX-MU901

Cassette/data recorder
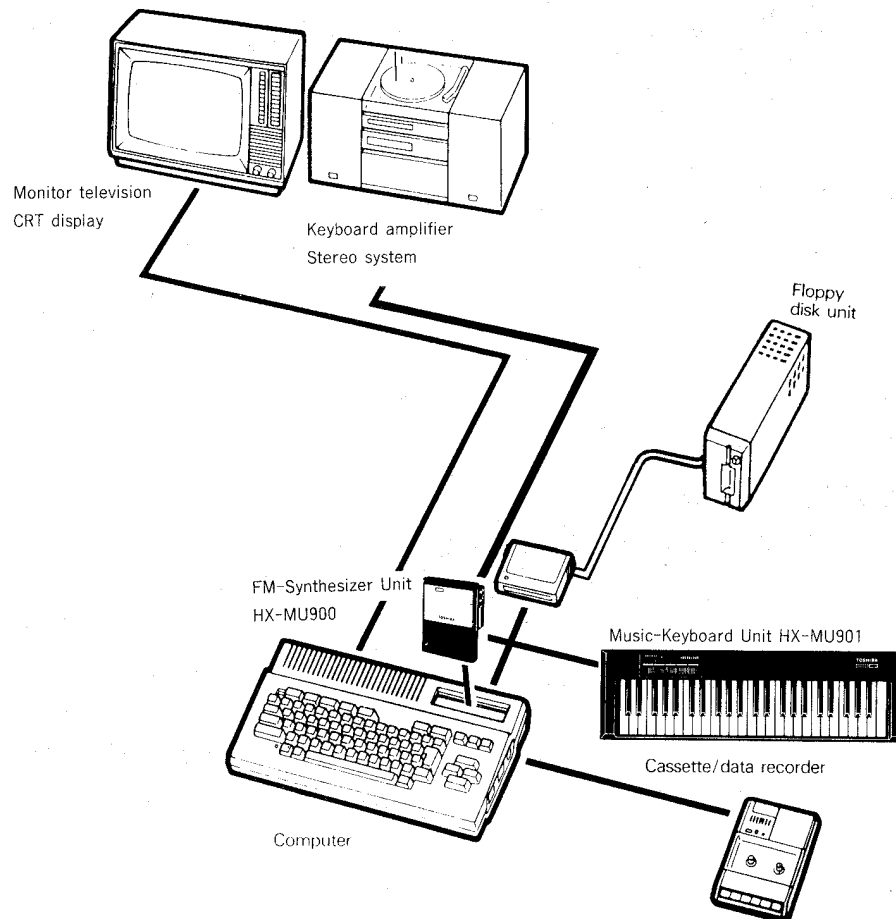
Computer

1-3 Connecting the FM-Synthesizer Unit to an MSX Computer

Be sure that the MSX computer is turned off when connecting the FM-Synthesizer Unit.

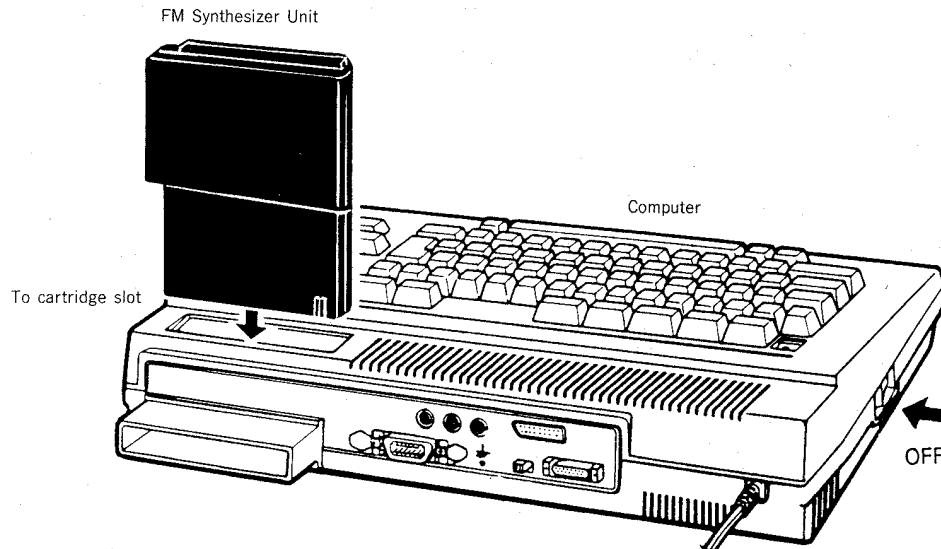The FM-Synthesizer Unit plugs into any of the cartridge slots provided on the MSX computer, just like a normal MSX ROM cartridge.

FM Synthesizer Unit

Computer

To cartridge slot

OFF

1-4 Connecting Peripheral Equipment

MSX Music-System audio output

- The signal from the MSX Music-System is output from the two audio output sockets of the FM-Synthesizer Unit, the audio output socket of the MSX computer, or the RGB socket of the MSX computer.
- For optimum sound fidelity, connect the audio output sockets of the FM Synthesizer unit to a keyboard amplifier or stereo system. You can also use the audio output sockets of the MSX computer in the same manner, although the sound quality will not be as good. In either case, this will allow you to play the MSX Music-System through the keyboard amplifier or stereo system.
- If you are using a monitor television or CRT display equipped with a RGB 21 pin analogue socket, you can also play the MSX Music-System through the amplifier and speakers of your television set, by connecting the RGB socket of the MSX computer (if so equipped) to the RGB 21 pin analogue socket of the monitor television or CRT display. Note, however, that the sound quality will not be as good as the versions above.

- Since the MSX Music-System has an enormous dynamic range, playing it through your TV set at maximum levels can result in heavy distortion. If this should be the case, lower the output level of the MSX Music-System or the volume control of your TV.

MSX Music-System video output
- You can connect the MSX Music-System to a TV monitor or CRT display, using the RF socket, video socket or RGB socket located on the rear panel of the MSX computer.

Music Keyboard Unit
- Connecting the specially designed Music Keyboard Unit (HX-MU901) to the music keyboard terminal on the right side of the FM-Synthesizer unit (HX-MU900) enables the system to be used as a digital keyboard instrument.

External memory storage devices
- When using the file Save and Load operations, it will be necessary to use an external memory storage device to accommodate the data files from the MSX Music-System.
- When using a floppy disk unit, connect the interface cartrige on the floppy disk unit to one of the cartridge slots on the MSX computer.
- When using a cassette recorder, connect the cassette recorder to the recorder socket on the MSX computer.

FM-Synthesizer Unit

To music keyboard terminal

To audio output socket (white)

To audio output socket (red)

Connector cable

Audio Cable

Keyboard Amplifier
Stereo system

Music-Keyboard Unit

To external input socket (right)

To external input socket (left)
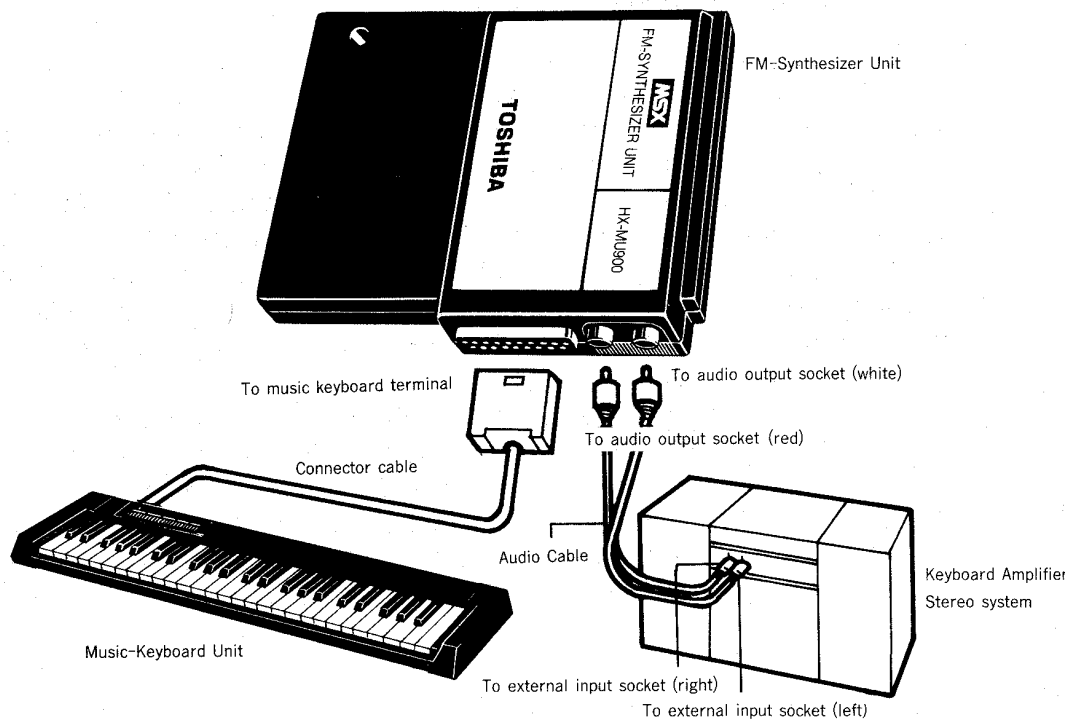
1-5 Starting up the FM-Synthesizer Unit

First make sure that all units have been connected properly, then turn on the power of the MSX computer. The copyright message of the MSX system will then appear on the TV screen. If all units are operating properly, the message for the TOSHIBA MSX Music-System will appear a few seconds later. If the above message does not appear, turn off the power of the MSX computer, and recheck all unit connections. The TOSHIBA MSX Music-System will run on both MSX versions 1.0 and 2.0. (See "Before Calling for Service", p.38.)

- Once the MSX copyright screen appears, if you want to enter the BASIC mode directly, press the ESC key during the MSX copyright screen, before the message for the TOSHIBA MSX Music-System appears. If you want to run the TOSHIBA MSX Music-System from the BASIC mode, type in CALL SYN.

- If a floppy disk unit has been connected, be sure that the power of the floppy disk unit is turned on as well. When using the FM-Synthesizer Unit with an MSX computer that does not feature a calendar clock function, "Enter date" will appear on the screen when the power of the MSX computer is turned on. Enter the year, month and date, using two digits for each item, and press the RETURN key. The initial message of the MSX system will then be displayed. You can also ignore the date and just press the RETURN key if you wish.

Automatically shifts to

Manually shifts to

Move the cursor to EDIT and press the SPACE bar to shift to

Press the ESC key to shift to
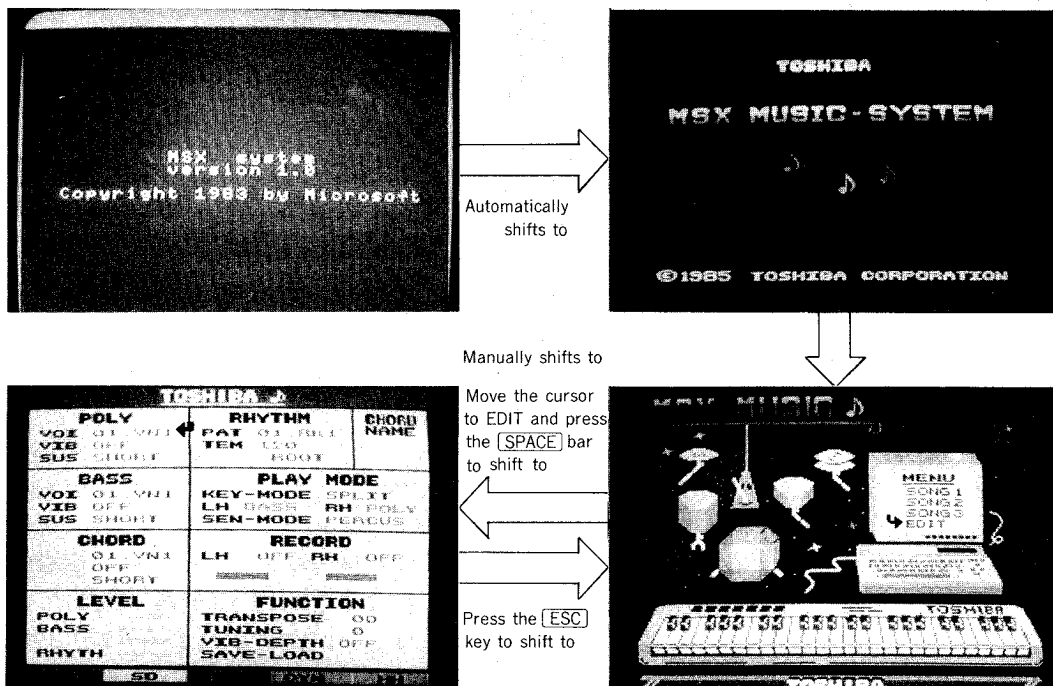
1-6 The Displays

The FM-Synthesizer Unit is equipped with the following three display modes.

(1) Display Mode 1

This is the demonstration display. The screen will show three demonstration songs, and EDIT. If you do not enter any command after the MSX Music-System is activated, it will automatically start playing the demonstration songs in order, one after another, so that once SONG 3 is finished, SONG 1 will start again. The demonstration songs will continue to play until the [STOP] or [ESC] key is pressed.

Additionally, each demonstrated song can be played by itself, using the four cursor control keys to move the red cursor (♦) to SONG 1, SONG 2, or SONG 3, and pressing the [SPACE] bar to start. To stop the demonstration songs, press the [STOP] key. Display Mode 1 is also equipped with a keyboard monitor function that indicates the keys being played.
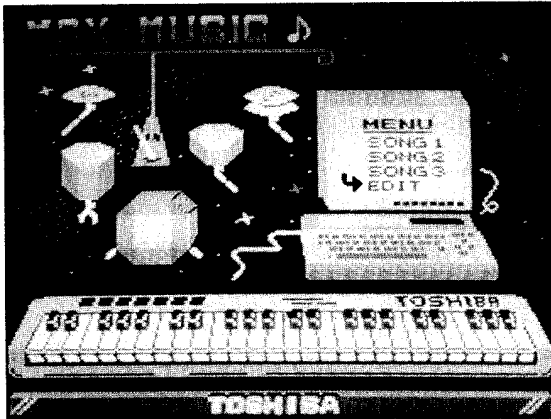
(2) Display Mode 2

Display Mode 2 shows the system controls, and allows you to select or alter the Music-System's variables, including the voice, tempo, and output level. It is the most important screen, and you will use it almost constantly when creating various sounds. Display Mode 2 is divided into two main sections, which are separated by a vertical black line running down the center of the screen. On the left side of both sections are the system parameters. For example, VIB, SUS, CHORD. On the right hand side of both sections are the variables. Each parameter will be assigned to a particular value when the MSX Music-System is activated. These are the default values, and can be changed later. The actual name of each parameter can be seen on page 9. The parameter abbreviations are located as they are on the screen, on the right hand side of the section.

For a good example of what each parameter in Display Mode 2 does, press the ESC key to go to Display Mode 1. Move the red cursor (♦) to SONG 1, SONG 2 or SONG 3 and press the SPACE bar to start the demonstration. Now quickly move the red cursor (♦) to EDIT, and press the SPACE bar to go to Display Mode 2. The parameter variables displayed are those for the song being played.

Please note that the parameter used for selecting the instruments or sound effects used is referred to as the Voice Selector, abbreviated to VOI on the screen. To remain consistent with the screen presentation, this parameter will be referred to as "voice" or VOI throughout this manual. However, in Display Mode 3, you will see a SOUND parameter. SOUND refers to voice data, and is special term used exclusively for saving and loading voice data. To return Display Mode 2 to Mode 1, press the ESC key.

To move Display Mode 2 to the next mode, using the four cursor control keys, move the red cursor (♦) to SAVE-LOAD, and press the SPACE bar.

(3) Display Mode 3

Display Mode 3 shows the file Save and Load menu, and is used for saving or loading data for the MSX Music-System, in conjunction with external memory storage devices, such as floppy disk units or cassette recorders. In Display Mode 3, you will see a SOUND parameter. SOUND refers to voice data, and is special term used exclusively for saving and loading voice data.

To return Display Mode 3 to Mode 2, press the ESC key.

Display Mode 2

	TOSHIBA	

POLY (Polyphonic section)
VOI   Voice selector   12. AP2
VIB   Vibrato ON/OFF   OFF
SUS   Sustain SHORT/LONG   SHORT
	RHYTHM (rhythm section)
	PAT Rhythm 0.6. MAR
	        Pattern selector
	TEM Tempo 120
	        WALK Auto walking
	           bass ON/OFF
		CHORD
		(chord name display)
		
		C

BASS (bass section) VOI Voice selector 0.8. EB1 VIB Vibrato ON/OFF OFF SUS Sustain SHORT/LONG SHORT	PLAY MODE (play mode section) KEY-MODE Mode selector for keyboard ENSEM LH Keyboard mode for lower notes RH Keyboard mode for upper notes PERCUS SEN-MODE Mode selector for multi-sensor	
CHORD (chord section) VOI Voice selector 0.6 EGT VIB Vibrato ON/OFF OFF SUS Sustain SHORT/LONG SHORT	RECORD (record section) LH Recording mode for lower notes RH Recording mode for upper notes Memory status for Record Mode	
Level (output level section) POLY Poly output level BASS Bass output level CHORD Chord output level RHYTH Rhythm output level	FUNCTION (function section) TRANSPOSE Key transpose TUNING Pitch tuning VIB-DEPTH Vibrato depth SAVE-LOAD Save/Load function selector for external data storage device	

• KEY-MODE: NORMAL, SPLIT, ENSEM
• SEN-MODE: PERCUS, RHYPAT, RHYEDT, VOICE, ARPEG, CHORD
• RECORD: OFF, PLY, REC

1-7 Operating the MSX Music-System

The selection of the voice and rhythm pattern used is carried out at the keyboard of the MSX computer.

- **Control keys**

  When selecting each parameter to be set, move the red cursor (♦) to the position of the item to be selected. When Display Mode 2 is activated, the red cursor (♦) will appear at VOICE of the POLY section.

- **Moving the cursor**

  Moving the cursor is accomplished by using the four cursor control keys.
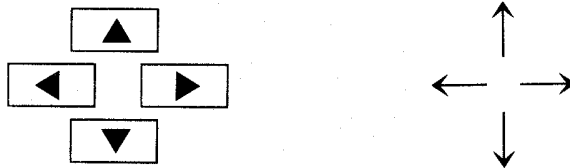
↓ ··· Cursor moves to the next item.
↑ ··· Cursor moves to the previous item.
→ ··· Cursor moves to the item to the right.
← ··· Cursor moves to the item to the left.

- **Changing parameter variables**

  First move the cursor to the position of the parameter to be changed, using the four cursor control keys. Pressing the [SPACE] bar will then change the present setting to the next value for that item. Pressing the [BS] key will change the present setting to the previous value for that item.

(Example)

Move the red cursor (♦) to the Voice Selector, VOI. The particular variable assigned to the VOI parameter can be changed by pressing the [SPACE] bar or the [BS] key. There are 65 preset voices. Pressing the [SPACE] bar selects the next variable, and pressing the [BS] key selects the previous variable.For the List of Internal Voices, see page 34. Experiment by using the cursor around the screen and pressing either the [SPACE] bar or the [BS] key. You cannot damage the system in this way so don't be afraid to press keys.

	POLY
VOI	01. VN1
VIB	OFF
SUS	SHORT

Press the [SPACE] bar.
⟶
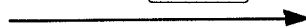
	POLY
VOI	02. VN2
VIB	ON
SUS	LONG

● Special control keys

The MSX Music-System uses the following special control keys.
How to use these functions is explained elsewhere in the manual when the functions themselves are discussed.

Key	Function
[SELECT] key	Playback / Recording start
	Auto Rhythm start
	Auto Bass start
[STOP] key	Stops all above
[SPACE] bar	Selecting item settings
[BS] key	Selecting item settings
[CLS HOME] key	Editing rhythm patterns
[ESC] key	Clearing the screen display
[SHIFT] key	Use together with [SPACE] bar and [BS] key. Moves you through the voice and rhythm lists five items at a time.

a/ Select key
b/ Stop key
c/ Space bar
d/ Back space (BS) key
e/ Clear Screen Home (CLS HOME) key
f/ Escape (ESC) key
g/ Cursor keys
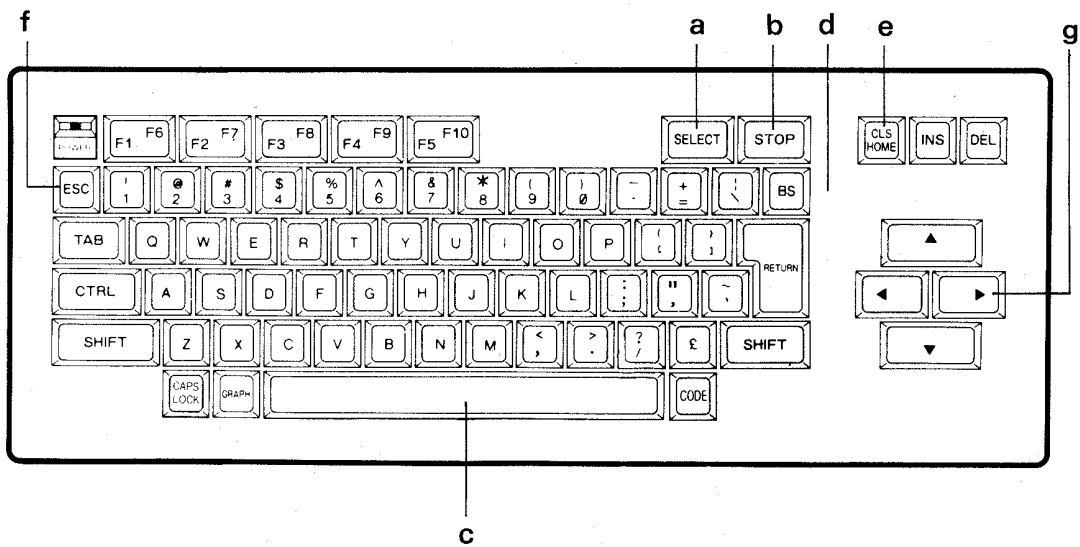
NOTE Keyboard Layouts may vary.

1-8 General System Functions

Connecting the specially designed Music-Keyboard Unit (HX-MU901) to the FM-Synthesizer Unit (HX-MU900) enables the system to be used as a digital keyboard instrument.

The MSX Music-System is equipped with three instrument modes: Normal, Split and Ensemble.
In all modes three functions may be used:
(1) Auto-rhythm, which gives percussion rhythm patterns.
(2) Multisensor. This can be played drum-fashion and may also be used for selecting rhythms and voices.
(3) Record. Music may be recorded and played back. The musical data can be stored within the MSX Music-System, or externally on cassette or disk.

Normal Mode
The whole keyboard is controlled by the POLY functions and up to 9 notes can be played simultaneously.

Split Mode
The lower half of the keyboard is controlled by the BASS functions and the upper half by the POLY functions.

Ensemble Mode
The keyboard is again split between BASS and POLY and additional functions are available.
(1) Auto Bass and Chord accompaniment.
(2) The Multi-Sensor can be used for Arpeggios and Chords as well as its normal functions.

The Normal mode enables chords of up to nine notes to be played.
Using the cursor control keys, move the red cursor (✦) to KEY-MODE of the PLAY-MODE section.
Pressing the [SPACE] bar or[BS]key will cycle the mode through NORMAL, SPLIT and ENSEM. Selecting NORMAL causes the Normal mode to be selected.

2-1 Performance Functions

The Normal mode is equipped with the following three performance functions.

(1) Poly function
(2) Auto Rhythm function
(3) Multi-Sensor function

2-2 Changing the Voice, Vibrato and Sustain Parameters

(1) Voice

The voice to be used can be selected from among the 65 preset voices available.
Using the cursor control keys, move the red cursor (✦) to VOI of the POLY section.
Pressing the [SPACE] bar or [BS] key will cause the voice setting to change. (Refer to List of Internal Voices on page 34.)

(2) Vibrato

The Vibrato function cyclically modulates the current frequency and allows the modulation depth to be selected.
Use the cursor control keys to move the red cursor (✦) to VIB in POLY section and then press the [SPACE] bar to turn the Vibrato function on or off. The modulation depth will be larger when the ON is selected, and smaller when OFF is selected.
The depth of the vibrato modulation can also be selected by using VIB-DEPTH of the FUNCTION section. Move the cursor to VIB/DEPTH of the FUNCTION section, and press the [SPACE] bar or[BS]key to select ON or OFF. The depth of the vibrato modulation will be less when OFF is selected, and greater when ON is selected.

(3) Sustain

This function adds a reverb-like effect to the notes being played. Turning the Sustain function increases the elapsed time between when the key is released and when the note finally dies away.
Use the cursor control keys to move the red cursor (✦) to SUS in the POLY section and then press the [SPACE] bar to turn the Sustain function on and off.

2-3 Output Level

Changing the output level is accomplished by first moving the red cursor (◆) to POLY or RHYTH in the LEVEL section. Pressing the [SPACE] bar will increase the output level, and pressing the [BS] key will decrease the output level. The actual output level is graphically displayed on the screen as a bar.

2-4 Auto Rhythm

The Auto Rhythm function can be activated by using the following procedure.
Pressing the [SELECT] key causes the Auto Rhythm function to start, and pressing the [STOP] key causes the Auto Rhythm function to stop.

(1) Changing the rhythm pattern
The rhythm pattern can be selected from among the 20 preset rhythm patterns available. Move the red cursor (◆) to PAT in the RHYTHM section. Press the [SPACE] bar or [BS] key to select the desired rhythm pattern

(2) Changing the tempo
Changing the tempo is accomplished by moving the red cursor (◆) to TEM in the RHYTHM section. Press the [SPACE] bar or [BS] key to select the desired tempo. The larger the number displayed on the screen, the faster the tempo. (The Tempo range is between 40-200 beats per minute.)

2-5 Multi-Sensor

This group of functions includes a Multi-Sensor performance function, a voice and rhythm selection function and a rhythm editor function.

(1) Multi-Sensor drums
This allows you to play the Multi-Sensor drum-fashion, using five different preset percussion voices. Move the red cursor (◆) to SEN-MODE in the PLAY-MODE section.
Press the [SPACE] bar to select PERCUS. Now you can play the Multi-Sensor drum-fashion, using the five preset percussion voices. You can see them along the bottom of Display Mode 2. When the Multi-Sensor is being used, the maximum number of notes produced simultaneously from the keyboard is six.

Note: Do not damage or scratch the Multi-Sensor. Be especially careful of sharp fingernails and other hard or sharp objects.

Bass drum Snare drum Toms Top cymbal High hat
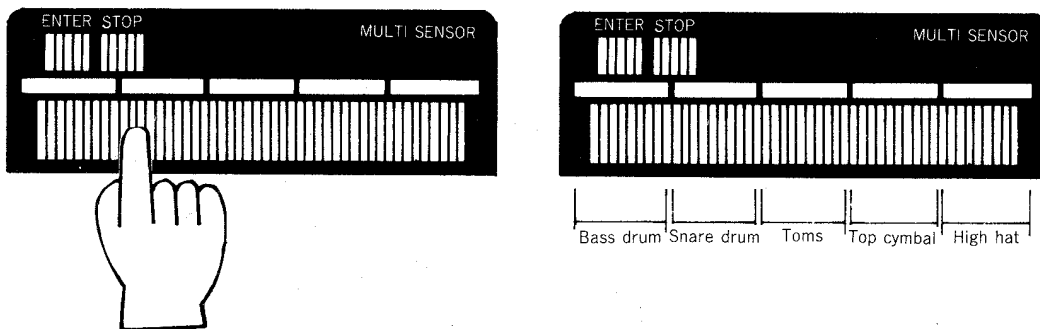
2-5 Multi-Sensor

This group of functions includes a Multi-Sensor performance function, a voice and rhythm selection function and a rhythm editor function.

(1) Multi-Sensor drums

This allows you to play the Multi-Sensor drum-fashion, using five different preset percussion voices. Move the red cursor (✦) to SEN-MODE in the PLAY-MODE section.

Press the SPACE bar to select PERCUS. Now you can play the Multi-Sensor drum-fashion, using the five preset percussion voices. You can see them along the bottom of Display Mode 2. When the Multi-Sensor is being used, the maximum number of notes produced simultaneously from the keyboard is six.

Note: Do not damage or scratch the Multi-Sensor. Be especially careful of sharp fingernails and other hard or sharp objects.
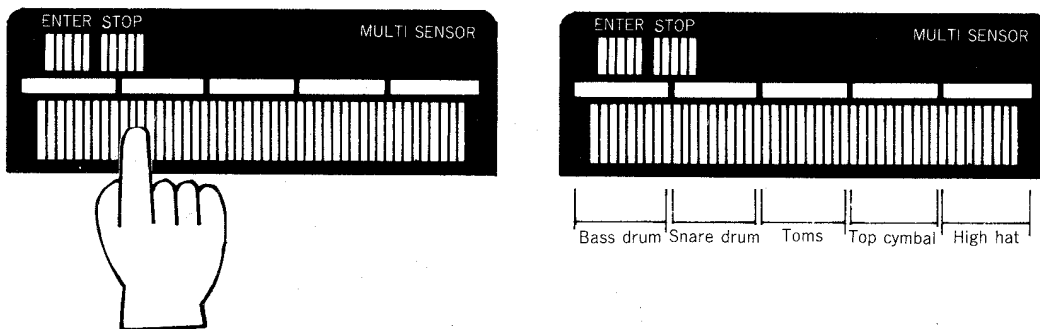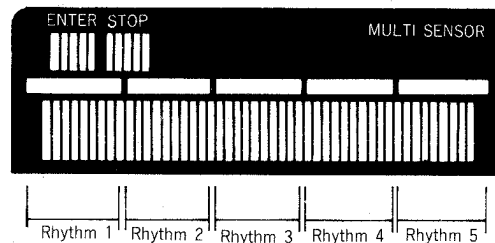
(3) Rhythm pattern selection

Five different rhythm patterns have been preset as the patterns as the patterns for the Multi-Sensor. However, you can also select five of your favourite rhythm patterns out of the 20 available, and use those for the Multi-Sensor presets.

- **Using the preset rhythm patterns**

  Move the red cursor (◆) to SEN-MODE in the PLAY-MODE section. Press the [SPACE] bar to select RHYPAT. Now you can use the Multi-Sensor to select any one of the five preset rhythm patterns. The five preset rhythm patterns are as follows:

Rhythm 1	03 RK3 (Rock 3)
Rhythm 2	06 MAR (March)
Rhythm 3	08 SW2 (Swing 2)
Rhythm 4	14 TAG (Tango)
Rhythm 5	17 FK2 (Funk 2)

- **Changing the rhythm pattern**

  Determine the rhythm pattern to be entered after first confirming that SEN-MODE is set to RHYPAT.

  Move the red cursor (◆) to PAT in the RHYTHM section. Press the [SPACE] bar or [BS] key to select the rhythm pattern to be preset. Next, while holding down the [ENTER] key of the Multi-Sensor, press the area of the Multi-Sensor into which you want to enter the rhythm pattern selected. Repeat the above procedure for all five drum rhythm patterns.

(4) Editing the rhythm patterns

This function enables you to create your own rhythm patterns by using the following procedure.

- Move the red cursor (◆) to the SEN-MODE indicator of the PLAY-MODE section. Press the [SPACE] bar to select RHYEDT. Now move the red cursor to the PAT indicator of the RHYTHM section. Press the [SPACE] bar or [BS] key to select the basic Rhythm pattern from which the new Rhythm pattern will be created. Press the [SELECT] key to start the Rhythm pattern.
- While holding down the [CLS/HOME] key of the MSX computer, pressing the percussion notes of the Multi-Sensor in order will cause them to disappear, one by one. (To erase the percussion notes entirely, press down all the notes for each percussion instrument until completely erased.)
- To enter a new rhythm, play on the Multi-Sensor, just as you would in an actual performance, without touching the [CLS/HOME] key. The rhythm will be entered automatically into the MSX Music-System.

2-6 Record

Equipped with performance recording and playback features, this function enables you to record the contents of a given performance into the memory of the MSX computer. Please refer to the Record Mode Section on page 28 for details.

2-7 Transpose

This function enables you to transpose keys in semi-tone units over a maximum of twelve steps (1 octave) above or below the starting point. Move the red cursor (◆) to TRANSPOSE in the FUNCTION section. Pressing the [SPACE] bar will transpose the key upward by a semi-tone, and pressing the [BS] key will transpose the key downward by a semi-tone.
This function is operative during the Normal mode, Split mode, and Ensem mode.

2-8 Tuning

This function enables you to tune the pitch in units smaller than a semi-tone. Tune the pitch as required, especially when performing ensembles with other instruments.
Move the red cursor (◆) to TUNING in the FUNCTION section. Pressing the [SPACE] bar will raise the pitch, and pressing the [BS] key will lower the pitch.
This function is operative during the Normal mode, Split mode, and Ensem mode.

③ Split Mode

This mode enables you to produce two different voices simultaneously.
Move the red cursor (◆) to KEY-MODE in the PLAY-MODE section. Pressing
the [SPACE] bar or[BS]key will change KEY-MODE to NORMAL, SPLIT, or
ENSEM. Setting KEY-MODE to the SPLIT will activate the Split mode.

3-1 Performance Functions

The Split mode is equipped with the following three performance functions:
(1) Split function
This enables you to produce two different voices simultaneously. It divides
the keyboard into two parts, and assigns the voice for the Poly mode to the
upper part of the keyboard, and assigns the voice for the Bass mode to the
lower part of the keyboard. Activating the Split function splits the keyboard
into the Poly and Bass parts, as shown in the figure below. When the Split
function is activated, the maximum number of notes that can be produced
from the Poly section is eight, and the Bass section can only produce a
single note.
Selecting the voice, turning the vibrato on or off, and selecting short or long
sustain for the Poly part is carried out by using VOI, VIB and SUS for the Poly
section. VOI, VIB and SUS of the Bass section are used for the Bass part.

BASS ———————— POLY ————————
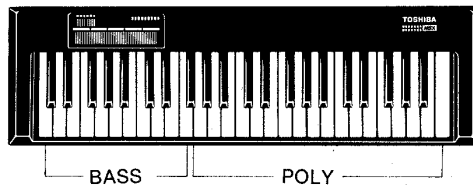
(2) Auto Rhythm function
When using the Auto Rhythm function, the maximum number of notes that
can be produced from the keyboard is five notes for the Poly keyboard part,
and a single note for the Bass keyboard part.

(3) Multi-Sensor function (As in the normal mode)
This is a performance function that enables you to play drum-fashion, using
percussion voices, simply by sliding your fingers over the Multi-Sensor. It is
equipped with a percussion function, a voice and rhythm selector function,
and a rhythm pattern editor function.

④ ENSEM Mode (Ensemble Mode)

The Ensemble mode enables you to perform with an automatic accompaniment.

Move the red cursor (✦) to KEY-MODE in the PLAY-MODE section. Pressing the [SPACE] bar or [BS] key will cause KEY-MODE to cycle between NORMAL, SPLIT, and ENSEM. Setting KEY-MODE to ENSEM will activate the Ensemble mode.

4-1 Performance Functions

The Ensemble mode is equipped with the following four performance functions:

(1) Poly function

This performance function uses only a single voice, and is capable of producing up to five notes simultaneously.

Selecting the voice, turning the vibrato on or off, and selecting short or long sustain for the Poly part is carried out by using VOI, VIB and SUS for the Poly section. VOI, VIB and SUS of the BASS section are used for the Bass part. Activating the Ensem mode splits the keyboard into the Poly and Chord parts, as shown in the figure below.
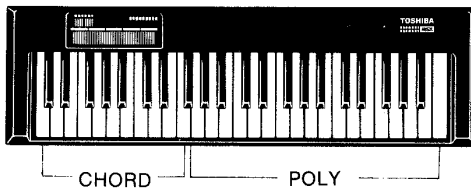
└── CHORD ──┘└────── POLY ──────┘

(2) Auto Rhythm function

When using the Auto Rhythm function, the maximum number of notes that can be produced from the keyboard is two notes for the Poly keyboard part.

(3) Auto Bass and Chord function
This is an automatic accompaniment function that uses chords and bass patterns.
Selecting the voice, turning the vibrato on or off, and selecting short or long sustain is carried out by using VOI, VIB and SUS of the BASS and CHORD sections.
The tempo and rhythm patterns of the Auto Bass and Chord function will change according to the rhythm pattern and tempo of the RHYTHM section.

(4) Multi-Sensor function
This is a performance function that enables you to play arpeggios, chords, and in drum-fashion, using percussion or voices, simply by sliding your fingers over the Multi-Sensor. It is also equipped with a voice and rhythm selector function, and a rhythm pattern editor function.

4-2 Auto Bass and Chord

Use the following procedure to activate the Auto Bass and Chord function.
- Set the keyboard part for the Auto Bass and Chord function.
- Select the voices for the bass and chord parts.
- Pressing the [SELECT] key will start the Auto Bass and Chord accompaniment, which will follow the rhythm set for the Auto Rhythm function.
- Perform the chords by playing on the part of the keyboard for the Auto Bass and Chord function.
* The rhythm pattern and tempo of the Auto Bass and Chord function will change according to the rhythm pattern and tempo of the RHYTHM section.

(1) Selecting the part of the keyboard for the Auto Bass and Chord function

Before using the Auto Bass and Chord function, it is first necessary to select the part of the keyboard that will be used for the bass and chord parts. This sets the pitch for the respective parts.

Pressing the [SELECT] key activates the keyboard part selector function and enables that part of the keyboard to be used for the Auto Bass and Chord function to be set. Pressing the [STOP] key cancels the keyboard part selector function.

* The part of the keyboard selected for the Auto Bass and Chord function is identical to the CHORD part in the keyboard diagram for 4-1-(1).
* The chord selected will be displayed in the upper right hand part of the screen.
* General playing is not possible on the part of the keyboard set for the Auto Bass and Chord function.

(2) Selecting the voices for the Bass and Chord parts

The sounds for the Bass and Chord parts can be selected independently from the 65 different voices available for the BASS and CHORD sections. The voices are determined by using the cursor control keys to move the red cursor (◆) to VOI in the BASS and CHORD sections, and then pressing the [SPACE] bar or [BS] key to select the voices.

(3) Automatic accompaniment start/stop

Pressing the [SELECT] key starts the Auto Bass and Chord accompaniment, and pressing the [STOP] key stops the automatic accompaniment.

(4) Determining the chords

The pitch of the bass and chord parts will change according to the keys depressed. For example, pressing C on the keyboard will give a C-E-G chord, and pressing G will give a G-B-D chord.

* Once a given key of the keyboard has been pressed, it will be retained in the memory until the next key is pressed. This means that even if the key is released, the accompaniment will continue in the same chord. Pressing a new key on the keyboard will automatically change the chord.
* The relationship between the keys for the Auto Bass and Chord function is as follows. Refer to the Chord Name Reference Chart on page 37 for details.
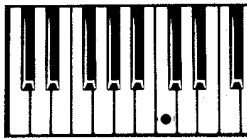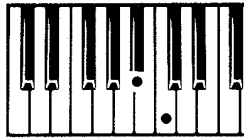
1. C (Major chord)   2. C7 (Major 7th chord)   3. Cm (Minor chord)   4. Cm7 (Minor 7th chord)
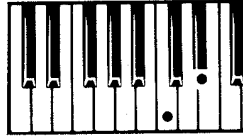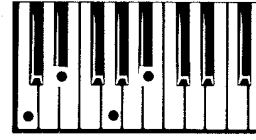
4-3 Multi-Sensor

• **Preparation and performance of the Multi-Sensor**
You can play arpeggios and harp or guitar-like glissandos, simply by sliding your fingers over the Multi-Sensor "keyboard". You can also select the length of the sustain by using the Sustain control, which enables the performance to be optimized for each song.

• **Multi-Sensor effects**
(1) Selecting the voice for the Multi-Sensor
The voice is determined by moving the red cursor (✦) to VOI in the CHORD section, and pressing the [SPACE] bar or [BS] key to select the voice.

(2) Sustain
The Sustain control determines the length of the sustain and the Multi-Sensor resonance. Adjust the Sustain control according to the song.
The sustain is turned on or off by moving the red cursor (✦) to SUS in the CHORD section, and pressing the [SPACE] bar to turn the sustain on or off. The sustain will be turned on when ON displayed, and the sustain will be turned off when OFF is displayed.

(3) Combination performance function
When using the combination performance function, the pitch of the Multi-Sensor is determined by the key of the Music Keyboard Unit (HX-MU901) pressed, as shown in the figure at right. For example, pressing C with your left hand gives a C-E-G chord on the Multi-Sensor, and pressing G with your left hand gives a G-B-D chord on the Multi-Sensor. The relationship between the Music Keyboard Unit and the chord of the Multi-Sensor is the same as for the Auto Bass and Chord function. Refer to the Chord Name Reference Chart on page 37 for details.
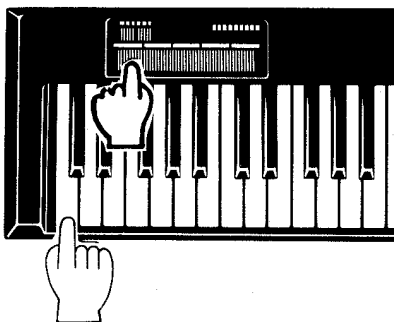
(4) Auto Bass and Chord performance function

This combination performance function uses automatic accompaniment. Starting the Auto Bass and Chord function is carried out by pressing the [SELECT] key. Pressing the [STOP] key stops the automatic accompaniment.

The following two performance functions are possible, using the Multi-Sensor.

(1) Multi-Sensor drums (PERCUS)

This allows you to play the Multi-Sensor drum-fashion, using five different preset percussion voices.

Move the red cursor (◆) to SEN-MODE in the PLAY-MODE section. Press the [SPACE] bar to select PERCUS. Now you can play the Multi-Sensor drum-fashion, using the five preset percussion voices.

When the PERCUS function is being used, the maximum number of notes produced simultaneoulsy from the keyboard is two.

Bass Drum   Snare Drum   Tom   Top Cymbal   High Hat
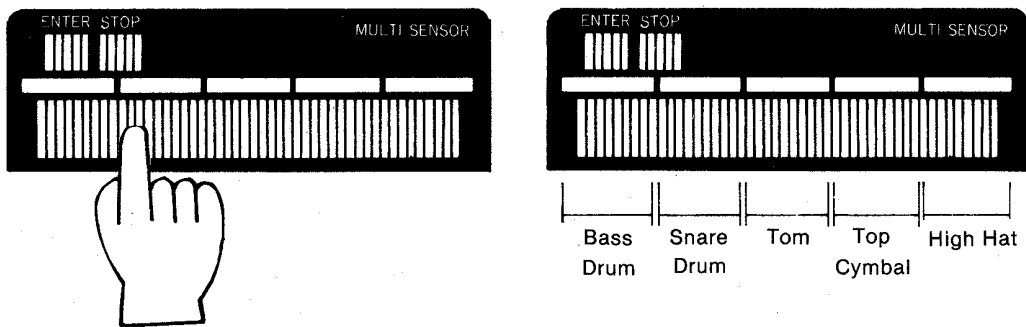
(2) Multi-Sensor slide (ARPEG, CHORD)

This function enables you to perform by sliding your fingers over the Multi-Sensor, using the 65 different voices available.

To play slide chords, move the red cursor (◆) to SEN-MODE in the PLAY-MODE section. Press the [SPACE] bar to select either ARPEG or CHORD. This enables you to play arpeggios and harp or guitar-like glissandos, simply by sliding your fingers over the Multi-Sensor.

* ARPEG produces one note at a time.
  CHORD produces three notes at a time.

• Playing slide

Lightly tap on the Multi-Sensor from left to right. Next slide your finger back and forth along the Multi-Sensor. Now press three fingers simultaneously on the Multi-Sensor Plate. The more finger area on the Multi-Sensor surface at any given time, the richer the sound of the chord.

Index finger
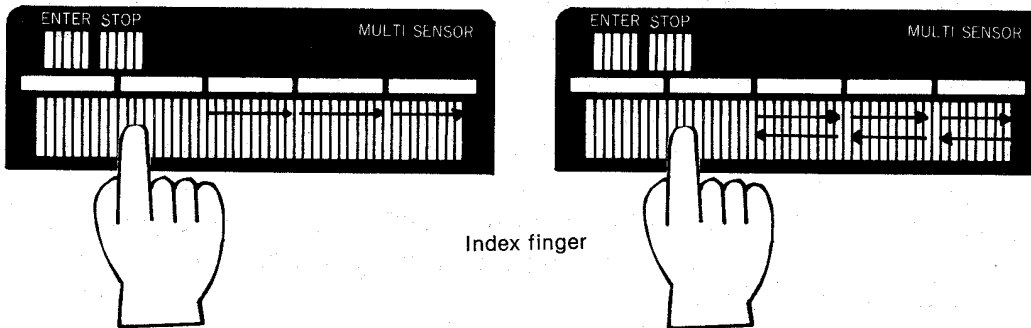
• Playing touch

Using the pad of a fingertip, beginning from the bottom, tap accross the Multi-Sensor. You can also use two, three or more fingers, as shown in the figure below.
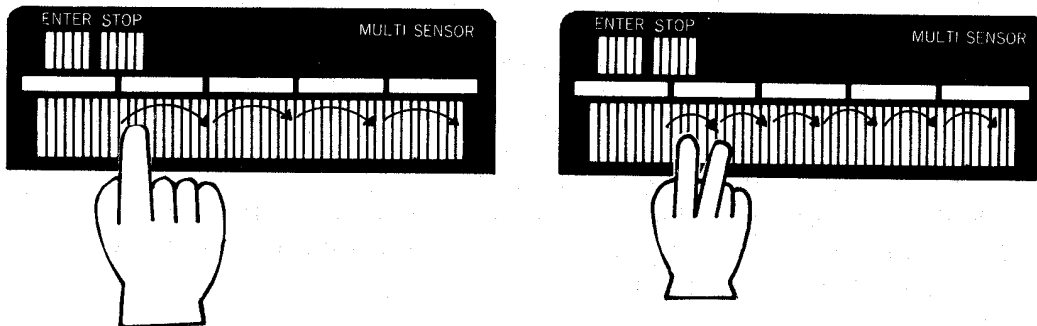
Play octaves, using a single finger.

Using two fingers, "dance" lightly over the Multi-Sensor.

⑤ Record Mode

- This mode is equipped with performance recording and playback functions that enables you to store the contents of the performance into the memory of the MSX computer and playback the performance later.
- Since only the actual performance data is being recorded, you can change the voice and transpose keys during playback.
- The performance data can be stored on to a floppy disk unit or cassette recorder.

(1) Record
- Using the four cursor keys, move the red cursor (◆) to LH and RH of the RECORD section.
- Press the [SPACE] bar to select REC, then press the [SELECT] key. The colour of REC will change, and recording will commence.
- Press the [STOP] key to stop the recording.
- If the available memory should be used up entirely during the recording, the recording will stop at that point.
- Note that the contents being recorded will be erased entirely if the power of the MSX computer is turned off.
- Recording during the Normal mode is only possible when RH has been selected. Recording during the Split and Ensem modes is possible with either LH or RH.
- The red bars below LH and RH of the RECORD section shows the amount recorded, and the greater the length of the white area, the greater the amount of memory remaining.
- It is also possible to record Auto Rhythm, and Auto Bass and Chord performance data.

(2) Playback
- Using the four cursor keys, move the red cursor (◆) to LH and RH of the RECORD section.
- Press the [SPACE] bar to select PLY, then press the [SELECT] key. Playback will commence.
- It will not be possible to play back the recorded performance data if the Key mode for the Play mode during recording is different from the present setting.
- Press the [STOP] key to stop the playback.
- You can change the voice and transpose keys during playback.
- It is also possible to perform on the keyboard during playback of the recorded performance data.

(3) Recording performance data of the Auto Bass and Chord function
This function enables you to record performance data for the Auto Bass and Chord function.
Using the four cursor keys, move the red cursor (✦) to KEY-MODE of the PLAY-MODE section, and select ENSEM.
Next, using the four cursor keys, move the red cursor (✦) to LH and RH of the RECORD section, and select REC by using the [SPACE] bar.
Press the [SELECT] key. The colour of REC will change, and recording will commence. Record the desired performance by playing the keys of the keyboard.
The Poly function performance data will be recorded into the RH channel, and the Auto Bass and Chord function performance data will be recorded into the LH channel.
• When using the Arpeg and Chord performance functions during the Sen mode, only the Auto Bass part will be recorded.
• Press the [STOP] key to stop the recording.

(4) Playing back performance data of the Auto Bass and Chord function
As with the previous section (3) "Recording performance data of the Auto Bass and Chord function", move the red cursor (✦) to LH and RH of the RECORD section, and select PLY by pressing the [SPACE] bar.
Press the [SELECT] key. The colour of PLY will change, and playback will commence. Press the [STOP] key to stop the playback.
• The recorded performance data should be played back in the same mode as when it was originally performed and recorded.
• It is possible to change TEM of the RHYTHM section, and TRANSPOSE and TUNING of the FUNCTION section during playback.

(5) Changing the Auto Bass and Chord function performance data
When changing a chord already entered, first play back the Auto Bass and Chord performance.
Once the chord to be corrected has been reached, press the [STOP] key of the Multi-Sensor to stop the performance.
Now enter the correct chord on the keyboard. The correction procedure is as follows.
• **Chord to be corrected** Press the [STOP] key of the Multi-Sensor.
• **Correct chord** Press the correct chord on keyboard, then press the [ENTER] key of the Multi-Sensor.

This enables you to save the performance and rhythm data on to cassette recorders, floppy disk units and other external memory storage devices. The date Save and Load operations are carried out by using the Save/Load menu on the screen.

• **Save:** This function writes data contained in the internal memory of the computer on to external memory storage devices.

• **Load:** This function retrieves data stored in external memory storage devices back into the internal memory.

• When using the file Save and Load operations, it will be necessary to use an external memory storage device to accommodate the data files from the MSX Music-System.

• When using a floppy disk unit, connect the interface cartridge on the floppy disk unit to one of the cartridge slots on the MSX computer.

• When using a cassette recorder, connect the cassette recorder to the recorder socket on the MSX computer.

6-1 Control Procedure
External memory storage devices

• When using the file Save and Load operations, it will be necessary to use an external memory storage device to accommodate the data files from the MSX Music-System.

• When using a floppy disk unit, connect the interface cartridge on the floppy disk unit to one of the cartridge slots on the MSX computer.

• When using a cassette recorder, connect the cassette recorder to the recorder socket on the MSX computer.

Note: In Display Mode 3, you will see a SOUND parameter. SOUND refers to voice data, and is special term used exclusively for saving and loading voice data.

• Procedure outline

File Save and Load operations are accomplished by using the following procedure.

Use the cursor control keys to move the red cursor (◆) to SAVE-LOAD in the FUNCTION section. Pressing the [SPACE] bar will give the following menu.
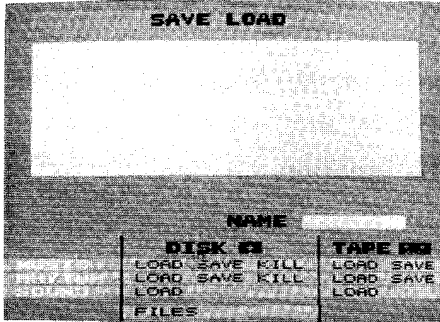
(1) Selecting an appropriate external memory storage device

The external memory storage devices that can be used are cassette recorders and floppy disk units. When using a cassette recorder, move the red cursor (◆) to LOAD or SAVE in the TAPE section. When using a floppy disk unit, move the red cursor (◆) to LOAD, SAVE or KILL in the DISK section.

(2) Selecting the function

Move the red cursor (◆) to the desired function.

For example, when dealing with performance data, move the cursor to MUSIC.

When dealing with rhythm data, move the cursor to RHYTHM indicator. When dealing with sound (voice) data, move the cursor to SOUND. Move the cursor to FILES to display the Files Chart.

	Tape	Disk	Menu Display	
			Tape	Disk
SAVE performance data	O	O	MUSIC TAPE SAVE	DISK SAVING
LOAD performance data	O	O	MUSIC TAPE LOAD	DISK LOADING
SAVE rhythm data	O	O		
LOAD rhythm data	O	O		
LOAD voice data	O	O		
KILL file	X	O		FILE KILL
Display file list	X	O		—

(3) Designating the file name
- Move the red cursor (◆) to NAME, and enter the file name.
- The file name should be six characters or less in length, using numerals and capital letters.
- The following keys can be used when entering a file names.

  [BS] Erases previous character.

  [←] Moves cursor to left.

  [→] Moves cursor to right.

- When using a floppy disk unit, the Files function can be used to display the File Chart.

(4) Pressing the [RETURN] key will execute the function.

6-2 Cassette Recorder Save and Load Operations
Move the red cursor (◆) to LOAD or SAVE of the TAPE section, when using a cassette recorder as the external memory storage device.
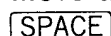
(1) Save
- Press the Play and Record buttons togehter on the cassette recorder.
- Move the red cursor (◆) to SAVE in the TAPE section, and press the [SPACE] bar.

  This will automatically move the red cursor (◆) to NAME, and "MUSIC SAVE" will be displayed on the screen.
- Enter the file name after NAME.
- Pressing the [RETURN] key will save the data under the designated file name.
- "MUSIC TAPE SAVE" will be displayed on the screen during the Save operation.
- Press the Stop button of the cassette recorder when the Save operation has been completed.
- Press the [ESC] key to return to the previous operation mode.

(2) Load
- Move the red cursor (◆) to LOAD of the TAPE section, and press the [SPACE] bar.

  This will automatically move the red cursor (◆) to NAME indicator, and "MUSIC LOAD" will be displayed on the screen.
- Find the beginning of the program file on the tape, and press the Play button of the cassette recorder.
- Move the red cursor (◆) to NAME and enter the file name.
- Pressing the [RETURN] key will load the data of the designated file.
- "MUSIC TAPE LOAD" will be displayed on the screen during the Load operation.
- Press the Stop button of the cassette recorder when the Load operation has been completed.

6-3 Floppy Disk Save and Load Operations

Move the red cursor (✦) to LOAD and SAVE in the DISK section when using a floppy disk unit as the external memory stroage device.

(1) Save

• Move the red cursor (✦) to SAVE in the DISK section, and press the [SPACE] bar.
  This will automatically move the red cursor (✦) to NAME, and "MUSIC SAVE" will be displayed on the screen.
• Enter the file name after NAME.
• Pressing the [RETURN] key will save the data under the designated file name.
• "DISK SAVING" will be displayed on the screen during the Save operation.
• Press the [ESC] key to return to the previous operation mode.

(2) Load

• Move the red cursor (✦) to LOAD of the DISK section, and press the [SPACE] bar.
  This will automatically move the red cursor (✦) to NAME, and "MUSIC LOAD" will be displayed on the screen.
• Enter the file name after NAME.
• Pressing the [RETURN] key will load the data of the designated file.
• "DISK LOADING" will be displayed on the screen during the Load operation.

(3) Erasing files

Move the red cursor (✦) to KILL in the DISK section, and press the [SPACE] bar. This will automatically move the red cursor (✦) to NAME, and "MUSIC KILL" will appear on the screen.
• Enter the file name after NAME.
• Pressing the [RETURN] key will erase the file designated. "FILE KILL" will appear on the screen during this operation.

(4) File listing

This function is used to display a list of the files recorded on the floppy disk. Move the red cursor (✦) to FILES in the DISK section, and press the [SPACE] bar. A list of the files on the floppy disk will appear on the screen. If there are too many files to be displayed on a single screen, press the [SPACE] bar repeatedly until all the files have been listed.

⑦ List of Internal Voices

- **STRINGS**
  - 01. VN1...Violin 1
  - 02. VN2...Violin 2
  - 03. VC..Cello
  - 04. STR ....Strings
  - 05. AGT...Acoustic Guitar
  - 06. EGT..Electric Guitar
  - 07. DGT..Distortion Guitar
  - 08. EB1...Electric Bass 1
  - 09. EB2...Electric Bass 2
  - 10. WB ....Wood Bass

- **KEYBOARD**
  - 11. AP1..Acoustic Piano 1
  - 12. AP2..Acoustic Piano 2
  - 13. EPF ....Electric Piano
  - 14. HPC ....Harpsichord
  - 15. CEL ....Celeste
  - 16. CLC...Clavichord
  - 17. EO1...Electric Organ 1
  - 18. EO2...Electric Organ 2
  - 19. PO1..Pipe Organ 1
  - 20. PO2..Pipe Organ 2
  - 21. SYB..Synth Bass

- **BRASS**
  - 22. TP1...Trumpet 1
  - 23. TP2...Trumpet 2
  - 24. HR...Horn
  - 25. TRB..Trombone
  - 26. TUB..Tuba
  - 27. FHR...Flugelhorn
  - 28. BRS ....Brass

- **WOOD**
  - 29. PIC...Piccolo
  - 30. FL ....Flute
  - 31. CL ....Clarinet
  - 32. OB ....Oboe
  - 33. FG...Fagotto
  - 34. SAX ....Saxophone
  - 35. JFL...Jazz Flute

• PERCUSSION
36. MAR ....Marimba
37. XYL ....Xylophone
38. GSP ....Glockenspiel
39. VIB ....Vibraphone
40. TBL ....Tubular Bell
41. KAL ....Kalimba
42. ABL ....Agog Bell
43. STD ....Steel Drum

• JAPANESE INSTRUMENTS
44. KOT ....Koto
45. SHH ....Shakuhachi
46. SHS ....Shamisen
47. BIW ....Biwa

• OTHER INSTRUMENTS
48. HAM ....Harmonica
49. REC ....Recorder
50. TRG ....Triangle
51. ACD ....Accordion
52. ROG ....Reed Organ
53. HRP ....Harp
54. SIT ....Sitar
55. BAN ....Banjo
56. UKL ....Ukulele
57. TYP ....Toy Piano
58. MB ....Music Box

• SOUND EFFECT
59. TYB ....Toy Box
60. SPN ....Space Noise
61. WAV ....Wave
62. CRH ....Crash
63. WCK ....Wall Clock
64. TYW ....Typewriter
65. TUT ....A tut

⑧ List of Internal Rhythm Patterns

01.	RK1	Rock 1
02.	RK2	Rock 2
03.	RK3	Rock 3
04.	RK4	Rock 4
05.	RK5	Rock 5
06.	MAR	March
07.	SW1	Swing 1
08.	SW2	Swing 2
09.	WT1	Waltz 1
10.	WT2	Waltz 2
11.	SLB	Slow-Ballad
12.	SF1	Shuffle 1
13.	SF2	Shuffle 2
14.	TAG	Tango
15.	BIG	Bigin
16.	FK1	Funk 1
17.	FK2	Funk 2
18.	FS1	Fusion 1
19.	FS2	Fusion 2
20.	NRY	Non-Rhythm

⑩ Before Calling for Service

Carry out the following checks and corrections if this unit malfunctions. If the problem cannot be cleared up, contact your nearest Authorized TOSHIBA Agent.

Unit	Symptom	Action
FM Synthesizer Unit	Message for TOSHIBA MSX Music System does not appear on screen.	1. Is the power for the computer and display on? 2. Are all the chords connected to the right jacks? Are all the connectors securely in place? 3. Is the power of the floppy disk unit on? 4. Although the functions of the FM-Synthesizer Unit will normally be accessed automatically, some MSX computers will not do so. If such is the case, key in CALL SYN and press the [RETURN] key. 5. The FM-Synthesizer Unit will not operate if the capacity of the MSX RAM is 16 KB or less.
Music Keyboard Unit	No voice comes out, even when keyboard is played.	1. Is the message for the FM-Synthesizer Unit being displayed? 2. Are all the chords connected to the right sockets? Are all the connectors securely in place? 3. Is the power of your keyboard amplifier, stereo system or TV on? 4. Is the volume setting of your keyboard amplifier, stereo system or TV too low?
Cassette Recorder	Performance data cannot be Saved or Loaded.	1. Is the power of your cassette recorder on? 2. Are all the chords connected to the right sockets? Are all the connectors securely in place? 3. Is the recording and playback level of your cassette recorder too low?
Floppy Disk Unit	Performance data cannot be Saved or Loaded.	1. Is the power of your floppy disk unit on? 2. Are all the chords connected to the right sockets? Are all the connectors securely in place? 3. Did you remember to put a floppy disk into the unit? 4. Is the floppy disk formatted? 5. Is the floppy disk write-protected?

Specifications

Voice Generation System		FM Tone Generation System Two Operators, Two Algorithms
Maximum Simultaneous Number of Notes		9
Internal Voice Data		65 voices
Internal Rhythm Pattern		20 rhythm patterns
Connection Sockets		Audio output: (L/R) Stereo
Audio Output	**Output level**	−9 dBm (Flute 440-880 Hz 9 notes produced)
	Output impedance	1.8 kΩ
Temperature and Humidity		5-35℃ 20-80%
Dimensions		119(W) × 21(D) × 140(H)mm
Weight		480 g
List of Internal Voices		refer to page 34
List of Internal Rhythm Patterns		refer to page 36