

# MD-982 MIDI Keyboard

42-4056

OWNER'S MANUAL — Please read before using this equipment.

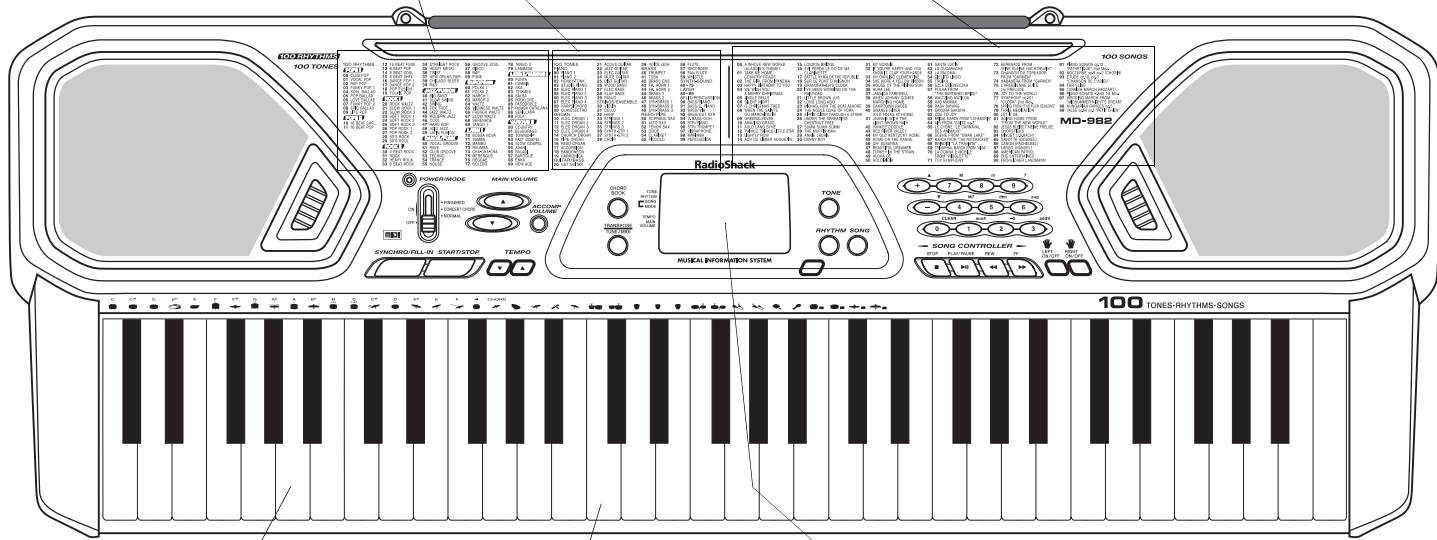
**Two Power Options** — let you power the keyboard from internal batteries (not supplied) or standard AC power (with an optional adapter), so you can make music almost anywhere (see “Connecting Power” on Page 2).

**12-Note Polyphonic Sound** — lets you play and hear up to 12 notes at the same time, so you can play or create almost any type of music.

**100 Auto-Rhythms** — provide a steady beat for many styles of music, from rumba to rock (see “Using the Preset Auto-Rhythms” on Page 7).

**100 Tones** — let you set your keyboard to sound like anything from a harpsichord to a honky-tonk piano (see “Using the Preset Tones” on Page 6).

**100 Prerecorded Tunes** — let you hear a sample of what you and your keyboard can do. You can play the tunes either one at a time or consecutively, and you can turn off the melody or accompaniment portion so you can play along with the tunes (see “Playing the Prerecorded Tunes” on Page 5).



**61 Full-Sized Keys** — provide the feel of a fine musical instrument.

**Middle “C”**

**Large Music Information Display** — shows you a staff with the notes and chords as you play them, along with the fingering, current tone, rhythm, volume, melody, and tempo. The display also shows a metronome icon to indicate the beat.

This Owner’s Manual explains how to use this electronic keyboard. It does not teach music.

Your keyboard includes a MIDI (Musical Instrument Digital Interface) feature, which lets you connect it to other MIDI-equipped musical instruments or devices — even your personal computer. The keyboard conforms to most, but not all, General MIDI specifications. Because of this, you might experience some incompatibility when using the keyboard with another General MIDI device. See “Using MIDI” on Page 10.

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**! IMPORTANT !**

If an icon appears at the end of a paragraph, go to the box on that page with the corresponding icon for pertinent information.

- |   |   |
|---|---|
|  — Warning |  — Important |
|  — Caution |  — Hint      |
|  — Note    |   |

**THE FCC WANTS YOU TO KNOW**

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 your local RadioShack store or an experienced radio/TV technician for help.

If you cannot eliminate the interference, the FCC requires that you stop using your keyboard.

You must use shielded interface cables with this equipment.

**CONNECTING POWER**

You can power your keyboard using internal batteries or standard AC power with an optional AC adapter.

**INSTALLING BATTERIES**

Your keyboard can use 6 AA batteries (not supplied) for power. For the best performance and longest life, we recommend RadioShack alkaline batteries.

1. Make sure **POWER/MODE** is set to **OFF**.
2. While pressing the tab on the battery compartment cover on the bottom of the keyboard, pull up the cover to remove it.
3. Place the batteries in the compartment as indicated by the polarity symbols (+ and -) marked inside.
4. Replace the cover.

When the keyboard stops operating properly, replace the batteries.

**USING AC POWER**

You can power the keyboard using a 9V, 800 mA AC adapter and a size M Adaptaplug™ adapter (neither supplied). Both are available at your local RadioShack store or online at [www.radioshack.com](http://www.radioshack.com). Connecting an AC adapter automatically disconnects any internal batteries.

1. Make sure **POWER/MODE** is set to **OFF**.
2. Set the AC adapter's voltage switch to **9V**.
3. Insert the Adaptaplug adapter into the adapter's cord so it reads - TIP.
4. Connect the AC adapter's barrel plug to **DC 9V** on the back of the keyboard.
5. Plug the AC adapter's other end into a standard AC outlet.

Always disconnect the AC adapter when you finish using the keyboard.

**CONNECTING HEADPHONES**

To listen to your keyboard without disturbing others, you can connect an optional pair of stereo headphones with a 1/4-inch (6.35 mm) plug. RadioShack sells a wide selection of headphones. Insert the headphones' plug into **PHONES/OUTPUT** on the back of the keyboard. Connecting headphones disconnects the keyboard's built-in speakers.

- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Once you set the volume, do not increase it. Over time, your ears adapt to the volume level, so a volume level that does not cause discomfort might still damage your hearing.

**LISTENING SAFELY**

To protect your hearing, follow these guidelines when you use headphones.

- Set the volume to the lowest setting before you begin listening. After you begin listening, adjust the volume to a comfortable level.

**WARNING**  
Dispose of old batteries promptly and properly. Do not burn or bury them.

**CAUTION****Installing Batteries**

- Use only fresh batteries of the required size and recommended type.
- Do not mix old and new batteries, different types of batteries (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities.
- If you do not plan to use the keyboard with batteries for a week or more, remove the batteries. Batteries can leak chemicals that can destroy electronic parts.

**Using AC Power**

You must use a Class 2 power source that supplies 9V DC and delivers at least 800 mA. Its center tip must be set to negative and its plug must fit the keyboard's **DC 9V** jack. Using an adapter that does not meet these specifications could damage the keyboard or the adapter.

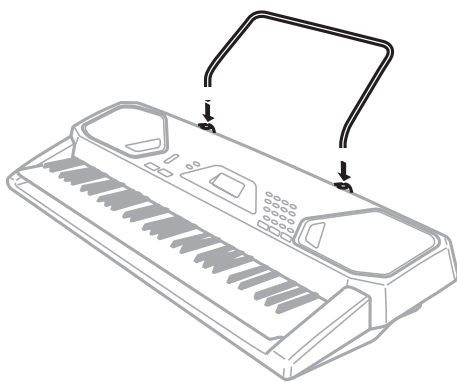
- Always connect the AC adapter to the keyboard before you connect it to AC power. When you finish, disconnect the adapter from AC power before you disconnect it from the keyboard.

## CONNECTING AN EXTERNAL AMPLIFIER

To amplify your keyboard's sound, you can connect it to an optional external amplifier using an audio cable with a 1/4-inch (6.35 mm) plug (not supplied). To connect an external amplifier to your keyboard, insert the cable's plug into **PHONES/OUTPUT** on

the back of the keyboard, then connect the other end of the cable to the amplifier's input jack(s) (such as AUX IN or TAPE IN). RadioShack sells a full line of amplifiers, speakers, and cables.

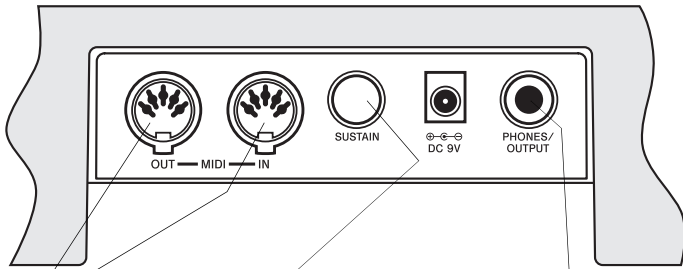
## USING THE SHEET MUSIC STAND



To easily view sheet music while playing your keyboard, insert the supplied sheet music stand into the holes on the top back panel.

## A QUICK LOOK AT YOUR KEYBOARD

(Back of Keyboard)



**MIDI In/Out Jacks** — let you connect the keyboard to another MIDI-equipped device. To connect a MIDI device to your keyboard, see “Making the MIDI Connections” on Page 10.

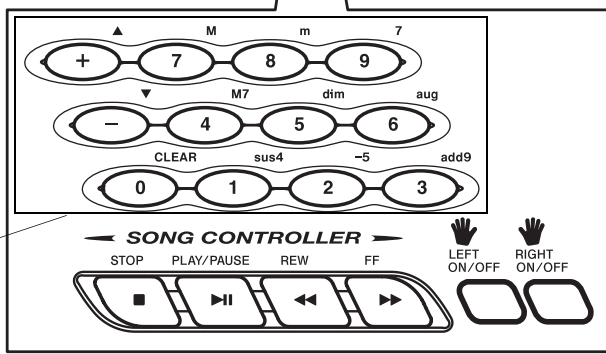
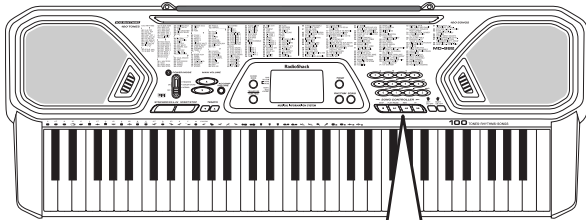
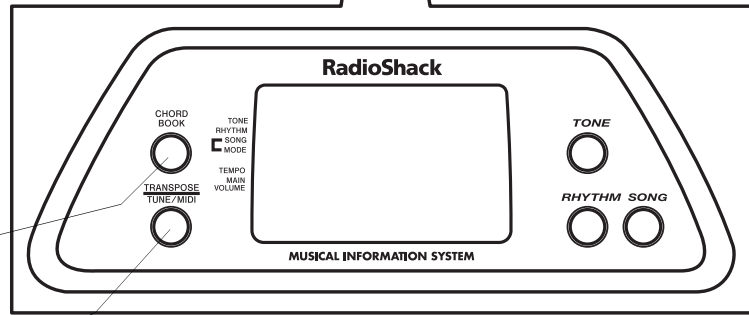
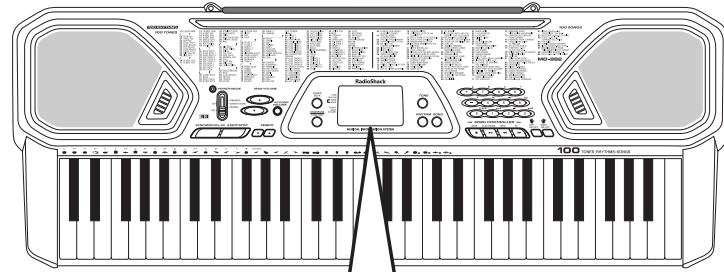
**Sustain Jack** — lets you connect a sustain pedal (not supplied) to the keyboard so you can sustain your keyboard’s sound (see “Using a Sustain Pedal” on Page 10).

**Headphones/Output Jack** — lets you connect headphones so you can play without disturbing others, or an external amplifier so you can play for a crowd (neither supplied).

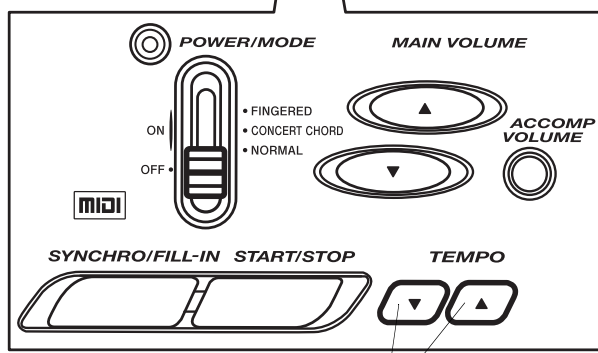
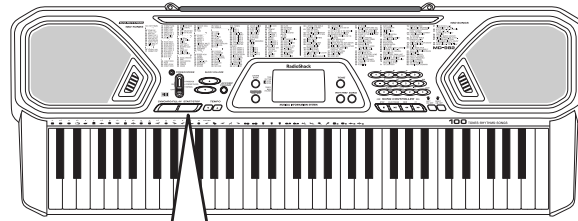
**Chord Book** — lets you easily see which keys to press and which fingers to use to form a chord, as well as a chord’s name (see “Using the Chord Book” on Page 9).

**Transpose Function** — lets you instantly change the key of the music, even while you are playing (see “Changing Keys” on Page 10).

**Tune Control** — lets you adjust the pitch of your keyboard so you can play in tune with other instruments (see “Tuning the Keyboard” on Page 10).



**Numeric Keypad** — makes it easy to enter the name of a chord, song, tone, and rhythm, to adjust the accompaniment volume, and to change the key and pitch.



**Tempo Control** — lets you speed up or slow down the tempo of any selected music pattern.

A Quick Look at Your Keyboard

## BASIC OPERATION

1. To turn on the keyboard, set **POWER/MODE** to **NORMAL**. The POWER/MODE indicator lights. ✓
2. To hear a sample of the keyboard's many sounds, play a prerecorded tune (see "Playing the Prerecorded Tunes"). To make your own music, simply begin playing the keyboard.
3. Repeatedly press **MAIN VOLUME ▲** or **▼** to increase or decrease the volume. The current setting appears.

4. To turn off the keyboard, set **POWER/MODE** to **OFF**. The POWER/MODE indicator turns off.

If you use batteries to power the keyboard, it automatically turns itself off after about 6 minutes if you do not press a key. To turn on the keyboard again, set **POWER/MODE** to **NORMAL**. To cancel auto power off, turn on the keyboard while holding down **TONE**. The next time you turn the keyboard off, then back on again, it automatically turns off after about 6 minutes.

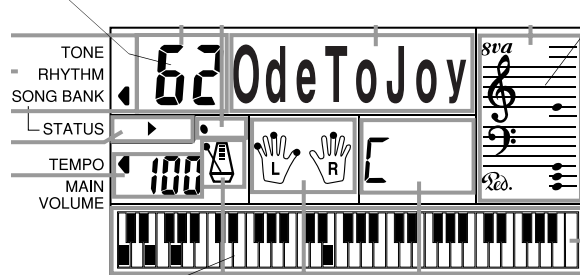
## PLAYING THE PRERECORDED TUNES

You can sit back and listen to the 100 tunes that come prerecorded in the keyboard, or you can turn off a tune's melody or

accompaniment and play along on the keyboard.

The demo tune number appears here.

The treble and bass clefs show the notes as they play.



The keyboard at the bottom of the display shows the location of the keys being pressed.

## PLAYING BACK A PRERECORDED TUNE

1. Press **SONG**. An indicator appears next to **SONG** and the number of the current tune appears. ✓
2. Choose a tune from the 100 **SONGS** list and enter its two-digit number on the keypad. ✓

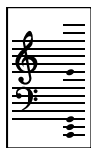
Or, you can press **-** or **+** to move to the next higher or lower numbered tune.

3. Press **PLAY/PAUSE** to start playing the tune.

You can change the tune by repeating Step 2 even while a tune is playing. The new tune immediately begins to play.

As a tune plays, the display shows:

- a "score" revealing the notes that are playing (right side of the display)
- a "keyboard" to show you the fingering and which keys are pressed (bottom of the display)



- a "metronome" to show you the selected tempo — the metronome's bar swings along with the tempo you selected, and the black dots above the metronome show the beat count in the measure



- the chord name (except for tunes 80 to 99, center right of the display)

- "hands" that show the fingering to play the tune and chords



4. Use **MAIN VOLUME** to adjust the overall volume as desired.

To adjust only the accompaniment volume (except tunes 80 to 99), press **ACCOMP VOLUME** then enter the desired volume level using the number keys (between **0** and **9**) or press **+** or **-** within 5 seconds.

5. To move to a particular section of a tune, hold down **REW** or **FF** during play. When you think you have reached the section you want, release **REW** or **FF** to resume normal play.

6. To change the tempo, press **TEMPO ▼** or **▲**. The current tempo setting appears. ✓

### NOTE

#### Basic Operation

- The keyboard automatically selects the tone **PIANO 1** (No. 00) when you turn the power on. To select a different tone, see "Selecting/Playing a Preset Tone" on Page 6.
- To select an auto-rhythm, see "Using the Preset Auto-Rhythms" on Page 7.
- To play auto accompaniment, see "Using Auto Accompaniment" on Page 8.
- The keyboard's volume ranges from 0 (no sound) to 9 (maximum). Each time you turn on the keyboard, the volume is set to 7.
- To quickly change the volume setting, hold down **MAIN VOLUME ▲** or **▼**.
- To quickly return to the default volume setting of 7, press both **MAIN VOLUME** buttons at the same time.
- The volume level differs depending on the tone, accompaniment, or song you selected.

#### Playing Back a Prerecorded Tune

- The keyboard always selects the tune "A Whole New World" (No. 00) the first time you press **SONG** after turning the power on.
- Precede a single-digit number with a 0. For example, to select 07 ("O Christmas Tree"), press **0 7**.
- If you enter an incorrect first digit, press **SONG** to clear your entry, then enter the correct digit.
- Each tune plays a different preset tone for the melody, but you can change to another tone even while the tune is playing. Follow the steps under "Selecting/Playing a Preset Tone" on Page 6 to select a different tone.
- To quickly slow down or speed up the tempo, hold down **TEMPO ▼** or **▲**.
- To reset the tempo to its default (original) speed, press **TEMPO ▲** and **▼** at the same time.
- Tunes 80 to 99 are arranged so the tempo changes during play. However, if you select a tempo other than the default tempo, those tunes play in the newest tempo.

**NOTE****Playing Along with a Prerecorded Tune**

- You can find the scores for most of the prerecorded tunes in the *Play Guide for the Prerecorded Tunes*, supplied with your keyboard.
- Tunes 80 to 99 are solo tunes. You can turn off either the right-hand or left-hand portion, but not both.
- If you select tunes 00 through 79 and turn off both the melody and accompaniment, the keyboard plays an obligato accompaniment (a simple background accompaniment).
- You can turn the melody on or off by repeating Step 2 even while the current tune is playing.

**Using the Preset Tones**

- The keyboard has 12-note (maximum) polyphonic sound. This means that you can play up to 12 different notes at the same time with most of the keyboard's preset tones. Some tones are only capable of 6-note polyphony.
- Most tones on this keyboard have been recorded and processed using a technique called *digital sampling*. To ensure a high level of tonal quality, samples are taken in the low, mid, and high ranges and are then combined to sound amazingly close to the originals. You might notice very slight differences in volume or sound quality for some tones when you play them at different positions on the keyboard. This is an unavoidable result of multiple sampling and is not a malfunction.
- Some sound effect tones, such as PERCUSSION (No. 99), do not follow the musical scale when played, but change effect as you play them in different octaves on the keyboard.

**Selecting/Playing a Preset Tone**

- Precede a single-digit number with a 0. For example, to select ELEC PIANO 1 (No. 04), press **0 4**.
- If you enter an incorrect first digit, press **TONE** to clear your entry, then enter the correct digit.

Using the Preset Tones

7. To temporarily stop playing the tune, press **PLAY/PAUSE** again. To stop the tune completely, press **STOP**.

**PLAYING ALONG WITH A PRERECORDED TUNE**

Follow these steps to have the keyboard not play the melody or accompaniment of a prerecorded tune, so you can play it instead!

1. Select and enter the tune you want to play.
2. Press **ON/OFF RIGHT** to turn off the melody. **R** disappears from the "hands," indicating that the keyboard is not playing the right-hand portion of the music.

Or, press **ON/OFF LEFT** to turn off the accompaniment. **L** disappears from the "hands."

3. Press **PLAY/PAUSE** to start play.
4. Adjust the tempo and volume as desired.

5. Play along with the tune on the keyboard.

6. To temporarily stop playing the tune, press **PLAY/PAUSE** again. To stop the tune completely, press **STOP**.

**TURNING APPLAUSE OFF/ON**

When you turn off either the melody or accompaniment and then play a tune, applause automatically sounds at the end of the tune. To turn off the applause, hold down **STOP** and press either **ON/OFF LEFT** or **ON/OFF RIGHT**. **Appls=Off** appears. To turn the applause on again, press the same buttons. **Appls=On** appears.

**CONSECUTIVELY PLAYING BACK THE TUNES**

Normally, the tune you selected plays continuously until you press **STOP**. To play all 100 prerecorded tunes consecutively, press either **TONE** or **RHYTHM**, then press **PLAY/PAUSE**. The keyboard plays the tunes in sequence starting with Tune 00.

To stop consecutive playback, press **STOP**.

**USING THE PRESET TONES**

Your keyboard can simulate 100 different musical instruments or sound effects. The TONES list on the keyboard's top panel shows the name and two-digit number for each 100 preset tone.

**SELECTING/PLAYING A PRESET TONE**

1. Press **TONE**. An indicator appears next to TONE and the current tone's number appears.
2. To play a different tone, choose a preset tone from the 100 TONES list and enter its two-digit number on the keypad. As you press the keys, the selected digits appear.  
  
Or, you can use **+** or **-** to move to the next higher or lower numbered tone.
3. Play the keyboard to hear the selected tone and adjust **MAIN VOLUME** to the desired level.
4. To select a different tone, repeat Steps 1 and 2.

**Tone List  
SYNTH-SOUND**

60 SYN-LEAD 1  
61 SYN-LEAD 2  
62 SYN-LEAD 3  
63 SYN-CALLIOPE  
64 SYN-PAD 1  
65 SYN-PAD 2  
66 SYN-PAD 3  
67 GLASS HMCA  
68 COUNTRY FARM

69 SYN-BASS  
70 PEARL DROP  
71 COSMIC SOUND  
72 SOUNDTRACK  
73 SPACE PAD  
74 VOICE BASS  
75 APPLAUSE  
76 SYNTH-SFX (sound effects)  
77 VEHICLE  
78 PHONE  
79 FUNNY

**LAYERED TONES**

The preset tones numbered 80 through 89 on your keyboard let you automatically play two different layered tones at the same time when you press one key. For example, STR PNO (No. 80) plays string and piano tones when you press a key.

**Tone List**

80 STR PIANO  
81 STR E.PIANO  
82 CHOIR E.P  
83 CHOIR ORGAN  
84 STR GUITAR  
85 STR HARP  
86 BRASS STR  
87 VIB PAD  
88 12 STR GTR  
89 CHOIR STR




















## KEYBOARD SPLIT TONES

The preset tones numbered 90 through 96 on your keyboard let you automatically play two different musical instruments or sound effects independently on opposite sides of the keyboard.

The instrument listed first in the tone's name plays on the left half of the keyboard (below middle C). The instrument listed next plays on the right half of the keyboard (above middle C). For example, BS/PNO (No. 90) plays a bass tone on the left half of the keyboard and a piano tone on the right.

## PERCUSSION SOUNDS

PERCUSSION (No. 99) lets you play the 39 different percussion sounds shown here. The symbol for each sound appears above the corresponding key on the keyboard.

 BASS DRUM	 COWBELL
 SIDE STICK	 CRASH CYMBAL 2
 ACOUSTIC SNARE	 CLAVES
 HAND CLAP	 RIDE CYMBAL 2
 ELECTRIC SNARE	 HIGH BONGO
 LOW FLOOR TOM	 LOW BONGO
 CLOSED HI-HAT	 MUTE HIGH CONGA
 HIGH FLOOR TOM	 OPEN HIGH CONGA
 PEDAL HI-HAT	 LOW CONGA
 LOW TOM	 HIGH TIMBALE
 OPEN HI-HAT	 LOW TIMBALE
 LOW-MID TOM	 HIGH AGOGO
 HIGH-MID TOM	 LOW AGOGO
 CRASH CYMBAL 1	 CABASA
 HIGH TOM	 MARACAS
 RIDE CYMBAL 1	 VOICE BASS DRUM
 CHINESE CYMBAL	 VOICE SNARE
 RIDE BELL	 VOICE CLOSED HI-HAT
 TAMBOURINE	 VOICE OPEN HI-HAT
 SPLASH CYMBAL	

## USING THE PRESET AUTO-RHYTHMS

Your keyboard has 100 preset auto-rhythms that provide a steady beat for your music. The name and two-digit number of each preset auto-rhythm is listed on the keyboard's top panel.

You can play a preset auto-rhythm on the keyboard in any of the following ways:

- Select and play a rhythm (see "Selecting/Playing an Auto-Rhythm")
- Synchronize the start of a rhythm with your music (see "Using SYNCHRO")
- Briefly vary the pattern of a rhythm (see "Using FILL-IN")

### SELECTING/PLAYING AN AUTO-RHYTHM

1. Press **RHYTHM**. An indicator appears to the right of RHYTHM and the number of the current auto-rhythm appears.
2. To select a different rhythm, choose an auto-rhythm from the 100 RHYTHMS list and enter its two-digit number on the keypad. Or, repeatedly press **+** or **-** to move to the next higher or lower numbered rhythm.
3. Press **START/STOP** to start the selected auto-rhythm.
4. Adjust **MAIN VOLUME** and **ACCOMP VOLUME** to the desired level (see "Adjusting the Accompaniment Volume" on Page 8).

5. To change the auto-rhythm speed, press **TEMPO** **▼** or **▲**. The current tempo setting appears.
6. Play the keyboard along with the auto-rhythm.
7. To select a different rhythm, repeat Steps 1 and 2.
8. To stop the auto-rhythm, press **START/STOP** again.

### USING SYNCHRO

This feature lets you synchronize the start of an auto-rhythm with the beginning of your music.

After you select and enter an auto-rhythm, press **SYNCHRO/FILL-IN**. The bars of the metronome flash to show the keyboard is in standby mode.

Begin playing the keyboard. The keyboard automatically begins to play the rhythm when you press any key within the first 1<sup>1</sup>/<sub>2</sub> octaves of the lower end of the keyboard (the first 18 keys from the left side of the keyboard).

### USING FILL-IN

This feature lets you insert a short (1- to 2-measure) variation in the beat pattern of a selected auto-rhythm.

Press and release **SYNCHRO/FILL-IN** while the auto-rhythm is playing. The keyboard inserts a 1- to 2-measure variation, then the

### NOTE

#### Percussion Sounds

When you select the Fingered or Concert Chord mode, the keys in the lower 1<sup>1</sup>/<sub>2</sub> octaves become the accompaniment keys and do not produce percussion sounds. See "Using Auto Accompaniment" on Page 8.

#### Selecting/Playing an Auto-Rhythm

- The keyboard automatically selects the rhythm Club Pop (No. 00) when you turn the power on.
- Precede a single-digit number with an 0. For example, to select POP BALLAD (No. 05), press **0 5**.
- If you incorrectly enter the first digit of the rhythm, press RHYTHM to clear the entry and return to the last selected auto-rhythm.
- You can adjust the tempo to play an auto-rhythm from 20 to 255 beats per minute.
- To quickly slow down or speed up the tempo, hold down **TEMPO** **▲** or **▼**.
- To reset the tempo to its default (original) speed, press **TEMPO** **▲** and **▼** at the same time.

**NOTE****Using Auto Accompaniment**

- You can use the keyboard's rhythm controls (**FILL-IN** and **SYNCHRO**) with both types of auto accompaniment.
- After you press the auto accompaniment keys, the keyboard plays the same chord until you press other keys to play a different chord or press **START/STOP**.

**Adjusting the Accompaniment Volume**

You can adjust the accompaniment volume separately for your keyboard play and prerecorded tune playback.

**Concert Chord**

You can press any labeled note(s) to the right of the lowest note in the chord to produce a minor, a dominant seventh, or minor seventh chord.

original rhythm automatically resumes at the end of the current measure.

**USING AUTO ACCOMPANIMENT**

The 18 keys on the left side of the keyboard with note labels above them are called accompaniment keys.

**Accompaniment Keyboard**      **Melody Keyboard**



You can set the keyboard to play two different types of auto accompaniment using the accompaniment keys.

- Concert Chord** — lets you play chords on the accompaniment keys using chord formations of one to four notes. The number of keys you press determines the type of chord that plays (see "Concert Chord").
- Standard Fingering** — lets you play chords on the accompaniment keys using standard chord formations of three or four notes (see "Standard Fingering" on Page 9).

**ADJUSTING THE ACCOMPANIMENT VOLUME**

The keyboard lets you adjust the volume of your accompaniment separately from the overall volume of the keyboard.

- Press **ACCOMP VOLUME**. The current accompaniment volume setting appears next to **Accomp Vol**.
- Within 5 seconds, enter a number from **0** (no sound) to **9** (loudest) on the keypad. The number appears as you press the key.

Or, press **-** or **+** to select the next lowest or highest accompaniment volume setting.

To reset the accompaniment volume to its default value of 7, press **-** and **+** at the same time.

**CONCERT CHORD**

The concert chord method lets beginning keyboard players easily select and play a chord.

The number of accompaniment keys you press determines the type of chord that plays. This chart shows the chord type that plays when you press one, two, three, or four accompaniment keys at the same time.

Number of Keys Pressed	Chord Type
C D E F G A B C D E F	Major
C D E F G A B C D E F	Minor (m)
C D E F G A B C D E F	Dominant Seventh (7)
C D E F G A B C D E F	Minor Seventh (m7)

The lowest note you play determines the key of the chord. For example, if the lowest note is C, the keyboard plays a C chord.

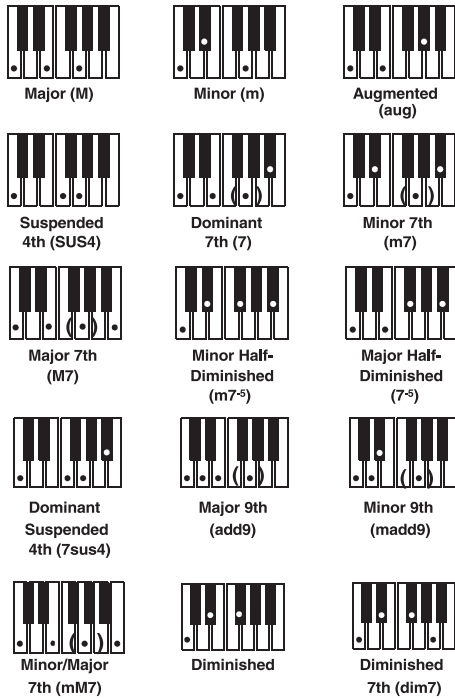
- Set **POWER/MODE** to **CONCERT CHORD**.
- Enter a two-digit auto-rhythm number.
- To start the auto-rhythm before the auto accompaniment, press **START/STOP**.  
Or, to synchronize the start of the selected auto-rhythm with your accompaniment, press **SYNCHRO/FILL-IN**.
- Begin the accompaniment at the desired interval by pressing the desired accompaniment key(s).  
To play a melody along with the accompaniment, press any key(s) to the right of the accompaniment keys.
- Adjust the tempo, **MAIN VOLUME**, and **ACCOMP VOLUME** to the desired levels.
- To change chords without interrupting the rhythm, simply press the auto accompaniment key(s) required to form the new chord.
- To stop auto accompaniment and the auto-rhythm, press **START/STOP**.



## STANDARD FINGERING

The standard fingering method uses standard formations of three or four notes, and lets the experienced musician play a wider variety of accompaniment chords.

This chart shows the 15 chord types you can play on your keyboard by using standard fingering.



## USING THE CHORD BOOK

You can use your keyboard's chord book display feature to see which keys to press and which fingers to use to form a chord. You can also display the name of a chord you play.

1. Set **POWER/MODE** to **NORMAL** or **CONCERT CHORD**, then press **CHORD BOOK**.
2. Press **CLEAR (0)** to clear any previous chord entry.
3. If you want to see information about a major chord while you play it, skip to Step 4. Otherwise, enter the chord's name using that chord's keys on the numeric keypad.

For example, to enter a minor 7<sup>-5</sup> chord, press **m (8) 7 (9) -5 (2)**. Or, to enter 7sus4, press **7 (9)** and **sus4 (1)**.

4. Press the root key on the accompaniment keyboard to play the chord.

As the chord plays, the display shows the chord you entered, the keys to press to form the chord (on the bottom "keyboard"), the fingers you need to use to play the chord (on the center "hands"), and the notes that make up the chord (on the staff display).

1. Set **POWER/MODE** to **FINGERED**.
2. Select and enter an auto-rhythm.
3. To start the auto-rhythm before your auto accompaniment, press **START/STOP**.  
Or, to synchronize the start of the selected auto-rhythm with your accompaniment, press **SYNCHRO/FILL-IN**.
4. Begin the accompaniment at the desired interval by pressing at least three accompaniment keys to play the desired chord.  
To play a melody along with the accompaniment, press any key(s) to the right of the accompaniment keys.
5. Adjust the tempo, **MAIN VOLUME**, and **ACCOMP VOLUME** to the desired levels.
6. To change chords without interrupting the rhythm, simply press the auto accompaniment keys required to form the new chord.
7. To stop auto accompaniment and the auto-rhythm, press **START/STOP**.

### NOTE

#### Standard Fingering

- You do not have to press the key marked with parentheses on the keyboard in the chart to produce a 7, m7, M7, mM7, add9, or madd9 chord.
- Although the chart shows only one possible fingering position for each chord, it is possible to play a chord using several different positions. For example, the following three positions produce the same C chord.



- When you play an aug, 7<sup>-5</sup>, or dim7 chord, the lowest note you play determines the root of the chord. Be sure that your fingering correctly defines the root you want.
- See "Standard Fingering Chord Charts" on Page 13 for all the chords you can play on your keyboard using standard fingering accompaniment.

#### Using the Chord Book

- If the chord is not recognized by the keyboard, only a dash appears.
- Since the keyboard automatically changes some chords so you can play them on the accompaniment keyboard, the keyboard might display some chords in inverted form.
- The keyboard does not display some chords because the chords cannot be played within the accompaniment keyboard's range. See "Standard Fingering Chord Charts" on Page 13 for more information.

5. Use **-** or **+** to scroll through the chords associated with the root chord you entered in Step 3. Or, press a different root key to see the chords based on that key.
6. Using the center "hands" as a guide, play the displayed chord on the keyboard.
7. You can also display the name of the chord you play on the accompaniment keyboard. Press **CHORD BOOK** then **CLEAR** to erase any previous entry. Then play the chord on the accompaniment keyboard. The name of the chord appears.
8. When you have finished, press **CHORD BOOK** to turn off chord book.

## NOTE

**Changing Keys**

- You cannot change the key while a prerecorded tune is selected or playing.
- The number on the display is the number of *semitones* to which the keyboard is set, compared to its default key. A semitone is a measurement that represents the acoustical interval between the tones of any two keys on the keyboard. For example, the difference between C and C $\sharp$  or B and B $\flat$  is one semitone. You can transpose the key down 6 semitones (to an F $\sharp$ ) and up 5 semitones (to an F) — a range of one full octave.
- You can also use the number keypad to quickly raise the key. Simply press the semitone change value (1 to 5).
- The keyboard automatically resets the key to the default value of 0 (middle C) each time you play a prerecorded tune.
- Each preset tone plays within a specified range. If a key change causes a note to exceed its range, the same note sounds in the nearest octave.
- When you select preset tones 90 through 96 after changing the key, the keyboard split point changes accordingly (see "Keyboard Split Tones" on Page 7).
- Changing the key does not affect the PERCUSSION (No. 99) preset tone.

**Tuning the Keyboard**

- You cannot tune the keyboard while a prerecorded tune is displayed or playing.
- The number on the display is the number of *cents* to which the keyboard is currently tuned, compared to its default pitch. A cent is the measurement representing the acoustical interval between two tones. 1200 cents equal 1 octave. You can tune the keyboard to within 50 cents (101 levels) of its default pitch.
- You can use the number keypad to raise the pitch by entering the cent change value.
- The keyboard automatically resets the tuning pitch to the default value of 00 (cents) each time you turn off the keyboard or play the prerecorded tunes.

**Making the MIDI Connections**

You do not need to make both connections if you are only either sending or receiving.

**MIDI Data**

- The keyboard's prerecorded tunes cannot be sent as MIDI data.
- For detailed specifications of the MIDI function, see the "MIDI Implementation


## CAUTION

- Always turn off power to your keyboard and the other MIDI device before you connect or disconnect MIDI cables.
- As you make the cable connections, be sure to align the MIDI cable pins with the matching holes on your keyboard's **MIDI OUT** and **MIDI IN** terminals. If you have trouble plugging in the cable, do not force it! You might damage the plug or the instrument.

## SPECIAL FEATURES

### CHANGING KEYS


The keyboard automatically selects the key of middle C each time you turn it on.

For added flexibility as you play, the keyboard lets you change (transpose) the musical key in which it plays. 

- Repeatedly press **TRANPOSE/TUNE/MIDI** until **Trans** and the current key setting appear.
- Within 5 seconds, press **-** or **+** to lower or raise the key. Each time you press **-** or **+**, the number decreases or increases by 1 semitone.

As you raise the key, **1** is C $\sharp$ , **2** is D, and so on. As you lower the key, **-1** is B, **-2** is B $\flat$ , **-3** is A, and so on.

### TUNING THE KEYBOARD

Although your keyboard never goes out of tune, you can adjust its pitch to match other instruments or musical recordings. 

- Repeatedly press **TRANPOSE/TUNE/MIDI** until the display shows **Tune** and the current pitch setting.
- Within 5 seconds, repeatedly press **-** or **+** to lower or raise the keyboard's pitch. Each time you press the key, the number decreases or increases by 1 cent.

### USING A SUSTAIN PEDAL

For added flexibility and control as you make music, you can connect an optional sustain pedal, available through RadioShack. A sustain pedal lets you sustain the keyboard's sound.

To connect a sustain pedal to your keyboard, insert the pedal's plug into **SUSTAIN** on the back of the keyboard.

## USING MIDI

Your keyboard includes a feature called MIDI (Musical Instrument Digital Interface). MIDI is the universal standard for sending and receiving performance data between all types of electronic musical instruments, regardless of manufacturer. Using MIDI, you can play music on your keyboard and another instrument at the same time while pressing the keys on only one, record your music to a sequencer, acquire a wider selection of preset tones from a sound module, and much more.

Connecting your keyboard to another MIDI device requires a MIDI cable (not supplied).

For detailed specifications of the MIDI function, see the "MIDI Implementation Chart" on Page 17.

### ABOUT MIDI

Every MIDI-equipped instrument has MIDI OUT and IN terminals, and some also have a MIDI THRU terminal. Each of these terminals serves a different purpose.

MIDI OUT sends MIDI data to ("talks to") the other MIDI instrument(s).


MIDI IN receives ("listens to") MIDI data sent by the other MIDI instrument(s).

MIDI THRU lets you connect ("network") additional MIDI instruments, and sends other MIDI devices a copy of all data it receives through its MIDI IN terminal.


Your keyboard has **MIDI OUT** and **MIDI IN** terminals.

The cable that connects MIDI devices does not actually carry sound between them, like a speaker wire carries sound from a receiver to a speaker. Instead, MIDI-equipped devices communicate with each other using digital codes (instructions). One MIDI device sends digital instructions representing exactly what is being played on it. The other MIDI device receives and translates those instructions, then produces (or records) the sound exactly as it was played on the first device.


### MAKING THE MIDI CONNECTIONS


To connect your keyboard to another MIDI-equipped device, you must use a MIDI cable (available at RadioShack). 

To send MIDI data from your keyboard, use a MIDI cable to connect the keyboard's **MIDI OUT** terminal to the other device's MIDI IN terminal.

To receive MIDI data on your keyboard, use a MIDI cable to connect the keyboard's **MIDI IN** terminal to the other device's MIDI OUT terminal. 

### MIDI DATA

Your keyboard can send and receive several different types of MIDI data. The keyboard's tones, rhythms, and other types of MIDI data are sent automatically as you play. 

**Note On/Off** — specifies which keys are pressed (Note On) or released (Note Off). Also includes how loud a note is played as a value from 0 to 127. 

**Program Change** — specifies the tone. The keyboard sends program change data in the range of 0 to 99, corresponding to tone numbers. It receives data within the same range if GM tone mapping is set to N, or in the range of 0 to 127 if GM tone mapping is set to G. In the latter case, tones in the range of 100 to 127 are translated to the closest tone that the keyboard has.

**Pitch Bend** — supplies Pitch Bend information. The keyboard's pitch changes as it receives a Pitch Bend message through the **MIDI IN** terminal.

**Control Change** — adds effects such as vibrato and volume changes during keyboard play. The message includes a control number (the effect type) and a control value (the on/off and depth of the effect).

Here is the data that can be received with this keyboard and the corresponding control number.

Effect	Control Number
Modulation	1
Volume	7
Hold1 (Sustain)	64

The keyboard can send Hold1 Control Change data only when you connect a sustain pedal and press it.

## CHANGING MIDI SETTINGS

The keyboard lets you change two MIDI parameters, Tone Map and Keyboard Channel.

**Tone Map** — sets the range of program change values received/recognized by this keyboard.

1. Repeatedly press **TRANPOSE/TUNE/MIDI** until **Tonflap=f1** appears.
2. Within 5 seconds, press **-** or **+** to select the setting you want.

**f1**: Normal Tone Map. This setting allows receipt of 0 to 99 program changes. Each program change corresponds to one of the prerecorded tones.

**f5**: General MIDI Tone Map. This setting allows receipt of all 0 to 127 program changes. Any data over 100 are translated to the closest tone the keyboard has. See "Note Table" on Page 15 for details.

Select **f5** when you listen to General MIDI data from an external device.

**Keyboard Channel** — sets the channel for sending MIDI data to an external device (Default: 01). The keyboard receives MIDI data on channels 1 through 4 and 10 only. The data received on other channels are ignored. For transmission of MIDI data, you can use any of 16 channels.

1. Repeatedly press **TRANPOSE/TUNE/MIDI** until **Keybd Ch** appears.
2. Within 5 seconds, press **-** or **+** to select the channel you want.

## NOTES ABOUT THE MIDI IMPLEMENTATION CHART

The "MIDI Implementation Chart" on Page 17 shows specific details about how your keyboard is compatible with the MIDI standard. The following notes explain how the keyboard works within the MIDI standard.

**Basic Channel** — The MIDI standard allows for the use of up to 16 channels to exchange data. Like a TV broadcast, each of these channels can contain different data. The keyboard can send data on all 16 of these channels and can receive data on channels 1 through 4 and channel 10.

**Mode** — The MIDI standard allows for four separate modes of operation. The keyboard sends and receives data in Mode 3. This means that the data sent and received by the keyboard can be polyphonic and can be sent or received on only one channel at a time.

**Note Number** — The MIDI standard allows for note numbers from 0 through 127. This number represents each possible note that a device can play. The lowest note number (0) is five octaves below middle C and the highest note number (127) is three octaves above middle C. The keyboard can receive all 128 note numbers and can send note numbers between 36 and 96.

If the keyboard receives a note number outside its range, it automatically assigns the note to a key within its key range.

The keyboard's lowest note is two octaves below middle C, and the highest note is three octaves above middle C.

**Velocity** — The MIDI standard allows for velocity numbers from 0 through 127. Velocity is how fast a key is pressed (or if the key is pressed at all) or how loud a note sounds. A velocity of 0 means that the key is not pressed. The lowest velocity (1) is pianissimo and the highest velocity (127) is fortissimo. The keyboard can receive all 128 velocity numbers and can send velocity numbers 75 or 100.

**9n** — This means that the Note ON message is 9 hexadecimal for the channel number *n*.

### NOTE

- The pitch of a note depends on the tone that is being used, as shown in the "Note Table" on Page 15.
- If the keyboard receives a "request" to play notes outside of its range (higher or lower), it automatically selects the same note in the nearest octave.

**Pitch Bender** — The keyboard receives (but cannot send) pitch bending signals.

**Control Change** — This feature sends data on various controllers, each having its own number. For the details of each parameter, see "MIDI Data" on Page 10.

**Program Change** — This feature changes the preset sounds. Each sound number corresponds to a program number between 0 and 127. See "MIDI Data" on Page 10.

## TROUBLESHOOTING

Trouble	Possible Cause	Remedy
No sound, even if keys are pressed.	The keyboard has turned off automatically.	Set <b>POWER/MODE</b> to <b>OFF</b> then <b>NORMAL</b> .
	The volume is turned down.	Repeatedly press <b>MAIN VOLUME ▲</b> to increase the volume.
	The headphones are connected.	Disconnect the headphones.
	Power supply problem.	Make sure the batteries are fresh and inserted correctly, or the AC adapter is connected securely.
	You are pressing too few accompaniment keys while <b>POWER/MODE</b> is set to <b>FINGERED</b> .	Set <b>POWER MODE</b> to <b>NORMAL</b> or <b>CONCERT CHORD</b> . Or press 3 or 4 keys to form a chord while <b>MODE</b> is set to <b>FINGERED</b> .
No sound when connected to an external amplifier.	The volume is turned down.	Repeatedly press <b>MAIN VOLUME ▲</b> to increase the volume.
	Defective connection cord.	Replace the connection cord.
The key or tuning does not match when playing along with another MIDI instrument.	The tuning or transpose parameter is set to a value other than 0 or 00.	Set the tuning or transpose parameter to 0 or 00.
No sound when receiving and playing MIDI data.	MIDI cables are not connected properly.	Check the connection.
Bass notes in General MIDI data are sent out one octave lower.	Tone map parameter is set to <b>fl</b> .	Set the tone map parameter to <b>6</b> (see "Changing MIDI Settings" on Page 11).
Sounds sent to another MIDI device by the keyboard do not sound correct.	The other device's MIDI THRU function is turned on.	Turn off the MIDI THRU function on the other device.

## CARE

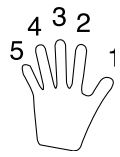
Keep the keyboard dry; if it gets wet, wipe it dry immediately. Use and store the keyboard only in normal temperature environments. Handle the keyboard carefully; do not drop it. Keep the keyboard away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

## SERVICE AND REPAIR

If your keyboard is not performing as it should, take it to your local RadioShack store for assistance. Modifying or tampering with the keyboard's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it.

# STANDARD FINGERING CHORD CHARTS

These tables show the left-hand fingering for the chords you play most often.



This illustration shows which fingers on your left hand match the numbers on the charts. The illustration also appears on your keyboard's display.

You cannot play chords marked with an asterisk (\*) in the fingered mode on this keyboard.

Chord Root Type	M	m	7	m7	dim7	M7	m7 <sup>b</sup> 5	dim
C	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
C# (D <sup>b</sup> )	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
D	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
E <sup>b</sup> (D#)	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
E	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
F	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
F# (G <sup>b</sup> )	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
G	[5, 3, 1]	[5, 3, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 4, 2, 1]	[5, 3, 2, 1]	[5, 3, 2]
A <sup>b</sup> (G#)	[5, 3, 1]	[5, 3, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	[5, 3, 2, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	[5, 3, 2]
A	[5, 3, 1]	[5, 3, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	*	[5, 4, 2, 1]	[5, 4, 2, 1]	[5, 3, 2]
B <sup>b</sup> (A#)	[5, 3, 1]	[5, 3, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	*	[5, 4, 2, 1]	[5, 4, 2, 1]	[5, 3, 2]
B	[5, 2, 1]	[5, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	*	[5, 3, 2, 1]	[5, 4, 2, 1]	[5, 3, 2]

Chord Root Type	aug	sus4	7 sus4	m add9	m M7	7 $\flat$ 5	add9
C	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
C $\sharp$ (D $\flat$ )	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
D	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
E $\flat$ (D $\sharp$ )	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
E	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
F	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
F $\sharp$ (G $\flat$ )	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
G	[5, 3, 1]	[5, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 4, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]
A $\flat$ (G $\sharp$ )	[5, 3, 1]	[5, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]
A	[5, 3, 1]	[5, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]
B $\flat$ (A $\sharp$ )	*	[5, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]	[5, 4, 2, 1]	[5, 4, 2, 1]	[4, 3, 2, 1]
B	*	[5, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[5, 3, 2, 1]	[4, 3, 2, 1]	[5, 3, 2, 1]

## NOTE TABLE

### Legend:

- (1) Tone number
- (2) Maximum polyphony
- (3) Range type (see Page 17)
- (4) Corresponding general MIDI number (see "MIDI Data" on Page 10)

(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
00	12	A	000	10	12	A	016	20	12	A	024	30	12	A	040, 041	40	12	A	056
01	12	A	001	11	12	A	017	21	12	A	025	31	12	B	042, 043	41	12	B	058
02	6	A	003	12	12	A	018	22	12	A	026	32	12	A	045, 046, 047	42	6	A	057
03	6	A	002	13	6	A	015	23	12	A	027	33	12	A	048, 055	43	12	B	060
04	12	A	004	14	12	A	019	24	12	A	028	34	12	A	049	44	6	B	059
05	12	A	005	15	6	A	104	25	12	A	029, 030, 031, 084	35	6	A	044	45	12	B	061
06	6	A	008	16	12	A	020	26	12	B	032	36	12	A	050	46	6	B	069
07	6	A	009	17	6	A	021	27	12	B	033, 034, 035	37	6	A	051	47	12	B	062
08	12	A	006	18	12	A	023	28	12	B	036, 037	38	12	A	091, 052	48	6	B	063, 083
09	12	A	007	19	12	A	022	29	12	A	105	39	12	A	053	49	6	B	070
50	12	A	064	60	12	A	087	70	6	A	096	80	6	A	106	90	12	E	100, 116
51	12	A	065	61	6	A	081, 086	71	6	A	103	81	6	A	088, 107	91	6	E	117
52	12	A	066, 067	62	12	A	080	72	6	A	097	82	6	A	108	92	12	E	118
53	12	A	068	63	6	A	082	73	6	A	101	83	6	A	109	93	12	E	119
54	12	A	071	64	6	A	089	74	12	B	039	84	6	A	099, 110	94	12	E	120
55	12	C	072	65	6	A	090	75	12	D	126, 127	85	6	A	111	95	12	E	121
56	12	A	073	66	6	A	095	76	6	A	102	86	6	B	112	96	12	E	122
57	12	A	074, 079	67	6	A	092, 093, 098	77	6	D	125	87	6	A	113	97	12	A	010, 011, 014
58	12	A	075, 076, 077	68	6	A	054, 085, 094	78	12	D	124	88	6	A	114	98	12	A	012, 013
59	12	A	078	69	12	B	038	79	6	D	123	89	6	A	115	99	12	D	

**Legend:**



Range of keyboard play



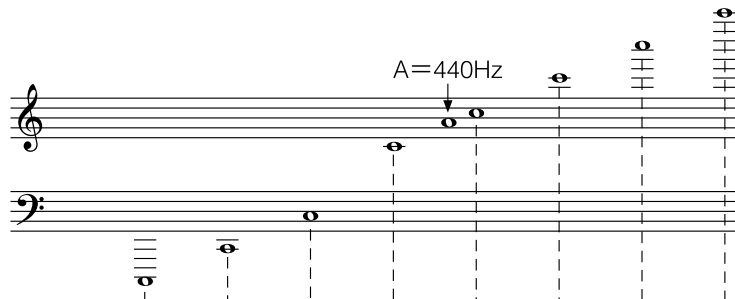
Playable range (when receiving MIDI data)



Range transposed to nearest octave (when receiving MIDI data or using the keyboard's transpose function)

(1) The received MIDI data is played one octave lower

(2) The received MIDI data is played one octave higher



Range Type	C-1	C0	A0C1	A1C2	A2C3	C4	C5	C6	C7	C8	C9	G9	
<b>A</b> (Standard type 1)													
<b>B*1</b> (Low pitch instruments)													
<b>C*2</b> ("55 PICCOLO" only)													
<b>D</b> (Sound Effect)	No scale for tones.												
<b>E</b> (SPLIT)	Scale changes in accordance with tone.												



# MIDI IMPLEMENTATION CHART

Version: 1.0

Function ...	Transmitted	Recognized	Remarks
<b>Basic Channel</b> <b>Default Changed</b>	1 1-16	1-4, 10 1-4, 10	
<b>Mode</b> <b>Default Messages Altered</b>	Mode 3 X *****	Mode 3 X *****	
<b>Note Number:</b> <b>True voice</b>	36-96 *****	0-127 36-96 *1	*1: Depends on tone
<b>Velocity</b> <b>Note ON</b> <b>Note OFF</b>	O 9nH v = 75,100 *2 X 9nH v = 0	O 9nH v = 1-127 X 9nH v = 0,8nH v = *3	*3 = no relation
<b>After Touch</b> <b>Key's Ch's</b>	X X	X X	
<b>Pitch Bender</b>	X	O	
<b>Control Change</b>	1 X 6,38 X 7 X 10 X 11 X 64 O 100,101 X 120 X 121 X	O X O X X O X X X	Modulation Data entry Volume Pan Expression Hold1 RPN LSB, MSB All sound off Reset all controller
<b>Program Change:</b> <b>True #</b>	O 0-99 *****	O 0-127 *4 *****	
<b>System Exclusive</b>	X	X	
<b>System Common</b> : Song Pos : Song Sel : Tune	X X X	X X X	
<b>System Real Time</b> : Clock : Commands	X X	X X	
<b>Aux Messages:</b> : Local ON/OFF : All notes OFF : Active Sense : Reset	X X X X	X X X X	
<b>Remarks</b>	<p>*2: If MAIN VOLUME is set to 0 or 1, V (velocity) is set to 75. If MAIN VOLUME is set to 2 or higher, V is set to 100.</p> <p>*4: Depends on GM tone map setting. See "Changing MIDI Settings" on Page 11.</p>		

Mode 1 : OMNI ON, POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
Mode 4 : OMNI OFF, MONO

O : Yes  
X : No

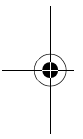
## SPECIFICATIONS

Number of Keys .....	61
Polyphonic Sound .....	12-note (Max.)
Preset Tones .....	100
Auto-Rhythms .....	100
Tempo .....	Adjustable (20 to 255 Beats Per Minute)
Other .....	Fill-In and Synchro Start
Accompaniments .....	Concert Chord, Fingered
Prerecorded Tunes .....	100 Tunes
Transpose .....	(F# ~C~F: half-notes)
Tuning .....	Adjustable A4 = 440 Hz ±50 cents
Built-In Speakers .....	4 Inch (10 cm) × 2 (Output 2W + 2W)
Terminals:	
Power Supply .....	<b>DC 9V</b> Jack
<b>PHONES/OUTPUT</b> Jack .....	Output Impedance: 78 Ohms Output Voltage: 4V (RMS) MAX
<b>MIDI IN, MIDI OUT</b> Jack .....	Standard DIN Jacks
<b>SUSTAIN</b> Jack .....	<sup>1</sup> / <sub>4</sub> -Inch Standard Jack
Power Sources .....	DC: 6 AA batteries AC: 120V, 60Hz, with AC adapter
Power Consumption .....	7.7 W
Dimensions (HWD) .....	5 × 37 <sup>3</sup> / <sub>4</sub> × 14 In. (12.5 × 95.6 × 35.3 cm)
Weight (Without Batteries) .....	8 lb 14 oz (4 kg)
Included Accessories .....	Sheet Music Stand <i>Play Guide for the Prerecorded Tunes</i>

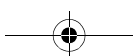
Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.



# NOTES



Notes



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