Important

This Manual contains instructions for three closely related, yet different models, the MS210, MS510, and MS710. Notations after headings and subheadings give the applicable model numbers. Headings without such notations apply to all three models.

Handling

- This instrument contains precision-engineered components that may be irreparably damaged if the unit is subjected to direct sunlight, high temperature, excessive humidity, dust, rough handling, and other hazards.
- Be careful not to allow paper clips, pins, coins, and other metallic objects to fall between the keys into the instrument. These type of objects can short-circuit the electronic components inside.
- This instrument contains no user-serviceable parts. Do not attempt to disassemble or modify internal components. Tampering not only voids the warranty, but also can cause short circuits, electrical shocks, and other electrical problems hazardous both to the instrument and to the user using it.

Warnings

- This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it can cause interference to radio communications. The rules with which it must comply afford reasonable protection against interference when used in most locations. However, there can be no guarantee that such interference will not occur in a particular installation. If this equipment does cause interference to radio or the related equipment of and on the user is encouraged to try correct the interference by one or more of the following measures:
  - Reorient the receiving antenna.
  - Relocate the receiving antenna.
  - Plug the instrument into a different outlet so that it and receiver are on different branch circuits.
  - Consult the dealer or a qualified service personnel.

- This instrument complies with the limits for a class B digital apparatus, pursuant to the Radio Interference Regulations, C.R.C., c.1374.

(3) Use the TONE SELECT switch to select the secondary tone (SPRING). Pressing a single note produces a mixture of the STRINGS and PIANO tones. Chords use the primary tone (PIANO) for the lower notes and both tones for the highest note.

Procedure for MS210

1. Use the TONE SELECT switch to select the primary tone (PIANO).
2. While holding switch A, use switch B to select the secondary tone (STRING). This secondary tone will be added to the highest note played on the keyboard.

Note: On MS210, any tone in a given column (e.g., above switch A) can be combined with any tone in a different column. Tones within the same column cannot be combined using Top Note Dual.

Circle SELECTABLE PADS (Models MS210 and MS710 only)

The percussion pads allow you to add drum solos to the rhythm and automatic accompaniment. This function allows you to assign different percussion sounds to the percussion pads.

Example: Assigning LOW CONGA to a pad

1. Move the LOWER MODE SELECT switch to its DRUM & PAO SELECT position.
2. Hold down one of the blue percussion PADS and press the key (F2) assigned to the percussion instrument (LOW CONGA).

[Diagram of percussion pads and keys]
POWER SUPPLY
This instrument runs on both batteries and regular household current.

**Battery Operation**
Insert six dry cells into the compartment under the instrument.

*Size "AA" (MS210/MS510)*

*Size "C" (MS710)*

**Notes:**
- Make sure that the terminals all point in the same direction and in the direction indicated on the bottom of the battery compartment.
- If the volume fades or there are sound quality problems during battery operation, it is time to replace the batteries.
- Replace the batteries as a set. Never mix batteries of different ages or different types.
- Do not leave batteries inside the instrument during storage or long periods of disuse.

**AC Operation**
An AC adaptor (Model PS-121, PS-123 or PS-092 (only in U.S.)) is also available.

**Notes:**
- Make sure that the voltage rating listed on the label of the adaptor matches that of the power supply.
- When you connect the adaptor with the instrument, be sure that power switch is off.

**CONNECTIONS**
Connection to a stereo, radio-cassette combination, or other type of audio equipment requires a special cable or an adapter with a mini stereo plug on one end and two RCA plugs on the other. (MS210/Mini mono plug and one RCA jack) These cables or adaptors are available from most sales outlets handling audio equipment and accessories. Connecting the MS710 to other MIDI instruments requires standard MIDI cables available at most music stores which carry electronic instruments.

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th></th>
<th>MS710</th>
<th>MS510</th>
<th>MS210</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keys</td>
<td>49 Mid</td>
<td>49 Mid</td>
<td>37 Mid</td>
</tr>
<tr>
<td>Tones</td>
<td>24</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Rhythm patterns</td>
<td>24</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>TOP NOTE DUAL</td>
<td>576</td>
<td>400</td>
<td>192</td>
</tr>
<tr>
<td>Effects</td>
<td>VIBRATO, STEREO CHORUS, PITCH BEND</td>
<td>VIBRATO, STEREO CHORUS, PITCH BEND</td>
<td>VIBRATO, STEREO CHORUS, PITCH BEND</td>
</tr>
<tr>
<td>Percussion pads</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Rhythm controls</td>
<td>START/STOP, SYNCHRO/FILL IN, INTRO/ENDING</td>
<td>START/STOP, SYNCHRO/FILL IN, INTRO/ENDING</td>
<td>START/STOP, SYNCHRO/FILL IN, INTRO/ENDING</td>
</tr>
<tr>
<td>Synthesizer parameters</td>
<td>WAVE1, WAVE2, ATTACK, DECAY, LEVEL</td>
<td>WAVE1, WAVE2, ATTACK, DECAY, LEVEL</td>
<td>WAVE1, WAVE2, ATTACK, DECAY, LEVEL</td>
</tr>
<tr>
<td>Recorder controls</td>
<td>REC/STOP, PLAY/STOP</td>
<td>REC/STOP, PLAY/STOP</td>
<td>REC/STOP, PLAY/STOP</td>
</tr>
<tr>
<td>Other ON/OFF switches</td>
<td>DEMO, ONE FINGER AD-LIB, TOP NOTE DUAL</td>
<td>DEMO, ONE FINGER AD-LIB, TOP NOTE DUAL</td>
<td>DEMO, ONE FINGER AD-LIB, TOP NOTE DUAL</td>
</tr>
<tr>
<td>Built-in speaker(s)</td>
<td>10 cm x 2</td>
<td>8 cm x 2</td>
<td>8 cm x 1</td>
</tr>
<tr>
<td>Connectors</td>
<td>PHONES (mini jack), DC IN (9-12V)</td>
<td>PHONES (mini jack), DC IN (9-12V)</td>
<td>PHONES (mini jack), DC IN (9-12V)</td>
</tr>
<tr>
<td>Dimensions (W x D x H mm)</td>
<td>853 x 232 x 77</td>
<td>642 x 211 x 70</td>
<td>556 x 199 x 52</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>2.4</td>
<td>2.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Batteries (included)</td>
<td>Six size &quot;C&quot;</td>
<td>Six size &quot;AA&quot;</td>
<td>Six size &quot;AA&quot;</td>
</tr>
</tbody>
</table>

---

1. NAMES OF PARTS AND BASIC OPERATION (All Models)

1. **POWER switch**

2. **MASTER VOLUME**
This controls the total output level.

3. **LOWER MODE SELECT**
This three-position (OFF/AUTO/DRUM) switch controls the lower section of the keyboard. (See overleaf.)

4. **TONE SELECT**
Pressing these switches lets you cycle through the available tones. Models MS510 and MS710 have LEDs that indicate the current selection.

5. **RHYTHM SELECT**
These switches select the different rhythms. Models MS510 and MS710 have LEDs that indicate the current rhythm selected.

**Rhythm & Automatic Accompaniment Section**

6. **START/STOP**
This switch starts and stops the rhythm or automatic accompaniment.

7. **SYNCHRO/FILL IN**
This switch synchronizes the start of the rhythm or automatic accompaniment with your first touch on the auto-accompaniment section of the keyboard. If the rhythm is playing, this switch becomes a "fill-in" switch which inserts a brief fill in to the rhythm pattern.

8. **INTRO/ENDING**
Pressing this switch adds an introduction or ending to the rhythm pattern. Pressing the SYNCHRO/FILL IN switch 7 for intros will synchronize the start of this bar with your first touch on the auto-accompaniment section of the keyboard.

9. **TEMPO**
These switches control the tempo of the rhythm pattern or automatic accompaniment. The left switch (-) decreases the tempo; the right one (+) increases it.

10. **RHYTHM pattern**. The indicator next to the tempo switches flashes on every beat. (MS710/510)

11. **SYNTHESIZER** (Model MS710 only)
See overleaf.

12. **RECORDER** (Model MS710 only)
See overleaf.

13. **ONE FINGER AD-LIB**
This switch activates the ONE FINGER AD-LIB function. ONE FINGER AD-LIB is on when the corresponding LED indicator is lit. (See overleaf.)

14. **EFFECTS Section (Models MS510 and MS710 only)**
- **VIBRATO**
This ON/OFF switch controls the vibrato effect for use with melody tones.
- **STEREO CHORUS**
This ON/OFF switch controls the stereo chorus effect for use with melody tones.
- **PITCH BEND**
Holding down one of these switches temporarily changes the pitch of any melody tone. The left switch lowers the pitch (BEND DOWN); the right one raises it (BEND UP).

15. **TOP NOTE DUAL** (Models MS510 and MS710 only)
This ON/OFF switch activates the TOP NOTE DUAL function. (See description and procedure below.)

16. **TOP NOTE DUAL**
This function allows you to add a second tone to the highest note played on the keyboard.

Example: Adding STRINGS to PIANO

1. Use the TONE SELECT switch.
2. Primary tone: PIANO
3. Secondary tone: STRINGS
2. Operation (All Models)

- LOWER MODE SELECT
  The LOWER MODE SELECT switch assigns a different function to the lower region of the keyboard for each of its three positions.

- AUTO
  The entire keyboard becomes a melody keyboard.

- DRUM
  The lower region of the keyboard functions as a percussion section, with a different percussion instrument assigned to each key. (See the MIDI key number chart for the assignments.)

- ONE FINGER AD-LIB KEYS
  Turning the ONE-FINGER AD-LIB switch \( \text{off} \) causes each key in this region of the keyboard to produce a different "set-up" phrase. Turning the switch \( \text{on} \) returns the keys to standard "melody only" operation.

- MELODY KEYS (Models MS510 and MS710 only)
  This part of the keyboard is used for playing the melody with the tone selected by TONE SELECT \( \text{switches} \). The user is free to alternate freely between normal melody operation and ONE FINGER AD-LIB operation.

- ONE FINGER AD-LIB
  The Kawai MS Series ONE FINGER AD-LIB function does not change what the auto-accompaniment does for chord accompaniment. Try the following:

  1. Set the LOWER MODE SELECT \( \text{switch} \) to its \( \text{OFF} \) position.
  2. Press the ONE FINGER AD-LIB \( \text{switch} \) to light the indicator.
  3. Press and hold down various keys on the ONE FINGER AD-LIB region of the keyboard to hear the variety of ad-lib phrases that they produce.
  4. Set the LOWER MODE SELECT \( \text{switch} \) to its AUTO position.
  5. Press the START/STOP \( \text{switch} \) to start the rhythm and automatic accompaniment. (See Note.)
  6. Press various keys in the ONE FINGER AD-LIB region to see how the ad-lib phrases automatically vary with the chords of the automatic accompaniment. Pressing different tone select switches will change the melody tones you hear in both the ad-lib and normal regions.
  7. Press a RHYTHM SELECT \( \text{switch} \) to change the rhythm pattern, the chords of the automatic accompaniment, and the ad-lib phrases produced by each of the keys in the ONE FINGER AD-LIB region of the keyboard.

Note:
When the ONE FINGER AD-LIB function is initially activated, the auto-accompaniment will play and repeat a preset chord progression. To override the preset progression and control the auto-accompaniment yourself, simply play any chord on the lower section of the keyboard. (It is not always necessary to play the complete chord. See sample chord chart.)

The ad-lib patterns will automatically change to match new chords that you select.
3. Additional Features (MS710 only)

- RECODER
The Model MS710 has a built-in recorder for recording and playing back performance.
- Recording & Playback
  1. Press the REC/STOP switch to start both the recorder and the instrument.
  2. Play. Everything you play will be recorded — the automatic accompaniment, one FINGER AD-LIB phrases normal melody, handplayed chords, and hand percussion.
  3. Press the REC/STOP switch again to stop recording.
  4. Prepare the PLAY/STOP switch to play back the recording.

  Note: This recording remains in memory even after the POWER switch turned off — as long as the instrument receives power from batteries or the AC adapter.

- Erasing
When you clear a new record, you have to erase contents which recorder contains.
  1. Simultaneously press the REC/STOP switch.

- SYNTHESIZER
The Model MS700 has a built-in synthesizer for creating 4 user-defined tones to complement the 20 preset tones programmed at the factory.
  1. Basic Procedures
    1. Press either the SYNTH 1 or SYNTH 2 switch to activate the synthesizer and de-activate the tempo indicator. These tempo switches are now used to select synthesizer waves or values.
    2. Use the SYNTH 1 and SYNTH 2 switches to shift the LED indicator to the row containing the parameter to be changed. (See the list of parameters below.)
    3. Use the TEMPO switch to change the value of the parameter you have selected. (See Note 1.) You will hear the character of the tone change as you change each time you change a parameter value.
    4. Press the STOP switch 7-3 3 and 3 on as desired.
  2. When you finish editing a tone that you would like to store for later use, select a memory location with the USER switch. Press the USER switch to shift the LED indicator and select one of the user memories (1-8).
  3. Press the STORE/RECALL switch to store the tone and return to regular keyboard operation.

- Synthesizer Parameters
  A user-defined tone is made up of two waveforms. Each waveform has four parameters which can be changed by the user. Each of these controllable parameter is described below. (See Chart 1.)

  1. WAVES

  2. Attack
  This parameter determines the overall shape of the waveform. There are 32 possible shapes for WAVE 1 (See chart below) and 3 for WAVE 2. Each shape has a different tonal character.
  3. Decay
  This parameter determines how long the waveform takes to die out after reaching its peak. The user can select from 16 different decay times — ranging from slow 1 to fast 16. An organ-like tone, for example, has a long decay time because an organ key continues to sound as long as it is pressed.
  4. Level
  This parameter determines the height of the peak or the maximum volume level of the wave. You have a choice of 16 levels — ranging from soft 1 to loud 16.

- Waveform

  1. Strings
  2. Pianos
  3. Electric piano/organ
  4. Electric guitar
  5. Bass
  6. Organ
  7. Strings
  8. Pianos
  9. Electric piano/organ
  10. Electric guitar
  11. Bass
  12. Organ
  13. Strings
  14. Pianos
  15. Electric piano/organ
  16. Electric guitar
  17. Bass
  18. Organ

- Notes:
  1. The release time, the time that the sound takes to die out after the key is released, is determined by the tempo in effect when the synthesizer function is activated. For example, if you were playing strings before activating the synthesizer function, the release time would be very long since strings die out slowly after the key is released. Be sure to adjust the instrument to a tone with the desired release time, before pressing the SYNTH 1 or SYNTH 2 switch.
  2. Prohibiting any switch other than the TEMPO 1, SYNTH 1, SYNTH 2, STORE/RECALL, or USER 1 switch switches returns the instruments to regular keyboard operation. If you leave the synthesizer function by accident, press the STORE/RECALL switch to undo such a mistake.
  3. Simultaneously pressing both SYNTH 1 and SYNTH 2 switches resets the current parameters to their default value. (See Chart 1.)

- Erasing User-Defined Tones
Holding down the first two keys on the keyboard while turning on or off the power both erase all stored recorder and synthesizer contents and resets the user-defined tones to their factory preset states.

These parameters settings remain in memory even after the POWER switch turned off — as long as the instrument receives power from batteries or the AC adapter.

- Chart 1

<table>
<thead>
<tr>
<th>WAVE 1</th>
<th>WAVE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attack</td>
<td>Default for WAVE 1</td>
</tr>
<tr>
<td>Decay</td>
<td>Default for WAVE 2</td>
</tr>
<tr>
<td>Level</td>
<td>Default for WAVE 3</td>
</tr>
</tbody>
</table>

  1. WAVES

  2. Pianos

  3. Electric piano/organ

  4. Electric guitar

  5. Bass

  6. Organ

  7. Strings

  8. Pianos

  9. Electric piano/organ

  10. Electric guitar

  11. Bass

  12. Organ

  13. Strings

  14. Pianos

  15. Electric piano/organ

  16. Electric guitar

  17. Bass

  18. Organ

- Chart 2
4. SYSTEM Function

The SYSTEM mode provides the capability for fine-tuning the instrument pitch in semitone steps, fine-tuning the pitch to match other instruments, and (MS710 only) changing the MIDI transmit channel.

- General Procedure
(1) Make sure that the rhythm, automatic accompaniment, ONE FINGER AD-LIB, and recorder are all off.
(2) Simultaneously press the first three RHYTHM SELECT switches on the left.
   Note: On models MS710 and MS716, the LEDS flash to these switches then light in turn.
(3) Select the desired system function.
   TRANPOSE: SYNCHRO/FILL IN ②
   TUNE: START/STOP ⑥
   MIDI TRANSMIT: TONE SELECT ⑧
(4) To return to regular keyboard operation, press any key except the ones used by the selected function.

(MS710)

RHYTHM

| 16 BEAT | POPS | NEW WAVE | REGGAE |
| FUNK | R&B OLDIES | SLOW ROCK | BOSSANOVA |
| DISCO | METAL | SAMBA | SALS |

Simultaneously pressing these switches makes this equipment enter the SYSTEM mode.

■ TRANPOSE
(1) Press the SYNCHRO/FILL IN ② switch.
(2) Use the TEMPO ⑧ switches to change the pitch; pressing the left switch (+) lowers the pitch a semitone; pressing the right one raises it a semitone.

■ TUNE
(1) Press the START/STOP ⑥ switch.
(2) Use the TEMPO ⑧ switches to change the pitch; pressing the left switch (+) lowers the pitch; pressing the right one raises it.

■ MIDI TRANSMIT (Model MS710 only)
(1) Press one of the four leftmost TONE SELECT ⑧ switches to set the MIDI transmit channel. (See illustration.)

MELODY

| 1ch | 5ch | 9ch | 13ch |
| 2ch | 6ch | 10ch | 14ch |
| 3ch | 7ch | 11ch | 15ch |
| 4ch | 8ch | 12ch | 16ch |

■ MIDI Implementation (Model MS710 only)

When connected to a sequencer, personal computer, or other MIDI equipped device, the MS710 supports the following MIDI features.

■ Transmitting
The MS710 transmits the following MIDI data on a single MIDI channel (which may be changed with a SYSTEM function):
- Program (tone) change
- Pitch bend
- Clock
- Vibrato ON/OFF
- Chorus ON/OFF

■ Receiving
The instrument responds to different types of MIDI data on the following fixed channels:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Port</th>
<th>MS710</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Melody</td>
<td>KEY ON/OFF, VELOCITY, PROGRAM CHANGE, PITCH BENDER, VIBRATO ON/OFF, SUSTAIN PEDAL</td>
</tr>
<tr>
<td>2</td>
<td>Melody</td>
<td>KEY ON/OFF, VELOCITY, PROGRAM CHANGE, PITCH BENDER, SUSTAIN PEDAL</td>
</tr>
<tr>
<td>3/4</td>
<td>Melody</td>
<td>KEY ON/OFF, VELOCITY, PROGRAM CHANGE, SUSTAIN PEDAL</td>
</tr>
<tr>
<td>16</td>
<td>Drum</td>
<td>KEY ON/OFF, VELOCITY</td>
</tr>
</tbody>
</table>

■ Program Number Assignments

<table>
<thead>
<tr>
<th>1</th>
<th>Strings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Flute</td>
</tr>
<tr>
<td>3</td>
<td>Harp</td>
</tr>
<tr>
<td>4</td>
<td>Clarinet</td>
</tr>
<tr>
<td>5</td>
<td>Piano</td>
</tr>
<tr>
<td>6</td>
<td>Electric piano</td>
</tr>
<tr>
<td>7</td>
<td>Clav</td>
</tr>
<tr>
<td>8</td>
<td>Vibes</td>
</tr>
<tr>
<td>9</td>
<td>Accordion</td>
</tr>
<tr>
<td>10</td>
<td>Organ</td>
</tr>
<tr>
<td>11</td>
<td>Synthorgan</td>
</tr>
<tr>
<td>12</td>
<td>Synthpiano</td>
</tr>
<tr>
<td>13</td>
<td>Synthesizer</td>
</tr>
<tr>
<td>14</td>
<td>Bass</td>
</tr>
<tr>
<td>15</td>
<td>Trumpet</td>
</tr>
<tr>
<td>16</td>
<td>Cornet</td>
</tr>
<tr>
<td>17</td>
<td>French horn</td>
</tr>
<tr>
<td>18</td>
<td>Trombone</td>
</tr>
<tr>
<td>19</td>
<td>Baritone horn</td>
</tr>
<tr>
<td>20</td>
<td>Euphonium</td>
</tr>
<tr>
<td>21</td>
<td>Horn</td>
</tr>
<tr>
<td>22</td>
<td>Tenor horn</td>
</tr>
<tr>
<td>23</td>
<td>Bass horn</td>
</tr>
<tr>
<td>24</td>
<td>Low clarinet</td>
</tr>
<tr>
<td>25</td>
<td>Alto clarinet</td>
</tr>
<tr>
<td>26</td>
<td>Bari sax</td>
</tr>
<tr>
<td>27</td>
<td>Baritone sax</td>
</tr>
<tr>
<td>28</td>
<td>Bass clarinet</td>
</tr>
<tr>
<td>29</td>
<td>Bassoon</td>
</tr>
<tr>
<td>30</td>
<td>Contrabass clarinet</td>
</tr>
<tr>
<td>31</td>
<td>Alto saxophone</td>
</tr>
<tr>
<td>32</td>
<td>Bass clarinet</td>
</tr>
<tr>
<td>33</td>
<td>Bari tenor</td>
</tr>
</tbody>
</table>
## PERSONAL KEYBOARD MODEL MS710 MIDI IMPLEMENTATION

<table>
<thead>
<tr>
<th>Function ...</th>
<th>Transmitted</th>
<th>Recognized</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Channel</td>
<td>Default Changed</td>
<td>1</td>
<td>1—4, 16</td>
</tr>
<tr>
<td>Mode</td>
<td>Default Messages Altered</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Note Number</td>
<td>True voice</td>
<td>36 — 84</td>
<td>30 — 102</td>
</tr>
<tr>
<td>Velocity</td>
<td>Note ON Note OFF</td>
<td>x 9n V = 127</td>
<td>x 9n V = 0</td>
</tr>
<tr>
<td>After Touch</td>
<td>Key's CH's</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Pitch Bender</td>
<td>1, 64, 93</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Control Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prog Change</td>
<td>True #</td>
<td>o 1 — 24</td>
<td>o CH1 — 4, 1 — 24</td>
</tr>
<tr>
<td>System Exclusive</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>System Common</td>
<td>: Song Pos : Song Sel : Tune</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>System Real Time</td>
<td>: Clock : Commands</td>
<td>o</td>
<td>x</td>
</tr>
<tr>
<td>Aux Messages</td>
<td>: Local ON/OFF : All Notes OFF : Active Sense : Reset</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Mode 1: OMNI ON, POLY  
Mode 2: OMNI ON, MONO  
Mode 3: OMNI OFF, POLY  
Mode 4: OMNI OFF, MONO  

* recognized only on channel 1  
** recognized on channel 1-4  
*** ignored on channel 16