PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

* Please keep these precautions in a safe place for future reference.

⚠ *WARNING*

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not open the instrument or attempt to disassemble the internal parts or modify them in any way. The instrument contains no user-serviceable parts. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.
- Do not expose the instrument to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings.
- If the AC adaptor cord or plug becomes frayed or damaged, or if there is a sudden loss of sound during use of the instrument, or if any unusual smells or smoke should appear to be caused by it, immediately turn off the power switch, disconnect the adaptor plug from the outlet, and have the instrument inspected by qualified Yamaha service personnel.
- Use the specified adaptor (PA-3B or equivalent recommended by Yamaha) only. Using the wrong adaptor can result in damage to the instrument or overheating.
- Before cleaning the instrument, always remove the electric plug from the outlet. Never insert or remove an electric plug with wet hands.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.

⚠ *CAUTION*

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

- Do not place the AC adaptor cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.
- When removing the electric plug from the instrument or an outlet, always hold the plug itself and not the cord.
- Do not connect the instrument to an electrical outlet using a multiple-connector. Doing so can result in lower sound quality, or possibly cause overheating in the outlet.
- Unplug the AC power adaptor when not using the instrument, or during electrical storms.
- Always make sure all batteries are inserted in conformity with the +/- polarity markings. Failure to do so might result in overheating, fire, or battery fluid leakage.
- Always replace all batteries at the same time. Do not use new batteries together with old ones. Also, do not mix battery types, such as alkaline batteries with manganese batteries, or batteries from different makers, or different types of batteries from the same maker, since this can cause overheating, fire, or battery fluid leakage.
- Do not dispose of batteries in fire.
- Do not attempt to recharge batteries that are not intended to be charged.

PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

* Please keep these precautions in a safe place for future reference.

⚠ *CAUTION*

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

- If the instrument is not to be in use for a long time, remove the batteries from it, in order to prevent possible fluid leakage from the battery.
- Keep batteries away from children.
- Before connecting the instrument to other electronic components, turn off the power for all components. Before turning the power on or off for all components, set all volume levels to minimum.
- Do not expose the instrument to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration or damage to the internal components.
- Do not use the instrument near other electrical products such as televisions, radios, or speakers, since this might cause interference which can affect proper operation of the other products.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Before moving the instrument, remove all connected adaptor and other cables.
- When cleaning the instrument, use a soft, dry cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths. Also, do not place vinyl or plastic objects on the instrument, since this might discolor the panel or keyboard.
- Do not rest your weight on, or place heavy objects on the instrument, and do not use excessive force on the buttons, switches or connectors.
- Do not operate the instrument for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.

■REPLACING THE BACKUP BATTERY

- This instrument contains a non rechargeable internal backup battery which permits internal data to remain stored even when the power is off. When the backup battery needs replacing, the message "Backup Batt. Low" will display in the LCD panel. When this happens, immediately back up your data (using an external device such as the floppy disk-based Yamaha MIDI Data Filer MDF2), then have qualified Yamaha service personnel replace the backup battery.
- Do not attempt to replace the backup battery yourself, in order to prevent the possible serious hazards. Always have qualified Yamaha service personnel replace the backup battery.
- Never place the backup battery in a location that a child can reach, since a child might accidentally swallow the battery. If this should happen, consult a physician immediately.

■SAVING USER DATA

- Save all data to an external device such as the Yamaha MIDI Data Filer MDF2, in order to help prevent the loss of important data due to a malfunction or user operating error.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the instrument, or data that is lost or destroyed.

Always turn the power off when the instrument is not in use.

Make sure to discard used batteries according to local regulations.

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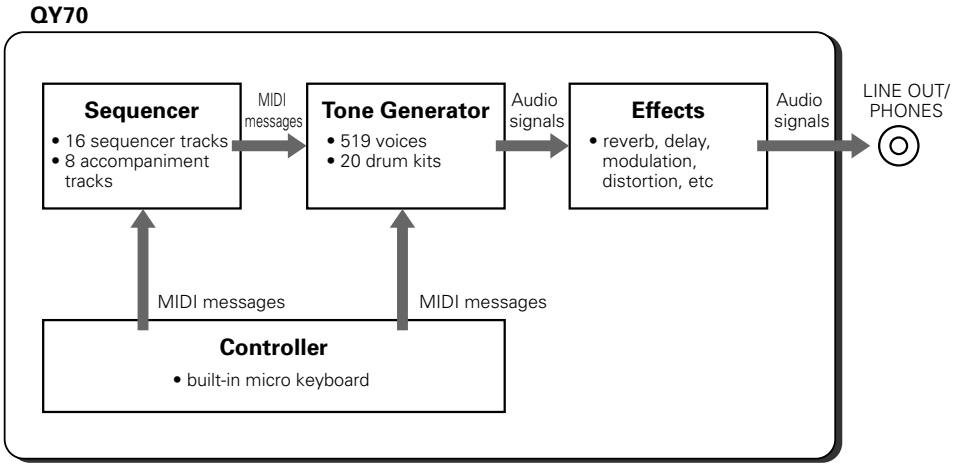
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The screen displays as illustrated in this owner's manual are for instructional purposes, and may appear somewhat different from the screens which appear on your instrument.

The QY70 — An Overview

The QY70 is a sophisticated music production system with a 16-track sequencer, a high-quality tone generator that provides 519 voices and 20 drum kits, and advanced auto-accompaniment capability all integrated in a compact, easy-to-handle package. It also features a built-in micro-keyboard for easy programming without an external MIDI keyboard.



Sequencer Functions

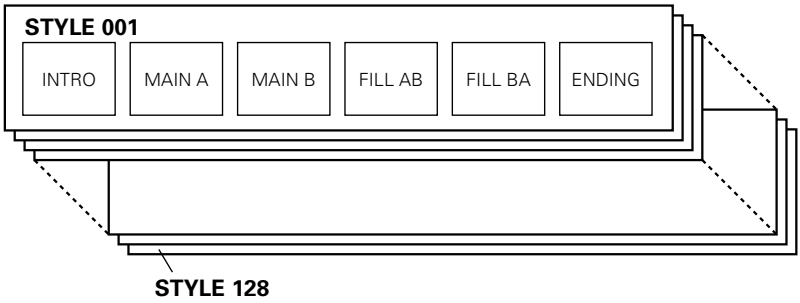
The QY70 sequencer has 16 "normal" sequencer tracks to which you can individually assign any of the internal voices and record either via the QY70's own micro keyboard or an external keyboard connected to the QY70 MIDI IN connector. In the "replace" real-time record mode the QY70 records exactly what you play as you play it; the "overdub" real-time record mode lets you add new material to a previously recorded track; and the step record mode allows notes to be entered one at a time. The step record mode lets you record extremely fast or complex passages that would be impossible to play in real time. It's also useful for adding finishing touches to tracks recorded in real time. There's also a "multi" real-time record mode in which all 16 sequencer tracks can be recorded simultaneously.

The QY70 provides an extensive range of advanced editing functions that make modifying and refining your recorded data an easy, efficient process.

Accompaniment Sequencing

The QY70 features a unique accompaiment system that makes it easy to create complete accompaniments for any type of music. Accompaniments are produced by specifying a sequence of "patterns" to be played rather than by recording individual notes or chords. The QY70 provides 128 preset accompaniment "styles", and memory for up to 64 original user "styles" that you can record yourself. Each "style" can have 6 variation "patterns" — intro, main A, main B, fill AB, fill BA, and an ending — that you can sequence, along with chord changes, to quickly create complete accompaniment tracks. Chord changes are programmed simply by entering the name of the chord — Yamaha's advanced ABC (Auto Bass Chord) auto-accompaniment system automatically re-harmonizes the patterns accordingly. The QY70's accompaniment sequencing features mean you can whip up a complete accompaniment in a fraction of the time it would normally take, significantly simplifying and speeding up the overall production process.

128 preset accompaniment "styles" each with 6 variation "patterns"



Voices & Effects

The QY70's internal tone generator, compatible with XG and GM format, provides 519 top-quality voices plus 20 complete drum kits with different drum and percussion instruments assigned to different notes. You can assign any of these voices to the sequencer tracks and patterns, or play them from an external keyboard or other MIDI controller via the MIDI interface, or directly from a personal computer. The QY70 also features a high-quality internal DSP (Digital Signal Processor) system which provides a range of reverb, delay, modulation, distortion and other effects in three individually programmable groups so you can produce a polished sound without the need for external equipment.

■ ***DETAIL***

- *See the List Book for a complete list of the QY70 voices.*
- *The QY70 effects are described on page 212.*

GM(General MIDI) System Level 1

"GM System Level 1" is a standard specification that defines the arrangement of voices in a tone generator and its MIDI functionality, ensuring that data can be played back with substantially the same sounds on any GM-compatible tone generator, regardless of its manufacturer or model.
Tone generators and song data that meet the "GM System Level 1" bear this GM logo.

XG

"XG" is a tone generator format that expands the voice arrangement of the "GM System Level 1" specification to meet the ever-increasing demands of today's computer peripheral environment, providing richer expressive power while maintaining upward compatibility of data. "XG" greatly expands "GM System Level 1" by defining the ways in which voices are expanded or edited and structure and type of effects.
When commercially available song data bearing the XG logo is played back on a tone generator which bears the XG logo, you will enjoy a full musical experience that includes unlimited expansion voices and effect functions.

Power & Connections

Power Supply

Your QY70 will run either from batteries or an optional AC adaptor. Follow the instructions below according to the power source you intend to use.

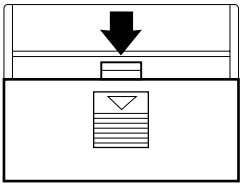
Using Batteries

Six 1.5V AA size (SUM-3 or R6P) or equivalent batteries must first be installed in the battery compartment. Alkaline batteries are recommended for longer life.

Never mix battery types, such as alkaline batteries with manganese batteries or batteries from different makers.

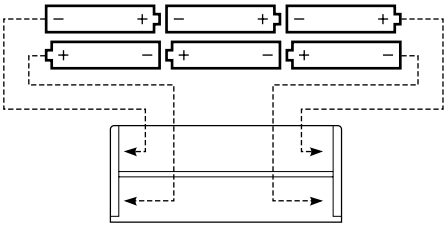
1 Open Battery Compartment Cover

Open the battery compartment cover — located on the instrument's bottom panel — by pressing down on the grooved section of the cover and sliding in the direction of the arrow, as shown in the illustration.



2 Insert Batteries

Insert the six batteries, being careful to follow the polarity markings on the bottom panel.

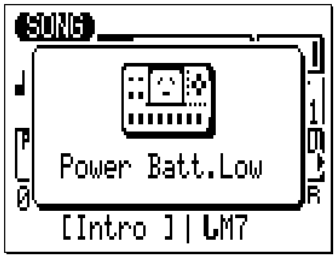


3 Replace Cover

Replace the compartment cover, making sure that it locks firmly in place.

When to Replace the Batteries

When the batteries run down and are no longer able to operate the QY70, the sound may become distorted and the following display will appear:



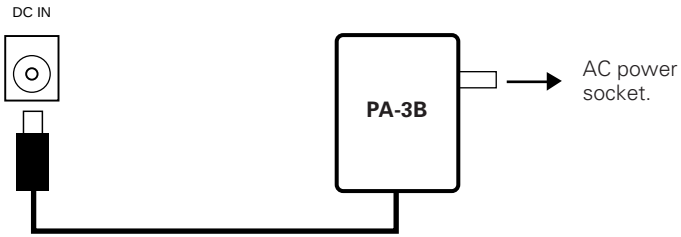
When this display appears, replace the batteries with a complete set of six new batteries. NEVER mix old and new batteries!

■ ***CAUTION!***

- *To prevent possible damage due to battery leakage, remove the batteries from the instrument if it is not to be used for an extended period of time.*

Using a Power Adaptor

Plug the DC output cable from a Yamaha PA-3B AC Adaptor (available from your Yamaha dealer) into the DC IN jack on the rear panel, then plug the adaptor into a convenient wall AC power socket.



■ ***CAUTION!***

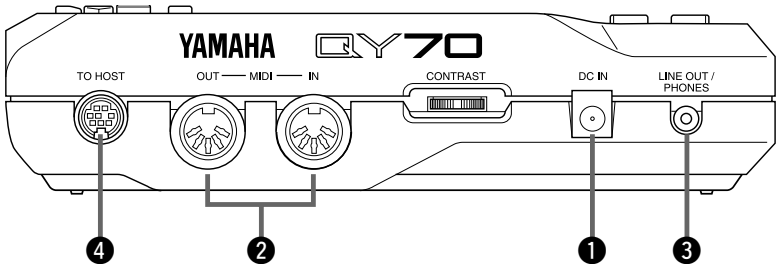
- *Do not attempt to use an AC adaptor other than the specified unit or an appropriate replacement provided by your Yamaha dealer to power the QY70. The use of an incompatible adaptor may cause irreparable damage to the QY70, and might pose a serious shock hazard!*
- *Unplug the AC power adaptor when not using the instrument, or during electrical storms.*

Setting Up

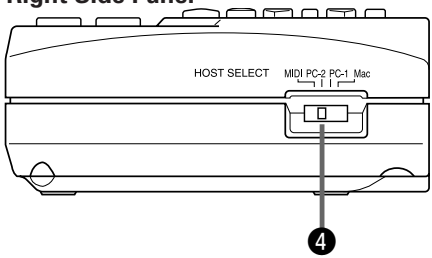
What you will connect the QY70 to, and what you will connect to the QY70, will depend entirely on your individual requirements, and it would be impossible to cover all possibilities here. A few examples are provided below to help you get started.

The Connectors

Rear Panel



Right Side Panel



❶ DC IN Jack

This jack is only used when you are powering the QY70 from an optional AC adaptor instead of batteries. The DC output cable from an optional Yamaha PA-3B AC Power Adaptor is plugged in here.

■ NOTE

- *The batteries are automatically disconnected when a plug is inserted into the DC IN jack.*

❷ MIDI IN & OUT Connectors

If you plan to use a MIDI keyboard or other instrument to play and program the QY70, it should be connected to QY70 MIDI IN connector (see "MIDI Connections," on page 15). The MIDI OUT connector can be connected to an external tone generator if you want to drive external voices from the QY70 sequencer, or a MIDI data recorder such as the Yamaha MDF2 if you want to store your songs and patterns to floppy disk (page 225).

❸ LINE OUT/PHONES Jack

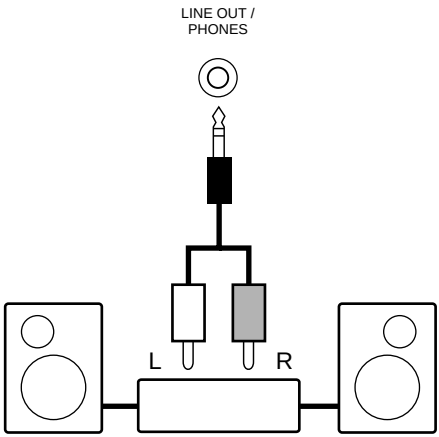
This miniature stereo phone jack can be used to connect the output of the QY70 to a stereo sound system, or a pair of stereo headphones with a miniature stereo phone plug can be plugged in here for convenient monitoring (see "Audio Connections," on page 14). The output level is adjusted via the VOLUME control on the left side panel.

❹ TO HOST Connector & HOST SELECT Switch

This jack and selector switch (the switch is on the side panel) allow direct connection to a personal computer without the need for a separate MIDI interface. See "Connecting To a Personal Computer" on page 16 for details.

Audio Connections

The simplest way to monitor the QY70 sound is via a pair of stereo headphones (miniature stereo phone plug type) plugged into the LINE OUT/PHONES jack. If you want to use an external stereo sound system, however, use the supplied "Y" cable (miniature stereo phone plug to dual RCA pin plugs) to connect the LINE OUT/PHONES jack to the inputs of a stereo sound system. The white RCA pin plug goes to the left-channel input of your stereo sound system and the red plug goes to the right-channel input.



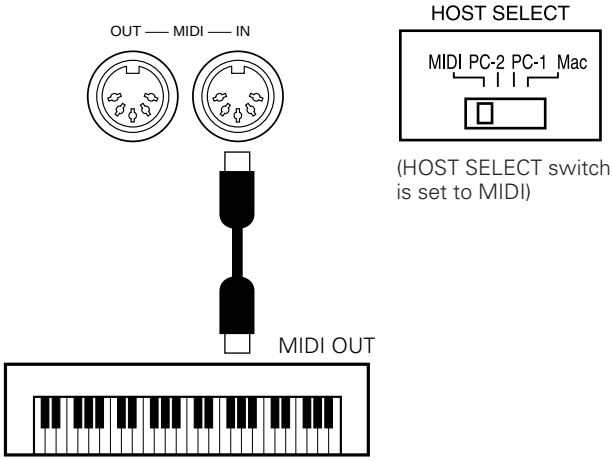
Stereo Sound System

■ ***CAUTION!***

- *Make sure that both the QY70 and your sound system are turned OFF when making connections.*

MIDI Connections

Although the QY70 can be played and programmed from the built-in micro-keyboard, an external MIDI keyboard connected to the MIDI IN connector provides the added advantages of standard keyboard size and key velocity sensivity (if your keyboard has a velocity-sensitive keyboard). Connect the MIDI OUT connector of the keyboard to the MIDI IN connector of the QY70, and make sure that the QY70 HOST SELECT switch is set to MIDI. The connected MIDI keyboard will play the voice assigned to the currently selected sequencer track. See page 61 for instructions on how to assign different voices to the sequencer tracks.



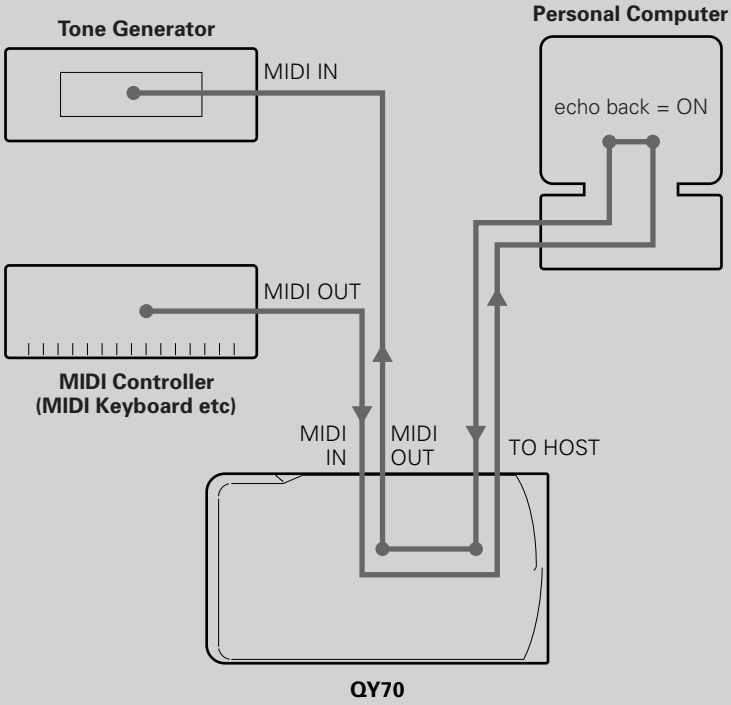
External MIDI Keyboard

Connecting to a Personal Computer

Although the QY70 can be connected to a personal computer via the MIDI IN/OUT connectors and a MIDI interface, the TO HOST connector and selector switch allow direct connection to Apple Macintosh, IBM-PC/AT, or NEC PC-9801/9821 series personal computers for sequencing and other music applications without the need for a separate MIDI interface.

■ ***IMPORTANT!***

- *If the QY70 is to be connected to a computer via the TO HOST connector and a MIDI controller via the MIDI IN connector, the "echo back"(or "MIDI Thru" etc) function of the music software or sequencer you are using must be turned "on" so that the MIDI note data from the controller is returned to the QY70 and any subsequent devices connected to the QY70 MIDI OUT connector.*

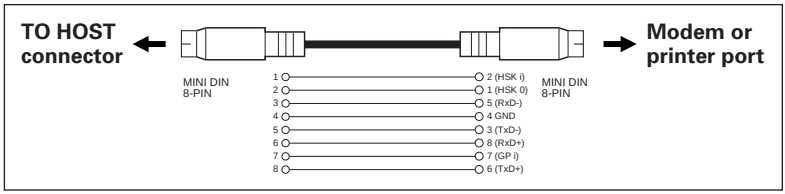


● Connecting to an Apple Macintosh Series Computer

Connect the TO HOST connector of the QY70 to the modem or printer port on your Macintosh, depending on which port your MIDI software is using for MIDI data communication, using a standard Macintosh 8-pin system peripheral cable. Set the HOST SELECT switch to the "Mac" position.

You may also have to make other MIDI interface settings on the computer side, depending on the type of software you use (refer to your software owner's manual). In any case the clock speed should be set to 1 MHz.

"Mac" Cable Connections



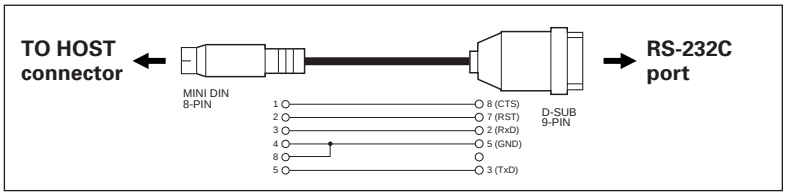
- *8-pin system peripheral cable.*
- *Data transfer rate: 31,250 bps.*

● Connecting to an IBM-PC/AT Series Computer

Connect the TO HOST connector of the QY70 to the RS-232C port on your IBM computer, using a standard 8-pin MINI DIN → 9-pin D-SUB cross cable. Set the HOST SELECT switch to the "PC-2" position.

Refer to your software owner's manual for information on any settings you might have to make on the computer side.

"PC-2" Cable Connections



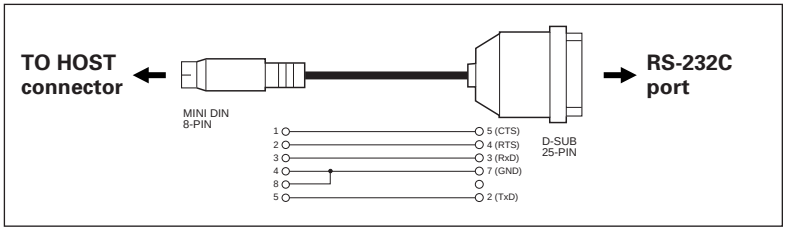
- *8-pin mini DIN → 9-pin D-SUB cable. Use a "PC-1" type cable if your computer uses a 25-pin serial port.*
- *Data transfer rate: 38,400 bps.*

● Connecting to an NEC PC-9801/9821 Series Computer

The NEC PC-9801/9821 computers are widely used in Japan. Connect the TO HOST connector of the QY70 to the RS-232C port on your NEC computer, using a standard 8-pin MINI DIN → 25-pin D-SUB cross cable. Set the HOST SELECT switch to the "PC-1" position if you use Windows3.1, and to the "PC-2" position if you use Windows95.

Refer to your software owner's manual for information on any settings you might have to make on the computer side.

"PC-1" Cable Connections



- *8-pin mini DIN → 25-pin D-SUB cable. Use a "PC-2" type cable if your computer uses a 9-pin serial port.*
- *Data transfer rate: 31,250 bps.*

■ NOTE

- *If your system doesn't work properly with the connections and settings listed above, your software may require different settings. Check your software operation manual and set the HOST SELECT switch to the position provides the appropriate data transfer rate.*
- *If you use Windows95 or Windows3.1 in your computer, the appropriate "MIDI driver" needs to be installed. See page 19 for details.*

About the MIDI Driver

If you use Windows95 or Windows3.1 in your computer, the appropriate "MIDI driver" needs to be installed.

First connect your QY70 to the computer via the TO HOST jack as shown above, and install the Yamaha CBX Driver for Windows95 (if you use Windows95) or the Yamaha CBX-T3 Driver (if you use Windows3.1) from the supplied floppy disk labelled "QY Data Filer" as follows.

(For details about each MIDI driver, refer to the "Readme" file contained within each MIDI driver's folder in the floppy disk.)

● Installing the Yamaha CBX Driver for Windows95

1 Insert the floppy disk labelled "QY Data Filer for Windows" into the floppy disk drive.

2 Double click "Add New Hardware" in the Control Panel. The "Add New Hardware Wizard" will appear.

3 Click "Next".

4 When you are asked if you want to auto-detect the new hardware, click "No" and then click "Next".

5 In the hardware screen choose "Sound, Video and Game Controllers" and click "Next".

6 Click the "Have Disk" button.

7 Type in the name of the floppy disk drive where the floppy disk is inserted, and the name of the directory containing the driver. After that, click "OK".

> For example, if you inserted the disk in drive A, you should type as follows:
>
> A:\MIDIDRV
>
> If you inserted the disk in drive B, you should type as follows:
>
> B:\MIDIDRV

8 In the "Select Device" screen you will see "Yamaha CBX Driver for Windows95". Click "OK".

9 Click "Finish".

10 The "YAMAHA CBX Driver Setup" dialog box appears after the drivers are finished copying. Choose the desired COM port and click "OK". (The QY70 doesn't support the Multi-port feature) The "Do you want to restart Windows?" dialog will appear.

11 Remove the floppy disk and click "OK" to activate the new driver.

This completes installation of the MIDI driver.

Remember to set the Host Select switch to PC-2 when you connect your QY70 to an IBM-PC/AT series or NEC PC-9801/9821 series computer.

● Installing the Yamaha CBX-T3 Driver (for Windows3.1)

1 Insert the floppy disk labelled "QY Data Filer for Windows" into the floppy disk drive.

2 Double click the "Control Panel" icon typically found in the Main Group of the Program Manager window.
The Control Panel window will appear.

3 Double click the "Drivers" icon in the Control Panel window.
The "Drivers" dialog box will appear.

4 Click the "Add" button. The "Add" dialog box will appear.

5 Select "Unlisted or Updated Driver" from the list box and click "OK".
The "Install Driver" dialog box will appear.

6 Type in the name of the floppy disk drive where the floppy disk is inserted, and the name of the directory containing the driver.

> For example, if you inserted the disk in drive A of an IBM-PC/AT series computer, you should type as follows:
>
> A:\IBMPC
>
> If you inserted the disk in drive B of an NEC PC-9801/9821 series, you should type as follows:
>
> B:\NECPC98

Click "OK".

The "Add Unlisted or Updated Driver" dialog box will appear.

7 With the "Yamaha CBXT3 Serial Driver" highlighted, click "OK".
The "Yamaha CBX-T3 Serial Driver Setup" dialog box will appear.

8 Click the desired COM port to select it, then click "OK".
The System Setup dialog box will appear.

9 Click "Restart" to make the added driver effective.

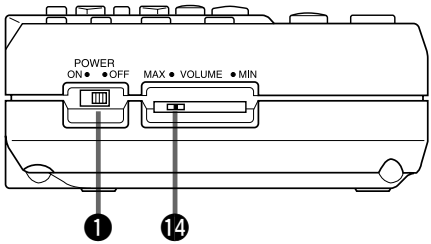
This completes installation of the MIDI driver.

Remember to set the Host Select switch to PC-2 when you connect your QY70 to an IBM-PC/AT series, or PC-1 when you connect to an NEC PC-9801/9821 series.

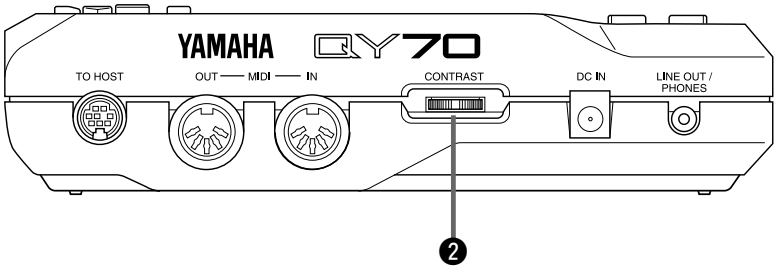
The Controls

The QY70 has fairly simple, consistent control interface that, once understood, makes operation fast and easy, no matter what operation you are performing. If you read through this section carefully, and try out the procedures in the "TRY THIS" sections, you should have no problem accessing and operating the QY70's many advanced features.

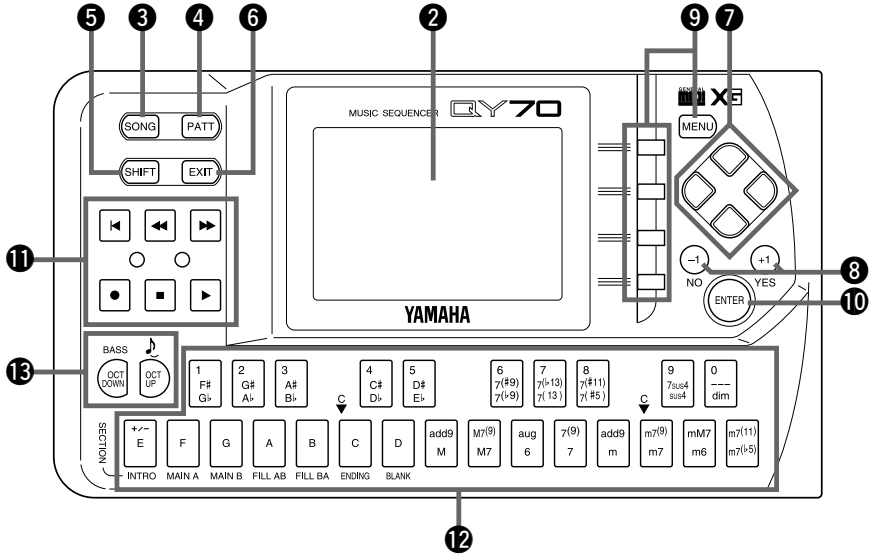
Left Side Panel



Rear Panel



Front Panel



❶ POWER Switch

Slide to the "ON" position to turn the QY70 on, or to the "OFF" position to turn it off.

❷ LCD Display & CONTRAST Control

This large multi-function liquid crystal display panel shows all parameters and prompts you need to operate the QY70 with optimum ease and efficiency.

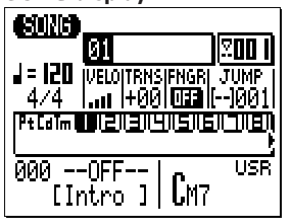
Use the CONTRAST control on the rear panel to achieve the best display visibility (LCD visibility varies greatly with viewing angle and lighting).

❸ [SONG] Key

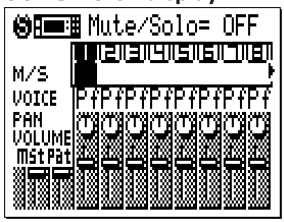
Use this key to select the QY70 SONG mode from any other mode, and to switch between the SONG, SONG VOICE, and SONG EFFECT displays.

TRY THIS:
Turn your QY70 on (the power switch is on the left side), then press the [SONG] key a few times and watch how the display changes. The [SONG] key calls the SONG, SONG VOICE, and SONG EFFECT displays in sequence. The order in which the displays is selected is reversed if you press the [SONG] key while holding the [SHIFT] key.

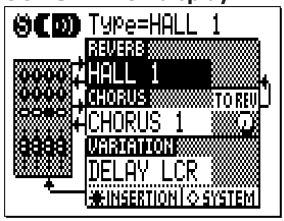
SONG display



SONG VOICE display



SONG EFFECT display



❹ [PATT] Key

The [PATT] key selects the QY70 PATTERN mode from any other mode, and switches between the PATTERN, PATTERN VOICE, and PATTERN EFFECT displays.

❺ [SHIFT] Key

The [SHIFT] key modifies the the function of certain other keys in certain situations (e.g. it reverses the order in which the [SONG] or [PATTERN] displays are selected, as described above). It also allows direct numeric entry via the black micro-keyboard keys (numbered 1 through 0). Situations in which the [SHIFT] key can be used will be described where appropriate in the manual.

❻ [EXIT] Key

No matter where you are in the QY70 display hierarchy, the [EXIT] key will take to the next highest level (effectively "backing up" one step — unless you're already at the top display).

❼ Cursor Keys

These 4 keys move the "cursor" around the display screen, highlighting the various parameters that are available for editing (the QY70 cursor appears as a dark block with inverse characters).

TRY THIS:
Select the SONG mode display (use the [SONG] key, as described above), then try using the cursor keys to move the cursor around the screen.

❽ [-1/NO] and [+1/YES] Keys

These keys are used to edit (change the value of) the parameter at which the cursor is currently located. The [-1/NO] key decrements (decreases stepwise) the value of the selected parameter, while the [+1/YES] key increments (increases stepwise) the parameter. Press either key briefly to decrement or increment the parameter by one, or hold the key for continous decrementing of incrememnting in the specified direction.

The [-1/NO] and [+1/YES] keys are also used to respond to "Are you sure?" prompts when they appear. Press [+1/YES] to go ahead with the operation, or [-1/NO] to cancel.

■ NOTE

- *For even faster decrementing or incrementing, press the opposite increment/decrement key while holding the key corresponding to the direction you want to increment/decrement in.*

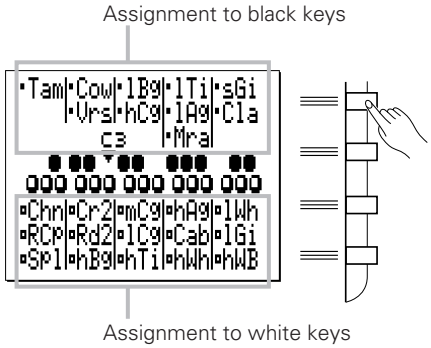
TRY THIS:
Select the SONG mode display (use the [SONG] key, as described above), use the cursor keys to select the transpose parameter ("TRNS" on the display), then try using the [-1/NO] and [+1/YES] keys to change its value. Set it back to "+00" before continuing.

❾ [MENU] and Function Keys

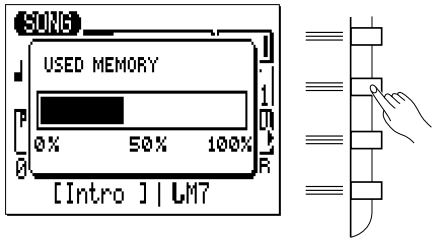
The [MENU] key calls a menu of functions or sub-modes that can be accessed from the current QY70 mode, and the function keys (the four small keys to the right of the display) select the corresponding item from the menu that appears on the display.

The function keys can also be used, as shown below, with the [SHIFT] key, instead of calling a menu with the [MENU] key.

- Pressing the top function key while holding the [SHIFT] key calls a display showing drum instrument assignments to each micro keyboard key at the current octave setting.

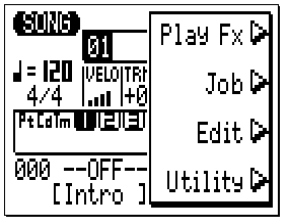


- Pressing the second function key while holding the [SHIFT] key calls the Used Memory display.



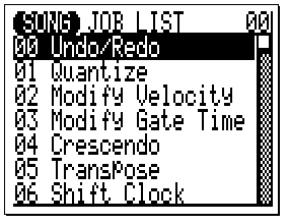
- Pressing the bottom function key while holding the [SHIFT] key executes the Undo/Redo job for immediately previous edit. (Refer to "Undo/Redo" on page 103).

TRY THIS:
Select the SONG mode display (use the [SONG] key, as described above), then press the [MENU] key. You should see the menu shown on the right:



Next press the second function key (the one immediately to the right of "Job" on the menu) to call the SONG mode Job List:

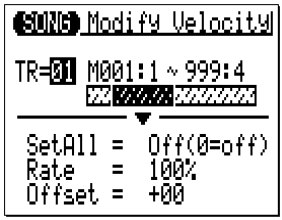
You can now use the cursor keys (up and down only) to select the various items in the Job List. Leave the display as it is for now, and read about the [ENTER] key, below.



⑩ [ENTER] Key

In addition to "entering" chords in the SONG and PATTERN modes (which we'll learn about later), the [ENTER] key is used to "enter" a selected menu function.

TRY THIS:
Assuming that you've gone through the "TRY THIS:" procedure for the [MENU] and Function keys, above, you should now have the SONG mode Job List on your QY70 screen. Use the cursor keys (up and down only) to select job number 02 "Modify Velocity". Now press the [ENTER] key to actually engage the Modify Velocity job — the display should look like this:



Since we don't really want to use the Modify Velocity job, press the [EXIT] key twice (or the [SONG] key once) to go back to the SONG mode.

⓫ Sequencer Keys

The sequencer keys control recording and playback in the SONG and PATTERN modes, and allow you to locate a specific measure within a song or pattern. Their layout and functions are similar to the transport controls on a tape recorder.

[●] **RECORD READY:** Press this key to engage the record ready mode. You have to press the START key to actually start recording.

[■] **STOP:** Press to stop recording or playback.

[▶] **START:** Press to start recording or playback.

[⏮] **GO TO TOP:** This key takes you directly to the first measure (the "top") of the current song or pattern.

[◀◀] **MOVE BACK:** Press briefly to move back one measure, or hold for continuous scrolling.

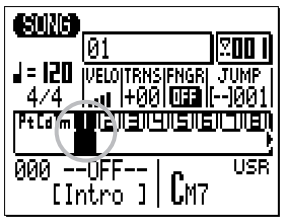
[▶▶] **MOVE FORWARD:** Press briefly to move forward one measure, or hold for continuous scrolling.

⓬ Micro Keyboard

This tiny 2-octave keyboard makes it possible to program the QY70 anywhere, anytime, without having to connect an external MIDI keyboard. It's even polyphonic, so you can directly enter chords as well as single notes. The only thing it lacks is velocity sensitivity. The QY70 does, however, accept velocity information from an external MIDI keyboard.

When programming accompaniment tracks the micro-keyboard is also used to specify the chord roots and types to be entered.

TRY THIS:
In the SONG mode, use the cursor keys to place the cursor at the track 1 position ("1" on the display).

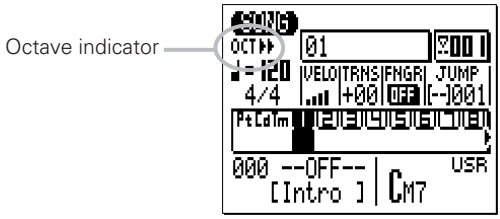


Now play the micro keyboard. You should hear the voice that is currently assigned to sequencer track 1.
In the SONG mode, the micro keyboard plays the voice assigned to the currently selected track (unless you're recording the chord track, in which case it is used to specify chords).

⓭ Octave Keys

Since the 2-octave range of the micro-keyboard is not enough for serious music programming, the [OCT DOWN] and [OCT UP] keys allow the pitch of the keyboard to be shifted up or down in octave steps, over a range of 8 octaves. Each time the [OCT DOWN] key is pressed the pitch of the keyboard is shifted down by one octave, until the lower limit is reached. The [OCT UP] key shifts the pitch of the keyboard up in the same way. The number of octaves the pitch of the micro-keyboard has been shifted down or up is shown by the octave indicator in the upper left corner of the display — the number of arrows indicates the number of octaves shifted in the corresponding direction.

Pressing the [OCT DOWN] and [OCT UP] keys simultaneously shifts the pitch to ±0.



When recording the accompaniment chord tracks in the step mode, the [OCT DOWN] key is used to specify the bass note for chords, while the [OCT UP] key is used to enter syncopated chords.

While playing a note on the micro-keyboard, the [OCT DOWN] key will shift the pitch of the note up while held, and the [OCT UP] key will apply modulation while held.

⓮ VOLUME Control

The VOLUME control adjusts the volume of the sound delivered via the LINE OUT/PHONES jack. Slide the control toward "MAX." to increase the volume or toward "MIN." to decrease the volume.

■ ***CAUTION!***

- *Set the VOLUME control to "MIN." when connecting the QY70 to a sound system for the first time, then gradually raise the volume level until the required listening level is reached. This simple precaution can prevent unexpectedly high volume levels from damaging your speaker system (and maybe even your ears!).*

Play the Demo Songs

After you've set up and made all necessary connections, you might like to play back the QY70 demo songs to hear a few examples of what it can do:

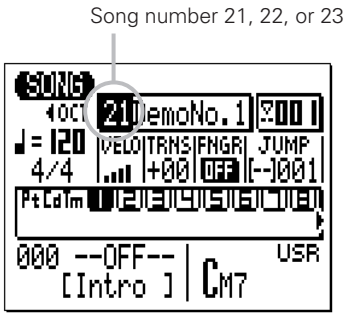
1 Select the SONG Mode

If not already selected, press the [SONG] button to select the main SONG mode display (depending on the current mode you may have to press the [SONG] button more than once).



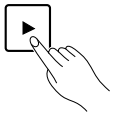
2 Select a Demo Song

Use the cursor keys to move the cursor to the song number, then use the [-1] and [+1] keys to select one of the demo songs: song number 21, 22, or 23.



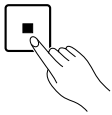
3 Start Playback

Press the sequencer [▶] key to start playback. Use the VOLUME control to set the optimum listening level.



4 Stop Playback

Although playback will stop automatically when the current song is finished, you can stop playback at any time by pressing the sequencer [■] key to stop playback.



Easy Accompaniment

Using the QY70 preset patterns you can easily create accompaniments that you can play or sing along with. You can also add melody tracks later to create complete compositions.

■ ***NOTE***

- *In addition to the preset patterns, the QY70 has memory for 384 original patterns (i.e., 64 user accompaniment "styles" x 6 variation patterns) which you can create as described in "Creating Original Accompaniment Patterns", beginning on page 137.*

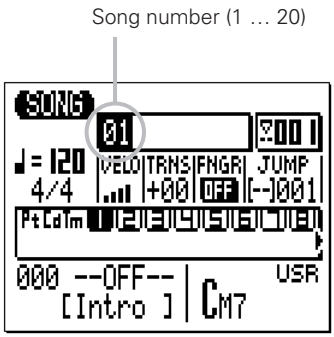
Selecting & Playing the Preset Patterns

The QY70 has 128 preset accompaniment styles, each containing 6 variation patterns, that cover a wide variety of musical patterns. Here's how you can select and play the patterns while in the SONG mode.

1 Select the SONG Mode and an "Empty" Song

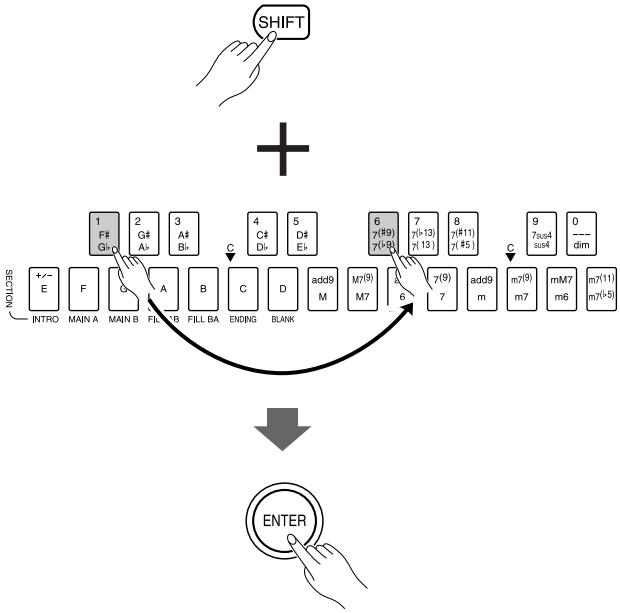
First use the [SONG] key to select the main SONG mode display. In order to select and play the patterns as described in this section you must select an empty song (i.e. one in which nothing has been recorded). Different song numbers (1 through 20) are selected simply by moving the cursor to the song number and using the [-1] and [+1] keys (or use the SHIFT-Number entry method described below).





The SHIFT-Number Entry Method

Numeric values can be directly entered by using the black micro-keyboard keys (numbered 1 through 0) while holding the shift key. To enter the number "16", for example, press the "1" and then the "6" keys ("F♯/G♭" and "7(♯9)/7(♭9)" on the micro-keyboard) while holding the [SHIFT] key. The entered number — "16" — will flash on the display. Press the [ENTER] key to actually enter the number.



In cases in which a negative number needs to be entered (a TRANSPOSE value, for example) press the leftmost micro-keyboard key — the lowest "E" key — to switch between "+" and "-" values before entering the number.

2 Select a Style Number

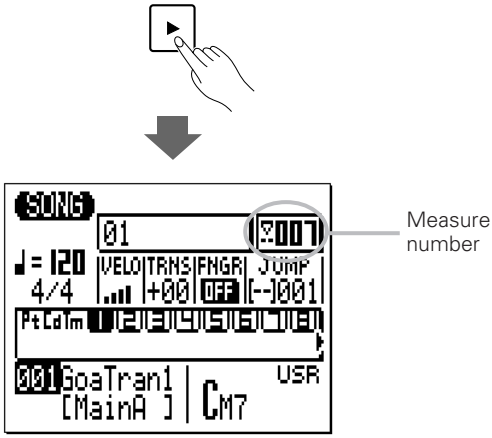
Use the cursor keys to move the cursor to the accompaniment style number, then use the [-1] and [+1] buttons or the SHIFT-Number entry method to select the style you want to play. The preset styles are numbers 001 through 128.



3 Start Playback

Press the [▶] key to start playback of the selected accompaniment style. The green LED above the [▶] key will flash at the current playback tempo.

Note that the measure number on the display advances as each measure is played.



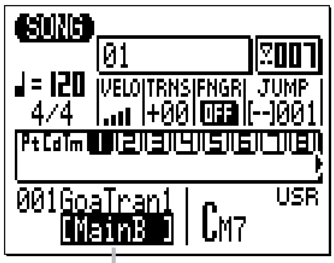
4 Listen to the Style's Variation Patterns

Each preset style has 6 variation patterns or "sections" — INTRO, MAIN A, MAIN B, FILL AB, FILL BA, and ENDING. There's also a "BLANK" section that can be used to create breaks.

INTRO ..... introduction
MAIN A ..... normal pattern, used for the "verse" of a song.
MAIN B ..... variation, normally used as a chorus or bridge.
FILL AB ..... fill-in transition from MAIN A to MAIN B.
FILL BA ..... fill-in transition from MAIN B to MAIN A.
ENDING ..... ending pattern.
BLANK ..... silent pattern for "breaks".

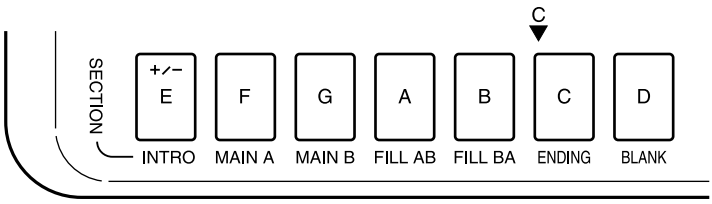
When the INTRO, FILL AB, and FILL BA sections are selected while playing a pattern in the SONG mode, the section plays through once and is automatically followed by either the MAIN A or MAIN B section. INTRO is followed by MAIN A, FILL AB is folowed by MAIN B and FILL BA is followed by MAIN A. The FILL AB and FILL BA sections automatically provide smooth, "musical" transitions between the MAIN A and MAIN B sections. Playback stops automatically after the ENDING section.

The currently selected section is shown between square brackets below the style number and name.

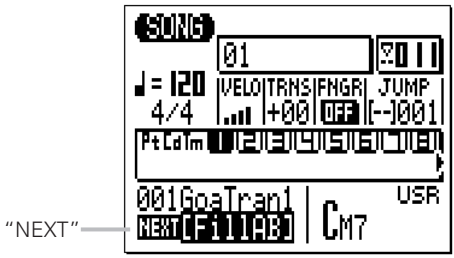


Currently selected section

You can change sections directly by pressing the appropriate key on the micro-keyboard while the cursor is located at either the style number or the section name on the display.



The newly selected section will begin playing from the top of the next measure. "NEXT" will appear below the style number until the new section actually begins playing.



■ ***NOTE***

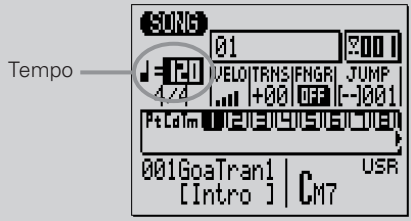
- *You can also change sections by placing the cursor over the section name and using the [-1] and [+1] keys.*

5 Select Different Styles & Patterns (Sections)

With the cursor positioned over the style number you can use the [-1] and [+1] keys to select different styles, and use the micro-keyboard section keys to select different patterns (sections) during playback. In all cases the newly selected style or pattern (section) will begin playing from the top of the next measure. "NEXT" will appear below the style number until the new style or pattern (section) actually begins playing.

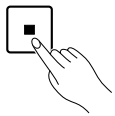
■ NOTE

- *If you move the cursor to the tempo parameter (indicated by a note symbol and a number in the upper left corner of the display), you can use the [-1] and [+1] buttons or the SHIFT-Number entry method to set the playback tempo to anywhere from 25 to 300 beats per minute.*



6 Stop Playback When Done

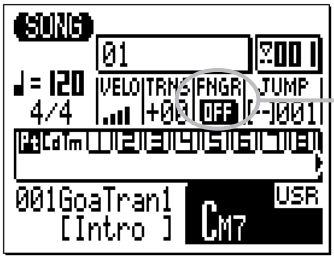
Stop playback at any time by pressing the [■] key. For a more musical ending, select the ENDING section. Playback will stop automatically after the ENDING section.



Changing Chords

The QY70 features a sophisticated ABC (Auto Bass Chord) system that automatically re-harmonizes the accompaniment to match chords you specify. This makes creating complete accompaniment tracks fast and easy … just select a pattern, then specify the required chord changes (details in the next section). Here's how you use the micro-keyboard to specify chord changes.

The following procedure can be performed when "FNGR"(Fingered Chord function) is set to "OFF". First of all, confirm that FNGR is "OFF" before changing chords as follows. (For details on the Fingered Chord function, see page 43 and 227.)



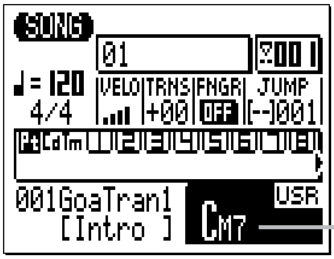
Fingered chord function ON/OFF

1 Play a Pattern

Select and play one of the preset patterns, as described in the preceding section.

2 Move the Cursor to the Chord Symbol

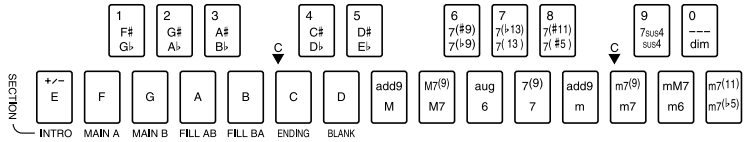
The micro-keyboard can be used to enter chords only when the cursor is located over the chord symbol on the display. Use the cursor keys to move the cursor to the chord symbol at the bottom of the display.



Chord symbol

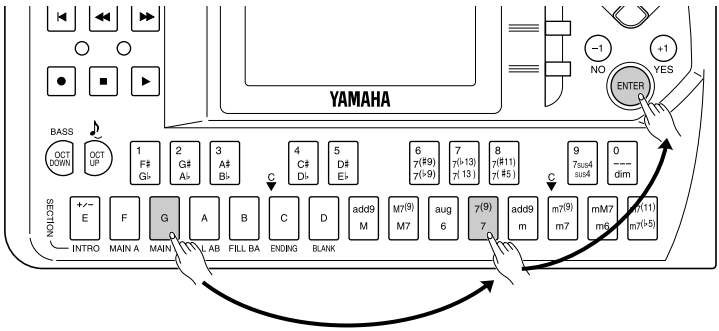
3 Enter a Chord

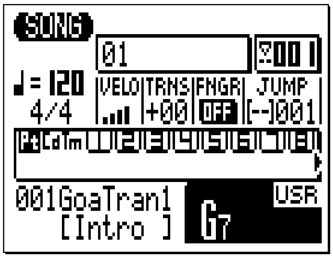
Note that the lower octave of the micro-keyboard has chord root names "E" through "D♯/E♭" marked on the keys, and the upper octave keys are marked with a variety of chord types.



To enter a chord, press the key corresponding to the desired chord root, then the key corresponding to the desired chord type (the chord type keys alternately select the lower and upper chord types marked … watch the display), and finally the [ENTER] key.

Example: Enter a G7 Chord





The chord is actually entered only when the [ENTER] key is pressed. Until the [ENTER] key is pressed, the newly specified chord root and type will flash on the display.

■ ***NOTE***

- *Actually, you can press the chord type key and then the root key, the order doesn't matter.*

The Chord Types

add9	added ninth.
M	major.
M7(9)	major seventh ninth.
M7	major seventh.
aug	augmented.
6	sixth.
7(9)	seventh ninth.
7	seventh.
add9	minor added ninth.
m	minor
m7(9)	minor seventh ninth.
m7	minor seventh.
mM7	minor major seventh.
m6	minor sixth.
m7(11)	minor seventh added eleventh.
m7(♭5)	minor seventh flatted fifth.
7(♯9)	seventh sharp ninth.
7(♭9)	seventh flatted ninth.
7(♭13)	seventh added flatted thirteenth.
7(13)	seventh added thirteenth.
7(♯11)	seventh added sharp eleventh.
7(♯5)	seventh sharp fifth.
7sus4	seventh suspended fourth.
sus4	suspended fourth.
---	non-ABC (see "NOTE" below).
dim	diminished.

■ ***NOTE***

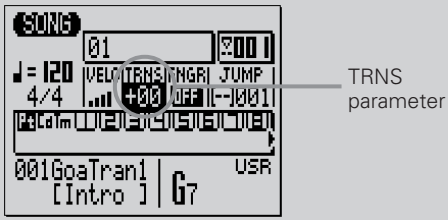
- *The "---" chord type marking is a special "non-ABC" type that can be used to transpose accompaniment patterns to the selected chord root without re-harmonization.*
- *If you enter only the chord root without a chord type, the preceding chord type will be retained. In the same way the root of the preceding chord will be retained if only the chord type is entered.*

4 Try Out the Various Chords with Different Patterns

During playback you can move the cursor up to the style number, select a different pattern (section), then move the cursor back to the chord symbol and try different chords with the new pattern.

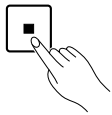
■ ***NOTE***

- *If you move the cursor to the "TRNS" (transpose) parameter, you can use then [-1] and [+1] buttons or the SHIFT-Number entry method to transpose the pitch of the entire pattern up or down in semitone increments over a range of two octaves (-24 through +24). A transpose setting of "+00" produces normal pitch.*



5 Stop Playback When Done

Stop playback by pressing the [■] key. You can also stop playback after an appropriate ending by selecting the ENDING section (the cursor must be on the style number or section name to do this).



■ ***NOTE***

- *ENDING and INTRO patterns for each preset style have their own chord progressions which means chord types (major, minor, etc.) selected will be ignored. (i.e., preset ENDING and INTRO patterns will simply be transposed to the selected chord root without re-harmonization.)*

Fingered Chord Function

Chords can also be changed by playing the chord, as it is, on the micro keyboard or an external MIDI keyboard. To enter the chord in this method, turn the "FNGR"(Fingered Chord function) to "ON".

You do not need to press [ENTER] for the newly entered chord using this procedure.

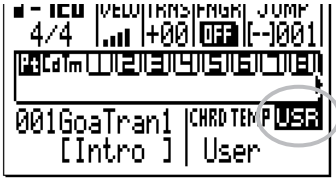


Preset Chord Templates

The QY70 also features preset chord progression templates that can re-harmonize the accompaniment patterns to match preset chord progressions.

This is useful when you practice playing along with or studying the "typical"chord progressions for a variety of musical genres.

To use this template, move the cursor to "USR" to the right of the chord symbol and select the template using the [+1] and [-1] buttons or the SHIFT-Number entry method. The preset chord template list is on the List Book.



■ NOTE

- *The preset chord templates will repeatedly play chord progressions until the [■] key is pressed.*
- *The preset chord templates can be stored as a user chord progression by executing the "Copy Event" job on page 118.*
- *The preset chord templates can not be played properly in other than 4/4 time signature songs, since these templates have been programmed for 4/4 songs. To play a template properly in the non-4/4 songs, execute the "Copy Event" job to copy it to "USR", then edit the chord (Cd) track.*

Record a Complete Accompaniment

The QY70 provides two ways to record an accompaniment by specifying patterns and chords: "realtime" and "step" recording. The realtime method is the fastest and easiest, letting you record pattern and chord changes "on the fly." The step method gives you more detailed control, and is an excellent way to add the finishing touches to an accompaniment recorded in real time.

Realtime Accompaniment Recording

Once you know how to select patterns (i.e., styles and sections) and enter chords in the SONG mode (see the preceding sections), recording a basic accompaniment in real time is easy. Tempo changes can be added later (page 50).

1 Select the SONG Mode & an Empty Song

Use the [SONG] key to select the main SONG mode display and, with the cursor located over the song number at the top of the display, use the [-1] and [+1] keys or the SHIFT-Number entry method to select an empty song number if necessary.



■ ***NOTE***

- *If for some reason all 20 songs contain data, use the "Clear Song" function described on page 135 to clear a song for recording.*

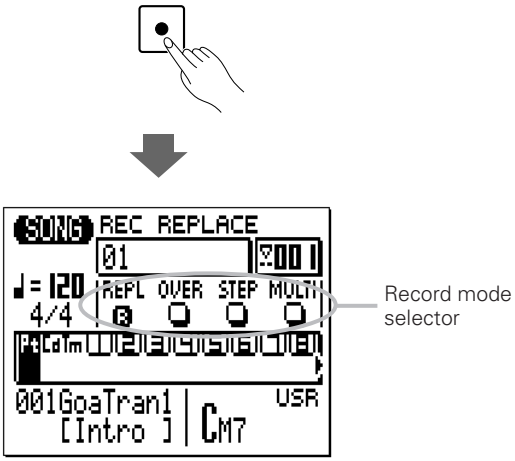
2 Select the "Pt" Track to Record Pattern Changes

Move the cursor to the track area of the display, and then shift the cursor sideways to select "Pt." Once selected, move the cursor vertically to move to other areas of the screen. The selected track will remain highlighted no matter where you move the cursor.



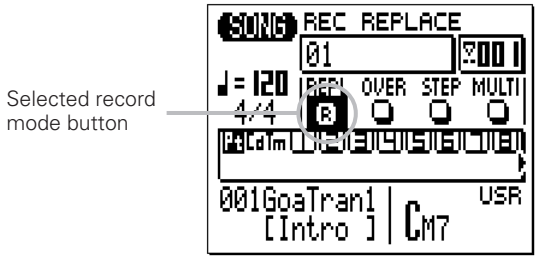
3 Engage the Record Ready Mode

Press the [●] key to engage the record ready mode. The red LED above the [●] key will light. The record mode selectors will appear in the central area of the display, and the name of the current record mode will appear at the top of the display.



4 Select the Realtime Replace Record Mode

Move the cursor to the record mode selector area of the display (the area with the "REPL", "OVER", "STEP", and "MULTI" buttons), and move it to the "REPL" (realtime replace) button, then press the [+1/YES] key to select the realtime replace record mode (if it isn't already selected). An inverse "R" will appear in the selected record mode button.



5 Select the Starting Pattern, Chord, & Tempo

Move the cursor to the style number, section, chord, and tempo parameters, and set as required.

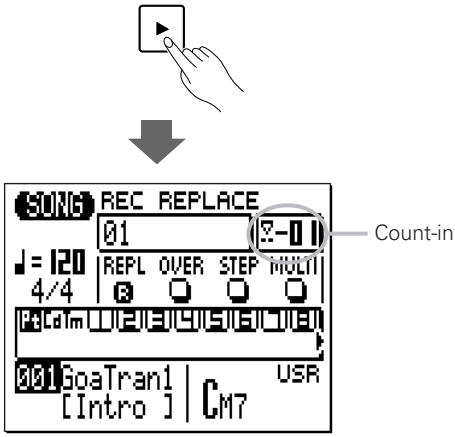
■ ***NOTE***

- *It's sometimes easier to set a slow tempo for realtime recording, so you have plenty of time to enter pattern and chord changes.*



6 Record

Press the [▶] key to begin recording pattern changes. The metronome will sound and you'll be given a one-measure count-in prior to the first measure actually recorded (the number of count-in measures can be set from 1 to 8 in the Utility mode — page 220). The count-in is also indicated by negative numbers in the measure number display. If the number of count-in measures is "1" (the default setting), for example, "-01" will appear during the count-in, then recording will begin from measure "001".

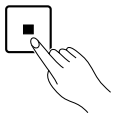


Since you selected "Pt" track recording, the cursor will automatically move to the style number when you start recording. All you have to do to record pattern changes is to select the required style numbers via the [-1] and [+1] keys or the SHIFT-Number entry method, and section changes via the appropriate micro-keyboard keys. Remember that all pattern changes occur from the top of the next measure after the change is entered. Also keep in mind that the INTRO will automatically switch to the MAIN A pattern, FILL AB will automatically switch to the MAIN B pattern, and FILL BA will automatically switch to the MAIN A pattern.

You should end your accompaniment track by entering either the ENDING section or the QY70 "End Pattern" (style number 129), otherwise your accompaniment will play back indefinitely.

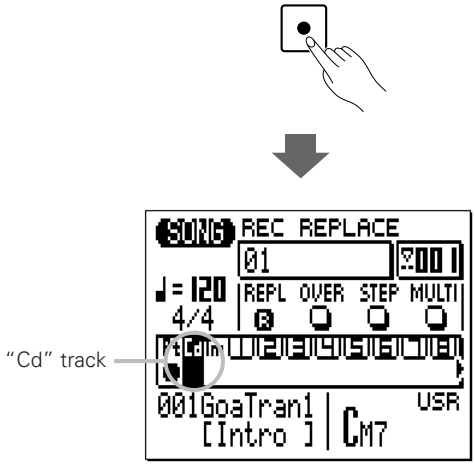
7 Stop Recording

Stop recording by pressing the [■] key. The normal SONG play mode is automatically re-selected when you stop recording.



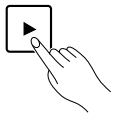
8 Engage Record Ready Again and Select "Cd"

Press the [●] key to engage the record ready mode again (the "REPL" mode will still be selected), then move the cursor to the track section of the display and select "Cd" in order to record chord changes.



9 Record

Press the [▶] key to begin recording chord changes. The metronome will sound and you'll be given a one -measure count-in.



Since you selected "Cd" recording, the cursor will automatically move to the chord when you start recording. All you have to do to record chord changes is to enter the required chords as described in the "Changing Chords" section (page 39).

■ ***NOTE***

- *Chord changes actually occur on quarter-note divisions, so try to press the [ENTER] key to enter each chord either exactly on the beat or a fraction of a section before the beat on which you want the chord change to occur. Syncopated chord changes can be programmed in the STEP record mode (page 59).*

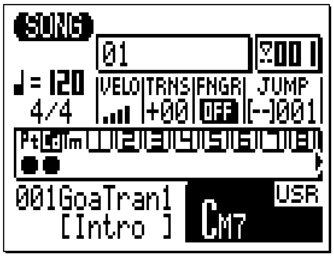
If the Fingered Chord function(FNGR) is previously set to"ON", a chord change can be entered by playing the chord as it is on the micro keyboard or an external MIDI keyboard. In this case, you do not need to press [ENTER] for the newly entered chord.

10 Stop Recording

Press the [■] key to stop recording when all the required chord changes have been entered. The normal SONG play mode is automatically re-selected when you stop recording.

11 Listen To the Results

Press the [▶] key to play back and check out the accompaniment you've just recorded.



■ ***NOTE***

- *Note that the chord currently playing is shown in the chord symbol location on the display.*
- *Don't worry if you've made a few mistakes. Simple slip-ups made in the realtime record mode can usually be corrected in the step record mode … described next.*

Recording Tempo Changes

If you want your accompaniment to include tempo changes, they can easily be added after the pattern and chord changes have been recorded: Select the "Tm" (Tempo) track, press the [●] button to engage the record ready mode (only realtime replace recording can be selected for the tempo track), press [▶] to start recording (the cursor will automatically move to the tempo parameter), then use the [-1/NO] and [+1/YES] keys or the SHIFT-Number entry method to make the required tempo changes in real time. Press [■] to stop recording.



■ ***NOTE***

- *Tempo changes can be edited in detail as described in "Editing Songs and Patterns", beginning on page 192.*
- *You should record tempo data with this method at the top of the song to fix the song's beginning tempo, if you want to add tempo changes.*

Step Accompaniment Recording

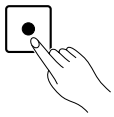
The STEP record mode can be used with the "Pt" (Pattern) and "Cd" (Chord) tracks, making it easy to individually enter or delete pattern and chord changes at precisely the required locations.

1 Select a Song to Record

Select an empty song if you want to record a new song in the step record mode, or select a song that already contains data if you want to make changes or additions.

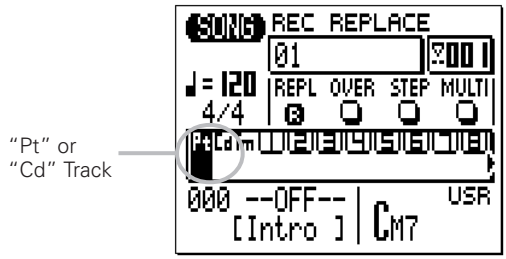
2 Engage the Record Ready Mode

Press the [●] key to engage the record ready mode. The red LED above the [●] key will light.



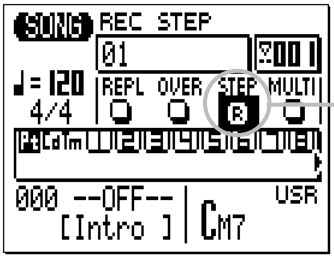
3 Select the "Pt" or "Cd" Track

Move the cursor to the track area of the display, and then shift the cursor sideways to select "Pt" or "Cd". Once selected, move the cursor vertically if you want to move to other areas of the screen. The selected track will remain highlighted no matter where you move the cursor.



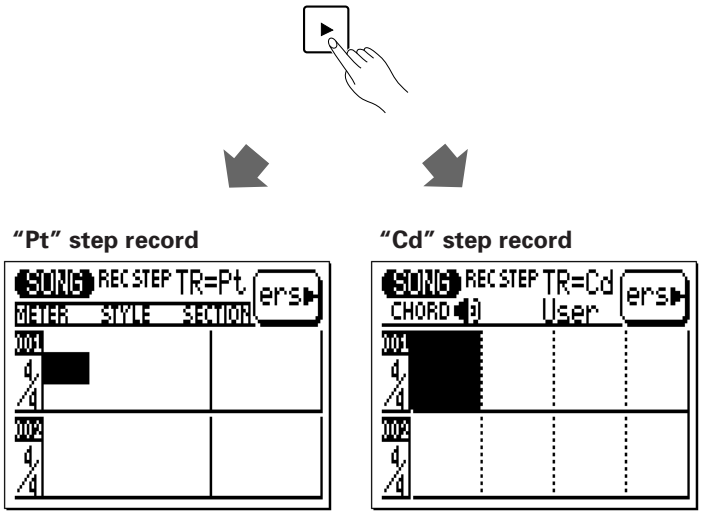
4 Select the Step Record Mode

Move the cursor to the record mode selector area of the display (the area with the "REPL", "OVER", "STEP", and "MULTI" buttons), and move it to the "STEP" button, then press the [+1/YES] key to select the step record mode. An inverse "R" will appear in the selected record mode button.



5 Start Recording

Press the [▶] key to call the selected step record display.

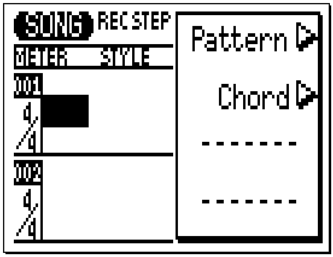


6 Enter the Required Pattern and/or Chord Data

Refer to the following sections for details on how to use each of the step-record mode data-entry displays.

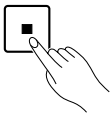
You can switch directly between the pattern and chord data-entry displays while the step record mode is engaged simply pressing the [MENU] key to call the menu shown below, and then the function key corresponding to the display you want to go to.





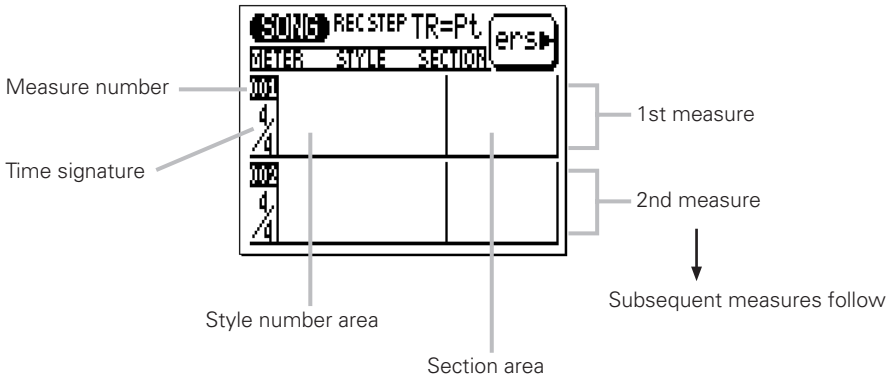
7 Stop Recording

Press the [■] key to exit from the step record mode and return to the normal SONG play mode.



■ "Pt" — Step Record Pattern Changes

Here's how the STEP record pattern display will look if you've selected an empty song (the appropriate pattern data will appear if the selected song contains data).



● Moving Around & Entering Data

As usual, the cursor keys are used to move the cursor to the location at which you want to enter data, and the [-1] and [+1] keys are used to actually enter or change data.

The cursor keys also move you forward or backward through the song: moving the cursor past the bottom of the screen accesses subsequent measures, while moving it above the top of the screen accesses the preceding measures (if there are any). In the pattern display moving sideways takes you to the time signature, style number, and section parameters.

In all of the STEP record displays the sequencer keys can also be used to move forward or backward through the song.

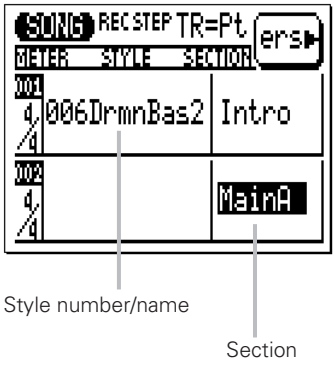
[|◀] Go to first measure.
[◀◀] Scroll up (see lower measure numbers)
[▶▶] Scroll down (see higher measure numbers)

● Style Number and Section

Any preset style number from 001 through 128, the "end pattern" (number 129), or any user style number from U1 through U64 can be entered for each measure. The style name appears to the right of the style number. Only one style & pattern (section) can be entered per measure, and that pattern will begin playing from the beginning of the measure at which it is entered.

A pattern entered once will continue to play until a different pattern is entered. If you want to change sections without changing the style number, only the section need be entered. Playback will stop automatically when an "end pattern" (style number 129) or an ending section is encountered.

In the example display below the intro pattern (section) of style 006 plays for the first measure, then the main A pattern (section) of the same style is selected in measure 2.



● Time Signature

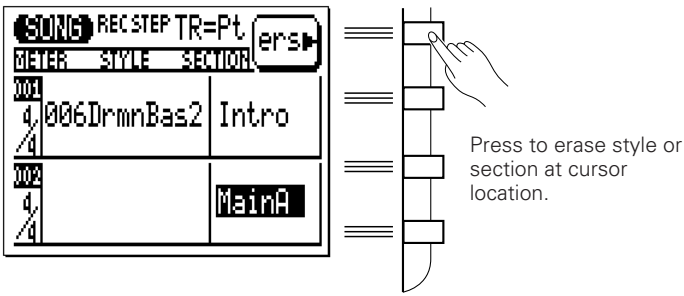
Although the default time signature for the selected song is automatically selected, the time signature value for each measure can be changed as required. The available time signatures are:

1/16 … 16/16
1/8 … 16/8
1/4 … 8/4

If a time signature is selected that results in shorter measures than the pattern default, the pattern will be truncated (cut short) accordingly. If the selected time signature results in longer measures than the pattern default, the pattern will be repeated to fill the specified measure length.

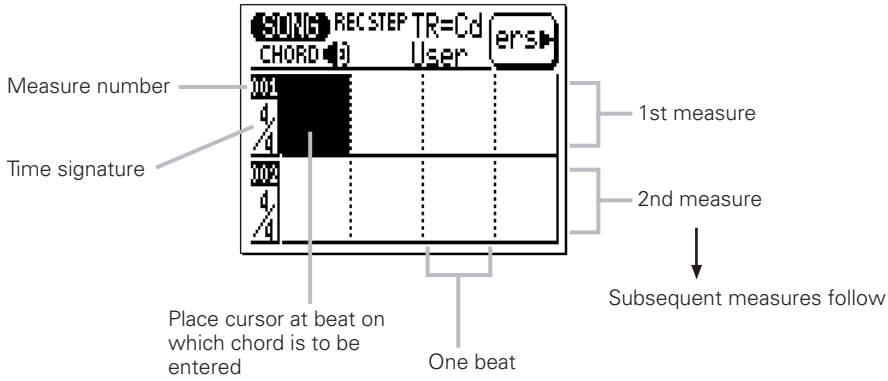
● Erasing Pattern Changes

The function key immediately to the right of "ers" on the display can be used to erase style number or section data at which the cursor is located.



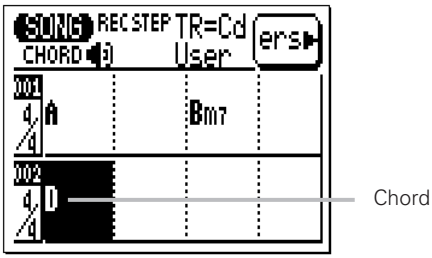
■ "Cd" — Step Record Chord Changes

Here's how the STEP record chord display will look if you've selected an empty song (the appropriate chord data will appear if the selected song contains data).



● Chords

One chord can be entered per quarter note. Place the cursor at the required quarter-note division on the display and enter the chord by specifying the root and type via the micro-keyboard (see page 40). In the example display below, an A major chord is entered on the first beat of the first measure, a B minor seventh on the third beat of the first measure, and a D major on the first beat of the second measure.

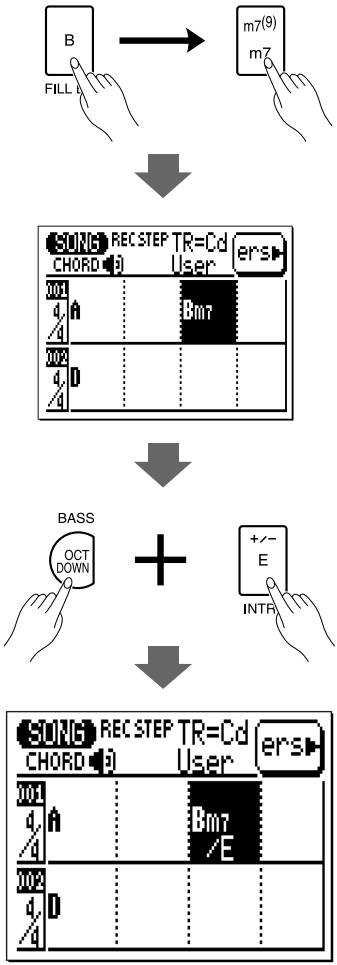


You can also enter a chord by playing the chord as it is on the micro keyboard or an external keyboard if the Fingered Chord function(FNGR) is previously set to "ON".

● Specifying the Bass Note For a Chord

You can specify the bass note to be used with any chord by using the [OCT DOWN] key (note the "BASS" marking above the key). Enter the chord by specifying the root and type, then press the key on the micro-keyboard corresponding to the desired bass note while holding the [OCT DOWN/BASS] key. The bass note will appear to the right of a slash below the chord name.

Example: Bm7 with E bass



■ ***NOTE***

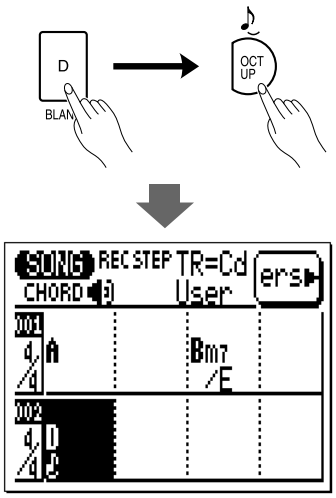
- *You can add bass notes to existing chords without having to re-enter the entire chord by simply moving the cursor to the chord and using the [OCT DOWN/BASS] key to specify the bass note. A bass note can be removed from a chord by placing the cursor at the chord and re-entering the chord.*

If FNGR is set to "ON", a bass note can be entered by pressing a key for a bass note on the left part of the micro keyboard or an external keyboard while holding the chord. (The "left part" range for entering a bass note can be specified in the Utility mode on page 227.)

● Syncopated Chords

Chords can be syncopated (i.e. the chord actually begins an eighth or sixteenth note before the beat on which it is entered) by using the [OCT UP] key (note the "♪" marking above the key). Enter the chord, then press the [OCT UP] key once for eigth-note syncopation, or twice for sixteenth-note syncopation (the appropriate syncopation symbol will appear below the chord name).

Example: D chord syncopated (8th note)

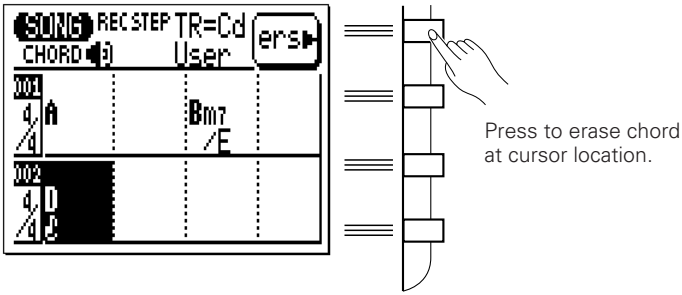


■ ***NOTE***

- *You can add syncopation to existing chords without having to re-enter the entire chord by simply moving the cursor to the chord and pressing the [OCT UP] key. Syncopation can be removed from a chord by placing the cursor at the chord and pressing the [OCT UP] once or twice so that the syncopation symbol disappears.*

● Erasing Chords

The function key immediately to the right of "ers" on the display can be used to erase the chord at which the cursor is located.



● Sound On/Off

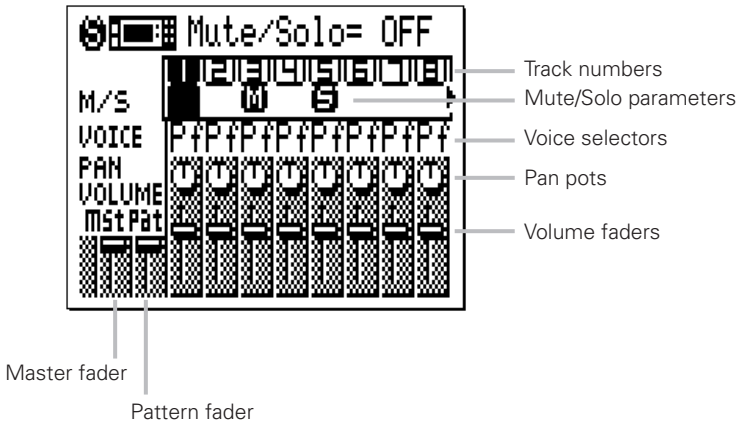
You can hear the sound of entered chord in step recording. If you don't want to hear the sound, press the [MENU] key and then the function key next to "Sound" to call the Sound on/off display.

Press [-1/NO] key to turn the sound off, [+1/YES] key to turn on.

The Song Voice Mode

The QY70 has 519 voices and 20 drum kits that can be selected, played, and assigned to the 16 SONG mode sequencer tracks via the SONG VOICE mode. The VOICE mode features a graphic on-screen "mixer" that has mute/solo controls, pan pots, and faders for each track. The SONG voice mode also provides access to effect send controls and a versatile range of voice editing parameters (page 68).

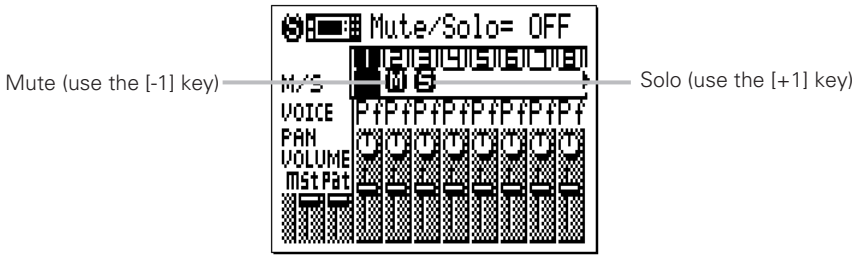
Press the [SONG] key to select the voice mode mixer display. The mixer display shows 8 of the 16 available tracks at a time. Use the cursor keys to scroll left or right to the remaining tracks (an arrow appears at either the left or right of the track numbers to indicate that more tracks can be accessed by scrolling in the corresponding direction).



● Mute/Solo

The Mute/Solo ("M/S") parameters below each track number in the VOICE mode mixer display can be used to mute (turn off) or solo (only that track will be monitored) the corresponding track. Move the cursor to the appropriate M/S parameter, then use the [-1] key to alternately mute or un-mute that track, or use the [+1] key to alternately solo or un-solo the track. Any number of tracks can be muted and/or soloed at a time. To solo more than one track at a time hold the [SHIFT] key while soloing additional tracks after the first solo track has been specified. Also hold the [SHIFT] key while un-soloing a single track when multiple tracks are soloed (un-soloing a single track without holding the [SHIFT] key will un-solo all soloed tracks).

The letter "M" appears below the number of tracks that are muted, and the letter "S" appears when a track is soloed.



■ NOTE

- *The mute function is a handy way to simply turn tracks that you don't want to hear off. When recording, they also make it easy to mute a "busy" track or several tracks that might make it difficult to hear an important track.*
- *Solo monitoring is a great way to isolate a track or two when you want to concentrate on the sound while, for example, making delicate adjustments to effects or other parameters that might get "swamped" by the sound from other tracks. It's also handy for listening for small mistakes that you might otherwise overlook.*
- *These same parameters also appear in the main SONG display. A track that is muted or soloed in the main SONG display will also appear muted or soloed in the voice mode mixer display, and vice-versa.*

● The Voices

Due to the large number of voices provided in the QY70, they are organized into 21 categories, as follows:

Prefix	Category
Pf	Piano
Cp	Chromatic Percussion
Or	Organ
Gt	Guitar
Ba	Bass
St	Strings
En	Ensemble
Br	Brass
Rd	Reed
Pi	Pipe
Ld	Lead Synth
Pd	Pad
Fx	Synth Effects
Et	Ethnic instruments
Pc	Percussive
Se	Sound effects
Sfx	More sound effects
Sfk	Sound effect kits (i.e. a different effect on each key).
Dr	Drum kits
Ds1	Drum set 1 (Drum kit including "editable" drum instruments)
Ds2	Drum set 2 (Drum kit including "editable" drum instruments)

See the List Book for a complete list of the voices with their corresponding category, program number, and bank number.

To select a voice for a specific track, move the cursor to the appropriate VOICE parameter and select using the [-1] and [+1] keys or the SHIFT-Number entry method (page 34). You can also skip to the first voice in each category by using the [-1/NO] and [+1/YES] keys while holding the [SHIFT] key.

Note that the currently selected voice category, number, and name appear at the top of the display. Also note that some of the voices have variations, indicated by a plus sign ("+") between the program number and voice name. Play the micro keyboard and you'll hear that voice.

■ ***NOTE***

- *In any QY70 mode, the micro keyboard or an external MIDI keyboard plays the voice assigned to the currently selected track. A MIDI keyboard will also play the voice assigned to a track with the same number as the external keyboard's MIDI transmit channel unless the "ECHO BACK" parameter (page 223) is set to "Rec Monitor".*
- *If you're playing the micro keyboard, use the octave keys to access the full range of instruments in each drum or effects kit.*
- *See the List Book for a complete list of note assignments (i.e. which drum instruments and SFX sounds are assigned to which notes) for all drum and SFX kits.*

● The Pan Pots

Like the pan pots on a mixing console, the VOICE mode pan pots can be used to position the sound of the corresponding track anywhere from left to right in the stereo sound field. Position the cursor at the pan pot, then use the [-1/NO] and [+1/YES] keys to set the pan position. The graphic pan pot will rotate to the corresponding position. The pan positions also have numeric values (1 through 63) that appear at the top of the display: "Center" is center, "Left 63" is full left, and "Right 63" is full right. There's also a "Random" setting in which the pan position is set randomly.

● The Volume Faders

Each track has a graphic volume "fader" that can be set to produce the best "mix" (balance) between the various voices. Position the cursor at a fader, then use the [-1/NO] and [+1/YES] keys or the SHIFT-Number entry method to set the fader level. The graphic fader will move to the corresponding position (higher for higher volume, and lower for lower volume). The fader positions also have numeric values (000 through 127) that appear in the upper right corner of the display: "000" is minimum volume (no sound) and "127" is maximum volume. The default setting is "100" for all tracks. The leftmost "mst" fader is a "master" fader which can be used to adjust the overall volume level, while the "pat" fader independently controls the level of the pattern track.

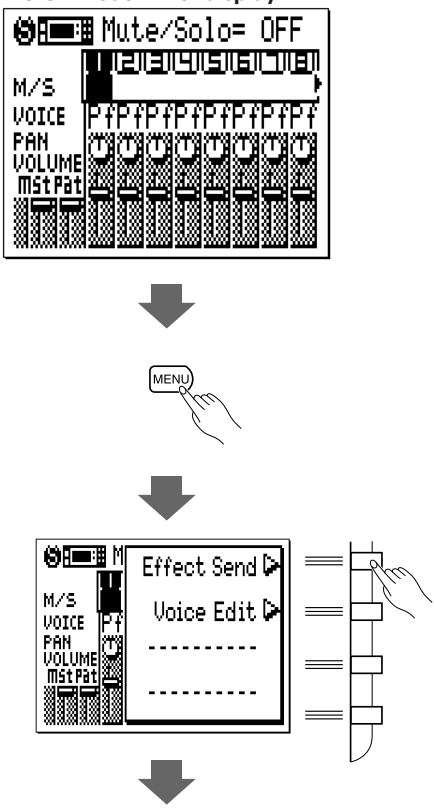
■ ***NOTE***

- *You can switch back and forth between the SONG and VOICE modes even while a song is playing, so you can adjust all VOICE mode parameters (change voices, mute tracks, pan, and change volume settings) while listening to the results in real time!*

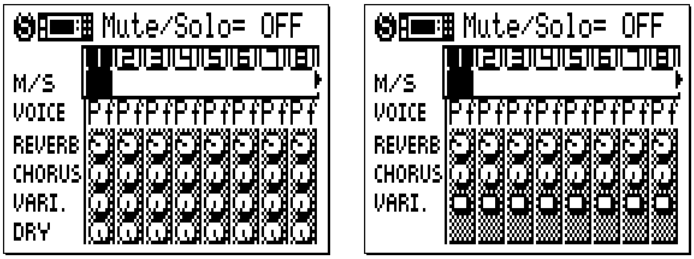
The Effect Send Display

The QY70 features a high-performance internal digital signal processing system which provides a range of effects including reverb, delay, modulation, distortion, and more. Three independent effect blocks are provided — Reverb, Chorus, and Variation. The individual effects are selected and modified via the EFFECT mode, described in detail on page 212. The VOICE mode mixer display provides acces to independent effect send controls for each of the three effect blocks via the MENU sub-display: press the [MENU] button, and then the function key next to "Effect Send" on the display.

VOICE mode mixer display



Effect send display



VARI. = System effect

VARI. = Insertion effect

The VARI. (variation effect) control appears either as a standard rotary control or a switch, depending on how the variation effect block is "connected" to the system in the EFFECT mode ("System" or "Insertion" — see page 215).

The effect controls — "REVERB", "CHORUS", and "VARI." — set the level of the corresponding effect for the corresponding parts. Position the cursor at a control, then use [-1/NO] and [+1/YES] keys or the SHIFT-Number entry method to set the corresponding effect level. The graphic control will rotate to the corresponding position (clockwise for higher level, and counter-clockwise for lower level). The control positions also have numeric values (000 through 127) that appear at the top of the display: "000" is no effect and "127" is maximum effect level. When the VARIATION control appears as a switch, it simply turns the current variation effect on or off ("E" appears in the switch when the variation effect is on).

The Mute/Solo and Voice selectors in the Effect Send display duplicate those in the VOICE mode mixer display, and have exactly the same functions.

You can return to the SONG VOICE mixer display by pressing the [EXIT] key.

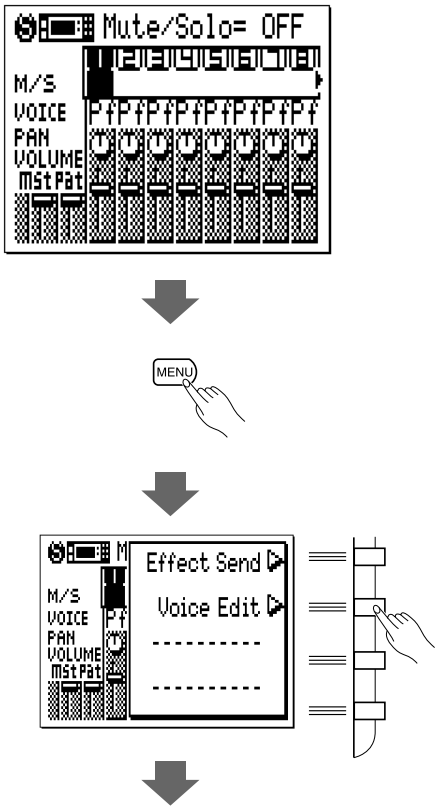
■ NOTE

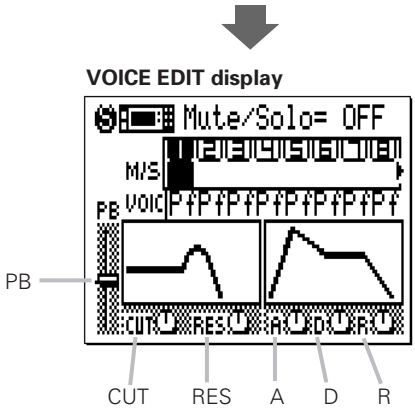
- *The effect settings apply only to the QY70's internal voices — i.e. they will not affect the sound of an external tone generator or synthesizer being driven by the QY70.*
- *When the "VARI." control appears as a standard rotary control (i.e., the variation effect block is connected as a "System" effect), the "DRY" rotary control also appears to control "Dry/Wet" mixing of effects for each track.*
  When the "VARI." control appears as a switch (i.e., the variation effect block is connected as an "Insertion" effect), the "DRY" rotary control disappears. In this case, "Dry/Wet" mixing can be controlled in the "Vari.Edit" of the Effect Editing display. (page 216)

Voice Editing

The QY70 VOICE EDIT mode makes it possible to modify the sound of the voices assigned to each track to best suit your particular musical requirements. The VOICE EDIT mode can be accessed from the SONG VOICE mode by pressing the [MENU] button, and then the function key next to "Voice Edit" on the display. If a Drum Set is selected ("Ds1" or "Ds2") the "Drum Voice Edit" mode will also be available via the menu.

VOICE mode mixer display





To edit a voice parameter, move the cursor to the parameter and edit using either the [-1] and [+1] buttons or the SHIFT-Number entry method.

■ ***NOTE***

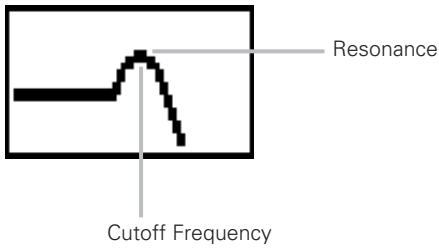
- *The Mute/Solo and Voice selectors in the VOICE EDIT display duplicate those in the VOICE mode mixer display, and have exactly the same functions.*
- *You can return to the SONG VOICE mixer display by pressing the [EXIT] key.*

PB (Pitch Bend Range)

This control sets the maximum pitch bend control range. The range is from "-24" through "0" to "+24". Each increment corresponds to one semitone (100 cents), thus the maximum pitch bend control range is plus or minus two octaves. The value set here also applies to the pitch bend range controlled by the [OCT DOWN] key while playing on the micro keyboard.

● Filter Controls

The filter controls affect the basic "timbre" of the sound.



CUT (Cutoff Frequency)

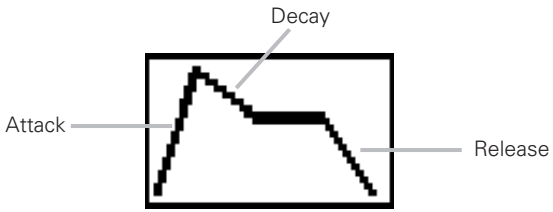
Sets the cutoff frequency of the low-pass filter from "-64" through "0" to "+63". Negative values lower the cutoff frequency, producing a "darker" sound. Positive values raise the cutoff frequency, producing a brighter sound. The graphic filter response curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

RES (Resonance)

Adjusts the height of the filter's resonance peak from "-64" through "0" to "+63". Negative values lower the resonant peak producing a "flatter" sound. Positive values increase the resonant peak, emphasizing components at the filter cutoff frequency. The peak on the graphic filter response curve will grow or shrink to indicate the current setting (the heavy default setting curve will also remain on the display).

● EG (Envelope Generator) Controls

The envelope generator controls affect the level "envelope" of the sound — i.e. its attack, decay, and release times. Plotted against time, the level envelope looks something like this.



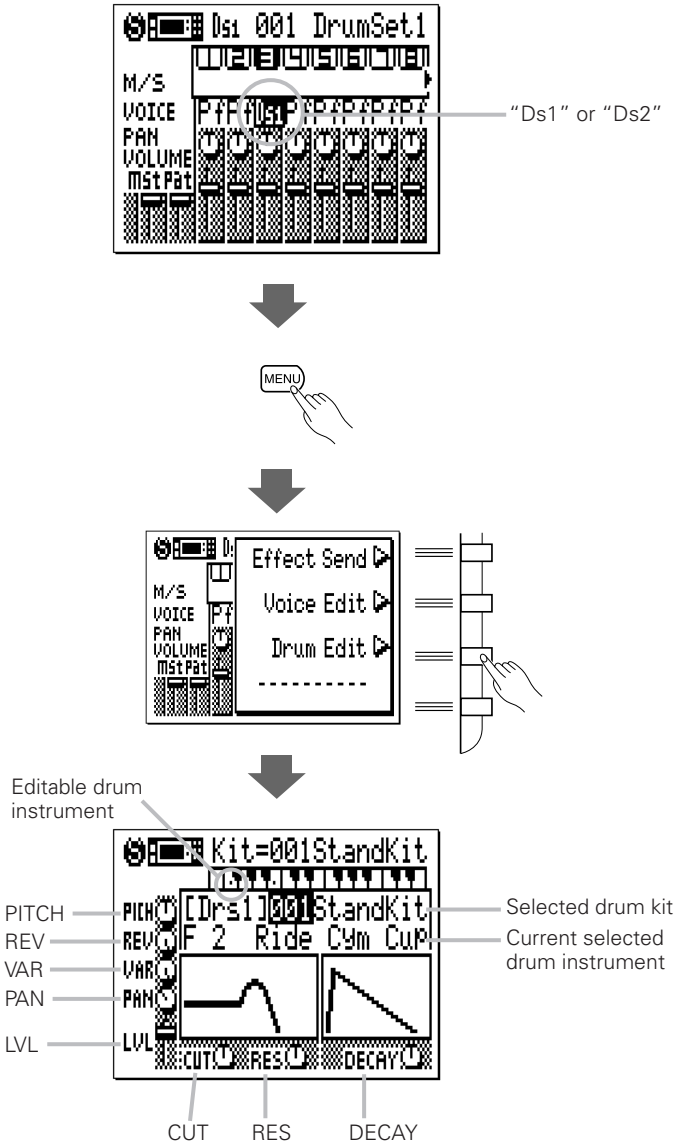
A (Attack Time)
Adjusts the attack portion of the envelope generator curve from "-64" through "0" to "+63". Negative values produce a faster attack while positive values produce a slower attack. The graphic envelope generator curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

D (Decay Time)
Adjusts the decay portion of the envelope generator curve from "-64" through "0" to "+63". Negative values produce a faster decay while positive values produce a slower decay. The graphic envelope generator curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

R (Release Time)
Adjusts the release portion of the envelope generator curve from "-64" through "0" to "+63". Negative values produce a faster release while positive values produce a slower release. The graphic envelope generator curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

Drum Edit

When a Drum Set is selected ("Ds1" or "Ds2") the "Drum Voice Edit" mode can be selected via the SONG VOICE menu.



Select the specific drum set to be edited by placing the cursor on the drum set number and selecting via the [-1] and [+1] keys or by using the SHIFT-Number entry method. Only certain drum instruments can be edited, and these are indicated by dots on the appropriate keys in the graphic keyboard display at the top of the display panel. Use the [OCT DOWN] and [OCT UP] keys to access the full range of drum instruments, and press the corresponding micro-keyboard key to select an instrument for editing. When a drum instrument which cannot be edited is selected, the controls on the display appear "grayed" and cannot be accessed.

PICH (Pitch Coarse)
Adjusts the pitch of the selected drum instrument from "-64" through "0" to "+63". Negative values lower the pitch of the instrument, while positive values raise the pitch of the instrument.

REV (Reverb Send)
Independently adjusts the reverb send level of the selected drum instrument from "0" (no reverb) to "127" (maximum reverb).

VAR (Variation Send)
Independently adjusts the variation effect send level of the selected drum instrument from "0" (no effect) to "127" (maximum effect) when the variation effect block is connected as a system effect, or turns the variation effect "On (in case set to other than 0)" or "Off (in case set to 0)" when the variation effect block is connected as an insertion effect (see page 215 for details on the effect connections).

PAN (Pan Position)
Sets the pan position of the selected drum instrument. "Center" is center, "Left 63" is full left, and "Right 63" is full right. There's also a "Random" setting in which the pan position is set randomly.

LVL (Level)
Sets the level (volume) of the selected drum instrument from "0" (no sound) to "127" (maximum volume).

CUT (Cutoff Frequency)
Sets the cutoff frequency of the low-pass filter from "-64" through "0" to "+63". Negative values lower the cutoff frequency, producing a "darker" sound. Positive values raise the cutoff frequency, producing a brighter sound. The graphic filter response curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

RES (Resonance)
Adjusts the height of the filter's resonance peak from "-64" through "0" to "+63". Negative values lower the resonant peak producing a "flatter" sound. Positive values increase the resonant peak, emphasizing components at the filter cutoff frequency. The peak on the graphic filter response curve will grow or shrink to indicate the current setting (the heavy default setting curve will also remain on the display).

DECAY (Decay Rate)
Adjusts the decay rate from "-64" through "0" to "+63". Negative values produce a slower decay while positive values produce a faster decay (Unlike the Decay Time in normal Voice Editing (page 71), this parameter sets the rate for how much the level of the instrument decays. Therefore, positive values produce a faster decay.). The graphic envelope generator curve will shift to indicate the current setting (the heavy default setting curve will also remain on the display).

Creating A Complete Song

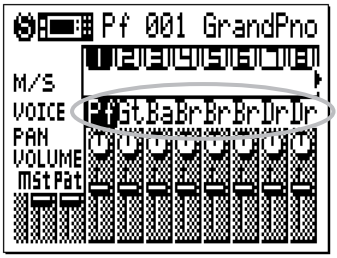
In chapter 5, "Easy Accompaniment", we learned how to record the accompaniment tracks in the SONG mode. In this chapter we'll learn how to record the sequencer tracks to create complete songs.

Recording the Sequencer Tracks

After recording the accompaniment tracks in the SONG mode using either the preset patterns (chapter 5, page 44) or original patterns you have created in the PATTERN mode (chapter 10, page 137), record melody lines, harmony parts, counter-melodies, or any other parts required to complete your composition on the SONG mode sequencer tracks. The SONG mode provides realtime replace, realtime overdub, step, and multi recording modes for the sequencer tracks.

Preparing to Record — Voice Assignments

Before actually beginning to record you should switch to the SONG VOICE mode and assign the desired voices to the SONG mode sequencer tracks (page 61). Of course, you can make these assignments later but it's better to record with the voices you actually intend to use in the song.

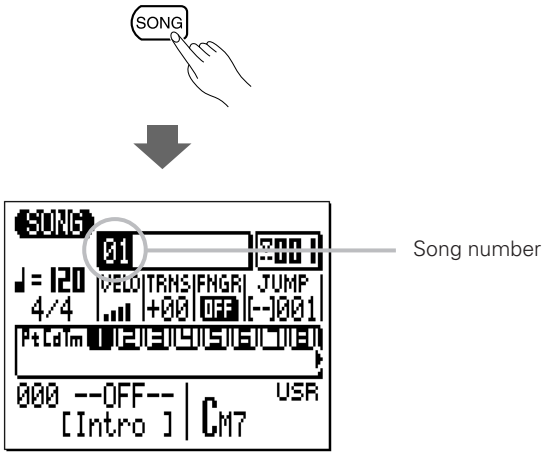


Realtime Sequencer Track Recording

In the realtime record mode you select the track you want to record (1 through 16), and then play the part on the micro-keyboard or an external MIDI keyboard in real time.

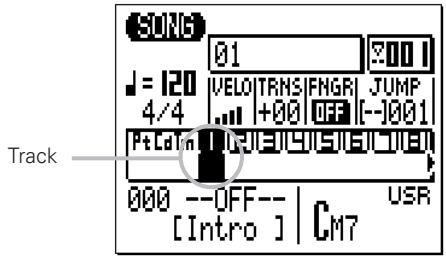
1 Select the SONG Mode & the Song To Be Recorded

Use the [SONG] key to select the main SONG mode display and, with the cursor located over the song number at the top of the display, use the [-1] and [+1] keys or the SHIFT-Number entry method to select the song you intend to record.



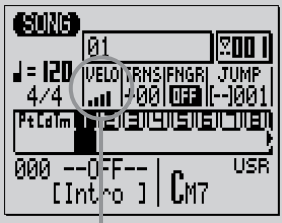
2 Select a Track to Record

Move the cursor to the track area of the display, and then shift the cursor sideways to select the track you want to record: 1 through 16. The SONG display shows 8 of the 16 available tracks at a time. Use the cursor keys to scroll left or right to the remaining tracks (an arrow appears at either the left or right of the track numbers to indicate that more tracks can be accessed by scrolling in the corresponding direction). Move the cursor vertically to move to other areas of the screen. The selected track will remain highlighted.



■ ***NOTE***

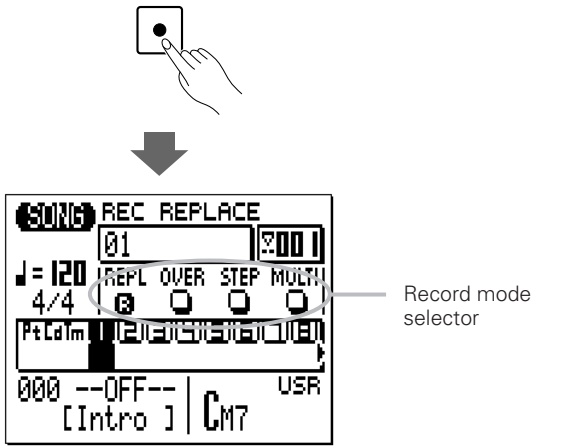
- *Before engaging the record mode you can also set the micro-keyboard "velocity" via the "VELO" parameter. The velocity can be set in ten levels — the more bars the higher the velocity. There are also four "random velocity" settings which produce different degrees of random velocity variation. "R1 produces the smallest variation and "R4" produces the greatest variation.*



7

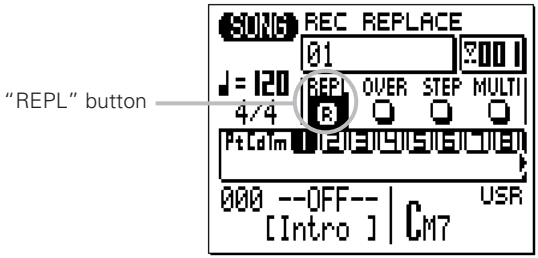
3 Engage the Record Ready Mode

Press the [●] key to engage the record ready mode. The red LED above the [●] key will light.



4 Select the Realtime Replace or Overdub Record Mode

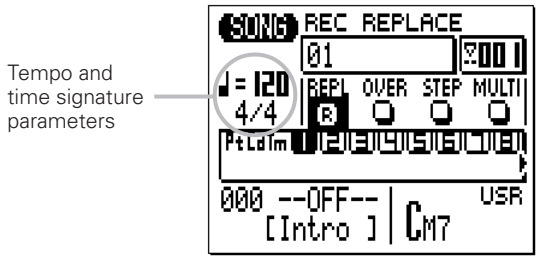
To select the realtime replace record mode — the mode you'll want to use when recording a new song — move the cursor to the record mode selector area of the display (the area with the "REPL", "OVER", "STEP", and "MULTI" buttons), and move it to the "REPL" (realtime replace) button, then press the [+1/YES] key to select the realtime replace record mode (if it isn't already selected). An inverse "R" will appear in the selected record mode button.



If you want to add new material to a recorded track without erasing the existing material as you record, select the realtime overdub record mode ("OVER") instead of the "REPL" mode.

5 Set the Tempo and Time Signature Parameters As Required.

Move the cursor to the tempo and time signature parameters and set as required using the [-1] and [+1] keys.



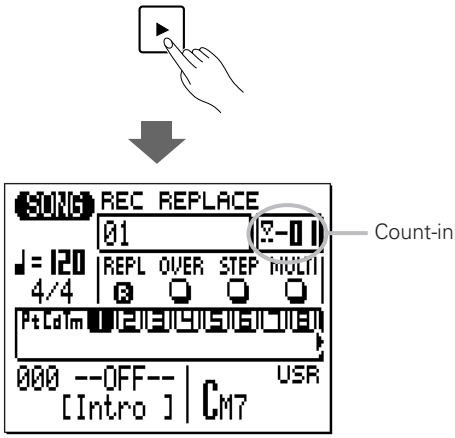
■ ***NOTE***

- *It's sometimes easier to set a slow tempo for realtime recording, so you have plenty of time to enter the data.*

6 Record

Press the [▶] key to begin recording. The metronome will sound and you'll be given a one-measure count-in prior to the first measure actually recorded. Although the default count-in is one measure, you can set the QY70 to provide anywhere from one to eight count-in measures via the utility mode (page 220). The current count-in measure number is indicated by a negative number in the measure number section of the display.

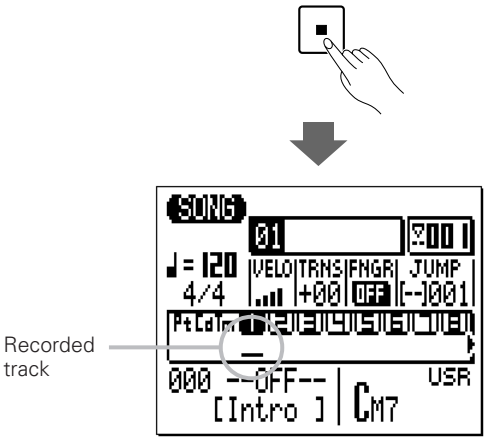
Play the required part either on the micro-keyboard or via an external MIDI keyboard.



7 Stop Recording

Press the [■] key to stop recording. The normal SONG play mode is automatically re-selected when you stop recording.

Note that when you return to the SONG play mode a bar will appear below each track that contains data. This is the lowest segment of a "velocity meter" which will indicate velocity levels in the track during playback.



8 Record the Remaining Tracks

Complete the song by re-engaging the record mode, selecting the next track to be recorded, and recording as described above.

■ ***NOTE***

- *See the "Editing Songs & Patterns" section , page 192, for information on how to edit recorded song data.*

About the "MULTI" Recording

If you select the "MULTI" mode in step **4** on page 78, the QY70 will simultaneously record data received over MIDI channels 1 to 16 onto the corresponding sequencer tracks (1 to 16). This is useful when you want to record a multipart recording from a computer or another sequencer in real time, or when you want to record from a MIDI insrtrument (such as a MIDI guitar) that outputs over multiple channels.

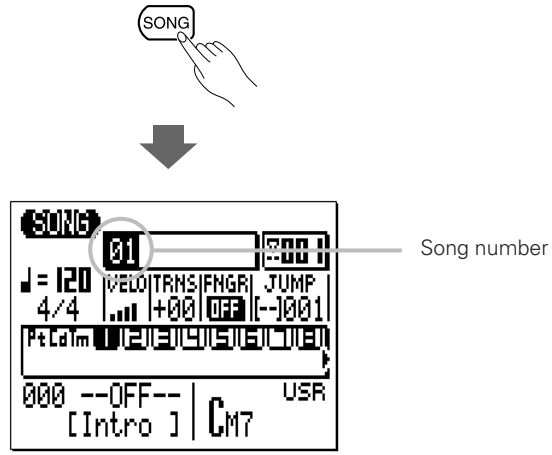
Before starting the multipart recording, be sure to set the MIDI Sync to "External" (page 222), MIDI Control to "In" or "In/Out" (page 222), Rec Count to "OFF" (page 221). Then engage the record ready mode (page 77) and select "MULTI" record mode. When you start the external computer or sequencer, the QY70 will start multipart recording automatically.

Step Sequencer Track Recording

The step record mode lets you enter each track note-by-note, with precise control over the timing, length, and loudness of each note. You can record entire tracks using the step mode, or use it to brush-up and add data to an existing track.

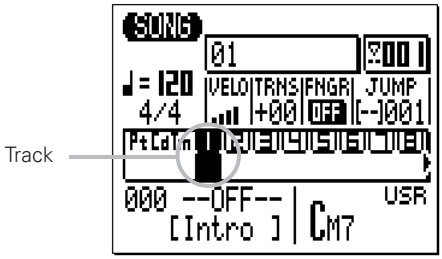
1 Select the SONG Mode & the Song To Be Recorded

Use the [SONG] key to select the main SONG mode display and, with the cursor located over the song number at the top of the display, use the [-1] and [+1] keys or the SHIFT-Number entry method to select the song you intend to record.



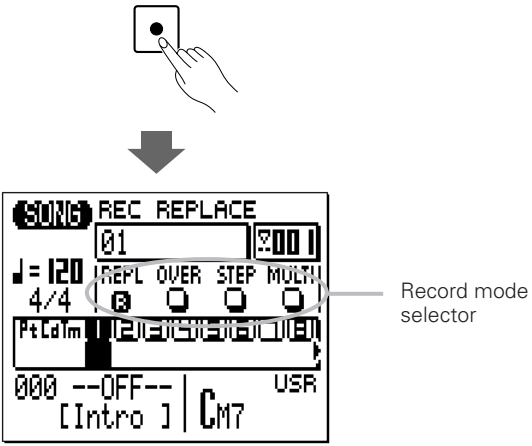
2 Select a Track to Record

Move the cursor to the track area of the display, and then shift the cursor sideways to select the track you want to record: 1 through 16. The SONG display shows 8 of the 16 available tracks at a time. Use the cursor keys to scroll left or right to the remaining tracks (an arrow appears at either the left or right of the track numbers to indicate that more tracks can be accessed by scrolling in the corresponding direction). Move the cursor vertically to move to other areas of the screen. The selected track will remain highlighted.



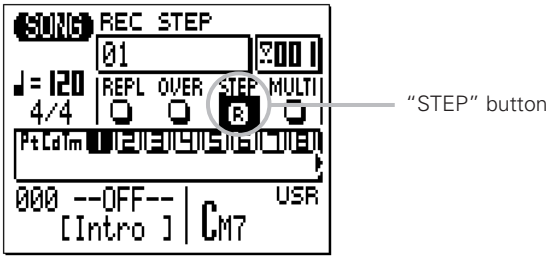
3 Engage the Record Ready Mode

Press the [●] key to engage the record ready mode. The red LED above the [●] key will light.



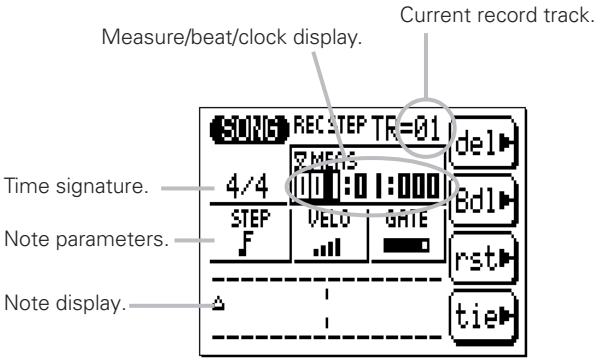
4 Select the Step Record Mode

Move the cursor to the record mode selector area of the display (the area with the "REPL", "OVER", "STEP", and "MULTI" buttons), and move it to the "STEP" button, then press the [+1/YES] key to select the step record mode (if it isn't already selected). An inverse "R" will appear in the selected record mode button.



5 Engage the Record Mode

Press the [▶] key to engage the step record mode. The step record display shown below will appear.



6 Set the Note Parameters as Required

Move the cursor to the note, velocity, and gate time parameters and set as required using the [-1] and [+1] keys for the first (or next) note to be entered.



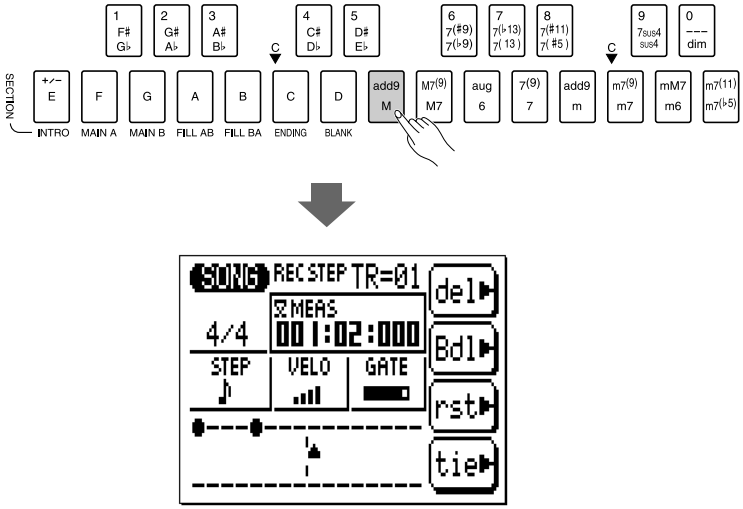
STEP **(Note length)**
32nd, 16th, 16th triplet, 8th, 8th triplet, quarter, quarter triplet, half, whole.

VELO **(Velocity)**
More bars = higher velocity, adjustable in 10 steps (ppp, pp, p, mp, normal, mf, f, ff, fff, ffff).
R1 ~ R4 produces random velocity.

GATE **(Gate time)**
= staccato (50%).
= normal (90%).
= slur (99%).

7 Enter a Note

Once the note parameter have been specified, the note can be entered simply by playing the appropriate key on the micro-keyboard (or on your external MIDI keyboard). A dot appears on the note display and the note pointer advances to the next note position. Chords are also indicated by a dot. Here's how the display will look after two 8th notes have been entered.

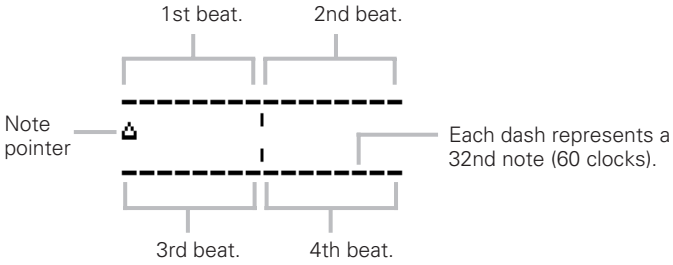


■ NOTE

- *If you use an external MIDI keyboard for step recording, the QY70 always accepts velocity from the external keyboard regardless of the "VELO" setting.*

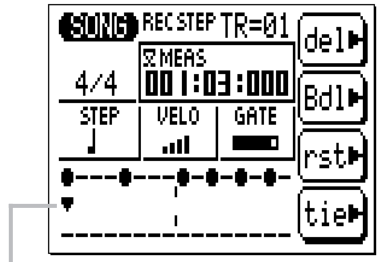
The Note Display

The note display shows up to four 1/4-notes worth of data at once (that's one measure in 4/4 time). If the selected time signature results in more than four 1/4 notes per measure, then the display will scroll to show the extra notes.



Moving Around In the Note Display

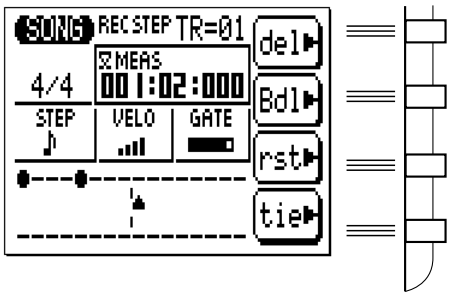
You can move the cursor down to the note display (the note pointer will appear filled) and move the note pointer to any position at which you want to enter a note, or to any note that you want to delete. You will actually hear the appropriate note or chord when the note pointer is moved to an existing note. When you move the note pointer past the end of the note display, the next measure will appear.



Cursor moved to note pointer (pointer filled). Note that the pointer points up to notes in the upper row and down to notes in the lower row.

The Step Mode Function Keys

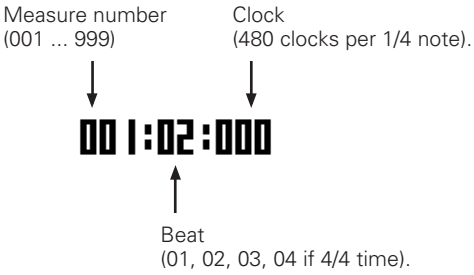
The four function keys immediately to the right of the display provide acces to a number of handy functions in the step record mode. The "del" (delete) key deletes the note or chord at the note pointer. The "Bdl" (back delete) key moves the note pointer backward by the currently selected note length and deletes the note at that position. The "rst" (rest) key enters a rest of the currently selected note length at the note pointer position. And the "tie" key lengthens the previously entered note by "tying" another note of the same length (specified by the STEP parameter) and pitch to it. The "tie" key only works immediately after entering a note.



The Measure/Beat/Clock Display

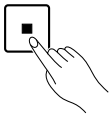
The "Meas" area of the step record display shows the current position of the note pointer in measures, beats, and clocks (there are 480 clocks per 1/4 note). If you're not sure what measure you're seeing on the note display while recording, check the measure/beat/clock display.

You can move the note pointer to any measure by moving the cursor to the measure number and entering the value with the [-1] and [+1] keys or the SHIFT-Number entry method.



8 Complete the Song

Repeat steps 6 and 7 until the current track is complete, then press [■] to stop recording and select the next track for recording, as necessary.

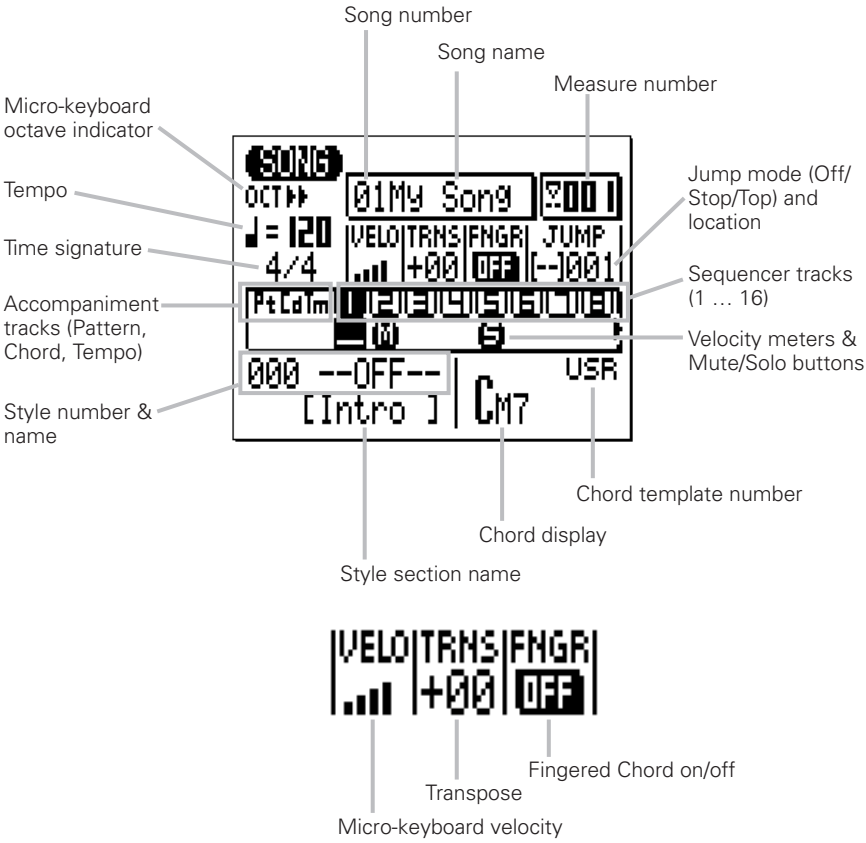


■ NOTE

- *See the "Editing Songs & Patterns" section , page 192, for information on how to edit recorded song data.*

Playback Control

The normal SONG mode display includes all the parameters and controls you need for song playback. Press the [SONG] key to go to the SONG play mode (depending on the current mode, you may need to press the [SONG] key more than once).



● Selecting a Song

The QY70 can retain up to 20 different songs in memory at the same time: song numbers 01 through 20 (three demo songs are recorded as song numbers 21 through 23). To select a song for playback use the cursor keys to move the cursor to the song number location (the song number will be highlighted), and then use the [-1] and [+1] keys or the SHIFT-Number entry method desribed below to select the desired song number. If the song has been given a name (this is done via the Song Name job described on page 136), the song name will appear to the right of the song number.

> **The SHIFT-Number Entry Method**
> Numeric values can be directly entered by using the black micro-keyboard keys (numbered 1 through 0) while holding the [SHIFT] key. To enter the number "16", for example, press the "1" and then the "6" keys ("F♯/G♭" and "7(♯9)/7(♭9)" on the micro-keyboard) while holding the [SHIFT] key. The entered number — "16" — will flash on the display. Press the [ENTER] key to actually enter the number.
> Negative values can be entered where applicable by first pressing the "E" ("-") key on the micro-keyboard while holding the [SHIFT] key, and then entering the value as described above.

● Playing the Selected Song

Playback of the selected song is started by pressing the [▶] ("PLAY") sequencer key. The green LED will flash at the playback tempo. The song will play through to the end and then stop automatically. Song playback can also be stopped at any time by pressing the [■] sequencer key.

■ ***NOTE***

- *When a song is selected, its voice and effect settings will be recalled. Therefore, you should wait for about 1 second until pressing the [▶] button after selecting a song.*

● Repeat Playback

Press the [▶] key while holding the [SHIFT] key to start repeat playback of the selected song. The repeat playback symbol () will appear in the upper right corner of the display during repeat playback. In this mode the selected song will repeat indefinitely untill stopped by pressing the [■] key.

● Measure Number

The measure number parameter on the display shows the current measure number during song playback (and recording). You can also place the cursor here and use the [-1] and [+1] keys or the SHIFT-Number entry method to enter any measure number from which you want to start playback or recording. The sequencer [◀◀] and [▶▶] keys can be used to step or scroll forward or backward through the song's measures no matter where the cursor is located.

● Jump Functions

For convenient navigation the QY70 has two "jump" modes that let you jump to a specified measure number.

Jump Mode	Symbol	Function
Stop Jump	[■]	When this mode is selected the QY70 will automatically jump to the specified measure number whenever the sequencer [■] (Stop) key is pressed.
Top Jump	[I◀]	In this mode the QY70 will automatically jump to the specified measure number when the sequencer [I◀] (Top) key is pressed and the current measure number is greater than the specified jump location. If the current measure number is lower than the specified jump location the QY70 will jump to the top of the song (measure 001).
Jump Off	[--]	The jump function is OFF.

The jump modes can be selected by moving the cursor to the jump mode symbol and selecting via the [-1] and [+1] keys, or by using the following key combinations:

Mode	Key Combination
Stop Jump	[SHIFT] + [■]
Top Jump	[SHIFT] + [◀]
Jump Off	[SHIFT] + [◀◀] or [▶▶]

To specify the measure number you want to jump to move the cursor to the jump location parameter and use the [-1] and [+1] keys or the SHIFT-Number entry method to set as required.

● Playback Tempo

The playback tempo can set from 25 to 300 quarter-note beats per minute by moving the cursor to the tempo parameter and using the [-1] and [+1] keys or the SHIFT-Number entry method to set as required.

● Track Selection

Although track selection is more of a recording than a playback function, it is necessary to select tracks in the playback mode for muting and solo monitoring control (below). The SONG display shows the pattern ("Pt"), chord ("Cd"), and tempo ("Tm") accompaniment tracks as well as 8 of the 16 available sequencer tracks at a time. Move the cursor to the track area and scroll left or right to the remaining tracks (an arrow appears at either the left or right of the track numbers to indicate that more tracks can be accessed by scrolling in the corresponding direction). The number of the selected track remains highlighted when the cursor is moved to other areas of the display.

● The Velocity Meters

The area below each sequencer track number is a 5-segment "velocity" meter that shows approximate MIDI velocity in the corresponding track during playback. When playback is stopped, the lowest segment of the velocity meter appears only below tracks which contain data.

● Mute/Solo

The velocity meter area below each track number in the SONG mode also functions as a mute/solo button which can be used to mute (turn off) or solo (only that track will be monitored) the corresponding track. Move the cursor to the track, then use the [-1] key to alternately mute or un-mute that track, or use the [+1] key to alternately solo or un-solo the track. Any number of tracks can be muted and/or soloed at a time. To solo more than one track at a time hold the [SHIFT] key while soloing additional tracks after the first solo track has been specified. Also hold the [SHIFT] key while un-soloing a single track when multiple tracks are soloed (un-soloing a single track without holding the [SHIFT] key will un-solo all soloed tracks).

The letter "M" appears below the number of tracks that are muted, and the letter "S" appears when a track is soloed.

■ ***NOTE***

- *The mute function is a handy way to simply turn tracks that you don't want to hear off. When recording, they also make it easy to mute a "busy" track or several tracks that might make it difficult to hear an important track.*
- *Solo monitoring is a great way to isolate a track or two when you want to concentrate on the sound while, for example, making delicate adjustments to effects or other parameters that might get "swamped" by the sound from other tracks. It's also handy for listening for small mistakes that you might otherwise overlook.*

● Velocity

This parameter sets the "velocity" (i.e. loudness) of the micro-keyboard. The velocity can be set in ten levels — the more bars the higher the velocity. There are also four "random velocity" settings which produce different degrees of random velocity variation. "R1 produces the smallest variation and "R4" produces the greatest variation.

● Transposition

The transpose ("TRNS") parameter can be used to transpose the pitch of song playback up or down by a maximum of 2 octaves in semitone increments. A transpose setting of "+00" produces normal pitch. To transpose song playback move the cursor to the "TRNS" parameter and use the [-1] and [+1] keys or the SHIFT-Number entry method to set as required. Minus settings transpose down, and plus settings transpose up by the specified amount. Each increment corresponds to one semitone. The maximum range is from "-24" through "+00" to "+24".

● Fingered Chord

This parameter can either be turned "OFF" or "ON". When "ON" chords played in the specified "fingered zone" of the micro-keyboard or an external MIDI keyboard are recognized by the QY70 and the chord accompaniment track is reharmonized accordingly. See page 227 for details.

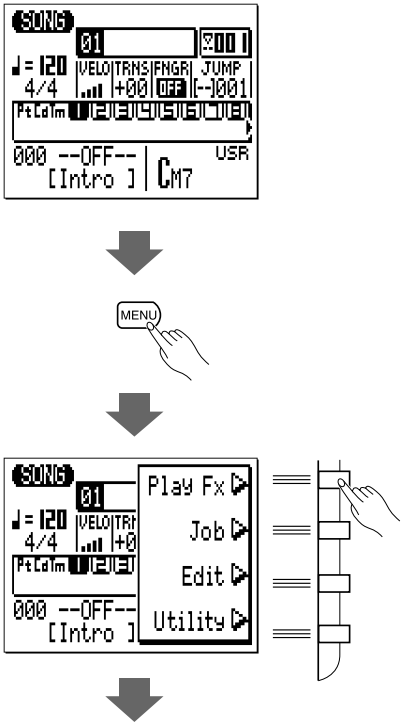
Play Effects

The QY70 "Play Effects" affect sequence playback in real time, and are not actually recorded with the sequence data. The Play Effects include Groove Quantization and Drum Table Remapping.

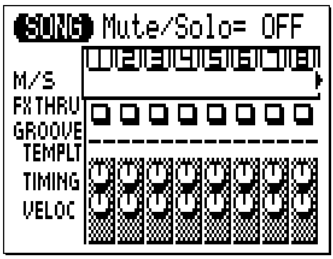
To access the Play Effects press the [MENU] key while in the SONG mode and press the function key next to "Play Fx" on the display. The "Groove" and "Drum Table" displays can then be selected by pressing the [MENU] key and then the function key next to "Groove" or "Drum Table" on the display, as required.

■ ***NOTE***

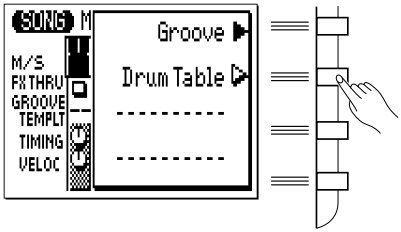
- *The Play Effects settings can be stored for each song.*
- *See the "Normalize" job on page 133 to apply the Play Effects to the actual sequence data.*



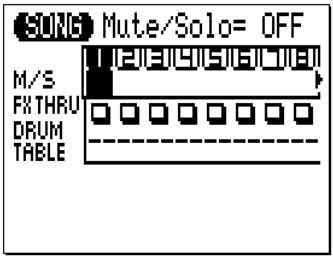
Groove Quantization display







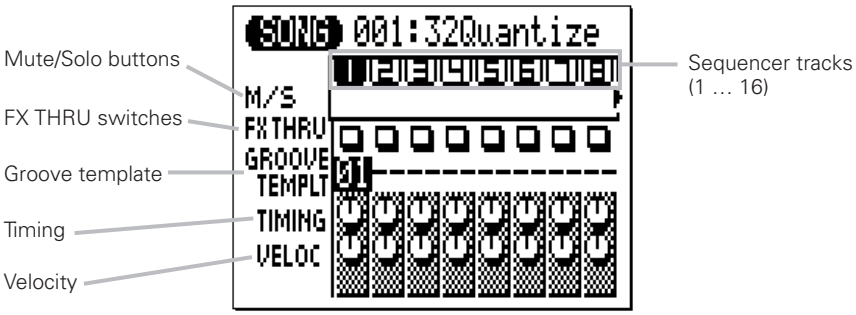
Drum Table display



Groove Quantization

If the Groove display shown below does not appear when "Play Fx" is selected, press the [MENU] key again and press the function key next to "Groove" on the display.

"Groove Quantization" is different from standard quantization in that specific beats within a track are shifted away from precise on-the-beat timing to create a natural "groove". Both the timing and velocity of certain notes can be affected by groove quantization.



The Groove display shows 8 of the 16 available tracks at a time. Use the cursor keys to scroll left or right to the remaining tracks (an arrow appears at either the left or right of the track numbers to indicate that more tracks can be accessed by scrolling in the corresponding direction).

● M/S (Mute/Solo)

The Mute/Solo ("M/S") parameters below each track number in the Groove display can be used to mute (turn off) or solo (only that track will be monitored) the corresponding track. Move the cursor to the appropriate M/S parameter, then use the [-1] key to alternately mute or un-mute that track, or use the [+1] key to alternately solo or un-solo the track. Any number of tracks can be muted and/or soloed at a time. To solo more than one track at a time hold the [SHIFT] key while soloing additional tracks after the first solo track has been specified. Also hold the [SHIFT] key while un-soloing a single track when multiple tracks are soloed (un-soloing a single track without holding the [SHIFT] key will un-solo all soloed tracks).

The letter "M" appears below the number of tracks that are muted, and the letter "S" appears when a track is soloed.

■ ***NOTE***

- *The M/S parameters duplicate those in the SONG play mode and SONG VOICE displays, and have exactly the same effect.*

● FX THRU

These "switches" enable or bypass the effect for the corresponding tracks. When an FX THRU switch appears as an empty square, the effect is enabled for that track. To bypass the effect for a track, move the cursor to the appropriate FX THRU switch, and press the [+1] key so that a "T" (THRU) in the square. Bypassed tracks can be enabled by pressing the [-1] key.

● GROOVE TEMPLT

This parameter selects one of the 100 available groove templates for the corresponding track. Each groove template affects different beats in different ways, thus creating different grooves. See the List Book for a complete list of the available groove templates. To select a groove template for a track, , move the cursor to the appropriate GROOVE TEMPLT parameter, then use the [-1] and [+1] parameters or the SHIFT-Number entry

method to select the desired template. No groove template is selected when "--" appears in the GROOVE TEMPLT parameter location.

● TIMING

The TIMING controls determine to what degree the timing of the notes in the corresponding track is affected by the selected groove template. The range is from "000" to "200". Higher values produce greater timing variation ("100" is the default setting).

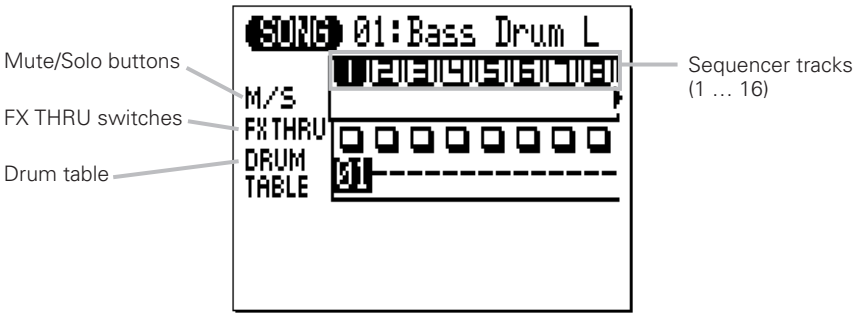
● VELOC

The VELOC controls determine to what degree the velocity of the notes in the corresponding track is affected by the selected groove template. The range is from "000" to "200". Higher values produce greater velocity variation ("100" is the default setting).

Drum Table Remapping

If the Drum Table display shown below does not appear when "Play Fx" is selected, press the [MENU] key again and press the function key next to "Drum Table" on the display.

Drum Table remapping allows the drum instruments to be "remapped" so that, for example, you can replace a medium snare drum with a high snare or rimshot without affecting the data in the drum track.



● M/S (Mute/Solo)

The Mute/Solo ("M/S") parameters below each track number in the Drum Table display can be used to mute (turn off) or solo (only that track will be monitored) the corresponding track. Move the cursor to the appropriate M/S parameter, then use the [-1] key to alternately mute or un-mute that track, or use the [+1] key to alternately solo or un-solo the track. Any number of tracks can be muted and/or soloed at a time. To solo more than one track at a time hold the [SHIFT] key while soloing additional tracks after the first solo track has been specified. Also hold the [SHIFT] key while un-soloing a single track when multiple tracks are soloed (un-soloing a single track without holding the [SHIFT] key will un-solo all soloed tracks).

The letter "M" appears below the number of tracks that are muted, and the letter "S" appears when a track is soloed.

■ ***NOTE***

- *The M/S parameters duplicate those in the SONG play mode and SONG VOICE displays, and have exactly the same effect.*

● FX THRU

These "switches" enable or bypass the effect for the corresponding tracks. When an FX THRU switch appears as an empty square, the effect is enabled for that track. To bypass the effect for a track, move the cursor to the appropriate FX THRU switch, and press the [+1] key so that a "T" (THRU) in the square. Bypassed tracks can be enabled by pressing the [-1] key.

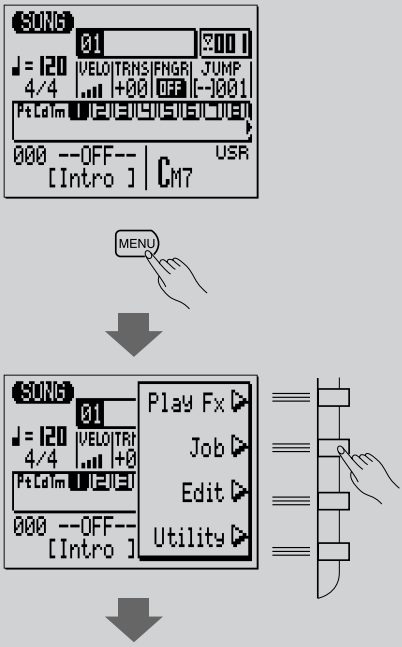
● DRUM TABLE

This parameter specifies the drum instrument to be remapped for the selected track. 24 choices are available (in addition to "--" or "OFF"), spanning 6 remapping categories, as shown in the chart below. A selected instrument will replace any other instrument in the same category. For example, if a drum track uses the Snare M instrument and you select DRUM TABLE number 7 for that track, every occurence of the Snare M instrument will be replaced by the Open Rimshot instrument.

No.	Category	Instrument
1	Bass Drum	Bass Drum L
2		Bass Drum M
3		Bass Drum H
4	Snare	Snare L
5		Snare M
6		Snare H
7		Open Rimshot
8		Brush Slap
9		Side Stick
10		Hand Clap
11		Mid Tom
12	Hi Hat	Ride Cymbal
13		Cabasa
14		Maracas
15		Triangle
16		Shaker
17		Tambourine
18	Bongo-Conga	Bongo-Conga
19	Solo	Solo BassDr
20		Solo SnareDr
21		Solo Hi-Hat
22	Mute	Mute BassDr
23		Mute SnareDr
24		Mute Hi-Hat

The Song Jobs

The SONG mode includes 25 song "jobs" that perform a variety of important functions. To access and use the song jobs, press the [MENU] key while in the main SONG play mode, then press the "Job" function key. This calls the song job list. You can select any job on the list simply by moving the cursor to the required job and pressing [ENTER]. The function keys can be used to move the cursor directly to the first job in the corresponding category: Event, Measure, Track, or Song (press the [MENU] key, then the appropriate function key).







00: Undo/Redo

"Event" category
01: Quantize
02: Modify Velocity
03: Modify Gate Time
04: Crescendo
05: Transpose
06: Shift Clock
07: Chord Sort
08: Chord Separate
09: Copy Event
10: Erase Event
11: Extract Event
12: Create Continuous
13: Thin Out
14: Time Stretch

"Measure" category
15: Create Measure
16: Delete Measure

"Track" category
17: Copy Track
18: Mix Track
19: Clear Track
20: Expand Backing
21: Normalize

"Song" category
22: Copy Song
23: Clear Song
24: Song Name

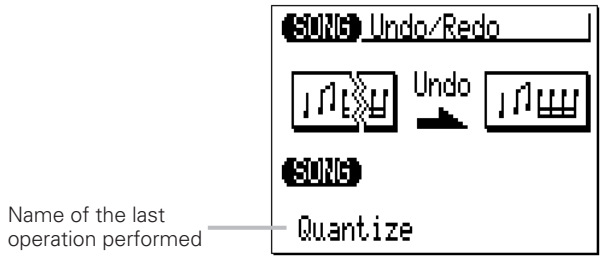
■ Returning to the SONG Mode

The [EXIT] key can be used to exit from any song job, and then from the job list thereby returning you to the normal song play mode. You can also press the [SONG] key to directly return to the SONG mode.



00 : Undo/Redo

This job will "undo" any other song/pattern job, edit, or record function if it is executed before any other operation is performed. In all cases the affected data is restored to the state it was in before performing the job, edit, or record operation. This job will also undo the last undo operation (redo).



The name of the last operation performed will appear on the display (i.e. the operation which will be "undone"). In the example display, above, a quantize operation will be undone.

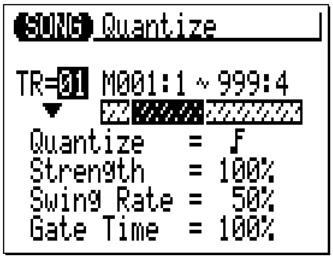
Press [ENTER] to execute the Undo/Redo job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

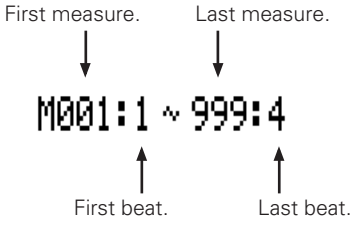
■ ***DETAIL***

- *The UNDO/REDO job will not undo the Clear Song ("All"), the Clear Pattern ("All" styles), the Song Name or Style Name jobs.*

01 : Quantize

Aligns notes in the specified track to or close to the nearest specified beat.





The "**TR**" parameter selects the track to be affected by the Quantize job: "01" … "16" for individual tracks, or "All" to quantize all 16 tracks simultaneously.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be quantized.

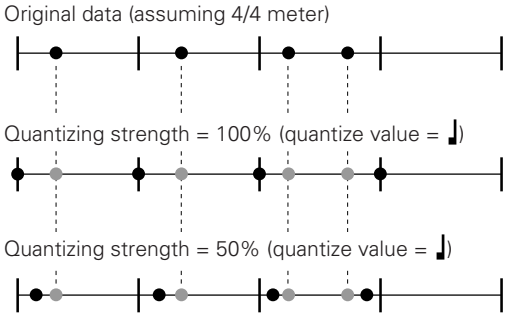
The "**Quantize**" parameter determines to what beats the note data in the specified track will be aligned. If you select "𝅘𝅥𝅯", for example, all notes in the track will be aligned to the nearest 16th-note beat, to a degree determined by the "Strength" parameter.

Quantize Values

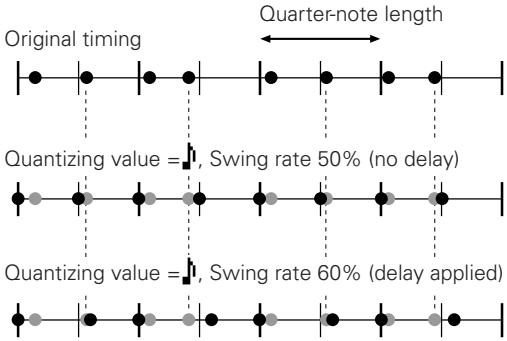
Value	Effect
𝅘𝅥𝅰	Aligns to the nearest 32nd note.
𝅘𝅥𝅯𝄾	Aligns to the nearest 16th note triplet.
𝅘𝅥𝅯	Aligns to the nearest 16th note.
♪𝄾	Aligns to the nearest 8th note triplet.
♪	Aligns to the nearest 8th note.
♩𝄾	Aligns to the nearest quarter note triplet.
♩	Aligns to the nearest quarter note.

	Aligns to the nearest 16th note + 16th note triplet.
	Aligns to the nearest 8th note + 8th note triplet.

The "**Strength**" parameter determines how "strongly" the notes are attracted to the specified quantize value. The strength range is from 0% to 100%. At a setting of "0%" no quantization will occur, while a setting of "100%" will cause all notes to be aligned precisely to the nearest specified beat value. In-between settings produce a corresponding shift in the position of all off-beat notes to the nearest specified beat value. With a value setting of "♩" and a strength setting of 50%, for example, a note that does not fall precisely on a quarter beat will be shifted about halfway to nearest quarter beat.



The "**Swing Rate**" parameter produces a "swing" feel by shifting the timing of "back beats", as specified by the quantize value. For example, if the specified quantization value is 8th notes, then the swing effect will shift the 2nd, 4th, 6th, and 8th beats of each measure forward to create a swing feel. If the quantize value is set to a triplet note length, the last note in each triplet group will be shifted. If the quantize value is set to a compound note length (e.g. 8th note + 8th note triplet) the even-numbered back beats will be shifted. The "Swing Rate" parameter determines how much the timing of the affected notes will be shifted. The range is from 50% (no swing) to 75% (maximum swing) for even note lengths, from 66% to 83% for triplet note lengths, and from 50% to 66% for even-plus-triplet note lengths (e.g. 8th note + 8th note triplet).

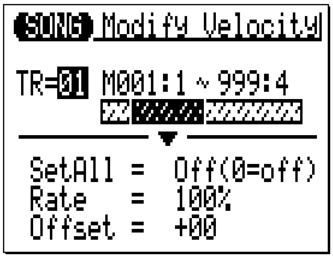


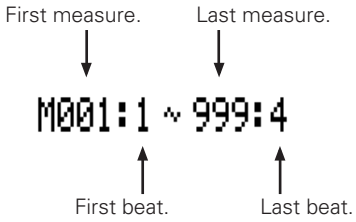
The "**Gate Time**" parameter increases or decreases the gate times (length) of all notes affected by the swing parameter. The range is from 0% to 200%. The "Gate Time" parameter sets the ratio between the shorter and longer gate time values. A setting of "100%" maintains the original relationship between the notes, lower values produce a narrower gate time range, and higher values produce a broader gate time range.

After setting the parameters as required press [ENTER] to execute the Quantize job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

02 : Modify Velocity

Increases or decreases the velocity values of all notes in the specified track and range of measures.



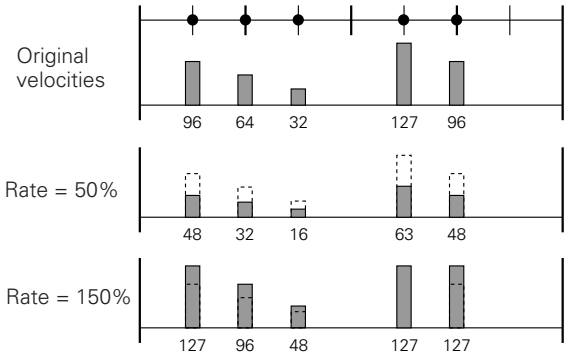


The "**TR**" parameter selects the track to be affected by the Modify Velocity job: "01" … "16".

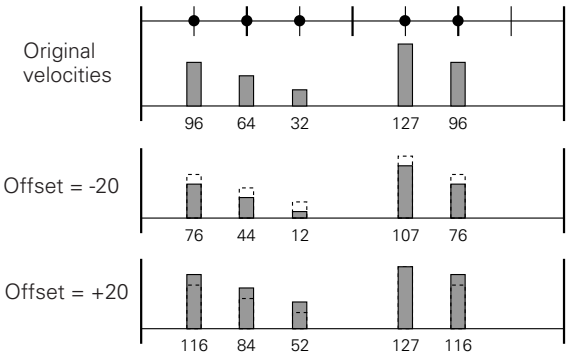
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**SetAll**" parameter makes it possible to set all notes in the specified range to a single velocity value from "1" to "127". "Set All" can also be turned "Off" when the "Rate" and "Offset" parameters, below, are to be used for velocity modification.

The "**Rate**" parameter allows you to change the Velocity value of each note without affecting the velocity ratios between notes (proportional change). A setting of "100%" maintains the absolute velocity differences between notes, while lower (higher) values will decrease (increase) the velocity values to the corresponding percentage, resulting in a narrower (wider) dynamic range. The range is from "0%" to "200%".



The "**Offset**" parameter allows you to change all velocity values by an absolute amount. "-" settings will decrease the velocity of each note by the corresponding amount, "+" settings will increase the velocity accordingly. The range is from "-99" through "0" to "+99".



New Velocity = Original Velocity x rate/100 + offset
(If the right side of the equation is 0 or less, the New Velocity becomes 1. If the right side of the equation is 128 or more, the New Velocity becomes 127.)

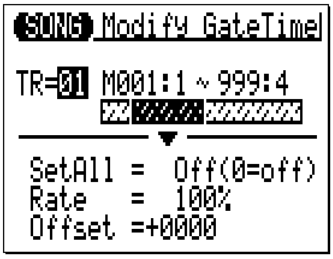
After setting the parameters as required press [ENTER] to execute the Modify Velocity job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

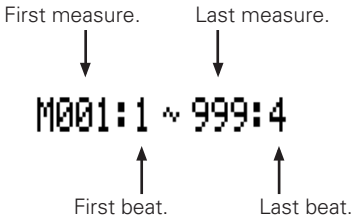
■ ***NOTE***

- *The Modify Velocity job is a great way to "soften" the sound of material that has too great variation between the softest and loudest notes, or, conversely, to add extra punch to dull-sounding material. Experiment with the parameters to get a feel for what they do.*

03 : Modify Gate Time

Increases or decreases the gate times (length) of all notes in the specified track and range of measures.



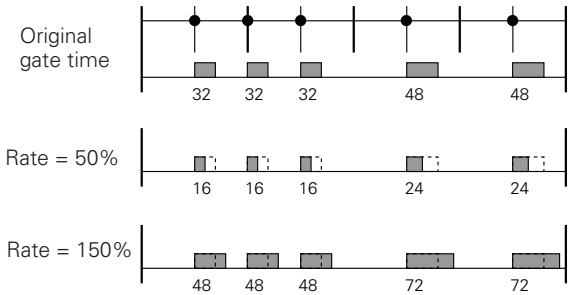


The "**TR**" parameter selects the track to be affected by the Modify Gate Time job: "01" ... "16".

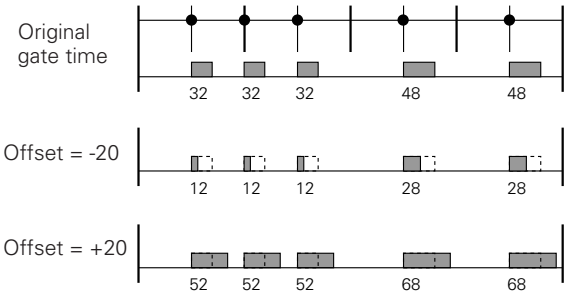
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**SetAll**" parameter makes it possible to set all notes in the specified range to a single gate time value from "1" to "9999". "Set All" can also be turned "Off" when the "Rate" and "Offset" parameters, below, are to be used for gate time modification.

The "**Rate**" parameter allows you to change the Gate Time value of each note without affecting the gate time ratios between notes (proportional change). A setting of "100%" maintains the absolute gate time differences between notes, while lower (higher) values will decrease (increase) the gate time values to the corresponding percentage. The range is from "0%" to "200%".



The "**Offset**" parameter allows you to change all gate time values by an absolute amount. "-" settings will decrease the gate time of each note by the corresponding amount, "+" settings will increase the gate time accordingly. The range is from "-9999" through "0" to "+9999".



New Gate Time = Original Gate Time x rate/100 + offset
(If the right side of the equation is 0 or less, the New Gate Time becomes 1)

After setting the parameters as required press [ENTER] to execute the Modify Gate Time job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

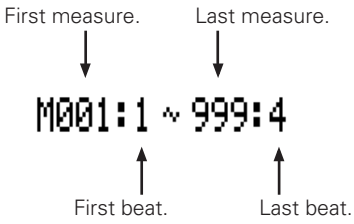
■ ***NOTE***

- *The Modify Gate Time job can be used to produce a more staccato or legato feel, as required. Experiment with the parameters to get a feel for what they do.*

04 : Crescendo

Produces a gradual crescendo (increase in note velocity) or decrescendo (decrease in note velocity) in the specified track over the specified range of measures.

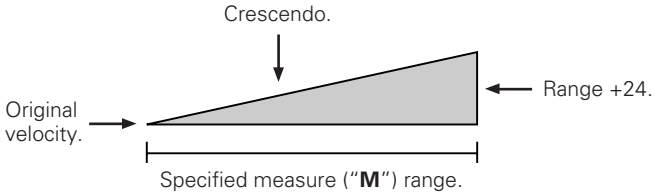




The "**TR**" parameter selects the track to be affected by the Crescendo job: "01" … "16".

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Range**" parameter determines the range of velocity values over which the crescendo will occur. A setting of "+24", for example, will cause the MIDI velocity values to increase by 24 over the specified measure range (The MIDI velocity value range is from 1 to 127).

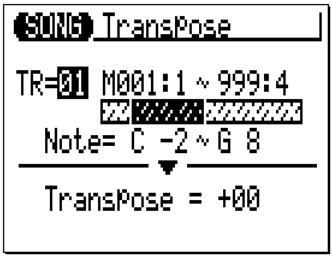


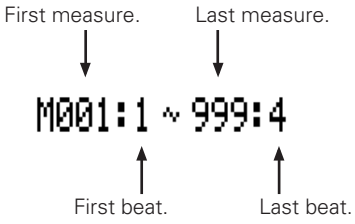
Negative values cause a corresponding decrease in velocity, thereby producing a decrescendo rather than a crescendo. The range of this parameter is from "-99" through "0" to "+99".

After setting the parameters as required press [ENTER] to execute the Crescendo job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

05 : Transpose

Transposes all notes in the specified part up or down by the specified number of semitones.





The "**TR**" parameter selects the track to be affected by the Transpose job: "01" … "16" for the sequncer tracks, or "Cd" for the accompaniment chord track.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Note**" parameters specify the range of notes to be affected. The maximum range is from "C-2" to "G8".

The "**Transpose**" parameter determines the amount of transposition in semitone increments. Minus (-) values transpose down while plus (+) values transpose up. the range is from "-99" through "0" to "+99".

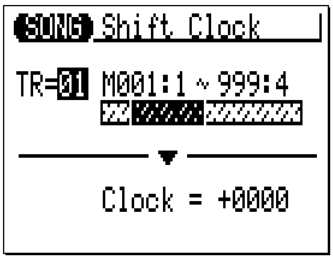
After setting the parameters as required press [ENTER] to execute the Transpose job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

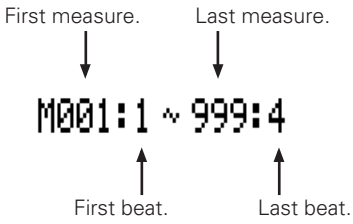
■ NOTE

- *Of course, you can transpose all tracks as required to shift the entire song to a different key, but the Transpose job is actually more suited to changing the pitch of a section of a single track. This can be done to produce temporary "modulations" to another key, or to create harmony with another track.*

06 : Shift Clock

Moves all notes and events in the specified track and range of measures forward or backward by the specified number of clocks (480 clocks per 1/4 note).





The "**TR**" parameter selects the track to be affected by the Shift Clock job: "01" … "16" for the sequencer tracks, or "Tm" for the tempo track.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Clock**" parameter determines the direction and number of clocks by which the notes in the specified measure range will be shifted. "+" settings shift the notes forward (toward the end of the song) and "-" settings shift the notes backward (toward the beginning of the song). The range is from "-9999" through "0000" to "+9999".

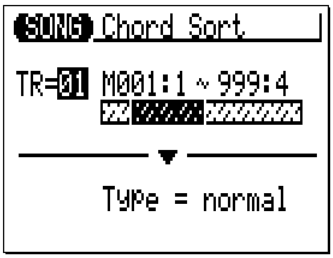
After setting the parameters as required press [ENTER] to execute the Shift Clock job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

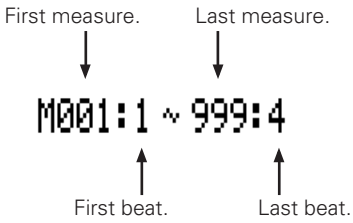
■ ***NOTE***

- *The Shift Clock job will not shift data beyond the specified measure range. Events near the beginning and end of the specified range may therefore sound "bunched" together in some cases.*
- *Since the Shift Clock job actually shifts the timing of all notes and other events in the specified measures forward or backward, it can significantly alter the "feel" of the song. You could move the notes forward ("+" settings) to create a more "laid back" feel, or backward ("-" settings) to produce a more "driving" feel. Of course, you can also use Shift Clock to correct timing that is off in the first place.*

07 : Chord Sort

Sorts all notes in the specified measure range which fall on the same beat (i.e. chords) so that the notes are arranged in order from lowest to highest or from highest to lowest.





The "**TR**" parameter selects the track to be affected by the Chord Sort job: "01" … "16".

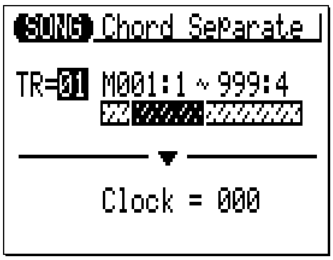
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

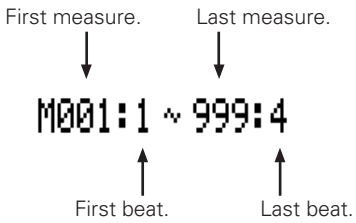
The "**Type**" parameter determines whether the chords in the specified range are arranged from lowest to highest note ("Normal") or from highest to lowest note ("Reverse").

After setting the parameters as required press [ENTER] to execute the Chord Sort job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

08 : Chord Separate

Shifts each note in the specified measure range which falls on the same beat (i.e. chords) forward in order from lowest to highest or vice versa according to the Chord Sort settings, by the specified number of clocks, thus "separating" the chord notes by the specified number of clocks.





The "**TR**" parameter selects the track to be affected by the Chord Separate job: "01" … "16".

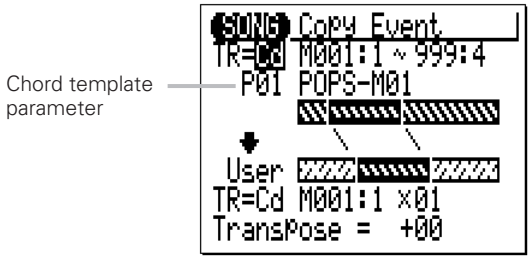
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Clock**" parameter determines the number of clocks by which the notes of the chord will be separated: "000" through "999".

After setting the parameters as required press [ENTER] to execute the Chord Separate job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

09 : Copy Event

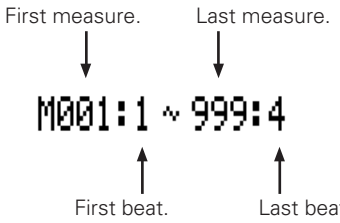
Copies all data from a specified range of measures from one track to the specified measure in the specified destination track. The copied data can also be transposed as required. This operation overwrites the data from the beginning of the specified destination measure with the data from the source measures. Previous data in the overwritten measures is therefore lost.



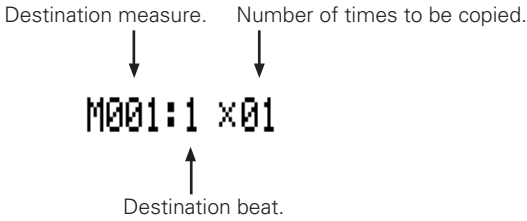
The upper "**TR**" parameter selects the source track — i.e. the track from which the data is to be copied: "01" … "16" for the sequencer tracks, the accompaniment "Pt" track, the accompaniment "Cd" track, the "Tm" track, or "Al" (All) tracks. When "Pt", "Cd", Tm" or "Al" is selected, the lower "**TR**" parameter is automatically set to the same track.

The lower "**TR**" parameter selects the destination track — i.e. the track to which the data is to be copied: "01" … "16" for the sequencer tracks, the accompaniment "Pt" track, the accompaniment "Cd" track, the "Tm" track, or "Al" (All) tracks. When "Pt", "Cd", Tm" or "Al" is selected, the upper "**TR**" parameter is automatically set to the same track.

The "**M**" parameters above the upper graphic bar are used to specify the first measure:beat and last measure:beat of the range to be copied.



The "**M**" parameters below the lower graphic bar specifiy the destination measure:beat to which the data will be copied, as well as the number of times the data is to be copied.



The "**Transpose**" parameter sets a transpose value for the copied data in semitone increments from "-24" through "+00" to "+24".

The Chord template parameter, above the upper graphic bar, appears only when the "Cd" track is selected at the "**TR**" parameter. This parameter specifies which chord progression, either the user chord progression programmed in the source "Cd" track or preset chord template, will be copied to the **User** chord progression.

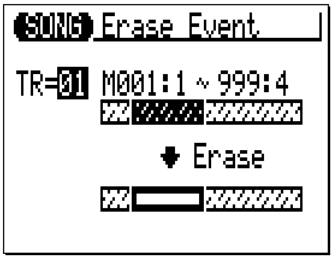
After setting the parameters as required press [ENTER] to execute the Copy Event job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

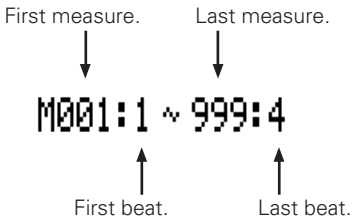
■ NOTE

- *Previous data in measures overwritten by the Copy Event job will be completely erased and replaced by the copied data.*
- *The time signature is copied by the Copy Event job, but Voice and Play Effect data is not copied.*
- *The Copy Event job makes it easy to use phrases or even complete sections (an entire chorus, for example) in more than one place in a song. You can copy a phrase played by one voice, and have it repeated by a different voice later in the song. You can always edit the copied sections to create variations.*

10 : Erase Event

Erases all note and event data from the specified measure or range of measures in the specified track. An erase operation leaves the specified measures intact but blank.





The "**TR**" parameter selects the track to be affected by the Erase Event job: "01" … "16" for the sequencer tracks, the accompaniment "Pt" track, the accompaniment "Cd" track, or the "Tm" track.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be erased.

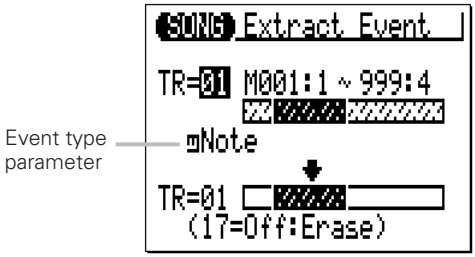
After setting the parameters as required press [ENTER] to execute the Erase Event job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

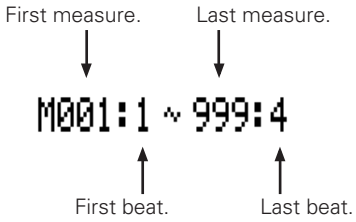
■ NOTE

- *Unlike the Delete Measure job, the Erase Event job erases the data from the specified measures only in the specified track. Also, the data is erased but the measures remain intact (i.e. the subsequent measures are not moved back). After an erase operation you can record new material in the resulting blank measures as required.*

11 : Extract Event

Allows a specified type of event — note, program change, pitch bend, control change, channel aftertouch, polyphonic aftertouch, or system exclusive — to be extracted (removed) from a specified range of measures in a specified track. The extracted data can be moved to the same range of measures in any other specified track.





The upper "**TR**" parameter selects the source track — i.e. the track from which the event data is to be extracted: "01" … "16".

The lower "**TR**" parameter selects the destination track — i.e. the track to which the extracted event data is to be moved: "01" … "17", or "Off" if you simply want to discard the specified event data.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range from which the event data is to be extracted.

The event type parameter near the upper graphic bar determines the type of event data to be extracted:

NOTE	Note events.
PC	Program change events.
PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the even type. The control change parameter determines the MIDI control change number(s) to be extracted: "000" … "127" or "All".
CAT	Channel aftertouch events.
PAT	Polyphonic aftertouch events.
EXC	Exclusive events.

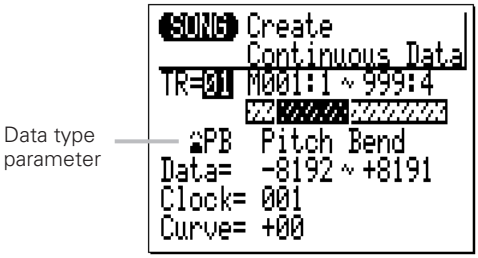
After setting the parameters as required press [ENTER] to execute the Extract Event job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

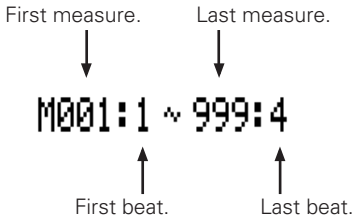
■ ***NOTE***

- *Although you can remove events individually in the edit mode (page 192), the Extract Event job makes it simple to remove all occurences of the specified event within the specified measure range in one operation. This is particularly convenient when removing slow pitch bends or volume changes that may employ many individual events to create a single effect.*
- *If the destination track already contains data, the extracted event data will be merged.*

12 : Create Continuous

This job makes it possible to create continuous data of the specified type in order to produce smooth pitch bends, tempo changes, etc.





The "**TR**" parameter selects the track to be affected by the Create Continuous job: "01" … "16" for the sequencer tracks, or "Tm" for the tempo track.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

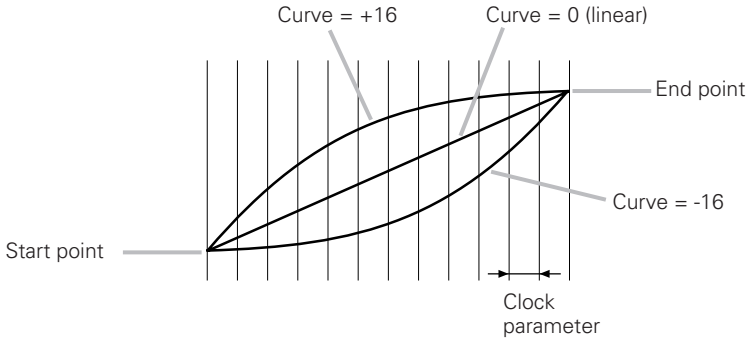
The data type parameter determines the type of data to be created.

PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the type parameter. The control change parameter determines the MIDI control change number to be created: "000" … "127".
CAT	Channel aftertouch events.
EXC	Master volume.
TMP	Tempo events (can only be selected for the Tm (Tempo) track).

The "**Data**" parameters set the range of data values to be created: the left number sets the starting value and the right number sets the ending value. The range of values available will depend on the type of event selected.

The "**Clock**" parameter sets the spacing between the created events in clocks: "000" … "999".

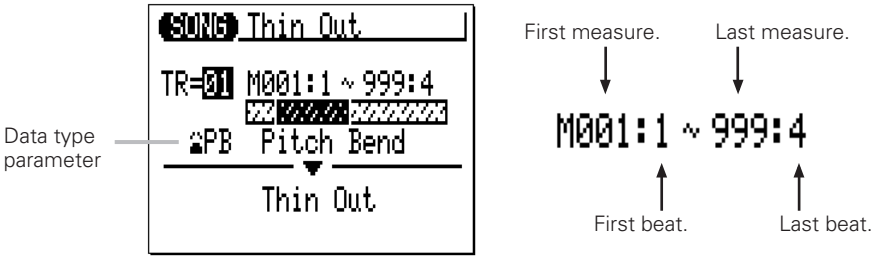
The "**Curve**" parameter sets the degree of positive or negative "curvature" that will be applied to the continuous data: "-16" … "00" … "+16".



After setting the parameters as required press [ENTER] to execute the Create Continuous job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

13 : Thin Out

"Thins out" specified types of data by removing every other event of the specified type. This is particularly useful for reducing the volume of data required for pitch bends, aftertouch and other control change operations, thus making more efficient use of the available memory.



The "**TR**" parameter selects the track to be affected by the Thin Out job: "01" … "16" for the sequencer tracks, or "Tm" for the tempo track.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

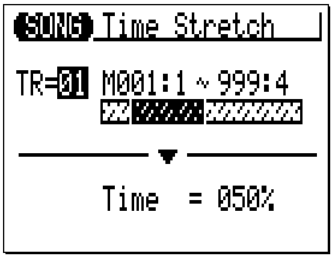
The data type parameter determines the type of data to be thinned.

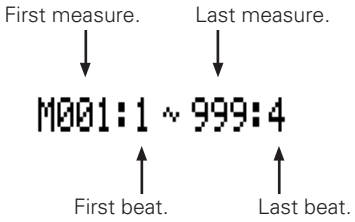
PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the type parameter. The control change parameter determines the MIDI control change number to be thinned: "000" … "127".
CAT	Channel aftertouch events.
PAT	Polyphonic aftertouch events.
TMP	Tempo events (can only be selected for the Tm (Tempo) track).

After setting the parameters as required press [ENTER] to execute the Thin Out job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

14 : Time Stretch

Lenghtens or shortens the specified track by a specified percentage without affecting tempo or pitch.





The "**TR**" parameter selects the track to be affected by the Time Stretch job: "01" … "16" for the sequencer tracks, or "Al" for all sequencer tracks.

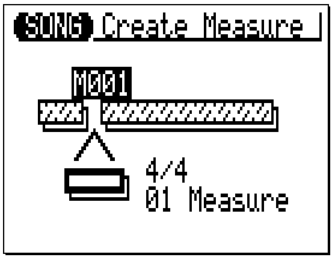
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

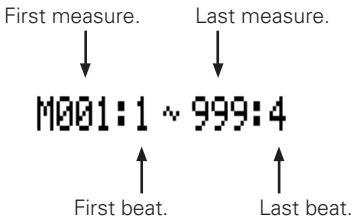
The "**Time**" parameter specifies the percentage by which the time is to be lengthened or shortened: "50%" … "200%". Gate time of notes in the specified track and measures will also be changed in proportion to this setting.

After setting the parameters as required press [ENTER] to execute the Time Stretch job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

15 : Create Measure

Creates a specified number of blank measures having the specified time signature for all tracks. The created measures are inserted at a specified measure number, and all subsequent measures are moved forward to make room.





The "**M**" parameter above the graphic bar specifies the measure at which the newly created measures will be inserted.

The time signature parameter below the graphic bar determines the time signature of the measures to be created: 1/16 … 16/16, 1/8 … 16/8, 1/4 … 8/4.

The "**Measure**" parameter below the bar specifies the number of measures to be created.

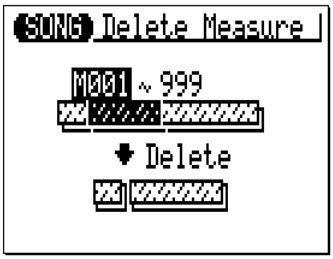
After setting the parameters as required press [ENTER] to execute the Create Measure job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

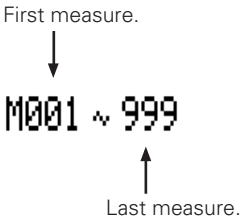
■ ***NOTE***

- *All existing measures after the point at which the new measures are created will be moved forward to make room for the new measures.*
- *If you use the Create Measure job with an empty song, the specified new measures will be placed in track 1 only.*
- *Use Create Measure when you want to add new material somewhere in the middle of data you've already recorded, without erasing the existing data. First create the required measures, then either copy the data from existing measures using the Copy Event function, or record new data as required.*

16 : Delete Measure

Deletes the specified range of measures from all tracks simultaneously.





The "**M**" parameters above the graphic bar are used to specify the first measure and last measure of the range to be deleted.

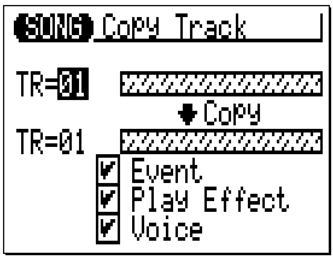
After setting the parameters as required press [ENTER] to execute the Delete Measure job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ NOTE

- *Delete Measure is a great way to completely cut out unwanted data from the song. It's important to remember, however, that a delete operation affects all tracks simultaneously, and that measures following the deleted range are moved back to take the place of the deleted measures.*

17 : Copy Track

Copies all data from the specified track to any other specified track.



The upper "**TR**" parameter selects the source track — i.e. the track from which the data is to be copied: "01" … "16".

The lower "**TR**" parameter selects the destination track — i.e. the track to which the data is to be copied: "01" … "16".

The "**Event**", "**Play Effect**", and "**Voice**" check boxes make it possible to specify whether or not the corresponding types of data will be copied or not (the data is copied when the checkbox is checked).

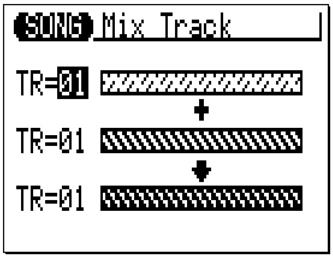
After setting the parameters as required press [ENTER] to execute the Copy Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If the destination track already contains data, the copied track data will erase and replace the previous data.*

18 : Mix Track

Combines the data contained in two specified tracks and places the result in a third track (which can be the same as the second track).



The upper and center "**TR**" parameters select the first and second source tracks — i.e. the tracks which are to be mixed: "01" … "16".

The lower "**TR**" ("01" … "16") parameter specifies the destination track to which the mixed data is to be copied.

After setting the parameters as required press [ENTER] to execute the Mix Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If there is no data in the second source track, the data from the first source track is simply copied to the destination track.*

19 : Clear Track

Completely clears the specifed track from the currently selected song (including all Play Effect parameters).



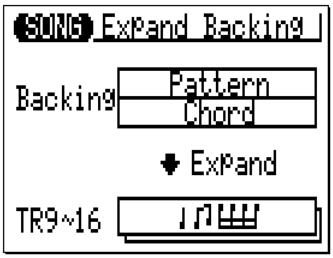
The "**TR**" parameter selects the track(s) to be cleared: "01" … "16" for the sequencer tracks, the accompaniment "Pt" track, the accompaniment "Cd" track, the "Tm" track, or "Al" (All) tracks.

The "**Event**", "**Play Effect**", and "**Voice**" check boxes make it possible to specify whether or not the corresponding types of data will be cleared or not (the data is cleared when the checkbox is checked).

After setting the parameters as required press [ENTER] to execute the Clear Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

20 : Expand Backing

"Expands" the accompaniment track data — i.e. the pattern and chord data — and places the results in the normal sequencer tracks after converting the data to standard MIDI format. The expanded data is placed in sequencer tracks 9 through 16 (see chart below). Any previous data in those tracks will be erased!



Press [ENTER] to execute the Expand Backing job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

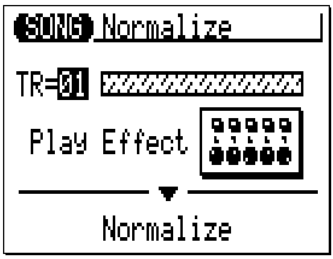
Pattern Track	Sequencer Track
D1	9
D2	10
PC	11
BA	12
C1	13
C2	14
C3	15
C4	16

■ ***NOTE***

- *If the "Ds3" (Drum set 3) is assigned to the D1, D2 or PC track of the expanded pattern, the drum voice settings will be copied to "Ds2" (Drum set 2). The previous settings in Ds2 will be overwritten (erased).*

21 : Normalize

Actually applies the Play Effect settings to the sequence data, modifying the sequence data accordingly. The Play Effect settings are initialized after execution.

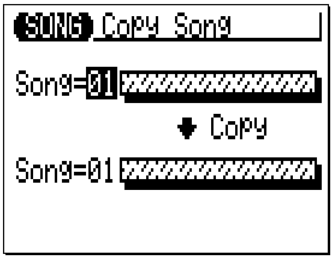


The "**TR**" parameter selects the track(s) to be affected by the Normalize job: "01" … "16" for the sequencer tracks, or "AI" (All) for all sequencer tracks.

After setting the parameter as required press [ENTER] to execute the Normalize job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

22 : Copy Song

Copies all data from all tracks of the specified song to any other specified song (including song name, play effect and voice assignment settings).



The upper "**Song**" parameter selects the source song — i.e. the song from which the data is to be copied: "01" … "20".

The lower "**Song**" parameter selects the destination song — i.e. the song to which the data is to be copied: "01" … "20"

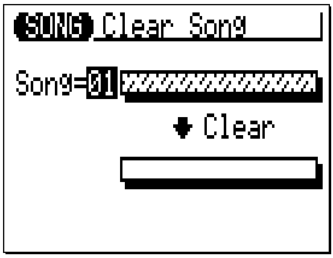
After setting the parameters as required press [ENTER] to execute the Copy Song job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If the destination song already contains data, the copied song will erase and replace the previous song.*

23 : Clear Song

Completely clears all data from all tracks of the currently selected song. Also initializes the play effect and voice settings.



The "**Song**" parameter selects the song to be cleared: "01" … "20" or "Al"(All)

After setting the parameter as required press [ENTER] to execute the Clear Song job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *Clearing "All" songs can not be undone with the "Undo/Redo" job.*

24 : Song Name

Allows an original name of up to 8 characters to be assigned to the current song.



To enter a character, use the cursor keys to move the cursor to the character to be entered, then press the [ENTER] key. The character will appear at the character cursor location and the character cursor will advance to the next character position.

The character cursor can be moved by pressing the function key to the right of "⇨▶|"

To delete a character, press the function key to the right of "del". The character to the left of the cursor will be deleted and the cursor will move to the deleted character's position.

When the name has been entered press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode (it is not necessary to press the [ENTER] key to enter the specified name).

■ ***NOTE***

- *Entering a song name can not be undone with the "Undo/Redo" job.*

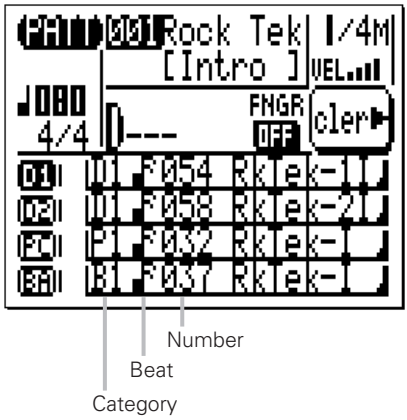
Creating Original Accompaniment Patterns

QY70 accompaniment patterns are created by combining "phrases" — either preset or original — in the PATTERN mode. A phrase is simply an individual "part" of a pattern — e.g. a drum phrase, a bass phrase, a keyboard phrase, etc. — using a single voice. The QY70 has 4,167 preset phrases, and 384 memory locations for original patterns (i.e., 64 user styles, each with independent INTRO, MAIN A, MAIN B, FILL AB, FILL BA, and ENDING sections).

You can also see phrase components of the preset patterns in the PATTERN mode.

The Preset Phrases

The QY70 has a total of 4,167 preset phrases that can be combined to create a virtually endless variety of accompaniment patterns. The preset phrase numbers have three sections, as shown below. The cursor can be placed at any of these three sections to select as required.



Category

Da	Drum-a (Pop&Rock)
Db	Drum-b (Specific)
Fa	Drum Fill-a (Pop&Rock)
Fb	Drum Fill-b (Specific)
PC	Percussion
Ba	Bass-a (Pop&Rock)
Bb	Bass-b (Specific)
Ga	Guitar Chord-a (Pop&Rock)
Gb	Guitar Chord-b (Specific)
GR	Guitar Riff
KC	Keyboard Chord
KR	Keyboard Riff
PD	Pad
BR	Brass
SE	Sound Effects

Beat

	16 Beat
	8 Beat
	3/4 Beat

Number

Differs depending on the category

■ NOTE

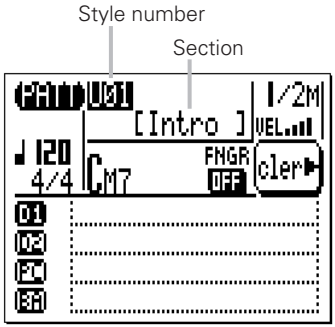
- *For details on the phrase category, beat and number, refer to the Preset Phrase List.*

Combining Phrases In the Pattern Mode

The phrases are combined to create patterns which can be used in accompaniments in the PATTERN mode.

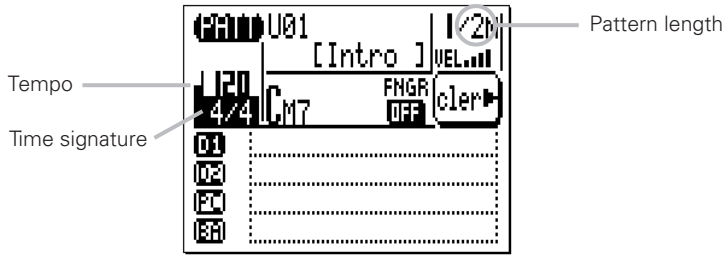
1 Select the PATTERN Mode, a User Style, & a Section

Press the [PATT] key to select the PATTERN mode then, with the cursor located at the style number, select a "user" style: "U00" through "U64". Also move the cursor to the section name and select the section you want to create.



2 Set the Pattern Length, Time Signature & Tempo as Required

If you're starting with an empty pattern, move the cursor to the pattern length parameter and set the desired pattern length from 1 to 8 measures. If necessary, also move the cursor to the time signature parameter and set as required (1/16 … 16/16, 1/8 … 16/8, 1/4 … 8/4). The default tempo is 120, but you can move the cursor to the tempo parameter and set any other tempo that is suitable for your pattern.



■ ***NOTE***

- *The default pattern length for the INTRO, MAIN A, MAIN B, and ENDING sections is 2 measures, while the default length for the FILL AB and FILLBA sections is 1 measure.*

3 Select a Pattern Track

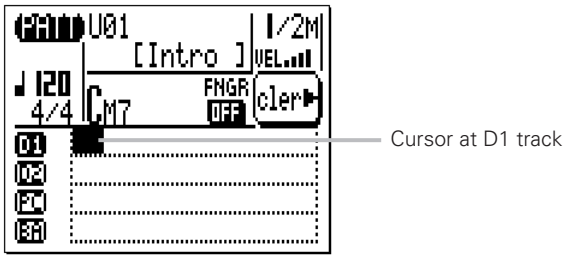
Phrases can be assigned to any of 8 "tracks" in the PATTERN mode. The PATTERN mode tracks and the phrases that can be assigned to each track are listed below:

Track	Part	Available Phrases
D1	Drum 1	Drums Phrase
D2	Drum 2	Drums Phrase
PC	Percussion	Percussion Phrase
BA	Bass	Bass Phrase
C1	Chord 1	Chord backing phrase (Guitar, Keyboard, etc.)
C2	Chord 2	Chord backing phrase (Guitar, Keyboard, etc.)
C3	Chord 3	Chord backing phrase (Guitar, Keyboard, etc.)
C4	Chord 4	Chord backing phrase (Guitar, Keyboard, etc.)

■ ***NOTE***

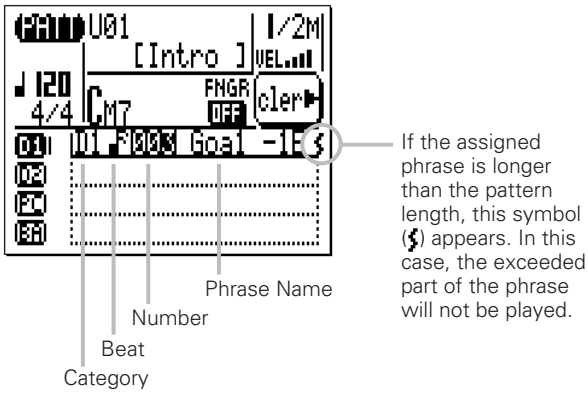
- *For details on the available phrases, refer to the Preset Phrase List.*

Move the cursor to the phrase-entry area of the track you want to assign a phrase to.



4 Enter the Required Phrase Number

Use the cursor keys to move to the category, beat, or number parameter, then use the [-1] and [+1] keys or the SHIFT-Number entry method to select the desired phrase for that track.



Monitoring the Pattern

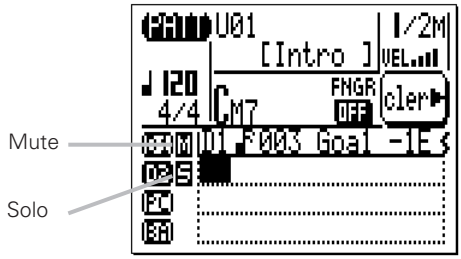
If you press the [▶] button while entering phrases you can hear how the pattern sounds as the various phrases are added. Press [■] to stop playback.



Muting & Soloing the Pattern Tracks

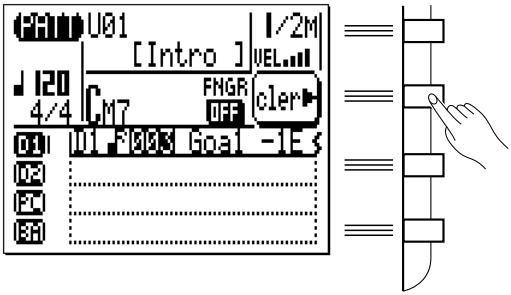
One or more PATTERN mode tracks can be muted or soloed by placing the cursor immediately to the left of the track (in the velocity-meter position) and using the [-1] or [+1] to mute or solo the track as required. Use the [-1] key to alternately mute or un-mute the selected track, or the [+1] key to alternately solo or un-solo the track. Any number of tracks can be muted and/or soloed at a time. To solo more than one track at a time hold the [SHIFT] key while soloing additional tracks after the first solo track has been specified. Also hold the [SHIFT] key while un-soloing a single track when multiple tracks are soloed (un-soloing a single track without holding the [SHIFT] key will un-solo all soloed tracks).

The letter "M" appears next to tracks that are muted, and the letter "S" appears when a track is soloed.



Clearing Phrases

Phrases can be cleared by placing the cursor at the appropriate phrase number, catgory, or beat and pressing the function key next to "Cler" on the display.



Changing the Pattern Playback Chord

The chord used for pattern playback can be changed by placing the cursor at the chord location and entering the chord via the micro-keyboard and [ENTER] keys as described on page 40. The bass note for "on-bass" chords can be entered via the lower octave of the micro-keyboard while holding the [OCT DOWN/BASS] key (the bass note will appear to the right of a slash next to the chord name).

You can also enter the chord by pressing the chord as it is on the micro keyboard or an external keyboard if "FNGR"(Fingered Chord function) is set to "ON". In this case, a bass note can be entered by pressing a key for a bass note on the left part of the micro keyboard or an external keyboard while holding the chord. (The "left part" range for entering a bass note can be specified in the Utility mode on page 227.)

5 Repeat for as Many Tracks as Necessary

Repeat steps 3 and 4 to enter phrases for as many tracks as required (you don't have to program all 8 pattern tracks).

6 Repeat for the Other Sections

Repeat the above procedure to complete the remaining sections of the style, as required.

■ NOTE

- *See "The Pattern Jobs" on page 157 for details on the QY70's pattern jobs which allow considerable versatility in creating and modifying patterns.*
- *You can also re-combine phrases on the preset pattern. To store the re-combination, execute the "Copy Pattern" (page 189) or "Copy Track" (page 186) job before changing the style number of the pattern.*

Recording Original Phrases

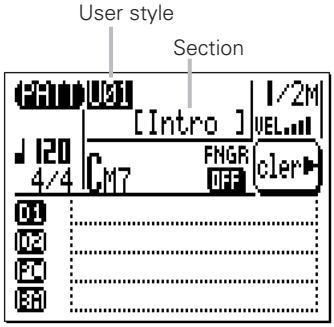
The QY70 makes it easy to create original accompaniment phrases. The PATTERN mode provides two ways to create original phrases: realtime and step recording.

Realtime Phrase Recording

In the realtime record mode you select the track you want to record, the voice you want to record with, and then play the part on the micro-keyboard or an external MIDI keyboard in real time.

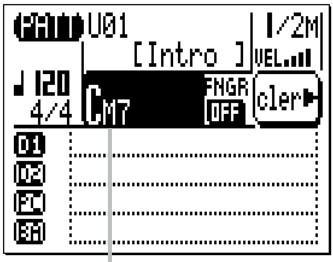
1 Select a User Style and Section

As described in the preceding section, begin by selecting a user style ("U01" through "U64") and a section ("INTRO", "MAIN A", etc.) in the PATTERN mode.



2 Select a Source Chord

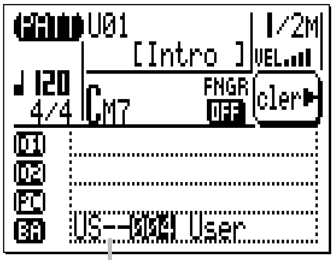
Move the cursor to the chord parameter and use the chord entry procedure described above to enter the "source chord" for the phrase you are recording (i.e. the chord on which the phrase is based). Note that you can not enter an "on-bass" chord for the "source chord".



Source chord

3 Select a Pattern Track and its "User" Phrase

Move the cursor to the track you want to create an original phrase for. To create a bass phrase, for example, select the "BA" (Bass) track. Then use the [+1] key to select the user phrase for that track ("Us--001" for Intro section's D1 track through "Us--048" for Ending section's C4 track, depending on the selected section and track.) If the track you intend to record is empty, you need not select the user phrase for that track.



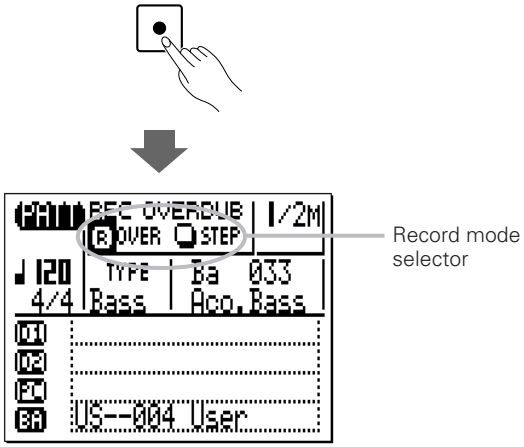
"User" phrase

■ ***NOTE***

- *Before engaging the record mode you can also set the micro-keyboard "velocity" via the "VEL" parameter in the upper right corner of the display. The velocity can be set in ten levels — the more bars the higher the velocity. There are also four "randon velocity" settings which produce different degrees of random velocity variation. "R1 produces the smallest variation and "R4" produces the greatest variation.*
- *You can also set the micro-keyboard's octave before engaging the record mode by pressing [OCT UP] or [OCT DOWN] key.*

4 Engage the Phrase Record Ready Mode

Press the [●] key to engage the phrase record ready mode. The red LED will light, and the display will appear something like this:

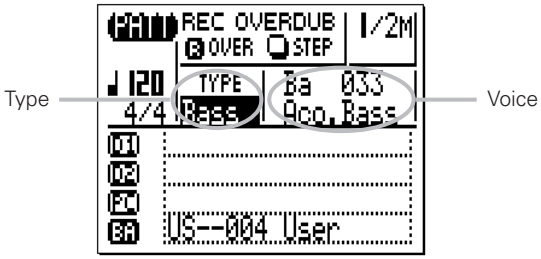


5 Select the Realtime Overdub Record Mode

Move the cursor to the record mode selector area of the display (the area with the "OVER" and "STEP" buttons), and move it to the "OVER" (realtime overdub) button, then press the [+1/YES] key to select the realtime overdub record mode (if it isn't already selected). An inverse "R" will appear in the selected record mode button.

6 Set the Phrase Type and Voice

Note that a default "TYPE" and voice are shown for the selected track. These can be changed as required before recording the phrase. The default types and voices for each pattern track are shown below. The "TYPE" parameter is actually the "Note Transition Table Type" and it determines how the corresponding track will be re-harmonized when used in an accompaniment with chord changes. The various phrase types are described below.



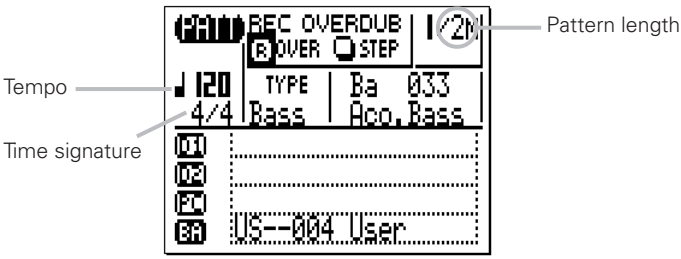
Track	Default Type	Default Voice
D1 (Drum 1)	Bypass	Dr 001: Standard Kit
D2 (Drum 2)	Bypass	Dr 001: Standard Kit
PC (Percussion)	Bypass	Dr 001: Standard Kit
BA (Bass)	Bass	Ba 033: Acoustic Bass
C1 (Chord 1)	Chord 1	Pf 001: Grand Piano
C2 (Chord 2)	Chord 1	Pf 001: Grand Piano
C3 (Chord 3)	Chord 1	Pf 001: Grand Piano
C4 (Chord 4)	Chord 1	Pf 001: Grand Piano

The Phrase Types

Bypass	The phrase is not re-harmonized — i.e. it is not affected by chord changes — when this type is selected. This type should be used for drum and percussion phrases, otherwise the drum instruments will be "re-harmonized" and change whenever a chord change is encountered.
Bass	When the "Bass" type is selected the phrase is re-harmonized in the same way as for the Chord 1 phrase type, below, except that the root is always used as the first note immediately following a chord change. In the case of an "on-bass" chord, the bass phrase always plays the "on-bass" note.
Chord 1	The source note data is reharmonized based on the root of the specified chord.
Chord 2	The source note data is re-harmonized with the closest possible "voice leading" from the preceding chord. This results in the smoothest possible chord changes.
Parallel	When this type is selected the source note data is simply transposed to the root of the new chord without re-harmonization.

7 Set the Pattern Length, Time Signature & Tempo as Required

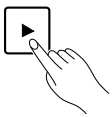
If you're creating a phrase for an empty pattern, move the cursor to the pattern length parameter and set the desired pattern length from 1 to 8 measures. If necessary, also move the cursor to the time signature parameter and set as required (1/16 … 16/16, 1/8 … 16/8, 1/4 … 8/4). The default tempo is 120, but you can move the cursor to the tempo parameter and set any other tempo that is suitable for your recording.



8 Record

Press the [▶] key to begin recording. The metronome will sound and you'll be given a one-measure count-in prior to the first measure actually recorded.

Play the required part either on the micro-keyboard or via an external MIDI keyboard. The phrase will continuously repeat from the first to last measure, so you can continue to add notes until the current part is complete.

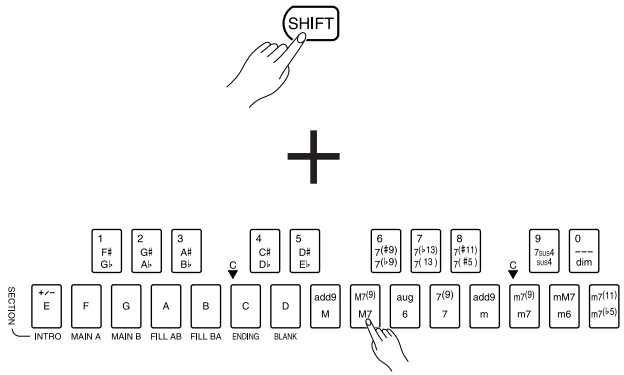


■ NOTE

- *Since your original phrase will be automatically re-harmonized as required by the QY70 ABC system, there are a few rules you should follow to ensure the best results:*
  - *1: Stick to the harmonic environment of your source chord.*
  - *2: Use primarily the root, 3rd, 5th, and major 7th.*
  - *3: Keep it rhythmic … avoid melodic lines.*

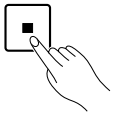
9 Delete Mistakes as Required

To delete mistakes, simply play the note to be deleted on either the micro-keyboard or an external MIDI keyboard while holding the [SHIFT] key. All corresponding notes that occur while the key is held will be deleted.



10 Stop Recording

Press the [■] key to stop recording. The normal PATTERN play mode is automatically re-selected when you stop recording.



11 Repeat for as Many Tracks and Sections as Necessary

Repeat the appropriate steps of the above procedure to record phrases for as many tracks and sections as required.

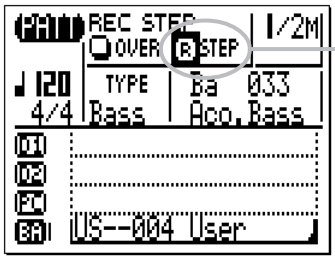
■ NOTE

- *See "The Pattern Jobs" on page 157 for details on the QY70's pattern jobs which allow considerable versatility in creating and modifying patterns.*

Step Phrase Recording

The step phrase record mode lets you enter phrases note-by-note, with precise control over the timing, length, and loudness of each note. You can record complete phrases using the step mode, or use it to brush-up and add data to an existing phrase.

Steps **1** through **7** are the same as for phrase realtime recording, above, except for step **5** in which you'll need to select the "STEP" record mode rather than "OVER" (page 146). The actual recording process is then the same as step-recording the SONG tracks except that the measure/beat/clock display shows the total number of measures in the pattern as well as the current measure number. Refer to pages 81 through 87 for details on step recording.



"STEP" button

■ ***NOTE***

- *The recorded user phrase can be cleared by pressing the function key next to "cler", as shown on page 142. In this case, you can recall the cleared phrase by selecting a user phrase for that track again with [+1]/[-1] key. To delete the recorded phrase completely, execute the "Clear Track" job on page 188.*

Pattern Voice mode

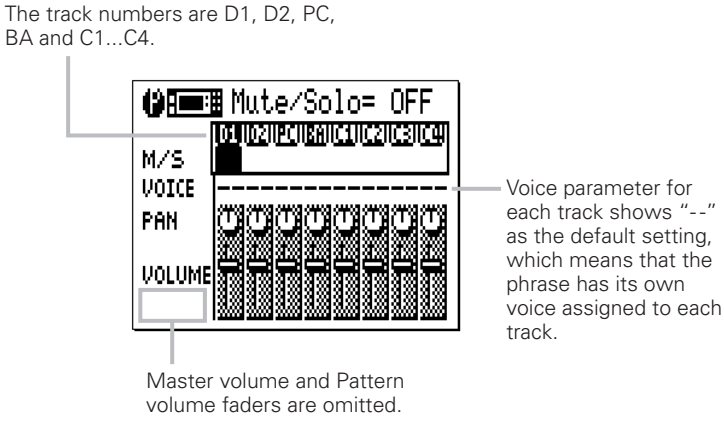
Each pattern phrase has its own voice whether it is a preset phrase or a user phrase. (The user phrase voice is specified in the phrase record ready mode described on page 146).

However, you can also assign any of the QY70's 519 voices and 20 drum kits to the 8 pattern phrase tracks(D1, D2, PC, BA, C1...C4) via the PATTERN VOICE mode.

The VOICE mode features a graphic on-screen "mixer" that has mute/solo controls, pan pots, and faders for each track. The PATTERN voice mode also provides access to effect send controls and a versatile range of voice editing parameters.

Press the [PATT] key to select the voice mode mixer display. The mixer display shows 8 pattern phrase tracks at a time.

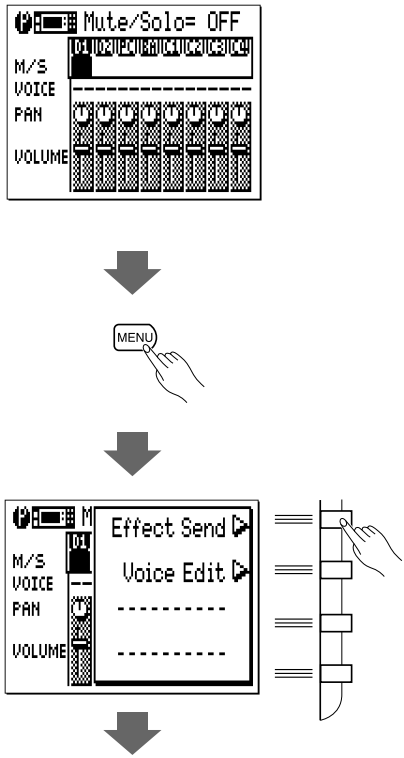
The VOICE mode mixer display looks almost the same as that of the SONG VOICE mode except:

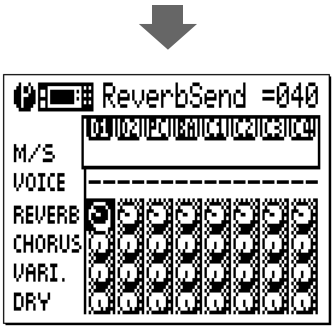


For details on each parameter of the VOICE mixer display, see "The Song Voice Mode" on page 61. Remember that each track's voice assign, pan and volume settings for a preset pattern in the VOICE mode will not be stored in memory.

The Effect Send Display

The QY70 features a high-performance internal digital signal processing system which provides a range of effects including reverb, delay, modulation, distortion, and more. Three independent effect blocks are provided — Reverb, Chorus, and Variation. The individual effects are selected and modified via the EFFECT mode, described in detail on page 212. The VOICE mode mixer display provides access to independent effect send controls for each of the three effect blocks via the MENU sub-display. Press the [MENU] button, and then the function key next to "Effect Send" on the display.





The Effect Send display looks almost the same as that of the SONG VOICE mode's Effect Send display except for track numbers and the assigned voice ("--" means the phrase has its own voice).

For details on each parameter of the Effect Send display, see "The Effect Send Display" of the Song Voice mode on page 66.

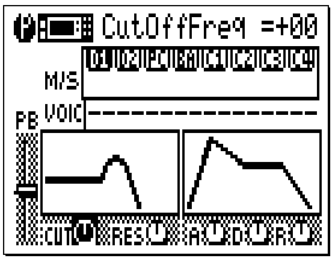
Voice Editing

The QY70's VOICE EDIT mode allows you to modify the sound of the voices assigned to each track to best suit your particular musical requirements. The VOICE EDIT mode can be accessed from the PATTERN VOICE mode by pressing the [MENU] button, and then the function key next to "Voice Edit" on the display. If a Drum Set is selected (i.e., if a drum track, to which "Ds3" drum set voice is assigned, is selected) the "Drum Voice Edit" mode will also be available via the menu.

■ ***NOTE***

- *"Ds1" and "Ds2" drum sets can be selected in the SONG VOICE mode only. In the PATTERN VOICE mode, "Ds3" drum set can be selected to edit drum instruments.*

The VOICE EDIT display looks almost the same as that of the SONG VOICE mode's VOICE EDIT display except for track numbers and the assigned voice ("--" means the phrase voice has its own voice).



For details on each parameter of the VOICE EDIT display, see "Voice Editing" of the Song Voice mode on page 68.

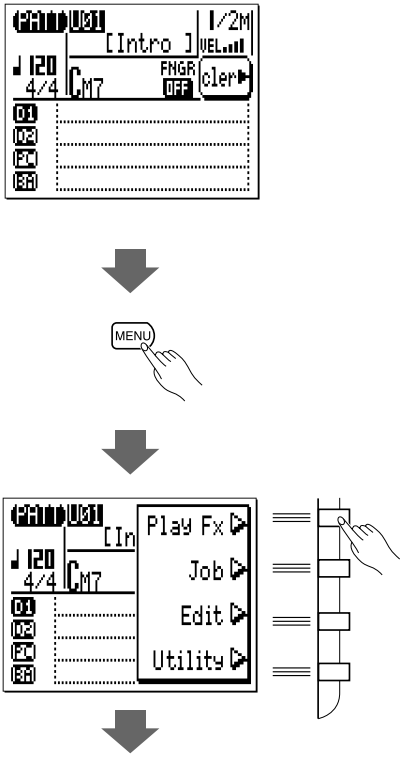
Play Effects

The QY70's "Play Effects" can also affect pattern playback in real time as well as song playback, and are not actually recorded with the phrase data. The Play Effects include Groove Quantization and Drum Table Remapping.

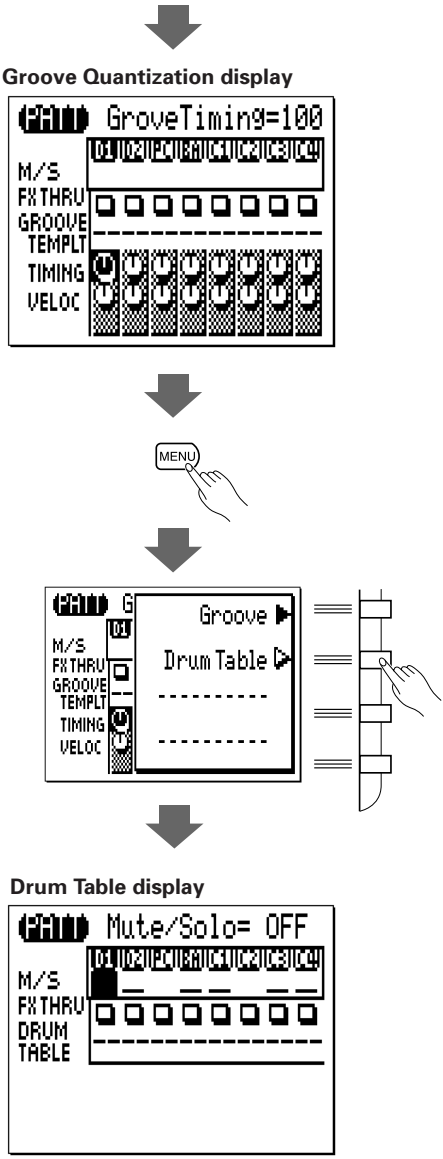
To access the Play Effects press the [MENU] key while in the PATTERN play mode and press the function key next to "Play Fx" on the display. The "Groove" and "Drum Table" displays can then be selected by pressing the [MENU] key and then the function key next to "Groove" or "Drum Table" on the display, as required.

■ *NOTE*

- *The Play Effects settings can be stored for each user style. These settings will also be effective when the user style is assigned and played in the SONG mode's pattern (Pt) track.*



Groove Quantization display

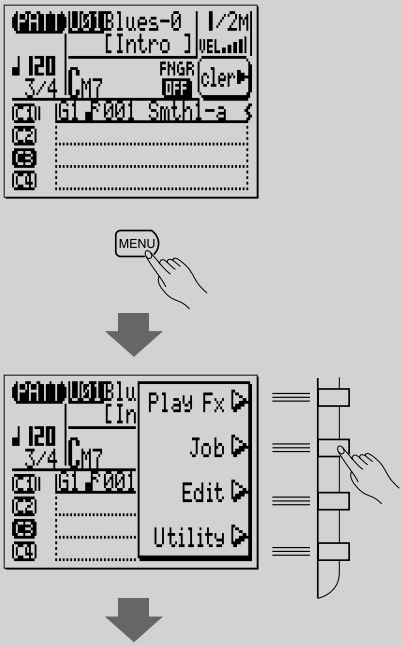


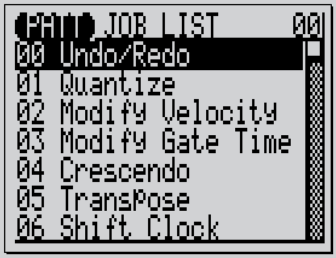
Drum Table display

"Groove" and "Drum Table" displays are exactly the same as those in the SONG mode except track numbers (D1, D2, PC, BA, C1...C4). See "Play Effects" of the SONG mode on page 94 for details.

The Pattern Jobs

The PATTERN mode includes 24 pattern "jobs" that perform a variety of important functions. To access and use the pattern jobs, press the [MENU] key while in the main PATTERN mode, then press the "Job" function key. This calls the pattern job list. You can select any job on the list simply by moving the cursor to the required job and pressing [ENTER]. The function keys can be used to move the cursor directly to the first job in the corresponding category: Event, Phrase, Track, or Pattern (press the [MENU] key, then the appropriate function key).







00: Undo/Redo

"Event" category
01: Quantize
02: Modify Velocity
03: Modify Gate Time
04: Crescendo
05: Transpose
06: Shift Clock
07: Chord Sort
08: Chord Separate
09: Copy Event
10: Erase Event
11 : Extract Event
12: Create Continuous
13: Thin Out
14: Time Stretch

"Phrase" category
15: Copy Phrase
16: Get Phrase
17: Put Phrase

"Track" category
18: Copy Track
19: Mix Track
20: Clear Track

"Pattern" category
21: Copy Pattern
22: Clear Pattern
23: Style Name

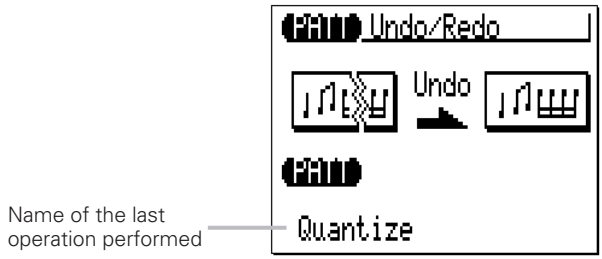
■ Returning to the PATTERN Mode

The [EXIT] key can be used to exit from any pattern job, and then from the job list thereby returning you to the normal PATTERN mode. You can also press the [PATTERN] key to directly return to the PATTERN mode.



00 : Undo/Redo

This job will "undo" any other pattern/song job, edit, or record function if it is executed before any other operation is performed. In all cases the affected data is restored to the state it was in before performing the job, edit, or record operation. This job will also undo the last undo operation (redo).



The name of the last operation performed will appear on the display (i.e. the operation which will be "undone"). In the example display, above, a quantize operation will be undone.

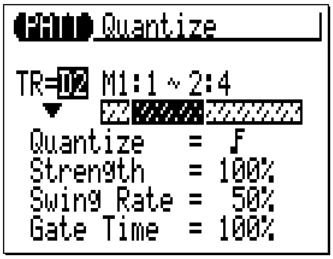
Press [ENTER] to execute the Undo/Redo job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

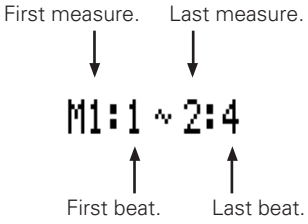
■ ***DETAIL***

- *The UNDO/REDO job will not undo the Clear Song ("All"), the Clear Pattern ("All" styles), the Song Name, or Style Name jobs.*

01 : Quantize

Aligns notes in the specified track to or close to the nearest specified beat.





The "**TR**" parameter selects the track to be affected by the Quantize job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be quantized.

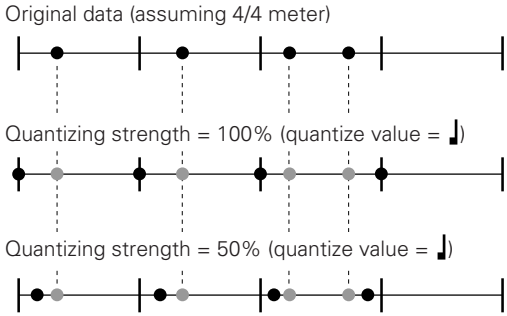
The "**Quantize**" parameter determines to what beats the note data in the specified track will be aligned. If you select "𝅘𝅥𝅯", for example, all notes in the track will be aligned to the nearest 16th-note beat, to a degree determined by the "Strength" parameter.

Quantize Values

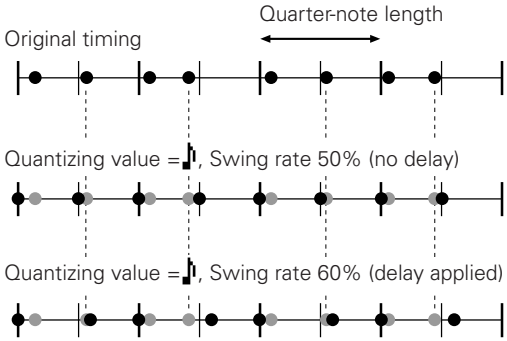
Value	Effect
𝅘𝅥𝅰	Aligns to the nearest 32nd note.
𝅘𝅥𝅯	Aligns to the nearest 16th note triplet.
𝅘𝅥𝅯	Aligns to the nearest 16th note.
♪	Aligns to the nearest 8th note triplet.
♪	Aligns to the nearest 8th note.
♩	Aligns to the nearest quarter note triplet.
♩	Aligns to the nearest quarter note.

	Aligns to the nearest 16th note + 16th note triplet.
	Aligns to the nearest 8th note + 8th note triplet.

The "**Strength**" parameter determines how "strongly" the notes are attracted to the specified quantize value. The strength range is from 0% to 100%. At a setting of "0%" no quantization will occur, while a setting of "100%" will cause all notes to be aligned precisely to the nearest specified beat value. In-between settings produce a corresponding shift in the position of all off-beat notes to the nearest specified beat value. With a value setting of "♩" and a strength setting of 50%, for example, a note that does not fall precisely on a quarter note beat will be shifted about halfway to nearest quarter note beat.



The "**Swing Rate**" parameter produces a "swing" feel by shifting the timing of "back beats", as specified by the quantize value. For example, if the specified quantization value is 8th notes, then the swing effect will shift the 2nd, 4th, 6th, and 8th beats of each measure forward to create a swing feel. If the quantize value is set to a triplet note length, the last note in each triplet group will be shifted. If the quantize value is set to a compound note length (e.g. 8th note + 8th note triplet) the even-numbered back beats will be shifted. The "Swing Rate" parameter determines how much the timing of the affected notes will be shifted. The range is from 50% (no swing) to 75% (maximum swing) for even note lengths, from 66% to 83% for triplet note lengths, and from 50% to 66% for even-plus-triplet note lengths (e.g. 8th note + 8th note triplet).

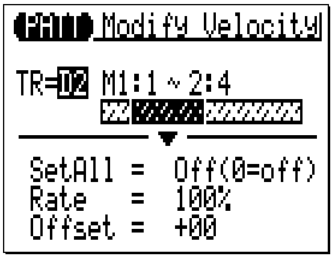


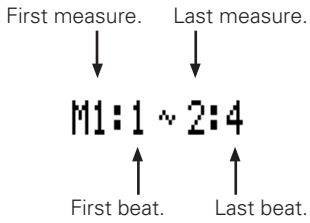
The "**Gate Time**" parameter increases or decreases the gate times (length) of all notes affected by the swing parameter. The range is from 0% to 200%. The "Gate Time" parameter sets the ratio between the shorter and longer gate time values. A setting of "100%" maintains the original relationship between the notes, lower values produce a narrower gate time range, and higher values produce a broader gate time range.

After setting the parameters as required press [ENTER] to execute the Quantize job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

02 : Modify Velocity

Increases or decreases the velocity values of all notes in the specified track and range of measures.



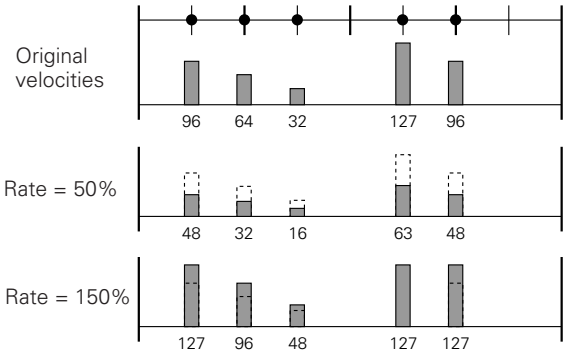


The "**TR**" parameter selects the track to be affected by the Modify Velocity job: D1, D2, PC, BA, C1, C2, C3, C4.

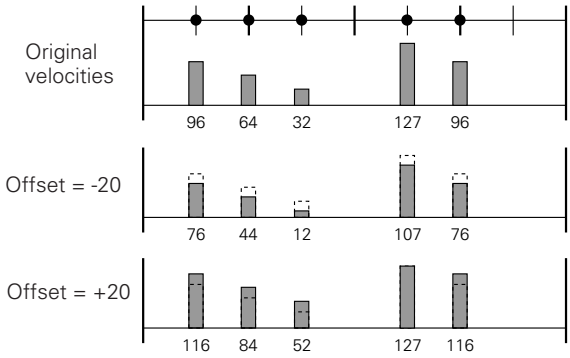
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**SetAll**" parameter makes it possible to set all notes in the specified range to a single velocity value from "1" to "127". "Set All" can also be turned "Off" when the "Rate" and "Offset" parameters, below, are to be used for velocity modification.

The "**Rate**" parameter allows you to change the Velocity value of each note without affecting the velocity ratios between notes (proportional change). A setting of "100%" maintains the absolute velocity differences between notes, while lower (higher) values will decrease (increase) the velocity values to the corresponding percentage, resulting in a narrower (wider) dynamic range. The range is from "0%" to "200%".



The "**Offset**" parameter allows you to change all velocity values by an absolute amount. "-" settings will decrease the velocity of each note by the corresponding amount, "+" settings will increase the velocity accordingly. The range is from "-99" through "0" to "+99".



New Velocity = Original Velocity x rate/100 + offset
(If the right side of the equation is 0 or less, the New Velocity becomes 1. If the right side of the equation is 128 or more, the New Velocity becomes 127.)

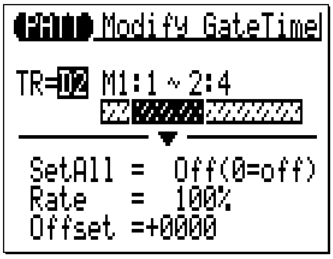
After setting the parameters as required press [ENTER] to execute the Modify Velocity job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

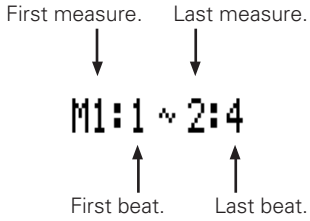
■ ***NOTE***

- *The Modify Velocity job is a great way to "soften" the sound of material that has too great a variation between the softest and loudest notes, or, conversely, to add extra punch to dull-sounding material. Experiment with the parameters to get a feel for what they do.*

03 : Modify Gate Time

Increases or decreases the gate times (length) of all notes in the specified track and range of measures.



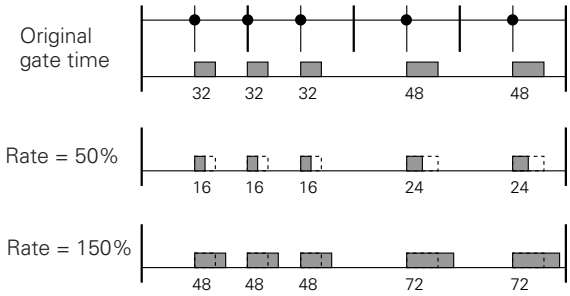


The "**TR**" parameter selects the track to be affected by the Modify Gate Time job: D1, D2, PC, BA, C1, C2, C3, C4.

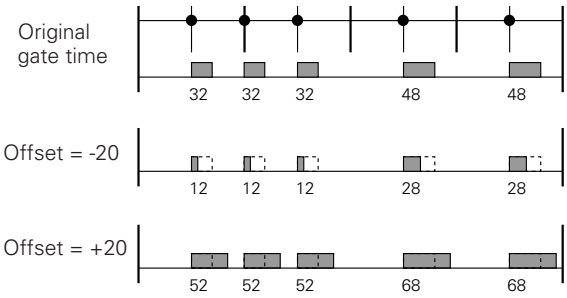
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**SetAll**" parameter makes it possible to set all notes in the specified range to a single gate time value from "1" to "9999". "Set All" can also be turned "Off" when the "Rate" and "Offset" parameters, below, are to be used for gate time modification.

The "**Rate**" parameter allows you to change the Gate Time value of each note without affecting the gate time ratios between notes (proportional change). A setting of "100%" maintains the absolute gate time differences between notes, while lower (higher) values will decrease (increase) the gate time values to the corresponding percentage. The range is from "0%" to "200%".



The "**Offset**" parameter allows you to change all gate time values by an absolute amount. "-" settings will decrease the gate time of each note by the corresponding amount, "+" settings will increase the gate time accordingly. The range is from "-9999" through "0" to "+9999".



New Gate Time = Original Gate Time x rate/100 + offset
(If the right side of the equation is 0 or less, the New Gate Time becomes 1)

After setting the parameters as required press [ENTER] to execute the Modify Gate Time job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

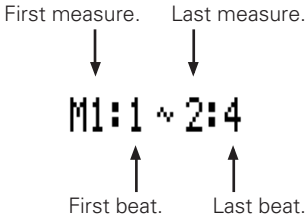
■ ***NOTE***

- *The Modify Gate Time job can be used to produce a more staccato or legato feel, as required. Experiment with the parameters to get a feel for what they do.*

04 : Crescendo

Produces a gradual crescendo (increase in note velocity) or decrescendo (decrease in note velocity) in the specified track over the specified range of measures.

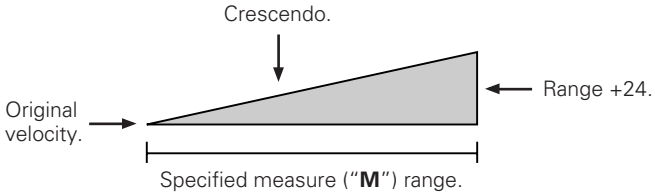




The "**TR**" parameter selects the track to be affected by the Crescendo job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Range**" parameter determines the range of velocity values over which the crescendo will occur. A setting of "+24", for example, will cause the MIDI velocity values to increase by 24 over the specified measure range (The MIDI velocity value range is from 1 to 127).

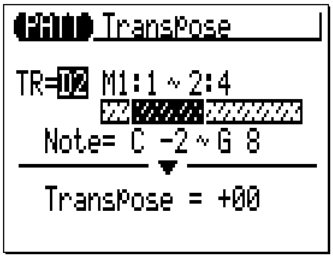


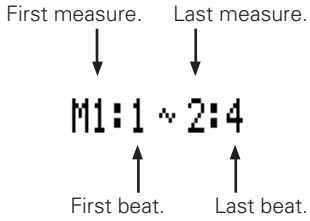
Negative values cause a corresponding decrease in velocity, thereby producing a decrescendo rather than a crescendo. The range of this parameter is from "-99" through "0" to "+99".

After setting the parameters as required press [ENTER] to execute the Crescendo job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

05 : Transpose

Transposes all notes in the specified part up or down by the specified number of semitones.





The "**TR**" parameter selects the track to be affected by the Transpose job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

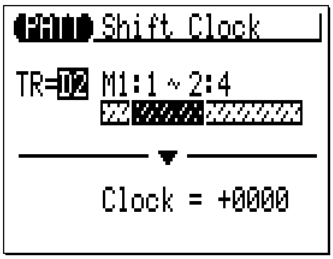
The "**Note**" parameters specify the range of notes to be affected. The maximum range is from "C-2" to "G8".

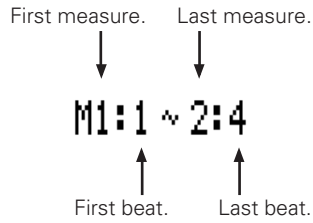
The "**Transpose**" parameter determines the amount of transposition in semitone increments. Minus (-) values transpose down while plus (+) values transpose up. the range is from "-99" through "0" to "+99".

After setting the parameters as required press [ENTER] to execute the Transpose job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

06 : Shift Clock

Moves all notes and events in the specified track and range of measures forward or backward by the specified number of clocks (480 clocks per 1/4 note).





The "**TR**" parameter selects the track to be affected by the Shift Clock job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Clock**" parameter determines the direction and number of clocks by which the notes in the specified measure range will be shifted. "+" settings shift the notes forward (toward the end of the pattern) and "-" settings shift the notes backward (toward the beginning of the pattern). The range is from "-9999" through "0000" to "+9999".

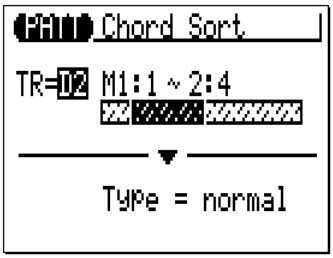
After setting the parameters as required press [ENTER] to execute the Shift Clock job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

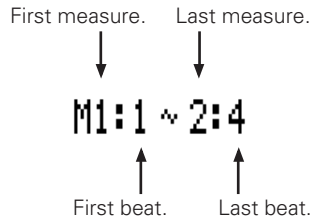
■ ***NOTE***

- *The Shift Clock job will not shift data beyond the specified measure range. Therefore, events near the beginning of the specified range may sound "bunched" together and events near the end of the specified range may be "cut off" in some cases.*
- *Since the Shift Clock job actually shifts the timing of all notes and other events in the specified measures forward or backward, it can significantly alter the "feel" of the pattern. You could move the notes forward ("+" settings) to create a more "laid back" feel, or backward ("-" settings) to produce a more "driving" feel. Of course, you can also use Shift Clock to correct timing that is off in the first place.*

07 : Chord Sort

Sorts all notes in the specified measure range which fall on the same beat (i.e. chords) so that the notes are arranged in order from lowest to highest or from highest to lowest.





The "**TR**" parameter selects the track to be affected by the Chord Sort job: D1, D2, PC, BA, C1, C2, C3, C4.

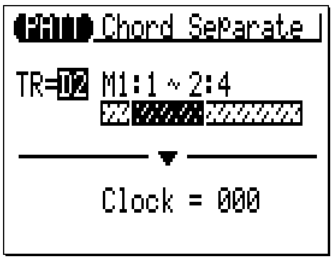
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

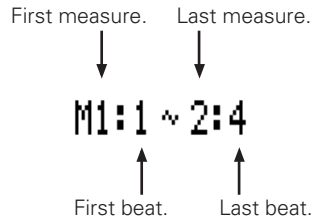
The "**Type**" parameter determines whether the chords in the specified range are arranged from lowest to highest note ("Normal") or from highest to lowest note ("Reverse").

After setting the parameters as required press [ENTER] to execute the Chord Sort job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

08 : Chord Separate

Shifts each note in the specified measure range which falls on the same beat (i.e. chords) forward in order from lowest to highest or vice versa according to the Chord Sort settings, by the specified number of clocks, thus "separating" the chord notes by the specified number of clocks.





The "**TR**" parameter selects the track to be affected by the Chord Separate job: D1, D2, PC, BA, C1, C2, C3, C4.

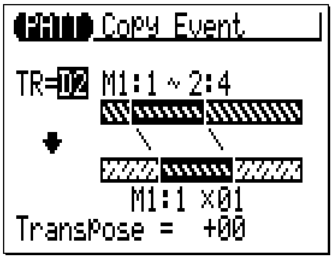
The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Clock**" parameter determines the number of clocks by which the notes of the chord will be separated: "000" through "999".

After setting the parameters as required press [ENTER] to execute the Chord Separate job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

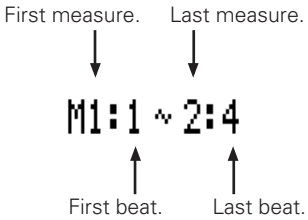
09 : Copy Event

Copies all data from a specified range of measures to the selected place in the same track. The copied data can also be transposed as required. This operation overwrites the data from the beginning of the specified destination measure with the data from the source measures. Previous data in the overwritten measures is therefore lost.

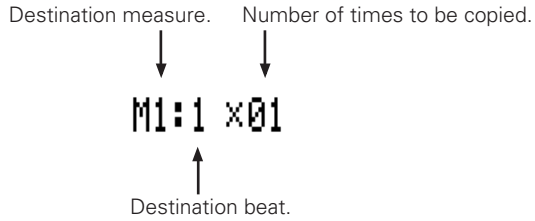


The upper "**TR**" parameter selects the source track — i.e. the track from which the data is to be copied: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the upper graphic bar are used to specify the first measure:beat and last measure:beat of the range to be copied.



The "**M**" parameters below the lower graphic bar specifiy the destination measure:beat to which the data will be copied, as well as the number of times the data is to be copied.



The "**Transpose**" parameter sets a transpose value for the copied data in semitone increments from "-24" through "+00" to "+24".

After setting the parameters as required press [ENTER] to execute the Copy Event job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

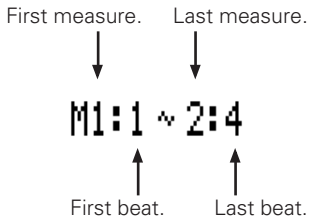
■ ***NOTE***

- *Previous data in measures overwritten by the Copy Event job will be completely erased and replaced by the copied data.*

10 : Erase Event

Erases all note and event data from the specified measure or range of measures in the specified track. An erase operation leaves the specified measures intact but blank.





The "**TR**" parameter selects the track to be affected by the Erase Event job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be erased.

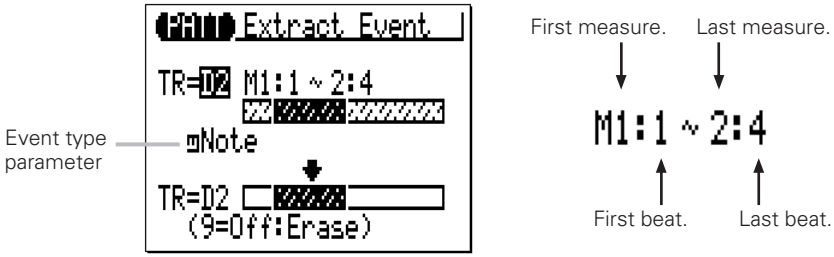
After setting the parameters as required press [ENTER] to execute the Erase Event job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *The Erase Event job erases the data from the specified measures only in the specified track. Also, the data is erased but the measures remain intact (i.e. the subsequent measures are not moved back). After an erase operation you can record new material in the resulting blank measures as required.*

11 : Extract Event

Allows a specified type of event — note, program change, pitch bend, control change, channel aftertouch, polyphonic aftertouch, or system exclusive — to be extracted (removed) from a specified range of measures in a specified track. The extracted data can be moved to the same range of measures in any other specified track.



The upper "**TR**" parameter selects the source track — i.e. the track from which the event data is to be extracted: D1, D2, PC, BA, C1, C2, C3, C4.

The lower "**TR**" parameter selects the destination track — i.e. the track to which the extracted event data is to be moved: D1, D2, PC, BA, C1, C2, C3, C4, or "Off" if you simply want to discard the specified event data.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range from which the event data is to be extracted.

The event type parameter near the upper graphic bar determines the type of event data to be extracted:

NOTE	Note events.
PC	Program change events.
PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the even type. The control change parameter determines the MIDI control change number(s) to be extracted: “000” … “127” or “All”.
CAT	Channel aftertouch events.
PAT	Polyphonic aftertouch events.
EXC	Exclusive events.

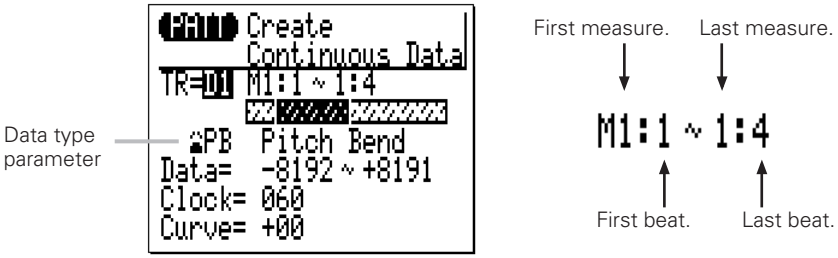
After setting the parameters as required press [ENTER] to execute the Extract Event job. The metronome icon will appear on the display while the data is being processed, then “Completed” will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *Although you can remove events individually in the edit mode (page 192), the Extract Event job makes it simple to remove all occurences of the specified event within the specified measure range in one operation. This is particularly convenient when removing slow pitch bends or volume changes that may employ many individual events to create a single effect.*
- *If the destination track already contains data, the extracted event data will be merged.*

12 : Create Continuous

This job makes it possible to create continuous data of the specified type in order to produce smooth pitch bends, aftertouch, etc.



The "**TR**" parameter selects the track to be affected by the Create Continuous job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

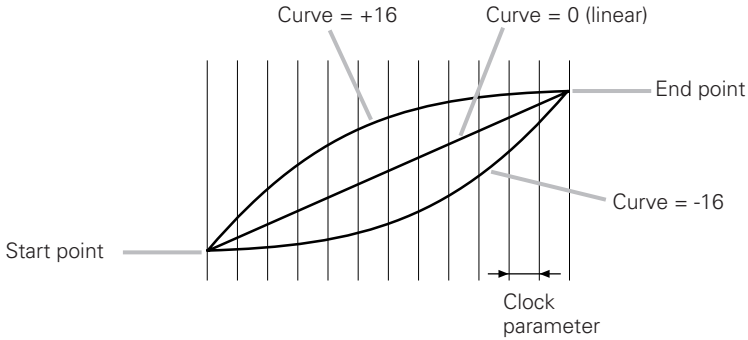
The data type parameter determines the type of data to be created.

PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the type parameter. The control change parameter determines the MIDI control change number to be created: "000" … "127".
CAT	Channel aftertouch events.
EXC	Master volume.

The "**Data**" parameters set the range of data values to be created: the left number sets the starting value and the right number sets the ending value. The range of values available will depend on the type of event selected.

The "**Clock**" parameter sets the spacing between the created events in clocks: "000" … "999".

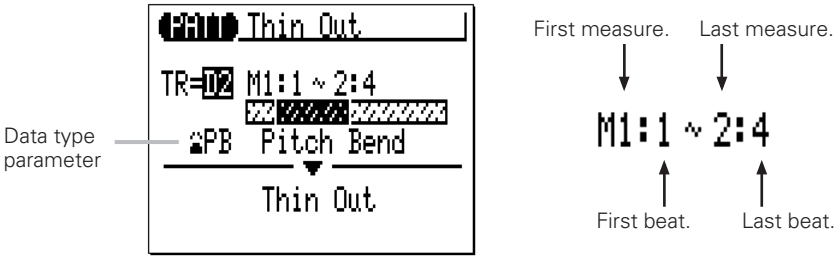
The "**Curve**" parameter sets the degree of positive or negative "curvature" that will be applied to the continuous data: "-16" … "00" … "+16".



After setting the parameters as required press [ENTER] to execute the Create Continuous job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

13 : Thin Out

"Thins out" specified types of data by removing every other event of the specified type. This is particularly useful for reducing the volume of data required for pitch bends, aftertouch and other control change operations, thus making more efficient use of the available memory.



The "**TR**" parameter selects the track to be affected by the Thin Out job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

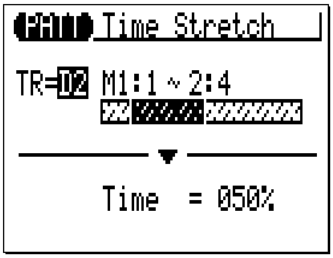
The data type parameter determines the type of data to be thinned.

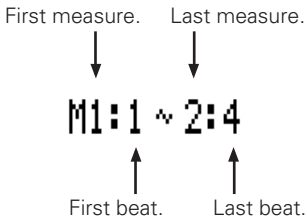
PB	Pitch bend events.
CC	Control change events. When this event type is selected a control change number parameter appears to the right of the type parameter. The control change parameter determines the MIDI control change number to be thinned: "000" … "127".
CAT	Channel aftertouch events.
PAT	Polyphonic aftertouch events.

After setting the parameters as required press [ENTER] to execute the Thin Out job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

14 : Time Stretch

Lenghtens or shortens the specified track by a specified percentage without affecting tempo or pitch.





The "**TR**" parameter selects the track to be affected by the Time Stretch job: D1, D2, PC, BA, C1, C2, C3, C4.

The "**M**" parameters above the graphic bar are used to specify the first measure:beat and last measure:beat of the range to be modified.

The "**Time**" parameter specifies the percentage by which the time is to be lengthened or shortened: "50%" … "200%". The gate time of notes in the specified track and measures will also be changed in proportion to this setting.

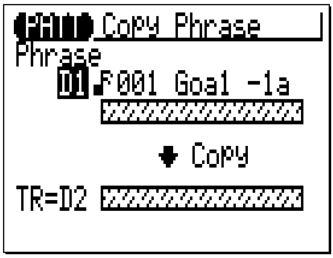
After setting the parameters as required press [ENTER] to execute the Time Stretch job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If the specified track is shortened, the phrase of the track will play repeatedly to fill the pattern length.*
- *If the specified track is lengthened, the exceeding part of the phrase will be cut off.*

15 : Copy Phrase

Copies the specified preset phrase to a specified PATTERN mode track as a user phrase.



The "**Phrase**" parameter selects the source phrase — i.e. the preset phrase to be copied (preset phrase numbers have three sections which can be specified: category, beat, and number — page 137).

The "**TR**" parameter selects the destination track: D1, D2, PC, BA, C1, C2, C3, C4.

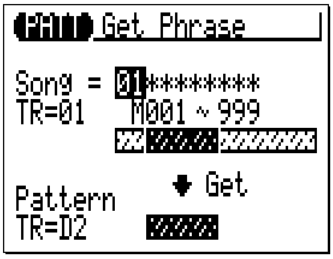
After setting the parameters as required press [ENTER] to execute the Copy Phrase job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

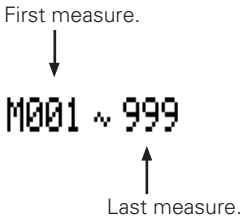
■ ***NOTE***

- *If the specified preset phrase is shorter than the pattern length, the phrase will be copied repeatedly to fill the pattern length.*
- *If the specified preset phrase is longer than the pattern length, the exceeding part of the copied phrase will be cut off.*
- *If the destination track already contains data, the copied phrase will erase and replace the previous phrase data.*

16 : Get Phrase

Copies the data from the specified range of measures in the specified track of a specified song to the specified phrase.





The "**Song**" parameter selects the source song — i.e. the song from which the data is to be copied: "01" … "20".

The "**TR**" parameter selects the song source track — i.e. the track from which the data is to be copied: "01" … "16".

The "**M**" parameters above the upper graphic bar are used to specify the first measure and last measure of the range to be copied.

The lower "**TR**" parameter specified the track to which the data is to be copied: D1, D2, PC, BA, C1, C2, C3, C4.

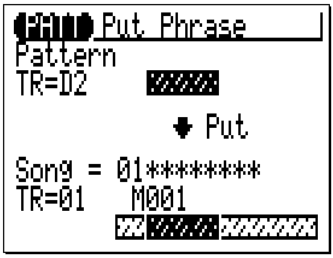
After setting the parameters as required press [ENTER] to execute the Get Phrase job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ NOTE

- *The Get Phrase job is a convenient way to create new phrases by copying a few appropriate measures from songs.*
- *If the destination track already contains data, the copied data will erase and replace the previous phrase data.*

17: Put Phrase

Copies the phrase data from a specified pattern track to the specified measures in the specified track of a specified song.



The "**Pattern TR**" parameter specified the source pattern track: D1, D2, PC, BA, C1, C2, C3, C4.

The "**Song**" parameter selects the destination song — i.e. the song to which the phrase data is to be copied: "01" … "20".

The "**TR**" parameter selects the destination song track — i.e. the track to which the phrase data is to be copied: "01" … "16".

The "**M**" parameter specifies the measure of the destination track to which the phrase data is to be copied.

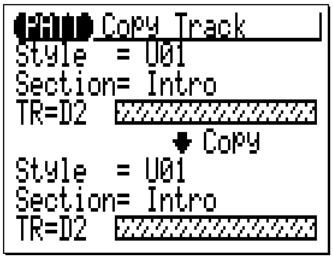
After setting the parameters as required press [ENTER] to execute the Put Phrase job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *The time signature of the phrase will not affect the time signature of the song.*
- *If the destination song track contains data, the copied phrase data will erase and replace the previous song track data.*
- *The source pattern data is re-harmonized to the current chord specified in the PATTERN play mode before being copied to the destination song track.*

18 : Copy Track

Copies all data from the specified track in the specified section of the specified style to any other specified track in the specified section of the specified style.



The upper "**Style**" parameter specifies the source style: "001" … "128", "U01" … "U64".

The upper "**Section**" parameter specifies the source section: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending".

The upper "**TR**" parameter selects the source track — i.e. the track from which the data is to be copied: D1, D2, PC, BA, C1, C2, C3, C4.

The lower "**Style**" parameter specifies the destination style: "U01" … "U64".

The lower "**Section**" parameter specifies the destination section: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending".

The lower "**TR**" parameter selects the destination track — i.e. the track to which the data is to be copied: D1, D2, PC, BA, C1, C2, C3, C4.

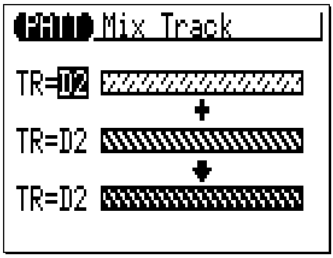
After setting the parameters as required press [ENTER] to execute the Copy Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If the destination track already contains data, the copied data will erase and replace the previous data.*

19 : Mix Track

Combines the data contained in two specified tracks and places the result in a third track (which can be the same as the second track).



The upper and center "**TR**" parameters select the first and second source tracks — i.e. the tracks which are to be mixed: D1, D2, PC, BA, C1, C2, C3, C4.

The lower "**TR**" parameter specifies the destination track to which the mixed data is to be copied: D1, D2, PC, BA, C1, C2, C3, C4.

After setting the parameters as required press [ENTER] to execute the Mix Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If there is no data in the second source track, the data from the first source track is simply copied to the destination track.*
- *Even if a preset phrase is previously assigned to the destination track, it will be mixed with the first source track and become a user phrase.*

20 : Clear Track

Completely clears the specifed track in the specified section.



The "**Section**" parameter specifies the section to be cleared: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending".

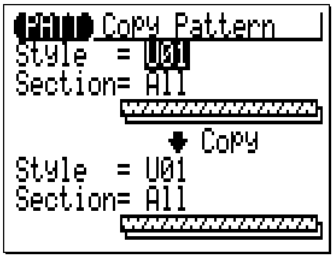
The "**TR**" parameter selects the track to be cleared: D1, D2, PC, BA, C1, C2, C3, C4.

The "**Event**", "**Play Effect**", and "**Voice**" check boxes make it possible to specify whether or not the corresponding types of data will be cleared or not (the data is cleared when the checkbox is checked).

After setting the parameters as required press [ENTER] to execute the Clear Track job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

21 : Copy Pattern

Copies all data from the specified section of the specified style to any other specified section of the specified style.



The upper "**Style**" parameter specifies the source style: "001" … "128", "U01" … "U64".

The upper "**Section**" parameter specifies the source section: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending" and "All".

The lower "**Style**" parameter specifies the destination style: "U01" … "U64".

The lower "**Section**" parameter specifies the destination section: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending" and "All".

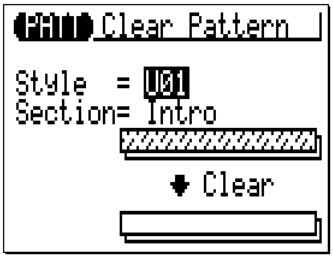
After setting the parameters as required press [ENTER] to execute the Copy Pattern job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *If the destination pattern contains data, the copied data will erase and replace the previous pattern data.*

22 : Clear Pattern

Completely clears all data from the specified section of the specified style.



The "**Style**" parameter specifies the style: "U01" … "U64" and "All".

The "**Section**" parameter specifies the section of the style to be cleared: "Intro", "MainA", "MainB", "FillAB", "FillBA", "Ending" and "All".

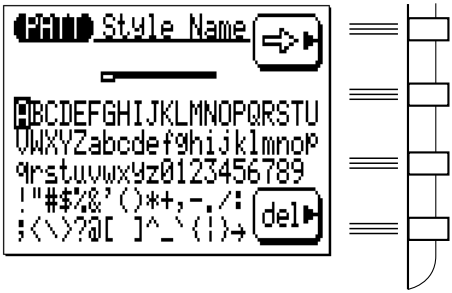
After setting the parameter as required press [ENTER] to execute the Clear Pattern job. The metronome icon will appear on the display while the data is being processed, then "Completed" will appear briefly when the job is done. Press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode.

■ ***NOTE***

- *Clearing "All" styles can not be undone with the "Undo/Redo" job.*

23 : Style Name

Allows an original name of up to 8 characters to be assigned to the current style.



To enter a character, use the cursor keys to move the cursor to the character to be entered, then press the [ENTER] key. The character will appear at the character cursor location and the character cursor will advance to the next character position.

The character cursor can be moved by pressing the function key to the right of "⇨".

To delete a character, press the function key to the right of "del". The character to the left of the cursor will be deleted and the cursor will move to the deleted character's position.

When the name has been entered press the [EXIT] key to return to the job list, or a mode key to go directly to the selected mode (it is not necessary to press the [ENTER] key to enter the specified name).

■ ***NOTE***

- *You can enter "name" not only for the user style but also for the preset style. If you want to store a newly entered "name" for the preset style, execute the "Copy Pattern" Job before changing the style number.*
- *Entering a style name can not be undone with the "Undo/Redo" job.*

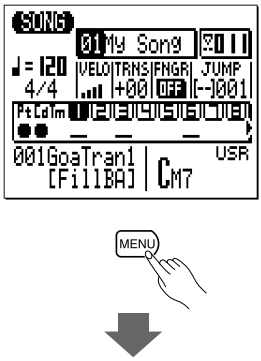
Editing Songs & Patterns

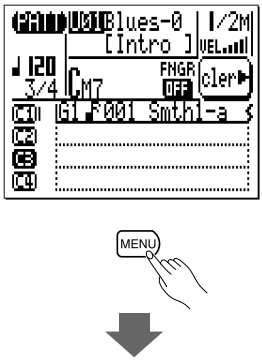
The QY70's editing capability makes it easy to correct mistakes made when recording song or pattern phrase data, and to generally refine your sound.

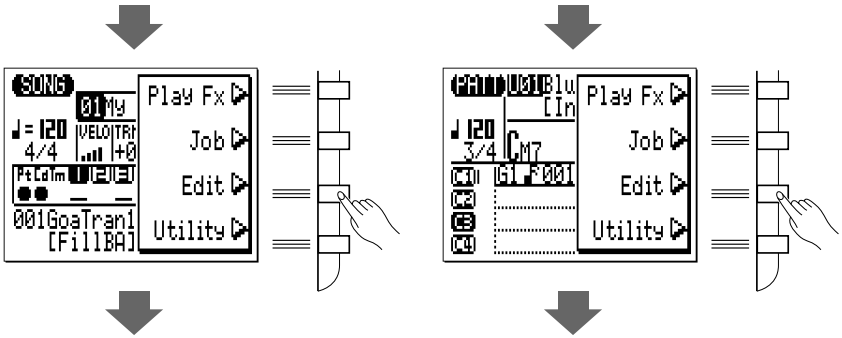
The song and pattern edit "change" mode lets you individually modify the timing, pitch, gate time (length) and velocity (loudness) of each note or other events in the song or pattern. There's also an edit "insert" that allows insertion of note, program change, sustain on/off, pitch bend, modulation, pan, volume, expression, and other events at any point in the song or pattern.

Engaging the SONG or PATTERN Edit Mode

To engage the edit mode, place the cursor at the track you want to edit in the normal SONG or PATTERN mode, press the [MENU] key, and then the function key next to [Edit] on the display.

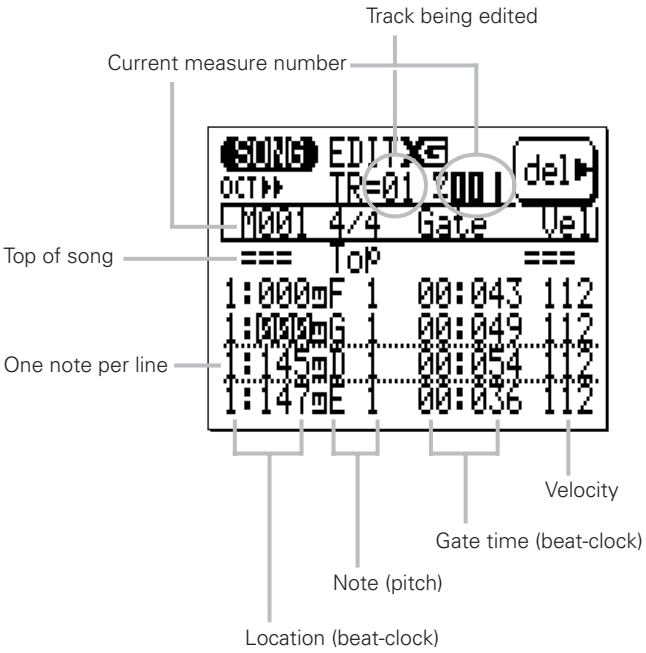






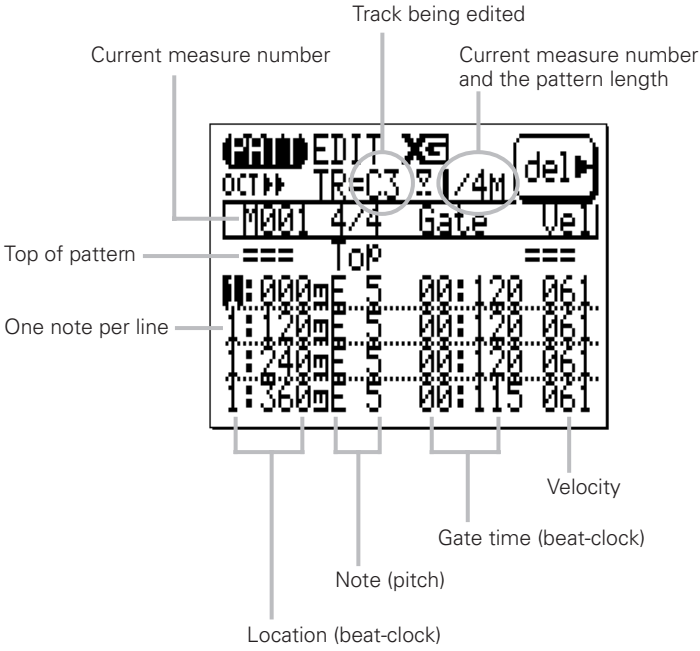
The edit display will look something like this (of course, the note data will be different).

Song Edit Display



The pattern edit display is almost exactly the same. The only differences are the name of the track being edited and the current measure display.

Pattern Edit Display

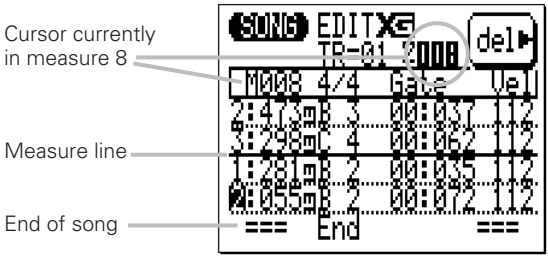


If you place the cursor at the "Pt"(pattern) or "Cd"(chord) track in the SONG mode and engage the edit mode, the edit display will be exactly the same as the step recording display described on page 54.

Moving Around

The location, pitch, gate time, and velocity values for each note are shown on a single line of the display. The notes are arranged in order from top to bottom. You can move around within the song or pattern by simply moving the cursor. Move below the bottom of the display and the note data will scroll down, moving towards the end of the song or pattern. The opposite occurs when you move up above the top of the display.

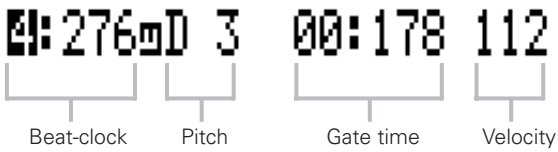
In addition to the lines of note data, there are markers for the top of the song/pattern and the end of the song/pattern. Measure lines are indicated by solid lines between lines of note data (non-measure boundaries between lines of data appear as dotted lines).



Change Mode Editing

The "Change" edit mode is initially selected when the edit mode is engaged. To edit any note or other event in the song or pattern, simply move the cursor to the appropriate line, and then to the required parameter within that line. The [-1] and [+1] keys can then be used to select a new value for the selected parameter. The edited line will flash when any parameter within it is changed. This indicates that a change has been made but has not yet been entered. Press the [ENTER] key to actually enter the changes, or move the cursor to another line to cancel the changes.

The available parameters depend on the selected event type. The note event parameters are listed below. See "Insert Mode Editing" (page 197) for other event types.



Beat-clock
The first column contains the note location data. The left number is the beat within the current measure (1 through 4 in a 4/4 measure, for example.), and the right number is the clock within that beat (000 through 479 in case of 1/4-note beat). The beat and clock values can be selected and edited independently.

Pitch
This is the actual pitch of the note. The range is from C-2 to G8.

Gate Time
Gate time is the length of the note in beats and clocks. The number to the left of the colon is 1/4-beats and the number to the right is clocks within a 1/4-beat. A normal 1/4 note, for example, is 432 clocks long. This is about 90% of the actual length of a 1/4-note division, which is 480 clocks. The "normal" length of the note is slightly shortened to prevent notes from running into each other and sounding slurred (a slur is produced by setting the full note length). The beat-clock range is from 00:001 to 99:479.

Velocity
This parameter controls the velocity (loudness) of the note. The range is from 001 to 127.

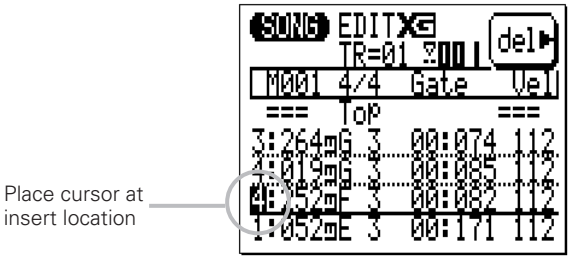
Deleting Events
Notes and other events (sustain on/off, pitch bend, etc.) can be deleted by placing the cursor at the line corresponding to the event to be deleted, and then pressing the function key next to "del" on the display.

Insert Mode Editing

The edit insert mode is used to insert new notes and other events at a specified location in the song or pattern.

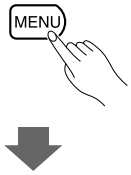
1 Place the cursor at the insert location.

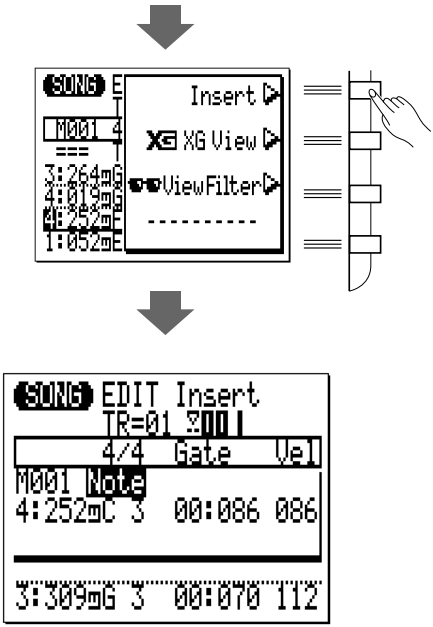
Move the cursor to the edit line correponding to (or near to) the location at which you want to insert the new data.



2 Engage the insert edit mode.

Press the [MENU] key and then the function key next to "Insert" on the display to switch to the insert edit mode.



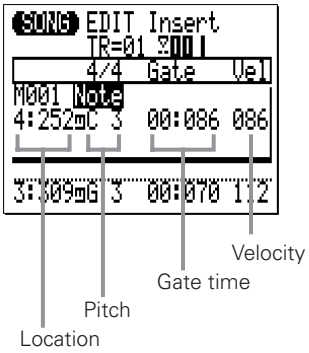


3 Select an Event Type to Insert, and Set the Event Parameters

If the display corresponding to the type of event you want to insert does not appear immediately, use the [-1] and [+1] keys to select the desired event type.

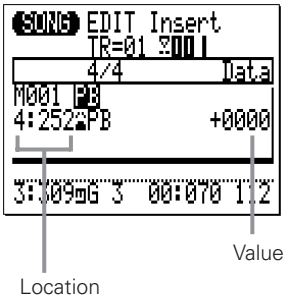
All events have at least two parameters — usually the location of the event (Measure-Beat-Clock) and the event value. Move the cursor to the event parameters and set as required by using the [-1] and [+1] keys or the SHIFT-Number entry method where appropriate.

> **Note**
> New notes can be inserted at any specified location. The note range is from "C-2" to "G8". Gate time and velocity can also be specified.



PB (Pitch Bend)

Pitch bend events can be used to produce pitch bend effects. The pitch bend values correspond to pitch bend wheel positions from "-8192" (lowest position) through "+0000" (center) to "+8191" (highest position). To produce smooth pitch bends you'll need to insert several small pitch bend events at appropriate intervals. Remember to use more pitch bend events to return the pitch to normal after a bend.

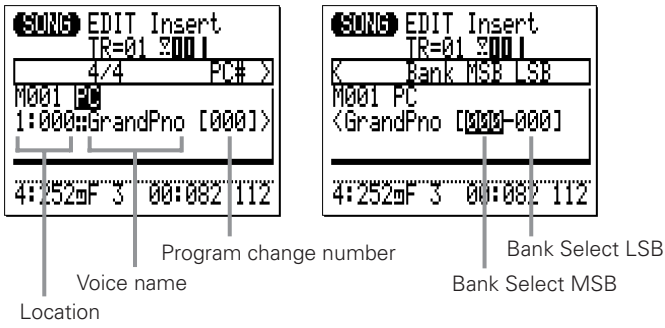


PC (Program Change)

Program change events can be used to switch voices at any point in the track.

The Bank Select (MSB and LSB) parameters are used for

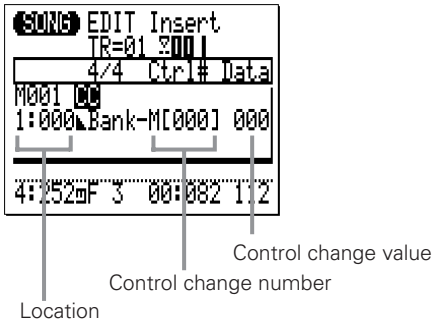
bank selection when selecting XG voices. Refer to the XG Normal/Drum voice list in the List Book for details.



Note that the program number in the XG Normal/Drum voice list (refer to the List Book) and the MIDI program change number is different: i.e., the program number for "Grand Piano" is "1" while its MIDI program change number is"0". (Program numbers, which are defined in General MIDI, range 1 - 128, while MIDI program change numbers range 0 - 127.)

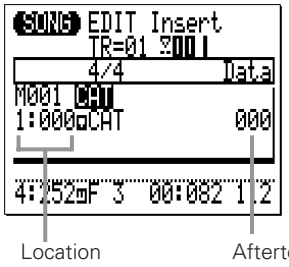
CC (Control Change)

Any MIDI control change number from 000 through 127 can be entered with an appropriate control value where applicable. Control change numbers are used for modulation, volume, panning, expression and other control functions. Some control change numbers are assigned to specific functions and some are not. Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



CAT (Channel Aftertouch)

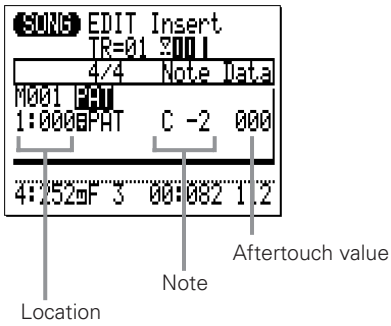
Inserts a channel aftertouch message with the specified aftertouch value.



PAT (Polyphonic Aftertouch)

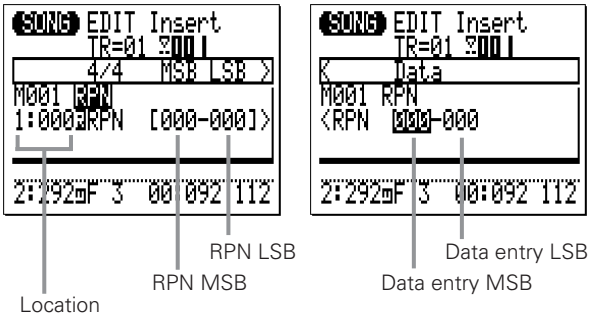
Inserts a polyphonic aftertouch message for the specified note with the specified aftertouch value.

PAT aftertouch events affect a single specified note, as opposed to CAT aftertouch events which affect all notes on the same channel (track) simultaneously



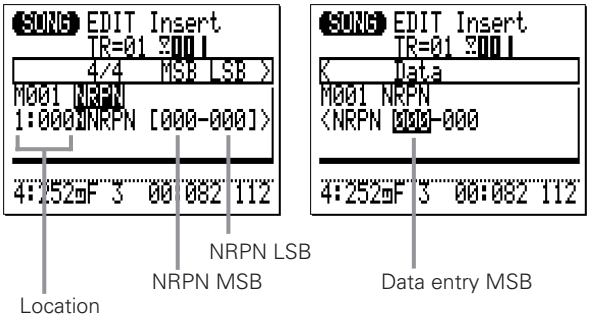
RPN

Inserts RPN data. RPN is an abbreviation for "Registered Parameter Number", which is a MIDI message used to control part settings such as pitch bend sensitivity, tuning, etc. Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



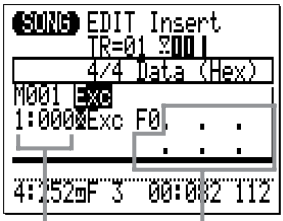
NRPN

Inserts NRPN data. NRPN is an abbreviation for "Non Registered Parameter Number", which is a MIDI message used to control voice settings such as vibrato, filter, envelope generator, drum setup, etc. Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



Exc (Exclusive)

Inserts a System Exclusive message in hexadecimal format. Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



Location

Data (in hexadecimal, begins with "F0" and ends with "F7")

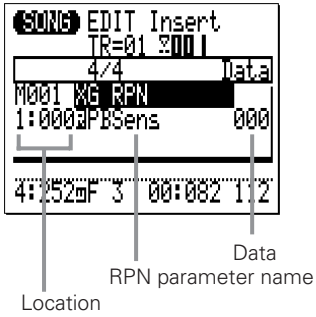
■ Hexadecimal Number Entry

Use the [SHIFT] and the micro-keyboard to enter hexadecimal values.

- *Press a black key while holding the [SHIFT] key to enter the corresponding number.*
- *Press a white key in the left-hand section of the micro-keyboard (E - D except G) while holding the [SHIFT] key to enter the corresponding character, "A" through "F".*
- *After entering a hexadecimal value in one space, move the cursor to the next space and enter the next value.*
- *Remember to enter "F7" at the end of every exclusive message.*

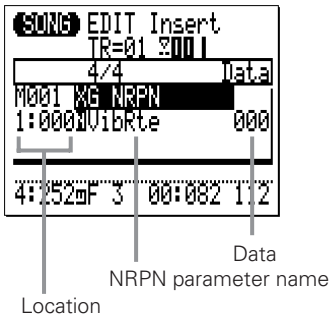
XG RPN

Inserts RPN (Registered Parameter Number) data using an XG parameter name ("RPN", above, needs to be entered using numbers). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



XG NRPN

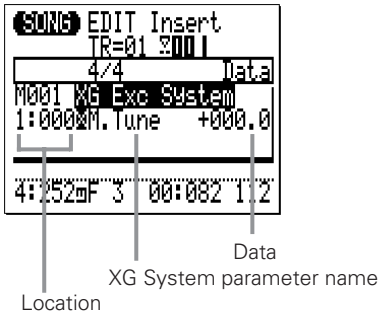
Inserts NRPN (Non Registered Parameter Number) data using an XG parameter name ("NRPN", above, needs to be entered using numbers). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



* "Note" appears if a drum setup parameter is selected to specify a drum instrument.

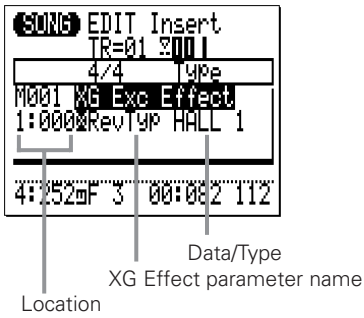
XG Exc System

Inserts a System Exclusive (XG System) message using an XG parameter name ("Exc", above, needs to be entered using hexadecimal values). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



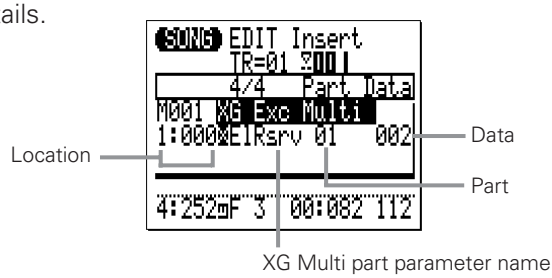
XG Exc Effect

Inserts a System Exclusive (XG Effect) message using an XG parameter name ("Exc", above, needs to be entered using hexadecimal values). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



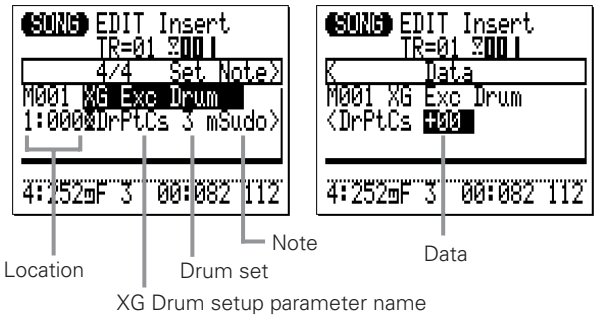
XG Exc Multi

Inserts a System Exclusive (XG Multi part) message using an XG parameter name ("Exc", above, needs to be entered using hexadecimal values). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



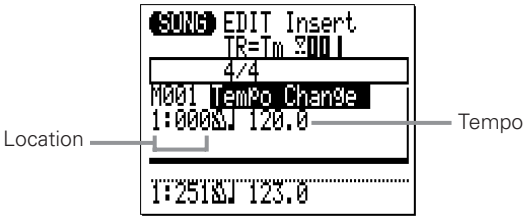
XG Exc Drum

Inserts a System Exclusive (XG Drum setup) message using an XG parameter name ("Exc", above, needs to be entered using hexadecimal values). Refer to the "MIDI Data Format" section of the manual (refer to the List Book) for details.



Tempo Change (Tempo track (Tm) only)

Inserts tempo change data with the specified tempo value (25.0 - 300.0).



4 Enter the Specified Event

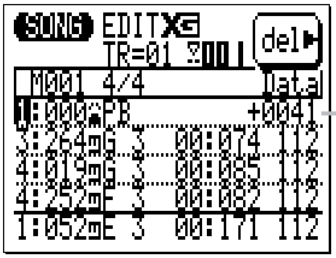
Press the [ENTER] key to enter the event as specified.



5 Return to the Change Edit Mode

Press the [EXIT] key to return to the change edit display, and continue editing as required.





Pitch bend event inserted. once inserted, you can edit the event's location and value in the change edit mode.

6 Exit From the Edit Mode

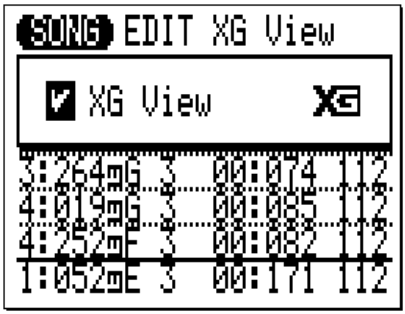
Press the [SONG] or [PATT] key to exit from the EDIT mode and return to the normal SONG or PATTERN play mode. The [EXIT] key will also return you to the SONG or PATTERN mode from the EDIT mode.

■ ***NOTE***

- *If you insert Control Change data other than Modulation (#1), Expression (#11), Harmonic Content (#71) and Brightness (#74) in the user pattern, these data will not be reset even if the pattern is changed, and will take effect on the newly selected pattern.*
  To avoid this, remember to enter the value to reset at the end of the phrase when you insert these control change data.

XG View

The XG View function displays XG-related events (RPN, NRPN, System Exclusive, etc.) using the name defined by the XG format. To engage the XG View function press the [MENU] key while in the EDIT mode, then press the function button next to "XG View" on the display.

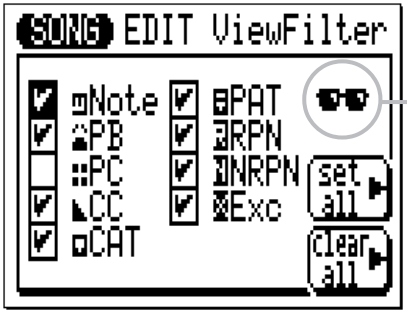


When the box to the left of "XG View" is checked, XG-related events will be displayed using the corresponding XG format name. If the box is not checked, XG-related events will be displayed as MSB/LSB values, or as hexadecimal numbers.

Press [+1] key to check the XG View box, or the [-1] key to uncheck the box.

View Filter

The View Filter lets you "filter out" specified types of events so that they don't appear in the EDIT mode display. To access the View Filter press the [MENU] key while in the EDIT mode, then press the function button next to "View Filter" on the display.



The "sunglasses" appear if any events are "unchecked".

When the check box beside an event type is checked, that events will be displayed in the EDIT display. Event types that are not checked will not appear in the EDIT display.

To filter out a certain type of event, simply move the cursor to the corresponding check box and press the [-1] key to "uncheck" the box (or the [+1] key to check the box, as necessary).

The "Set All" function key checks all boxes at once, while the "Clear All" function key clears all check boxes.

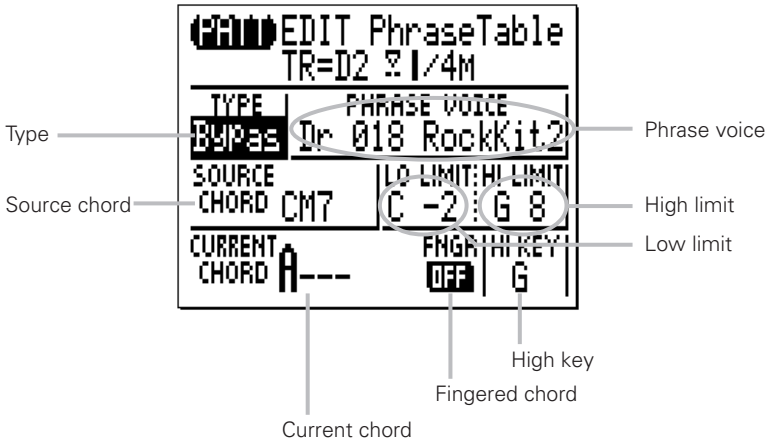
The View Filter Event Types

Abbreviation	Event Type
Note	Note
PB	Pitch Bend
PC	Program Change
CC	Control Change
CAT	Channel Aftertouch
PAT	Polyphonic Aftertouch
RPN	Registered Parameter Number
NRPN	Non Registered Parameter Number
Exc	System Exclusive

Phrase Table (Pattern Edit Only)

Phrase Table lets you edit phrase settings for the pattern track currently being edited.

To access the Phrase Table function press the [MENU] key while in the EDIT mode, then press the function button next to "Phrase Table" on the display.



To edit a Phrase Table parameter, move the cursor to the parameter and edit using the [-1] and [+1] buttons, the SHIFT-Number entry method, or the micro keyboard as necessary. Only the "CURRENT CHORD" and "FNGR" parameters can be edited for preset phrases.

TYPE

Selects the phrase (note transition) type: Chord 1, Chord 2, Bass, Bypass or Parallel. Refer to "**The Phrase Types**" on page 147 for information on the various phrase types.

PHRASE VOICE

Selects the voice to be used in the phrase. Refer to the XG Normal/Drum voice list in the List Book.

SOURCE CHORD
Sets the source chord for the phrase (i.e. the chord on which the phrase is based). Note that you can not enter an "on-bass" chord for the source chord.

LO LIMIT
HI LIMIT
Sets the note range over which the re-harmonized phrase will be played (C-2 through G8). If any re-harmonized phrase notes exceed the range set here, the notes will be automatically shifted up or down in octave steps so that they fall within the specified range.

CURRENT CHORD
Shows the currently selected chord for the PATTERN play mode. The current chord can be changed here.

FNGR (Fingered Chord)
Shows the current Fingered Chord setting, ON or OFF. The ON/OFF setting can be changed here.

HI KEY
Selects the highest root (C through B) in case the phrase (note transition) type is either Chord 1 or Bass.

Effects & Effect Editing

The QY70 features a versatile internal effects system which consists of three independent effect stages: REVERB, CHORUS, and VARIATION. Of these the REVERB and CHORUS stages function as "system effects", and the VARIATION stage can be used either as a system or "insertion" effect. See the signal-flow digrams on page 214 for the difference between "system" and "insertion" effects.

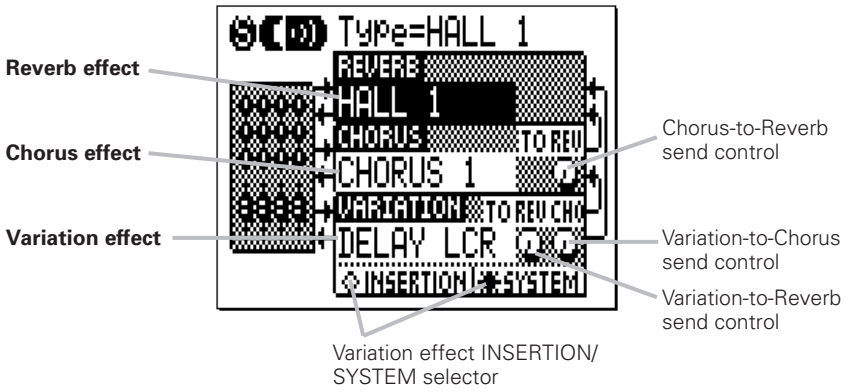
Accessing & Editing the Effect Parameters

The EFFECT connection display and the effect edit displays can be accessed from the SONG or PATTERN mode as follows:

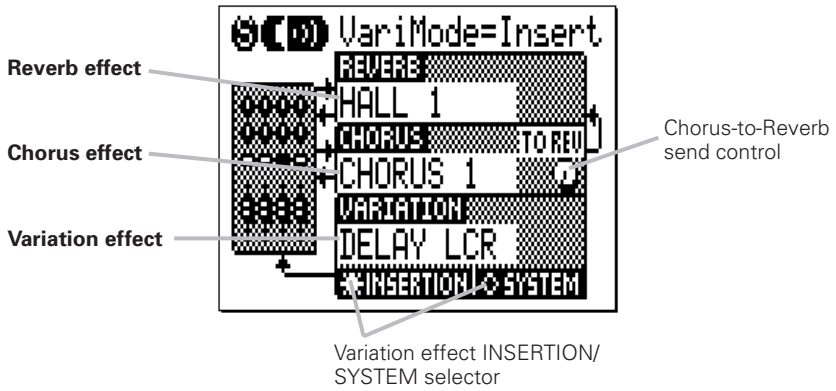
1 Select the Effect Connection Display

Press the [SONG] or [PATT] key as many times as necessary until the SONG or PATTERN effect connection display appears.

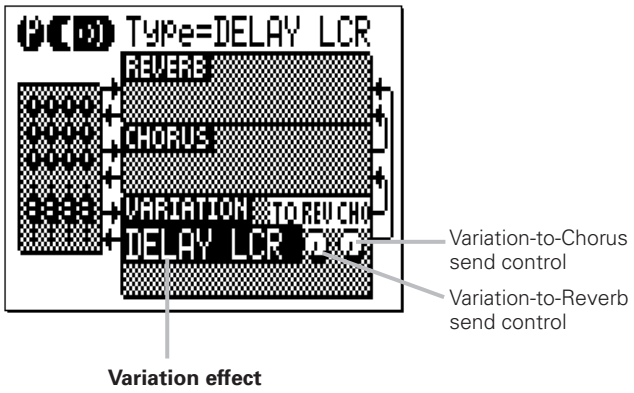
Song Mode Effect Connection Display
(Variation effect: SYSTEM)



(Variation effect: INSERTION)



Pattern Mode Effect Connection Display



Note that in the PATTERN mode effect connection display only the variation stage has accessible controls. The reverb type for the PATTERN mode effect is always "HALL 1" and the chorus type is always "CHORUS 1".

2 Set the Effect Parameters As Required

Move the cursor to the desired parameter and use the [-1] and [+1] keys to set the selected parameter as required. The REVERB, CHORUS, and VARIATION effect parameters let you select any of the available effect types for each stage.

The VARIATION stage INSERTION/SYSTEM selector determines whether the VARIATION stage functions as an insertion effect or system effect. Refer to the "Effect Signal Flow" diagrams and text, below. (In the PATTERN mode effect connection display, the VARIATION stage is always used as a system effect that applies to all 8 tracks for the pattern)

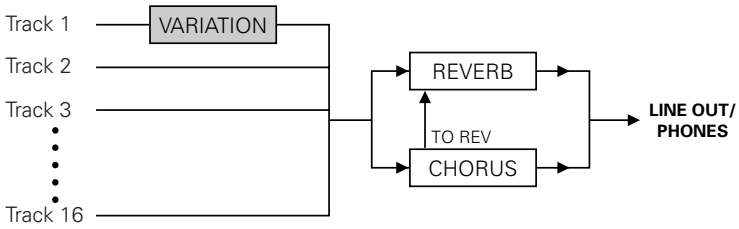
Effect Signal Flow

The following diagrams should help you to understand how the QY70 effect stages relate to overall signal flow.

The signal from each part (track) of the tone generator is sent to the reverb, chorus and variation stages. The reverb and chorus effects are always connected as "System" effects, which means that they affect all parts (tracks). The effect depth for each track can be varied via the "REVERB" and "CHORUS" send controls in the EFFECT SEND display (page 66). The chorus stage "TO REV" parameter can be used to send some or all of the output from the chorus stage to the reverb stage.

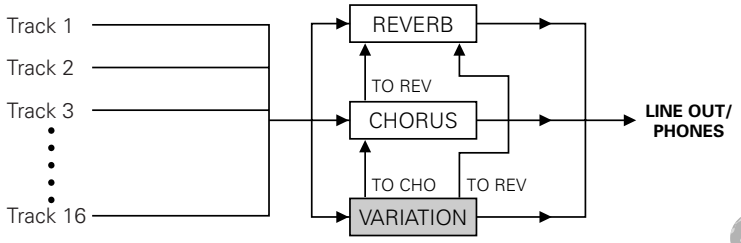
The variation effect can be applied either to one specific part (track) when it is connected as an "Insertion" effect, or all parts (tracks) when it is connected as a "System" effect.

● When the Variation Stage is an Insertion Effect



In this case the variation effect is applied to one specific part (track) with "Dry/Wet" mixing capability available in "Vari. Edit" (See "Effect Editing" on page 216). The track to which the variation effect is to be applied can be selected via the EFFECT SEND display (page 66).

● When the Variation Stage is a System Effect



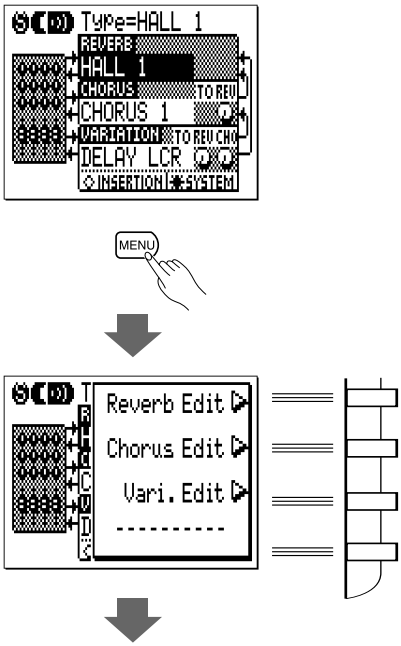
In this case the variation effect is applied to all parts (tracks). The variation stage "TO REV" and "TO CHO" parameters can be used to send some or all of the output from the variation stage to the reverb and chorus stages. Variation send level and "Dry/Wet" mixing for each track can be varied via the controls in the EFFECT SEND display (page 66).

Effect Editing

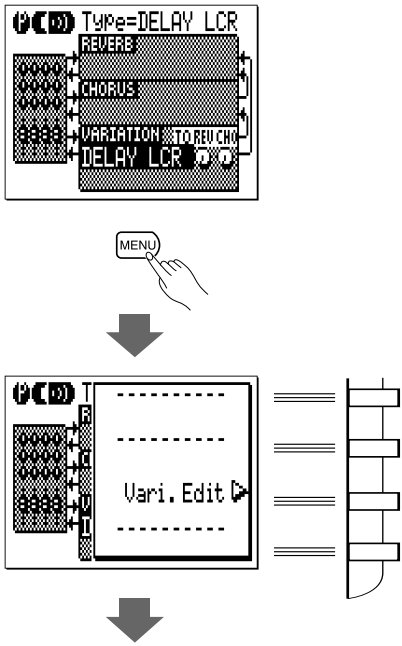
The Reverb Edit, Chorus Edit, and Variation Edit displays can be accessed from the Effect Connection display by pressing the [MENU] key and then the function key next to "Reverb Edit", "Chorus Edit", or "Vari. Edit" on the display. Note that only "Vari. Edit" is available from the PATTERN mode Effect Connection display.

Use the "Type" parameter near the top of the display to select the effect type for the current effect stage (REVERB, CHORUS, or VARIATION). Each effect will have different parameters which will appear in the lower section of the display. Move the cursor to the various parameters and set as required via the [-1] and [+1] keys. Refer to the "Effect Type List" and the "Effect Parameter List" (refer to the List Book) for a complete list of the parameters available for each effect and their ranges.

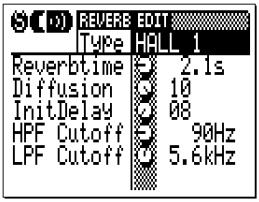
Song Mode Effect Connection Display



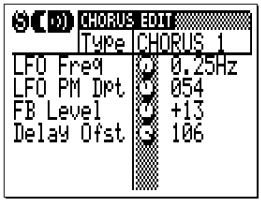
Pattern Mode Effect Connection Display



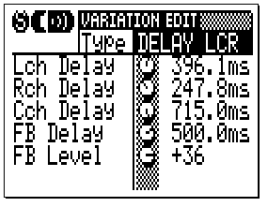
Reverb Edit Display



Chorus Edit Display



Variation Edit Display



■ ***NOTE***

- *These effect displays can be used to edit not all the parameters but the main parameters given for each effect type. (Refer to the "Effect Parameter List" in the List Book.) To edit the effect in detail, send the appropriate system exclusive message to the QY70's tone generator section.*

How the Variation Effect works in the SONG mode

Please, remember that the variation effect settings in the SONG effect connection and edit display become ineffective if a song containing "Pt"(pattern track) data is played. In this case, the variation effect settings for the pattern used in the song (which is set in the PATTERN effect connection and edit display) will be used.

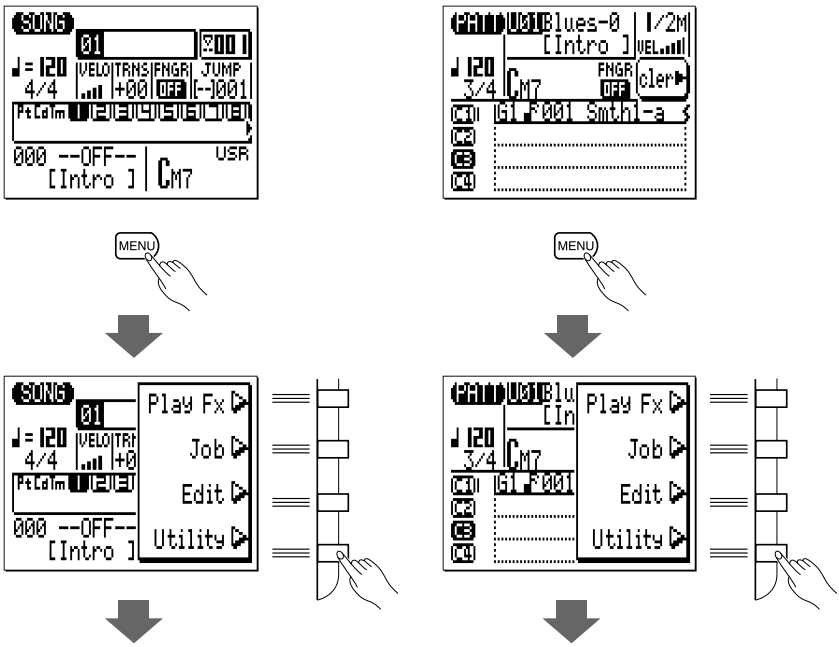
To use the variation effect settings in the SONG effect connection and edit display, play a song consisting of only sequencer track (1...16) data. It's sometimes useful to execute Expand Backing job on page 132 to "expand" pattern track data to the sequencer tracks.

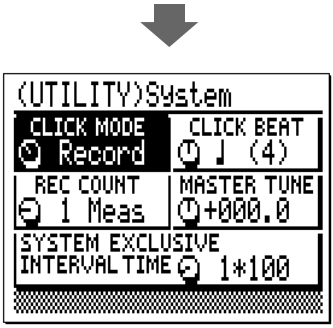
Utility Functions

The QY70 utility mode includes a number of functions that are important for general operation — e.g. MIDI data handling, interfacing with external equipment, saving song and pattern data to an external storage device, ABC system operation, etc.

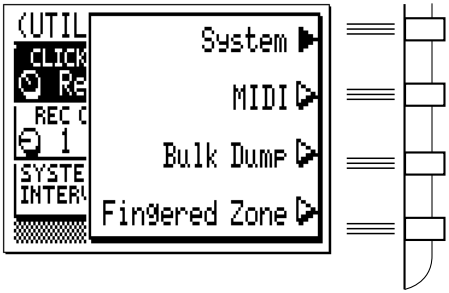
Accessing the Utility Mode

The utility mode can be accessed from the SONG or PATTERN mode. Simply press the [MENU] key and then the function key next to "Utility" on the display.





Once the utility mode has been selected, any of the four utility displays can be called by pressing the [MENU] key and then the appropriate function key, as shown below.

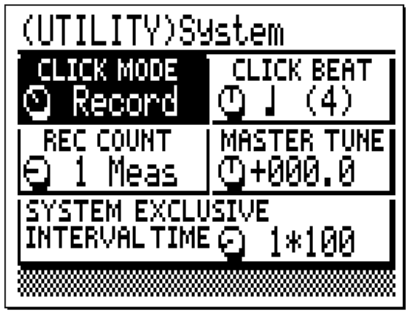


■ ***NOTE***

- *When the utility mode is first engaged from the SONG or PATTERN mode, the last utility display selected will initially appear.*

System Parameters

The "System" display includes 5 parameters that affect the basic operation of the QY70. Move the cursor to the parameter to be adjusted and set as required by using the [-1] and [+1] keys.



CLICK MODE
Settings: Off, Record, Rec/Play, Always
Determines when the QY70 metronome will sound. Normally the QY70 metronome sounds only during realtime recording — the "Record" setting. With this parameter, however, you can turn the metronome "Off" so that it never sounds, set it to "Rec/Play" so that it sounds during recording and playback, or set it to "Always" so that the metronome sounds at all times.

CLICK BEAT
Settings: 16, 8, 4, 2, 1
Determines on what beats the QY70 metronome will sound. The normal setting is "4", causing the metronome to sound on every quarter-note beat. The metronome can also be set to sound on every 16th, 8th, 1/2, or whole-note beat.

REC COUNT

Settings: OFF, 1 Meas … 8 Meas

This parameter sets the number of count-in measure provided before realtime recording begins in the SONG and PATTERN modes. The default setting is "1".

MASTER TUNE

Settings: -102.4 … +000.0 … +102.3

Tunes the overall pitch of the QY70 sound. The Master Tune range is from "-102.4" through "+000" to "+102.3". Each increment corresponds to aproximately 1 cent (a cent is 1/100th of a semitone). A setting of "+000" produces normal pitch: A4 = 440 Hz.

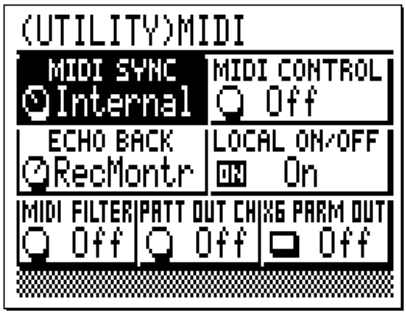
SYSTEM EXCLUSIVE INTERVAL TIME

Settings: 0*100 … 9*100

This parameter sets the delay time between exclusive data blocks between 0 and 900 milliseconds in 100-millisecond increments. This type of delay is sometimes necessary to allow smooth playback of song data which includes large system exclusive messages.

MIDI Parameters

The parameters in the "MIDI" display all relate to MIDI control.



MIDI SYNC
Settings: Internal, External
When this parameter is set to "Internal" the QY70 is controlled by its own internal clock. When set to "External" the QY70 is controlled by a MIDI clock signal received from an external device such as a sequencer or music computer (i.e., playback of the QY70 is synchronized to that of an external sequencer or other device). Please note that the QY70 will not run on its own when this parameter is set to "External". The QY70 can also control playback of an external MIDI sequencer when this parameter is set to "Internal".

MIDI CONTROL
Settings: Off, In, Out, In/Out
This parameter simply turns MIDI control of the QY70 (i.e., synchronized playback) on or off. When set to "Off" the QY70 will not respond to external MIDI control. The "In" setting (MIDI input only) allows control of the QY70 from an external MIDI device, the "Out" setting (MIDI output only) allows the QY70 to control an external MIDI device, and the "In/Out" setting (MIDI input and output) allows the QY70 to both be controlled by and control an external MIDI device.

ECHO BACK
Settings: Off, Thru, RecMontr
Determines whether MIDI data received via the MIDI IN terminal is simultaneously re-transmited ("echoed back") via the MIDI OUT connector. When this parameter is set to "Off" no echo back occurs. When set to "Thru" the received MIDI data is re-transmitted without modification. When "RecMontr" (Record Monitor) is selected, the received data is re-transmitted on the MIDI channel corresponding to the currently selected record track, and the data is affected by the MIDI FILTER settings described below.

LOCAL CONTROL
Settings: Off, On
Determines whether or not the QY70's internal tone generator will be controlled by its own micro-keyboard. When LOCAL CONTROL is "On", the micro-keyboard controls the internal tone generator. When "Off" the micro-keyboard does not control the internal tone generator and will produce no sound.

MIDI FILTER
Settings: Off, PB, CC, AT, Exc
The MIDI FILTER specifies a type of event which will not be received via MIDI during sequence recording. The settings are as follows:

Off	All events are received.
PB	Pitch bend events will not be received.
CC	Control Change events will not be received.
AT	Channel and polyphonic aftertouch events will not be received.
Exc	System exclusive data will not be received.

PATT OUT CH

Settings: Off, 1~8, 9~16

This parameter specifies the MIDI channels on which QY70 pattern playback data will be transmitted. When "Off" pattern playback data is not transmitted. When set to "1~8" pattern playback data is transmitted on MIDI channels 1 through 8, and when set to "9~16" pattern playback data is transmitted on MIDI channels 9 through 16.

D1	ch 1 or 9
D2	ch 2 or 10
PC	ch 3 or 11
BA	ch 4 or 12
C1	ch 5 or 13
C2	ch 6 or 14
C3	ch 7 or 15
C4	ch 8 or 16

XG PARM OUT

Settings: Off, On

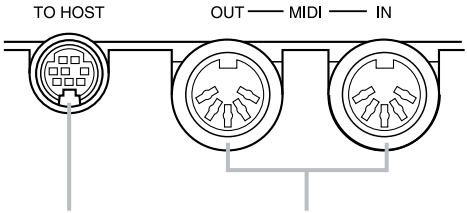
Determines whether the XG voice and effect parameters will be transmitted whenever the corresponding parameter values are changed or a new song or pattern is selected. When "Off" no XG parameters are transmitted. The appropriate XG parameters are transmitted to a connected XG tone generator when this parameter is turned "On".

Bulk Dump

Although the QY70 has memory for 20 songs and 64 user styles, you might want to save your song and pattern data to an external MIDI data recorder, computer, or similar device to allow greater storage capacity or simply to protect your data from accidental erasure or corruption.

Be sure to properly connect the QY70 to a MIDI data recorder(such as the Yamaha MDF2 MIDI Data Filer) or a computer and set the HOST SELECT switch to the appropriate position before executing the Bulk Dump transmission/reception.

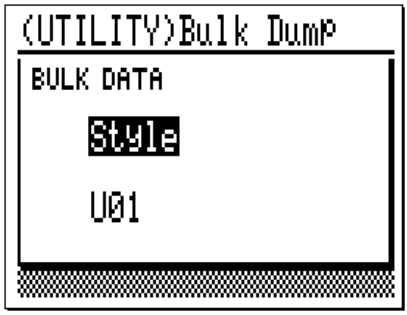
Also refer to the owner's manual of the connected device to see how to receive/transmit bulk data from/to the QY70.



Connection via the TO HOST jack to a computer (Host Select=PC1/2 or Mac according to the type of computer. See page 17)

Connection via the MIDI IN/ OUT jack to the MDF2 (Host Select=MIDI)

To transmit (dump) song and/or pattern data to an external device, first select the UTILITY Bulk Dump mode.



Move the cursor to the upper parameter and use the [-1] and [+1] keys to select "Song" if you want to save the data for one song or all songs, "Style" if you want to save the data for one style or all styles, or "All" if you want to save all songs, styles, and system setup data.

If you select "Song", move the cursor to the song number parameter and select a song number (01 … 20), or "All" to save all songs.

If you select "Style", move the cursor to the style number parameter and select a style number (U01 … U64), or "All" to save all styles. Remember all 6 variation patterns(Intro, Main A/B, Fill AB/BA and Ending) included in one style will be saved at one time.

When the parameters have been set as required, press [ENTER]. "Are you sure?" will appear on the display. Press [+1/YES] to go ahead with the bulk dump operation, or [-1/NO] to cancel. "Completed!" will appear when the transmission is finished.

● Bulk Reception of Song & Pattern Data

If no other operation is currently in progress (recording, for example) the QY70 will automatically receive bulk song and pattern data transmitted from a compatible external device. If you are using the QY70's MIDI connectors rather than the TO HOST connector, make sure that the MIDI OUT of the external device is connected to the MIDI IN of the QY70.

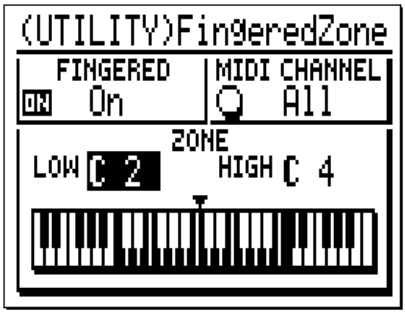
Select the QY70 SONG play mode when receiving one or all song bulk data, and select the PATTERN play mode when receiving one or all style bulk data. "All" data, including all songs, styles and system setup data, can be received in either the SONG or PATTERN play mode. Remember that one or all song/style data currently in the QY70's memory will be overwritten when one or all song/style bulk data is received. All data in the QY70's memory will be overwritten when "All" data is received.

■ NOTE

- *See the QY Data Filer's owners manual if you use the QY Data Filer for bulk dump reception/transmission.*

Fingered Zone

The QY70's advanced ABC system can be controlled from the QY70 micro-keyboard or an external keyboard. The Fingered Zone utility function sets the range of notes in which chords played will be recognized by the QY70 ABC system.



Use the "FINGERED" parameter to turn the QY70's Fingered Chord function for the ABC system "On" or "Off" as required. When it is turned to "ON", the ABC system can be controlled by playing a chord as it is on an external keyboard or the micro keyboard. When turned to "OFF", the ABC system is controlled by specifying the chord root and type from the micro keyboard rather than playing the chord as it is. The MIDI CHANNEL and the "LOW"/"HIGH" parameters explained below will be ineffective when turned to "OFF".

The MIDI CHANNEL parameter specifies the MIDI channel via which the chord data will be received from an external MIDI keyboard: set to "All" for all channels, or specify a single MIDI channel from "01" to "16".

The "LOW" and "HIGH" parameters above the graphic keyboard display set the Fingered Chord function range. The maximum range is from C-2 to G8 (the "HIGH" parameter cannot be set lower than the "LOW" parameter). The specified range is indicated by the highlighted (inverse) section on the graphic keyboard display. When the "FINGERED" parameter in this display and the "FNGR" parameter in the SONG or PATTERN mode display are turned "On", chords played within the specified Fingered Chord function range will be recognized by the ABC system and the

accompaniment chord will change accordingly during song, pattern playback or chord-track recording. Chords played within the specified range of either the QY70 micro-keyboard or an external MIDI keyboard are recognized. A chart of the chords recognized by the QY70 is provided on the List Book.

If you play a note lower than the specified "LOW" note while holding a chord, it will be recognized as a bass note for the on-bass chord.

■ ***NOTE***

- *When the Fingered Chord function is "on", notes played lower than the specified "HIGH" note will not sound.*

Appendix

Specifications

Sequencer block

Data capacity	approximately 32,000 notes
Note resolution	480 clocks per quarter note
Polyphony	64 notes
Tempo	25-300
Modes	SONG mode (SONG, SONG VOICE, SONG EFFECT) PATTERN mode (PATTERN, PATTERN VOICE, PATTERN EFFECT)
Record modes	Realtime replace, Realtime overdub, Step, Multi
Tracks	Song: 16 sequencer tracks, pattern track(Pt), chord track(Cd), tempo track(Tm) Pattern: 8 pattern phrase tracks
Songs	20 songs + 3 demo songs
Patterns	768 preset patterns (128 preset styles x 6 sections) 384 user patterns (64 user styles x 6 sections) Sections: Intro, Main A, Main B, Fill AB, Fill BA, Ending
Phrases	4,167 preset phrases 48 user phrases per user style
Chord types	26 types (including "non-ABC" type)
Chord templates	99 preset chord templates 1 user chord progression per song
Play effect	Groove quantization, Drum table remapping

Tone generator block

Type	AWM2 tone generator
Maximum Polyphony	32 notes
Multi-timbral capability	24 timbres (last note priority with element reserve, DVA)
Preset voices	519 normal voices, 20 drum voices
Effects	3 blocks (Reverb, Chorus, Variation) Reverb: 11 types Chorus: 11 types Variation 43 types

Controllers & display

Micro keyboard	25 keys (2 octaves)
Octave keys	[OCT DOWN], [OCT UP]
Cursor keys	up, down, left, right
Sequencer keys	[▶], [■], [●], [◀], [◀◀], [▶▶]
	[SONG], [PATT], [SHIFT], [EXIT], [MENU], [-1(NO)], [+1(YES)], [ENTER], Function keys
Volume control	
Contrast control	
HOST SELECT switch	
Display	128 x 64 dots graphic LCD

Connectors

LINE OUT/PHONES	stereo mini jack x 1
MIDI	IN x1, OUT x1
TO HOST	
DC IN	for PA-3B

Power supply

Optional PA-3B AC adapter
Six 1.5v AA size (SUM-3 or R6P) or equivalent alkaline batteries

Dimensions

(W x D x H)	188 x 104 x 43 mm (7-3/8" x 4-1/8" x 1-11/16")

Weight

520g (1 lbs., 2 oz) without batteries

Included items

QY Data Filer	2HD floppy disk x 2
Audio cable	miniature stereo phone plug to dual RCA pin plugs
Owner's manual set	QY70 owner's manual, List book, QY Data Filer owner's manual
Creepers	

* Specifications and descriptions in this owner's manual are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

Troubleshooting

If you experience problems such as "no sound," "incorrect sound," or "sequencer does not operate," please check the following points before deciding that the unit is malfunctioning. In many cases, checking these points will help you solve the problem.

If this does not solve the problem, contact your nearest Yamaha dealer or the authorized distributor for your country.

Problem	Possible causes	Refer to page
No sound	Is the volume sufficiently raised on the QY70 and/or external sound equipment?	
	Are the headphones or speakers properly connected?	p.14
	Is the Master Volume and/or each track volumes raised sufficiently?	p.64
	If the REVERB, CHORUS, VARI, and DRY settings are all set to 0, the sound for that track will not be produced.	p.66
	Is the Fingered Chord function turned ON? If you play a note within the Fingered Zone, no sound will be produced.	p.43, 227
	Is the MUTE setting turned ON?	p.62, 92, 141
	Is the MIDI IN jack or TO HOST jack properly connected?	p.15, 16
	Is the HOST SELECT switch properly set?	p.17
	Is MIDI local set to OFF?	p.223
The sound is distorted.	Have unneeded effects been set?	p.212
Notes are intermittently broken (notes sputter or stutter).	Does the number of currently sounding notes exceed the QY70's maximum polyphony of 32?	p.229
Playback does not start when you press [▶].	Does the selected song/pattern contain data?	p.80, 137
	Is the MIDI Sync set to external?	p.222
	Is Style Number 129 (End Pattern) selected in the Song Mode's display?	p.35
Can't change the length of a pattern (number of measures).	The length of a pattern (number of measures) cannot be changed, if it includes recorded user phrases.	p.148

Problem	Possible causes	Refer to page
When a song is played back, it stops in the middle.	Is Style Number 129 (End Pattern) set in the middle of the Pattern Track?	p.54
Rhythm or note timing are played back differently than when recorded.	Are Play Effect settings being used?	p.94
The same amount of force is used to play notes on the keyboard but it results in notes of different loudness.	Is the keyboard velocity set between R1 and R4 (Random)?	p.77, 145
Cannot use the Fingered Chord function.	Is the Fingered Chord turned off?	p.43
	Are you pressing keys within the Fingered Zone?	p.227
Can't hear the click sound.	Is the click set to something other than "off" in the Utility mode?	p.220
When the song starts, the voice or effect settings that you have made disappear.	Does the beginning of the song contain data which resets the tone generator?	p.192
	If there is data in the Pattern track, the Variation effect settings for the pattern will be effective.	p.217
The "Memory Full" message appears yet there are still unused songs.	Press "SHIFT" and "F2" simultaneously to check the current memory capacity. The QY70's memory capacity (approximately 32,000 notes) is for the total data of all songs and phrases. This means that if there are songs or phrases that contain large amounts of data, the memory may be full even though there are still unused songs or patterns.	p.26
The QY70 (tone generator) is slaved to an external sequencer but, there is no sound when the performance is played back from the external sequencer.	Is the Utility mode's MIDI Echo Back set to RecMontr? Change the Echo Back setting to Off or Thru.	p.223

Error Messages

● Monitor

No Data	When a job is executed, this will appear if the selected track or area contains no data, making the job invalid. Re-select the area.
Illegal Input	This will appear in response to inappropriate operation or input. Check your input method.
Preset Phrase	This will appear when you attempt to edit a Preset Phrase. To edit a preset phrase, copy the phrase to a User Phrase and edit the User Phrase.
Preset Pattern	This will appear when you attempt to record to a Preset Pattern. You cannot record to Preset Patterns.
Preset Chord	This will appear when you attempt to change a Preset Chord Template with a Job (transpose, etc.) operation.
Now Bulk Mode	This will appear when you attempt to operate the QY70 while it is receiving bulk data.

● System

Memory Full	This will appear when internal memory is full and it is not possible to record, edit, execute a job, receive MIDI, etc. Delete unneeded songs, user patterns, or user phrases, and try the operation once again.
Backup Batt. Low	This will appear when the internal backup battery of the QY70 has run down. Contact the nearest Yamaha dealer or the authorized distributor for your country to have the battery replaced.
Power Batt. Low	This will appear when the batteries (Size AA x6) powering the QY70 has run down. Replace the entire set of old batteries with a new set of batteries as soon as possible.
Factory Set	After the power is switched ON, a system diagnosis is run on the QY70's system. If the diagnosis finds the RAM to be defective, this message will appear and the memory will be reset to its original factory settings. Data for Song, User Patterns, and User Phrases will all be eliminated.

● MIDI

MIDI Data Error	This will appear when the received QY bulk data contains an error.
Now Running	This will appear when the QY70 is receiving bulk data. Other MIDI signals cannot be received at this time.
MIDI Buffer Full	This will appear when the MIDI reception buffer of the QY70 has filled up, and processing was not possible. Try decreasing the amount of data or increasing the interval time and transmit the data once again.
XG Data Error	This appears when the received XG parameter change contains a data size error
XG Adrs Error	This appears when the received XG data contains an address error.
XG Size Error	This appears when the received XG bulk data contains a data size error.
Checksum Error	This appears when the received XG data contains a Checksum error.
Host is OffLine	If the QY70 is connected to a computer, this appears when the computer's power is switched OFF. Switch the computer's power ON.

● Messages other than error messages

Can't Undo OK? (Yes/No)	If executing a job would fill up the internal memory so that Undo will not be available, this message will appear. If you are sure that you will not need to Undo this job, press "YES". To cancel without executing the job, press "NO".
Are You Sure? (Yes/No)	Before an operation is executed, this message will ask you for confirmation. To execute the operation press "YES". To cancel the operation press "NO".
Completed	This will appear when the current process has been completed.
Executing...	This message will appear while the job is being executed. Please wait.
Transmitting...	When transmitting MIDI bulk data, this message will appear.
Receiving...	When receiving MIDI bulk data, this message will appear.

Glossary

A

Aftertouch:
MIDI messages which are transmitted when additional pressure is applied to the keyboard after notes are played.

Attack time:
The time over which the volume rises from 0 when a note is played, until the maximum volume is reached.

Auto Bass Chord (ABC):
A function which will automatically re-harmonize the accompaniment patterns by specifying chord progressions.

AWM 2 tone generator:
A method of generating sound developed by Yamaha which is based on digitally recorded waveforms. Since it generates the complex waveform of actual acoustic instruments, it provides extremely realistic sounds. Digital filtering is also built-in, allowing precise control over the tone. AWM2 is an acronym for Advanced Wave Memory 2.

B

Beat:
When playing back or recording a song, one "beat" (a rhythmic subdivision of a measure).

Bulk data:
A type of System Exclusive message which contains a collection of data for the internal settings of a device.

Bulk dump:
The process of transmitting bulk data in MIDI System Messages to external MIDI devices.

C

Chord root:
An alphabetical letter which indicates the root of a chord. The QY70 lets you indicate 12 different chord roots.

Chord template:
A collection of preset models for chord progressions. The collection includes generic chord progressions for Popular styles as well as Blues and Tension styles.

Chord track (Cd):
A track that lets you record and play back Chord Roots and Chord Types for the Auto Bass Chord (ABC) function.

Chord type:
A symbolic or numerical indication of how a chord is composed (Major, minor, 7th, etc.). The QY70 allows you to select from 26 (including "non-ABC") chord types.

Chorus:
A type of effect that adds richness and depth to the sound, similar to what happens when multiple sound sources are heard simultaneously.

Click:
A metronome that is sounded when playing back or recording on a sequencer.

Clock:
A unit of timing resolution. On the QY70, one clock is a length of 1/480th of a quarter note.

Control change:
A group of MIDI messages that can be used to select voice banks and control the volume, pan, etc. They are also output when a controller (modulation wheel, foot controller, etc.) is operated. Each controller has its own control number.

Cutoff frequency:
Filters work by allowing the portion of the signal lower than a given frequency to pass, and cutting the portion of the signal above that frequency. This frequency is referred to as the cutoff frequency. See the entry for Low Pass Filter.

D

Decay time:
The time from when the maximum volume of a note is reached until it falls to the sustain level.

Delay:
An effect that delays an audio signal. The QY70's Variation effect allows a delay to be applied.

Depth:
The amount or degree of a setting or effect.

Drum table remapping:
One of the play effect functions. This function allows you to change specified rhythm instruments in the drum play data to other rhythm instruments when a song or pattern is played back.

Dry sound:
The audio signal that is not processed by an effect. Normally when using an effect, not all of the audio signal is passed through the effect. Rather, the degree of the effect is adjusted by mixing the sound that passes through the effect (the wet sound) with the sound that bypasses the effect (the dry sound). See also the entry for Wet sound.

E

Echo back:
The action or process in which data received via the MIDI IN connector is re-transmitted from the MIDI OUT connector.

Edit:
The action of modifying or editing data.

Effect:
A block that processes the sound to add various effects. The QY70 provides two system effects (reverb and chorus), and one effect (variation) which can either be used as a system effect or as an insertion effect.

Element:
A block within the AWM2 tone generator that generates a sound. The voices of the QY70 consist of 1 or 2 elements. Voices that use 2 elements generally have a thicker sound that cannot be achieved when using 1 element. With 2 elements different voices such as piano and strings sounds can be mixed into a single voice.

Envelope generator (EG):
A block that modifies the level of the tone generator from the moment that a note is played until the sound decays to silence.

Event:
A single piece (such as Note On/Off or Program Change messages) of the data which makes up a sequence.

Exclusive:
See the entry for System Exclusive Message.

Expression:
A MIDI control change message used to control the volume of a part (track).

F

Filter:
A block which modifies the tone by cutting the output of a specific frequency portion of the sound. The QY70 has low pass filters allowing the tone to be made more mellow by cutting the overtones above a specified frequency, or brighter by allowing them to pass. See also the entry for Low pass filter.

Fingered chord:
A function that automatically detects chords based on the combination of notes that are played on the keyboard, and converts the playback of patterns to the chords that are detected.

G

Gate Time:
The length of time that a note actually sounds. Longer gate times produce slurred notes, shorter gate times produce staccato.

GM:
An acronym for General MIDI. A specification that defines the arrangement of voices in a tone generator and its MIDI functionality, ensuring that data can be played back with substantially the same sounds on any GM-compatible tone generator.

Groove quantization:
A Play Effect function that can be applied to Song or Pattern data during playback. This effect allows the song's feel or "groove" (putting the rhythm in front of or behind the beat) to be altered without changing the state of the original data.

Groove templates:
A collection of groove templates that can be used in the Groove Quantization function.

H

Hexadecimal number:
A system of numbering based on 16, in which the digits increment in units of n-th powers of 16. The alphabetical characters A-F are used to express the numbers 10-15. This system of numbering is used for MIDI data.

I

IBM-PC/AT Series:
A type of personal computer manufactured and sold by the International Business Machine Corporation. Compatible computers are manufactured and sold by many companies

Insertion (effect):
An effect which can be applied to one specific part (track). With this effect, you can apply effects more "aggressively" to your song. (e.g. rotary speaker effects to organ sounds, or "wah" effects to guitar sounds.)

Interval time:
A delay time that is inserted at regular intervals of one kilobyte when transmitting system exclusive data that was recorded in a sequence track to tone generators (or external MIDI tone generators).

L

LFO:
An acronym for Low Frequency Oscillator, a block that produces a signal at a low frequency which synthesizers use for the creation of sound. The signal from the LFO can be used to modulate pitch, volume or tone to produce effects such as vibrato, tremolo and wah.

Location:
The place within a song or pattern at which notes will be input or playback will be started, indicated as measure, beat, and clock.

Low Pass Filter:
A type of filter which cuts high frequencies above a specified point. The sound can be brightened by raising the cutoff frequency of the filter, or darkened by lowering it.

LSB:
An acronym for Least Significant Byte, referring to the lower byte of data when MIDI control change data is divided into two bytes for transmission.

M

Maximum Polyphony:
The maximum number of notes that can be played at once. The QY70 can produce 32 simultaneous notes (counted in 1-element units). If MIDI messages are received requesting more notes than the maximum polyphony allows, currently sounding notes will be turned off, and the later-received notes will be played.

Measure:
A unit of musical duration consisting of several beats.

MIDI:
An acronym for Musical Instruments Digital Interface, a standard for transferring data between musical instruments. Most electronic musical instruments today implement the MIDI specification and provide MIDI connectors. Such instruments can be easily connected together to create remote performance or automatic performance systems.

MIDI Data Filer:
A MIDI device that receives bulk data for the internal settings of a MIDI device in the form of System Exclusive messages, and stores them to disk. An example is the Yamaha MDF2 MIDI data filer.

Mixer:
On the QY70, the display page in which you can make settings such as, pan, volume, etc. for the voice of each song or pattern track, when playing back.

Modulation:
A function that can be used to change the volume, tone, or pitch cyclically while you perform. On the QY70, you can apply modulation by holding the [OCT UP] key while playing a note on the micro keyboard.

MSB:
An acronym for Most Significant Byte, referring to the upper byte of data when MIDI control change data is divided into two bytes for transmission.

Multi-timbral tone generator:
A tone generator that can simultaneously produce more than one voice.

Mute:
A function that temporarily silences the specified track or reduces its volume.

N

NRPN:
An acronym for Non Registered Parameter Number. These are a type of MIDI control change message, and are used to edit sounds via MIDI, allowing you to edit filter or EG settings, or adjust the pitch or level for each instrument of a drum voice.

O

On-bass:
A function that lets you specify a root note for the bass independently of the chord, so that the playback of a bass phrase whose Phrase Type is Bass will be fixed on that root note.

Overdub:
A method of real-time recording in which new material is recorded without erasing previously recorded tracks.

P

Pan:
The parameter that sets the stereo location of a sound when it is played back in stereo. ("Pan" or "panpot" are abbreviations of "panoramic potentiometer".)

Parameter:
A setting or data item which you can modify in the various mode and sub-mode displays.

Patch:
An assignment of phrases for each track to create patterns.

Pattern:
An auto accompaniment pattern consisting of drums, bass and chord backing.

Pattern track (Pt):
The track which records and plays back pattern data.

PC-9801/9821 Series:
A type of personal computer manufactured and sold by the NEC Corporation widely in Japan. Compatible computers are manufactured and sold by the EPSON Company.

Phrase:
The smallest unit from which the accompaniment pattern is created. A phrase, such as drum phrase, bass phrase, etc., can be assigned to one of the 8 tracks of the pattern.

Phrase category:
A classification of phrases that are categorized by instruments and performance styles.

Pitch bend:
A type of MIDI message that smoothly changes the pitch.

Pitch bend wheel:
A controller that smoothly changes the pitch. On the QY70, pitch bend can be applied by holding the [OCT DOWN] key while playing a note on the micro keyboard.

Portamento:
An effect that smoothly changes the pitch from one note to another note. Higher settings of Portamento Time will produce a slower change, and there will be no effect with a setting of 0.

Preset:
A type of memory that is built into a device. The QY70 has preset memories for voices, phrases, and patterns, etc.

Program change:
An event or MIDI message that selects a voice.

Program number:
On the QY70, a number specifying one of the GM-defined voices.

Q

Quantize:
A function which "Tightens up" the inexact timing of notes or other events that were entered in real-time.

QY Data Filer:
A computer software application that allows for the exchange of QY70 data between the computer and the QY70. Data from the QY70 can be saved in the computer and QY data stored in the computer can be transmitted to the QY70. Commercially available SMF song data or XG song data can also be transmitted from the computer to the QY70.

R

Realtime recording:
A method of recording in which your performance is recorded just as you play, similar to a conventional multi-track recorder. Since the performance is recorded as you play, the musical expression and nuances of your performance will be accurately recorded.

Redo:
Carries out the operation that was previously canceled with Undo.

Release time:
The time over which the volume falls from the sustain level (beginning at the moment a note is released) until it reaches silence.

Replace:
A method of real-time recording in which previously recorded data is erased (replaced) as new material is recorded.

Resonance:
A parameter that boosts the level of the signal in the area of the cutoff frequency. By emphasizing the overtones in this area, this can produce a distinctive "peaky" tone, making the sound brighter and harder.

Return level:
See the entry for Send level.

Reverb:
An effect that simulates the acoustical reverberance of a room or space. The sound that reaches our ear usually includes not only the direct sound, but also that was reflected off the walls or ceiling. Reverb creates these indirect reflections artificially.

RPN:
An acronym for Registered Parameter Number. These are a type of MIDI control change message that are used to set Part settings such as Pitch Bend Sensitivity or Tuning, etc.

S

Section:
A term referring to each of the six types of patterns that comprise a style. Patterns are selected by specifying the style and the section.

Send level:
The amount of signal that is sent to a specified bus line for processing by an effect. The amount of signal that is returned from the effect is the "return level".

Sequencer:
A block (or device) that records, edits, modifies, and plays back a musical performance in the form of MIDI messages.

Sequencer tracks:
Tracks which record and playback normal MIDI sequence data. The QY70 has 16 sequencer tracks.

SMF:
See the entry for Standard MIDI File.

Solo:
This function mutes the playback of all tracks except that of the selected track as long as the track is soloed.

Song:
A musical composition created by recording performance data on each track.

Standard MIDI File (SMF):
SMF is an acronym for Standard MIDI File; a standard format that was created to allow easy exchange of song data between different sequencers. Most of today's software and hardware manufacturers provide sequencers that can create and play back Standard MIDI files.

Step recording:
The method of recording in which music is input by entering notes one by one, specifying the note length, velocity, and pitch etc. of each note.

Style:
A collective name for pattern catagories (hip hop, U.K. techno, etc. musical genres). Styles are divided into six sections (intro, fill-in, ending, etc.).

Sustain level:
The volume level of the note from the time after the maximum level of the note is reached, until the note played on the keyboard is released.

Synchronization:
The function or process of matching the playback or recording tempo of a device with a separated, external device such as another sequencer or a rhythm machine.

Sync:
See Synchronization

System (effect):
An effect which can be applied to all parts (tracks) by adjusting the Send Levels and Return Level. System effects allow reverb or chorus to be conveniently applied to the overall music. The QY70 provides Reverb and Chorus as system effects. The Variation effect can also be used as a system effect.

System Exclusive Message:
A type of MIDI message used to exchange data unique to a specific model or type of device.

T

Tempo track (Tm):
The track in which data that determines the playback tempo of the song is recorded.

Track:
A location where musical performance data is recorded in the sequencer. You can record piano on track 1, bass on track 2, etc.

Transpose:
Shifts the pitch of recorded data in semitone steps.

Tremolo:
An effect produced by cyclically modulating the volume.

Tuning:
The process of matching the pitch of two or more instruments when playing in an ensemble. Normally, A3 is tuned to 440Hz.

U

Undo:
This command cancels the previously performed operation and returns the data to the condition of that before the operation was executed. On the QY70, this command can be performed against JOB, EDIT, and RECORDING operations. See the entry for Redo.

Utility:
On the QY70, the display in which MIDI settings and system settings can be made.

V

Variation effect:
One of the QY70's effects which can function either as an insertion effect or as a system effect, and provides a wide variety of effect programs such as delay, rotary speaker, auto pan, amp simulation and auto wah in addition to reverb and chorus.

Velocity:
A numerical value indicating the speed (force) with which a note was pressed.

Vibrato:
A performance effect produced by cyclically changing the pitch.

Voice:
A sound that is built into the tone generator that can be selected and played.

W

Wet sound:
The audio signal that is processed by an effect. Normally when using an effect, not all of the signal is passed through the effect. Rather, the degree of the effect is adjusted by mixing the sound that passes through the effect (the wet sound) with the sound that bypasses the effect (the dry sound). See also the entry for Dry sound.

X

XG:
A tone generator format developed by Yamaha which expands the GM specification to provide the richer expressiveness and upward data compatibility that is demanded by today's more sophisticated computer peripheral environment.

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FCC INFORMATION (U.S.A.)

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. Cable/s 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 filter/s.

   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 the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

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

* This applies only to products distributed by YAMAHA CORPORATION OF AMERICA.

ADVARSEL!
Lithiumbatteri—Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandoren.

VARNING
Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enlight fabrikantens instruktion.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

NEDERLAND / NETHERLAND

- Dit apparaat bevat een lithium batterij voor geheugen back-up.
- This apparatus contains a lithium battery for memory back-up.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat ann het einde van de levensduur afdankt of de volgende Yamaha Service Afdeiing:
  Yamaha Music Nederland Service Afdeiing
  Kanaalweg 18-G, 3526 KL UTRECHT
  Tel. 030-2828425
- For the removal of the battery at the moment of the disposal at the end of the service life please consult your retailer or Yamaha Service Center as follows:
  Yamaha Music Nederland Service Center
  Address : Kanaalweg 18-G, 3526 KL UTRECHT
  Tel : 030-2828425
- Gooi de batterij niet weg, maar lever hem in als KCA.
- Do not throw away the battery. Instead, hand it in as small chemical waste.

For details of products, please contact your nearest Yamaha or the authorized distributor listed below.

Pour plus de détails sur les produits, veuillez-vous adresser à Yamaha ou au distributeur le plus proche de vous figurant dans la liste suivante.

Die Einzelheiten zu Produkten sind bei Ihrer unten aufgeführten Niederlassung und bei Yamaha Vertragshändlern in den jeweiligen Bestimmungsländern erhältlich.

Para detalles sobre productos, contacte su tienda Yamaha más cercana o el distribuidor autorizado que se lista debajo.

NORTH AMERICA

CANADA
Yamaha Canada Music Ltd.
135 Milner Avenue, Scarborough, Ontario, M1S 3R1, Canada
Tel: 416-298-1311

U.S.A.
Yamaha Corporation of America
6600 Orangethorpe Ave., Buena Park, Calif. 90620, U.S.A.
Tel: 714-522-9011

MIDDLE & SOUTH AMERICA

MEXICO
Yamaha De Mexico S.A. De C.V., Departamento de ventas
Javier Rojo Gomez No.1149, Col. Gpe Del Moral, Deleg. Iztapalapa, 09300 Mexico, D.F.
Tel: 686-00-33

BRASIL
Yamaha Musical Do Brasil LTDA.
Ave. Reboucas 2636, São Paulo, Brasil
Tel: 011-853-1377

PANAMA
Yamaha De Panama S.A.
Edificio Interseco, Calle Elvira Mendez no.10, Piso 3, Oficina #105, Ciudad de Panama, Panama
Tel: 507-69-5311

OTHER LATIN AMERICAN COUNTRIES AND CARIBBEAN COUNTRIES
Yamaha Music Latin America Corp.
6101 Blue Lagoon Drive, Miami, Florida 33126, U.S.A.
Tel: 305-261-4111

EUROPE

THE UNITED KINGDOM
Yamaha-Kemble Music (U.K.) Ltd.
Sherbourne Drive, Tilbrook, Milton Keynes, MK7 8BL, England
Tel: 01908-366700

IRELAND
Danfay Ltd.
61D, Sallynoggin Road, Dun Laoghaire, Co. Dublin
Tel: 01-2859177

GERMANY/SWITZERLAND
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen, F.R. of Germany
Tel: 04101-3030

AUSTRIA
Yamaha Music Austria
Schleiergasse 20, A-1100 Wien Austria
Tel: 0222-60203900

THE NETHERLANDS
Yamaha Music Nederland
Kanaalweg 18G, 3526KL, Utrecht, The Netherlands
Tel: 030-2828411

BELGIUM
Yamaha Music Belgium
Keiberg Imperiastraat 8, 1930 Zaventem, Belgium
Tel: 02-7258220

FRANCE
Yamaha Musique France, Division Professionnelle
BP 70-77312 Marne-la-Valée Cedex 2, France
Tel: 01-64-61-4000

ITALY
Yamaha Musica Italia S.P.A., Combo Division
Viale Italia 88, 20020 Lainate (Milano), Italy
Tel: 02-935-771

SPAIN
Yamaha-Hazen Electronica Musical, S.A.
Jorge Juan 30, 28001, Madrid, Spain
Tel: 91-577-7270

PORTUGAL
Valentim de Carvalho CI SA
Estrada de Porto Salvo, Paço de Arcos 2780 Oeiras, Portugal
Tel: 01-443-3398/4030/1823

GREECE
Philippe Nakas S.A.
Navarinou Street 13, P.Code 10680, Athens, Greece
Tel: 01-364-7111

SWEDEN
Yamaha Scandinavia AB
J. A. Wettergrens Gata 1
Box 30053
S-400 43 Göteborg, Sweden
Tel: 031 89 34 00

DENMARK
YS Copenhagen Liaison Office
Generatorvej 8B
DK-2730 Herlev, Denmark
Tel: 44 92 49 00

FINLAND
Warner Music Finland OY/Fazer Music
Aleksanterinkatu 11, P.O. Box 260
SF-00101 Helsinki, Finland
Tel: 0435 011

NORWAY
Narud Yamaha AS
Grini Næringspark 17
N-1345 Østerås, Norway
Tel: 67 14 47 90

ICELAND
Skifan HF
Skeifan 17 P.O. Box 8120
IS-128 Reykjavik, Iceland
Tel: 525 5000

OTHER EUROPEAN COUNTRIES
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen, F.R. of Germany
Tel: 04101-3030

AFRICA

Yamaha Corporation, International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2312

MIDDLE EAST

TURKEY/CYPRUS
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen, F.R. of Germany
Tel: 04101-3030

OTHER COUNTRIES
Yamaha Corporation, International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2312

ASIA

HONG KONG
Tom Lee Music Co., Ltd.
11/F., Silvercord Tower 1, 30 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: 730-1098

INDONESIA
PT. Yamaha Music Indonesia (Distributor)
PT. Nusantik
Gedung Yamaha Music Center, Jalan Jend. Gatot Subroto Kav. 4, Jakarta 12930, Indonesia
Tel: 21-520-2577

KOREA
Cosmos Corporation
#131-31, Neung-Dong, Sungdong-Ku, Seoul Korea
Tel: 02-466-0021~5

MALAYSIA
Yamaha Music Malaysia, Sdn., Bhd.
16-28, Jalan SS 2/72, Petaling Jaya, Selangor, Malaysia
Tel: 3-717-8977

PHILIPPINES
Yupangco Music Corporation
339 Gil J. Puyat Avenue, P.O. Box 885 MCPO, Makati, Metro Manila, Philippines
Tel: 819-7551

SINGAPORE
Yamaha Music Asia Pte., Ltd.
Blk 17A Toa Payoh #01-190 Lorong 7
Singapore 1231
Tel: 354-0133

TAIWAN
Kung Hsue She Trading Co., Ltd.
No. 322, Section 1, Fu Hsing S. Road, Taipei 106, Taiwan. R.O.C.
Tel: 02-709-1266

THAILAND
Siam Music Yamaha Co., Ltd.
865 Phornprapha Building, Rama I Road, Patumwan, Bangkok 10330, Thailand
Tel: 2-215-3443

THE PEOPLE'S REPUBLIC OF CHINA AND OTHER ASIAN COUNTRIES
Yamaha Corporation, International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2317

OCEANIA

AUSTRALIA
Yamaha Music Australia Pty. Ltd.
17-33 Market Street, South Melbourne, Vic. 3205, Australia
Tel: 3-699-2388

NEW ZEALAND
Music Houses of N.Z. Ltd.
146/148 Captain Springs Road, Te Papapa, Auckland, New Zealand
Tel: 9-634-0099

COUNTRIES AND TRUST TERRITORIES IN PACIFIC OCEAN
Yamaha Corporation, International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2317

HEAD OFFICE **Yamaha Corporation, Electronic Musical Instrument Division**
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2445

YAMAHA

YAMAHA CORPORATION



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YAMAHA

MUSIC SEQUENCER

QY70

Owner's Manual



GENERAL MIDI

SPECIAL MESSAGE SECTION

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

WARNING: Do not place this product in a position where anyone could walk on, trip over ,or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! IF you must use an extension cord, the minimum wire size for a 25' cord (or less) is 18 AWG. NOTE: The smaller the AWG number ,the larger the current handling capacity. For longer extension cords, consult a local electrician.

This product should be used only with the components supplied or; a cart, rack, or stand that is recommended by Yamaha. If a cart, etc., is used, please observe all safety markings and instructions that accompany the accessory product.

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 speaker/s, 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.

Some Yamaha products may have benches and / or accessory mounting fixtures that are either supplied with the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that benches are stable and any optional fixtures (where applicable) are well secured BEFORE using.
Benches supplied by Yamaha are designed for seating only. No other uses are recommended.
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 owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

ENVIRONMENTAL ISSUES:
Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice:
This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

This product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

When installing batteries, do not mix batteries with new, or with batteries of a different type. Batteries MUST be installed correctly. Mismatches or incorrect installation may result in overheating and battery case rupture.

Warning:
Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area. Note: Check with any retailer of household type batteries in your area for battery disposal information.

Disposal Notice:
Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc. If your dealer is unable to assist you, please contact Yamaha directly.

NAME PLATE LOCATION:
The name plate is located on the bottom of the product. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.

Model _____

Serial No. _____

Purchase Date _____

92-BP

PLEASE KEEP THIS MANUAL