General Description and Features

The *Music In Education Keyboard* (MIE-3XG) is designed specifically for use in music education classrooms. The unique design and functionality of this keyboard is the result of extensive input from classroom music teachers throughout the United States. Its sophisticated functions and convenient features give both teachers and students a wide variety of options for classroom participation and musical achievement. The MIE-3XG is the centerpiece for classroom learning in the *Music In Education* program.

The MIE-3XG Keyboard is exclusive to the *Music In Education* program. Only *Music In Education* software is designed to work with the MIE-3XG Keyboard. However, the MIE-3XG is compatible with the MIDI (Musical Instrument Digital Interface) standard and can be used in any MIDI system, including computer-based music software.

The MIE-3XG features a full five-octave MIDI keyboard with touch response, that functions in four separate modes — Normal, Split, Ensemble, and Accompaniment (Accompaniment mode includes Single and Fingered operation). The MIE-3XG also features 695 dynamic XG-compatible voices, plus 15 panel voices and 15 styles. These voices are specially programmed synthesized sounds and cannot be modified by the user.

As you unpack the MIE-3XG Keyboard you will find additional materials that go with each keyboard.

- A music rack fits into slot located on the top edge of the keyboard behind the control panel.
- A keyboard split divider fits over the center octave and should be used when you use the split or ensemble function of the MIE-3XG Keyboard.
- A dust cover should always be used to protect the keyboards when they are not in use, either overnight, for the weekend or for longer periods of time. Note that the cover can be used without unplugging the headphones.
- A power adapter provides (packaged separately) power to the MIE-3XG; the plug is on the back of the keyboard. The power adapter should be used at all times with the MIE-3XG, except as noted in the next topic "Electrical Power." Do not substitute any other brand or model!

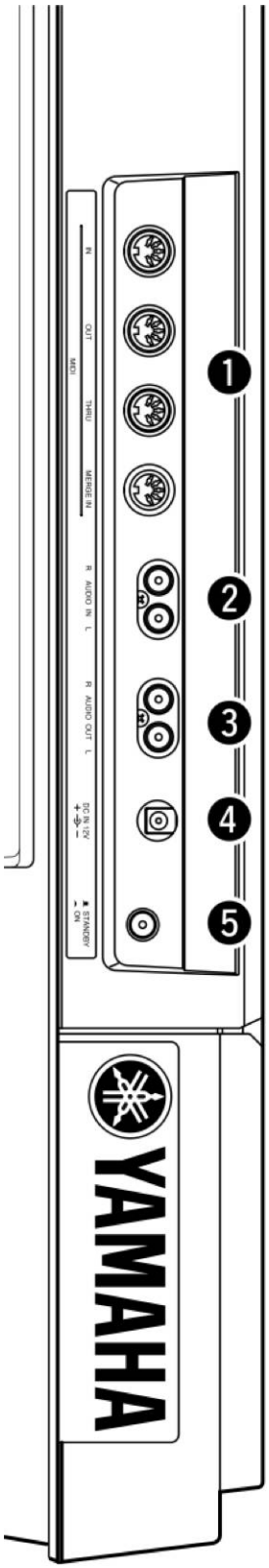
GM System Level 1
"GM System Level 1" is an addition to the MIDI standard which guarantees that any data conforming to the standard will play accurately on any GM-compatible tone generator or synthesizer from any manufacturer.

XG
XG is a Yamaha MIDI specification which significantly expands and improves on the GM System Level 1 standard with greater voice handling capacity, expressive control and effect capability while retaining full compatibility with GM. By using the MIE-3XG's XG voices, it is possible to record XG-compatible song files.

Electrical Power

Power is supplied to the MIE-3XG Keyboard through a power adapter (PA- 5D). This power adapter is the only one that should be used during regular classroom use.

Back of MIE-3XG Keyboard



Located on the back of the MIE-3XG Keyboard are a variety of jacks (as well as a STANDBY/ON switch) that are essential to the accurate functioning of the keyboard in the Music In Education System. Once set and connected, this part of the keyboard will rarely be touched. To insure correct operation of the system, no student should be allowed to touch this section of the keyboard.

Connect the MIE-3XG to external equipment only after turning off power for all devices. To prevent damage to the speakers, set the volume of the external devices at the minimum setting before connecting them. Failure to observe these cautions may result in electric shock or equipment damage.

1: MIDI JACKS
The MIE-3XG Keyboard contains the standard MIDI IN, OUT and THRU jacks and can run any standard MIDI application. In addition, the keyboard has a special MERGE IN jack used only in the Music In Education System. See the "1. Quick Start Guide" section for details on how to connect the MIDI cables to the jacks.

2: AUDIO IN JACKS
In the Music In Education system the AUDIO IN jacks bring sound from the teacher's keyboard and the computer to the student keyboard speakers and headphones.

3: AUDIO OUT JACKS
These jacks contain only the audio signal coming from the AUDIO IN jacks and thus cannot be used to record the keyboard. (Use the headphone jack to record performances onto a tape or digital recorder.)

4: DC IN JACK
The external AC power adapter is connected here. This adapter should be used at all times during normal classroom operation. You should never substitute any other kind of adapter.

Never interrupt the power supply (e.g., unplugging the AC adapter) during any MIE-3XG record operation! Doing so can result in a loss of data.

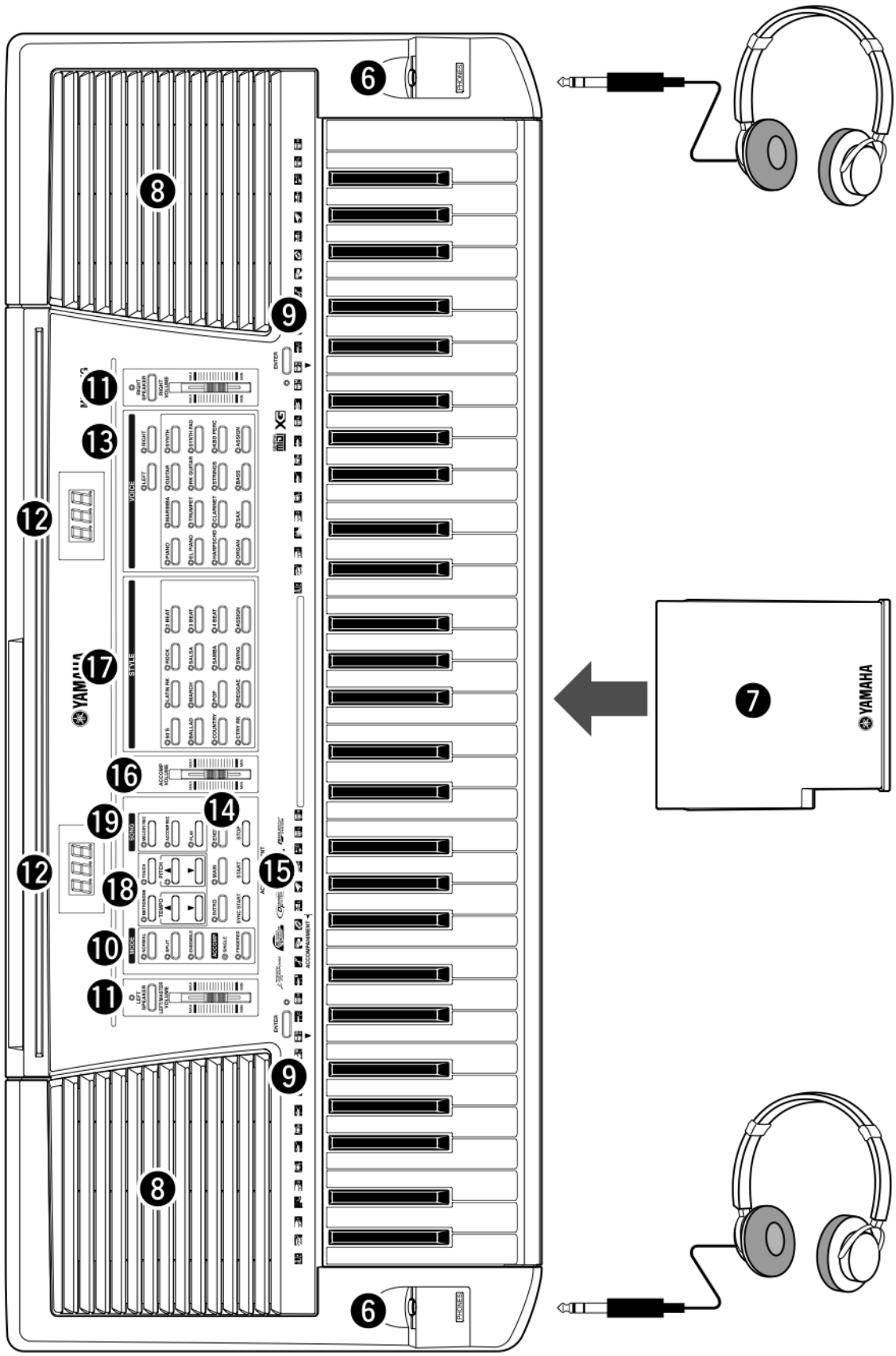
Use ONLY a Yamaha PA-5D AC Power Adapter (or other adapter specifically recommended by Yamaha) to power your instrument from the AC mains. The use of other adapters may result in irreparable damage to both the adapter and the MIE-3XG.

Unplug the AC Power Adapter when not using the MIE-3XG, or during electrical storms. You should disconnect the power strip from the wall to accomplish this for an entire MIE classroom.

5: STANDBY/ON SWITCH
The power switch should always be left turned on. While the system is in use, turning this switch off will cause the software to stop functioning until the keyboards are reinitialized. In normal operation, the power to the keyboards (and the entire MIE system) should be controlled from the wall outlet or main power strip.

Even when the switch is in the "STANDBY" position, electricity is still flowing to the instrument at the minimum level. When you are not using the MIE-3XG for a long time, make sure you unplug the AC power adapter from the wall AC outlet.

Top & Front of MIE-3XG Keyboard

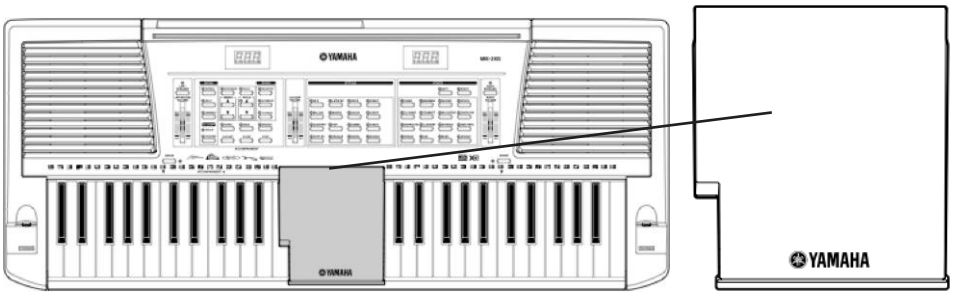


6: HEADPHONES AND HEADPHONE JACKS

Stereo headphone jacks are located on the front left and right corners of the keyboard. Headphones should always be left plugged in to avoid wear on the headphone jacks. MIE-3XG headphones will always output sound when connected, and do not need to be unplugged for the speakers to work. See the "Modes Chart" for a complete description of headphone operation in the four different modes.

7: KEYBOARD SPLIT DIVIDER

A Keyboard Split Divider fits over the center octave and should be used in Split and Ensemble modes to provide each student with an identical two-octave keyboard.



8: SPEAKERS

Speakers are located at the upper left and right corners of the keyboard. Sound coming from the speaker can be turned on or off by pressing the speaker button adjacent to the speaker. Speaker sound can also be controlled by the MIE software. The teacher can monitor an individual student using headphones by turning on his/her respective speaker button. See the "Modes Chart" for a complete description of speaker operation in the four different modes

9: ENTER BUTTON

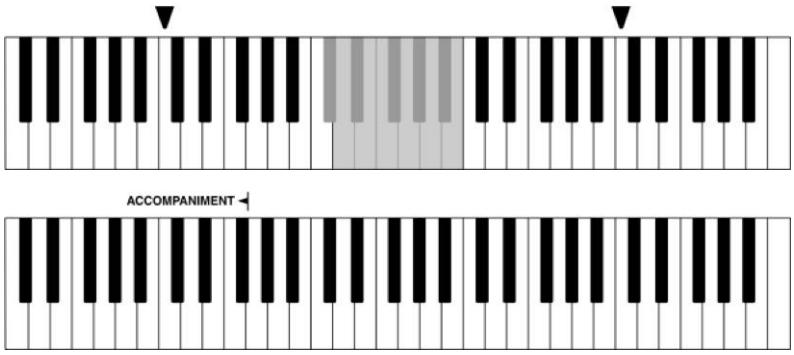
This button is located above the keys on both sides of the keyboard. It allows the students to respond during quiz and review activities.

Top & Front of MIE-3XG Keyboard (Continued)

The Mode buttons are located to the right of the LEFT/MASTER VOLUME Control slider. These buttons select the method of operation that allows the keyboard to play in four different modes: Normal, Split, Ensemble, and Accompaniment (ACCOMP).

NORMAL
The keyboard is a five-octave keyboard (C1 to C6) playing the same voice in all five octaves.

SPLIT/ENSEMBLE
The keyboard is split into two separate two-octave keyboards. The divider should be in place. Middle C moves to the solid triangles t above and below the Middle C point found in the Normal mode (C2 for the left side and C5 for the right).



ACCOMPANIMENT (ACCOMP)
When the Accompaniment mode is selected, the keyboard is split at the ACCOMPANIMENT vertical mark, which can be found above G2. The keys to the right of the vertical line remain in Normal mode with Middle C at C3. Each key to the left of the vertical line mark plays chords and bass notes in an arrangement preset by the selected rhythm.
The way in which chords are played or indicated with your left hand (in the accompaniment section of the keyboard) is referred to as “fingering”. There are 2 types of fingerings as described below.

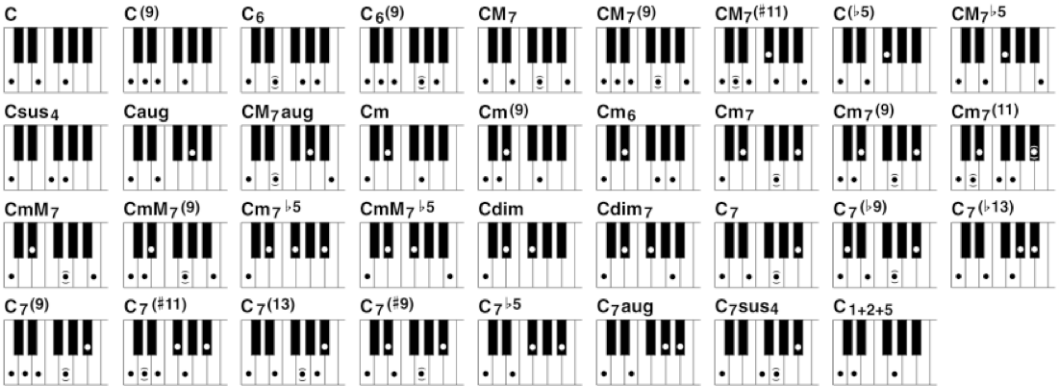
SINGLE (Single Finger mode)

MAJOR CHORDS	are produced by the key corresponding to the root of the desired chord.
MINOR CHORDS	are produced by pressing the root note and any black key to the left of the root.
DOMINANT 7TH CHORDS	are produced by pressing the root note and any white key to the left of the root.
MINOR 7TH CHORDS	are produced by pressing the root note and a white and black key to the left of the root.

FINGERED (Fingered mode)

The Fingered mode lets you play full chords for the accompaniment section of the keyboard (i.e., all keys to the left of and including the split-point key –F#2), while the MIE-3XG supplies appropriately orchestrated rhythm, bass and chord accompaniment in the selected style. This mode recognizes the following chords:

● **Example for "C" chords**



Chord Name/[Abbreviation]	Normal Voicing	Chord (C)
Major [M]	1 - 3 - 5	C
Add ninth [(9)]	1 - 2 - 3 - 5	C(9)
Sixth [6]	1 - (3) - 5 - 6	C6
Sixth ninth [6(9)]	1 - 2 - 3 - (5) - 6	C6(9)
Major seventh [M7]	1 - 3 - (5) - 7 or 1 - (3) - 5 - 7	CM7
Major seventh ninth [M7(9)]	1 - 2 - 3 - (5) - 7	CM7(9)
Major seventh add sharp eleventh [M7(♯11)]	1 - (2) - 3 - ♯4 - 5 - 7 or 1 - 2 - 3 - ♯4 - (5) - 7	CM7(♯11)
Flatted fifth [(♭5)]	1 - 3 - ♭5	C(♭5)
Major seventh flatted fifth [M7♭5]	1 - 3 - ♭5 - 7	CM7♭5
Suspended fourth [sus4]	1 - 4 - 5	Csus4
Augmented [aug]	1 - 3 - ♯5	Caug
Major seventh augmented [M7aug]	1 - (3) - ♯5 - 7	CM7aug
Minor [m]	1 - ♭3 - 5	Cm
Minor add ninth [m(9)]	1 - 2 - ♭3 - 5	Cm(9)
Minor sixth [m6]	1 - ♭3 - 5 - 6	Cm6
Minor seventh [m7]	1 - ♭3 - (5) - ♭7	Cm7
Minor seventh ninth [m7(9)]	1 - 2 - ♭3 - (5) - ♭7	Cm7(9)
Minor seventh add eleventh [m7(11)]	1 - (2) - ♭3 - 4 - 5 - (♭7)	Cm7(11)
Minor major seventh [mM7]	1 - ♭3 - (5) - 7	CmM7
Minor major seventh ninth [mM7(9)]	1 - 2 - ♭3 - (5) - 7	CmM7(9)
Minor seventh flatted fifth [m7♭5]	1 - ♭3 - ♭5 - ♭7	Cm7♭5
Minor major seventh flatted fifth [mM7♭5]	1 - ♭3 - ♭5 - 7	CmM7♭5
Diminished [dim]	1 - ♭3 - ♭5	Cdim
Diminished seventh [dim7]	1 - ♭3 - ♭5 - 6	Cdim7
Seventh [7]	1 - 3 - (5) - ♭7 or 1 - (3) - 5 - ♭7	C7
Seventh flatted ninth [7(♭9)]	1 - ♭2 - 3 - (5) - ♭7	C7(♭9)
Seventh add flatted thirteenth [7(♭13)]	1 - 3 - 5 - ♭6 - ♭7	C7(♭13)
Seventh ninth [7(9)]	1 - 2 - 3 - (5) - ♭7	C7(9)
Seventh add sharp eleventh [7(♯11)]	1 - (2) - 3 - ♯4 - 5 - ♭7 or 1 - 2 - 3 - ♯4 - (5) - ♭7	C7(♯11)
Seventh add thirteenth [7(13)]	1 - 3 - (5) - 6 - ♭7	C7(13)
Seventh sharp ninth [7(♯9)]	1 - ♯2 - 3 - (5) - ♭7	C7(♯9)
Seventh flatted fifth [7♭5]	1 - 3 - ♭5 - ♭7	C7♭5
Seventh augmented [7aug]	1 - 3 - ♯5 - ♭7	C7aug
Seventh suspended fourth [7sus4]	1 - 4 - (5) - ♭7	C7sus4
One plus two plus five [1+2+5]	1 - 2 - 5	C1+2+5

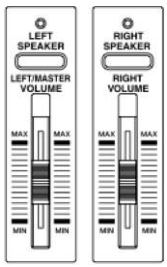
- Notes in parentheses can be omitted.
- If you play any three adjacent keys (including black keys), the chord sound will be cancelled and only the rhythm instruments will continue playing (CHORD CANCEL function).
- Playing a single key or two same root keys in the adjacent octaves produces accompaniment based only on the root.
- A perfect fifth (1 + 5) produces accompaniment based only on the root and fifth which can be used with both major and minor chords.
- The chord fingerings listed are all in "root" position, but other inversions can be used with the following exceptions:

  m7, m7b5, 6, m6, sus4, aug, dim7, 7b5, 6(9), m7(11), 1+2+5.
- Inversion of the 7sus4 chord are not recognized if the 5th is omitted.
- The AUTO ACCOMPANIMENT will sometimes not change when related chords are played in sequence (e.g. some minor chords followed by the minor seventh).
- Two-note fingerings will produce a chord based on the previously played chord.

If you activate the right keyboard percussion in the Accompaniment Mode, the accompaniment rhythm function will stop

Modes Chart

		NORMAL	*SPLIT*	*ENSEMBLE*	*ACCOMPANIMENT*
FEATURES	*Split Point*	*none*	*c#3*	*c#3*	*g2*
	Polyphony	*total = 32 notes*	*total = 32 notes*	*total = 32 notes*	*total = 32 notes*
	Keyboard Percussion	*right side only*	*both sides*	*both sides*	*right side only*
	Sync Start Rhythm	*activated by any key*	*not available*	*not available*	*Activated by any key below G2*
	Volume Controls	*left controller is master volume*	*Left volume = L side Right volume = R side*	*Left volume = L side Right volume = R side*	*left controller is master volume*
	Headphones	*all keyboard sound on both headphones*	*L HP = L side + rhythm R HP = R side + rhythm*	*all sound on both headphones*	*all keyboard sound on both headphones*
	Speakers	*all sound on both speakers*	*L speaker = L side R speaker = R side*	*all sound on both speakers*	*all sound on both speakers*



11: VOLUME CONTROLS

There are three volume controls on the MIE-3XG control panel. The LEFT/MASTER VOLUME is the master volume for the keyboard (controlling the volume for both the left and right speakers) when it is in full, five octave Normal or the Accompaniment mode. When the keyboard is in Split mode, the LEFT/MASTER VOLUME controls the volume of the left speaker and headphones. The RIGHT VOLUME controls the volume of the right speaker and headphones. The center slider controls the volume of accompaniment.

In the Ensemble mode, the LEFT/MASTER VOLUME and RIGHT VOLUME sliders control the volume of the respective left and right parts, not the speakers. For example, by setting RIGHT VOLUME to the minimum, only the left part sounds — from both speakers.

NOTE: Audio for listening, testing, and song accompaniment (from a computer or CD player) is input to the MIE-3XG Keyboard via the AUDIO IN jacks on the back of the keyboard. Volume controls located on the student keyboard cannot change the volume of this sound source.

12: SETTINGS AND INDICATORS

TEMPO CONTROL

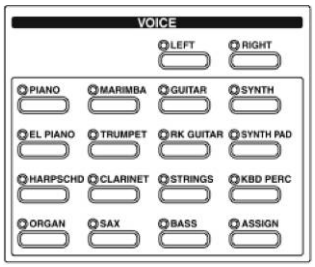
The tempo of the accompaniment can be increased by pressing the upper button and decreased by pressing the lower button. The current tempo setting, reported in beats per minute, is displayed in the LED window. To change the tempo quickly, keep the button depressed until the desired setting is reached. To return to the default tempo, push both buttons simultaneously.

PITCH CHANGE

The normal pitch setting is A-440. Pitch can be adjusted up or down in 10 cent increments to a maximum of a half step. The change from A-440 is displayed in the LED window only while the pitch buttons are being pressed. After releasing the pitch buttons, the LED will revert back to the tempo marking after about three seconds. When the pitch is changed from A-440, the pitch indicator light will stay lit. To return to A-440, push both buttons simultaneously.

VISUAL METRONOME (BEAT/BAR INDICATOR)

During recording and playback, or during use of rhythm accompaniment, the LED indicates the beat per minute value of the metronome. The dots in the LED flash to indicate the particular beats in the measure.



13: VOICE SELECTION

The MIE-3XG Keyboard has 15 voices plus an ASSIGN button on the front panel. These voices are arranged in columns that correspond to instrumental groupings. In the Normal and Accompaniment modes only one voice can be selected. The light next to the selected voice turns on when activated.
In Split and Ensemble modes, each side of the keyboard can select an individual voice.

Additional voices can be sent to the ASSIGN button via the software.

- To select the voice for the left side:
  Press the LEFT button (located above the voice section) and then select the desired voice.
  The lights above the selected voice and the Left button turn on.
- To select the voice for the right side:
  Press the RIGHT button and then select the desired voice.
  The lights above the selected voice and the Right button turn on.

A student must always push the LEFT or RIGHT button before selecting a new voice for their side of the keyboard. Returning to Normal mode causes the timbre selection to automatically revert to the last voice selected as the LEFT voice.

14: INTRO, MAIN and ENDING BUTTONS

There are various types of Accompaniment sections that allow you to vary the arrangement of the accompaniment to match the song you are playing. They are: Intro, Main and Ending. By switching among them as you play, you can easily produce the dynamic elements of a professional-sounding arrangement in your performance.

INTRO
This is used for the beginning of the song. When the intro finishes playing, accompaniment shifts to the main section. The length of the intro (in measures) differs depending on the selected style.

MAIN
This is used for playing the main part of the song. It plays an accompaniment pattern of several measures (2 - 4 measures), and repeats indefinitely until another section button is pressed. The accompaniment changes harmonically based on the chords you play with your left hand.

AUTO FILL
The Auto Fill function lets you add dynamic variations and breaks in the rhythm of the accompaniment, to make your performance sound even more professional. While the accompaniment is playing, simply press the MAIN button and an appropriate fill-in pattern will play automatically. When the fill-in is finished, it leads smoothly into the selected main section.

ENDING
This is used for the ending of the song. When the ending is finished, the auto accompaniment stops automatically. The length of the ending (in measures) differs depending on the selected style.

15: SYNC START, START, AND STOP BUTTONS

These buttons control the playing of the accompaniment.

SYNC START
In Normal mode, press SYNC START, select a style, and the rhythmic accompaniment will start as soon as any key is played. In Accompaniment mode press SYNC START, select a rhythm, and a harmonic accompaniment will start as soon as any key below G2 is played.

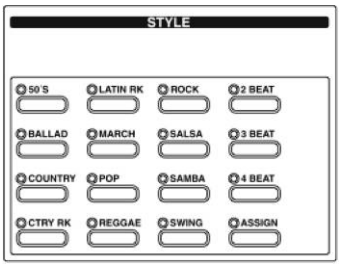
START
The START button works in any mode and allows the user to provide an introductory rhythmic accompaniment The START button can also be used when recording (see 19: RECORDING AND PLAYBACK).

STOP
The STOP button stops any rhythmic and harmonic accompaniment, and can also be used to stop recording and playback. (see 19: RECORDING AND PLAYBACK).

Top & Front of MIE-3XG Keyboard (Continued)

16: ACCOMPANIMENT VOLUME CONTROL

This volume control adjusts the volume of the accompaniment. The slider allows the user to control the balance of the voices and the accompaniment. The combined "mixed" volume is then adjusted by either the left or right volume controls, depending on the mode in use, to achieve the desired overall volume.



17: STYLE SELECTION

There are 15 styles and an ASSIGN button on the front panel. Style choices are available in all modes. Note that in Split or Ensemble mode it is not possible for two students to each select a different style.
Additional styles can be sent to the ASSIGN button via the software.

18: METRONOME

The METRONOME button provides a steady beat with tempo depending on selected style. To activate the metronome, push the METRONOME button, and then adjust the TEMPO buttons to select the desired tempo. Press the METRONOME or STOP button to stop the metronome.

19: RECORDING AND PLAYBACK

A short performance can be recorded into the keyboard memory, stored, and played back. It is not possible to overdub or edit a recording, nor will a recording be retained if the keyboard is turned off. Each time the record function is used, the previous recording will be erased. A recording can be saved and stored in the computer by using the Music In Education software (see "Software Guide" for more details).

TO RECORD MELODY/ACCOMPANIMENT

- *Press MELODY REC/ ACCOMP REC. The Beat light will flash in time with the tempo and you will hear a steady beat. The keyboard does not begin recording until you begin to play.*
- *Select the desired accompaniment. The preselected tempo of this rhythm will appear in the LED window. Adjust the tempo.*
- *To start the rhythm, either begin playing, or press the START button if you wish an introductory accompaniment to precede your playing. Begin playing. After you begin playing, the BAR light will indicate measures.*
- *To stop recording, press the STOP or the MELODY REC/ ACCOMP REC button.*
- *To loop the recording, press PLAY at the end of the pattern in tempo before pressing STOP.*
- *To playback your recording press the PLAY button. To stop your playback, press the STOP button.*
- *To clear your recording, press the MELODY REC and the ACCOMP REC buttons* ***at the same time*** *and hold them both down for approximately six seconds. (The metronome will click ONCE, the letters 'Clr' will flash in the LED and finally, the tempo will reappear – at this point, release the two buttons.)*

Hidden Voices

In addition to the 15 voices and 15 styles available on the front panel of the MIE-3XG, the keyboard contains an additional “hidden” 695 (thus a total of 710) XG voices. These have been included in the MIE-3XG so that students and teachers can access the many unique sounds available on professional model keyboards. In normal classroom use, you can easily select these through the “Keyboard Presets” section of the software.

Important Information

This product utilizes an external power supply (adapter). DO NOT connect this product to any power supply or adapter other than one described in this manual, or specifically recommended by Yamaha.

This product should be used only with the components supplied or a table that is recommended by Yamaha.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

IMPORTANT: The louder the sound, the shorter the time period before damage occurs.

NOTICE: Service charges incurred due to a lack of knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting service.

FCC Information (U.S.A.) – MIE-3XG

1. *IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT! This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.*
2. *IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cables supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.*
3. *NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:*
    - Relocate either this product or the device that is being affected by the interference.
    - Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filters.
    - In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300-ohm ribbon lead, change the lead-in to co-axial type cable.
    - If these corrective measures do not produce satisfactory results, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

FCC Information (U.S.A.) – RMB-06

INSTRUCTION TO THE USER

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.