MUSIC SYNTHESIZER

S03

OWNER'S MANUAL

YAMAHA

GENERAL MIDI XG

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

PLEASE KEEP THIS MANUAL

92-BP (bottom)

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 an 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.

- 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. Also, be sure to set the volumes of all components at their minimum levels and gradually raise the volume controls while playing the instrument to set the desired listening level.

- 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, plastic or rubber 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.

- Use only the stand specified for the instrument. When attaching the stand or rack, use the provided screws only. Failure to do so could cause damage to the internal components or result in the instrument falling over.

- 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 "!BatteryLo" will display in the LCD. When this happens, immediately back up your data (using an external device such as the floppy disk-based Yamaha MIDI Data Filer MDF3), 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 MDF3, 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.

Introduction

Thank you for purchasing the Yamaha S03 Music Synthesizer. In order to get the most out of your new S03 and its sophisticated functions, we suggest you read through this manual thoroughly. Also keep it in a safe, convenient place so that you can regularly refer to it when necessary.

Package Contents

- PA-3B AC Adaptor *
- CD-ROM
- Installation Guide
- Owner's Manual
- Data List

* May not be included in your area. Please check with your Yamaha dealer.

About the Included CD-ROM

Application software for your S03 is included on this CD-ROM. The Voice Editor lets you edit the Voices of the S03 with a highly intuitive graphical interface. With the XGworks lite sequencing software, you can easily create and edit your own original songs on your computer. For details, refer to the separate Installation Guide or the on-line manual included with the software.

⚠ Never attempt to play back the CD-ROM on an audio CD player. Doing so may result in damage to your hearing as well as to your CD player/audio speakers.

Main Features

- Exceptionally high-quality dynamic Voices — including many sounds from Yamaha's top-of-the-line S80 Music Synthesizer (page 18).
- Wide variety of pro-quality digital effects (page 53).
- Category Search function for quickly calling up Voices in a desired instrument group (page 35).
- A total of 480 Normal Voices and 20 Drum Voices, all XG-compatible — in addition to Preset Voices and User Voices (page 25).
- Comprehensive, detailed editing features for customizing your Voices (page 70).
- Convenient TO HOST terminal for direct, easy connection to computer — with just one cable (page 13).
- Included XGworks lite sequencing software, for easily creating and playing back your own songs on computer.

GENERAL MIDI
GM 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
"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 the 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.

About This Manual

This manual is basically divided into two sections:

■ **Basics Section (Page 8)**
  Explains how to get started with the S03, it's overall structure, and how to use its main features and functions.

■ **Reference Section (Page 55)**
  Explains the parameters of the S03's various modes.

About the "Page" References in this Manual

PAGE xx ..... Refers to a display "page" in the LCD

page xx .... Refers to an actual page in this manual.

Many of the functions and parameters of the S03 are shown on various display "pages," each of which is numbered within each mode and indicated in the display. Searching for a function or parameter is made more convenient and fast by the use of these page numbers.

To distinguish these display page references from actual pages in the manual, we've applied the following convention: "PAGE" (all capital letters) refers to the display page. Unless indicated otherwise, the PAGE reference is for display pages within the same mode (as described for other parameters in the same section).

Throughout the manual, parameter names are prefaced by numbers, such as "13-2 Resonance." This, for example, indicates that the Resonance parameter is on display PAGE 13 in the selected mode.

When one display page contains two or more related parameters, use the [◀]/[▶] buttons (page 30) to scroll through the available parameters. These related parameters selected by the [◀]/[▶] buttons are indicated by hyphenated numbers (e.g., 13-1, 13-2, etc.). In the example above, you can select the Resonance parameter by using the [◀]/[▶] buttons to move to the second page.

🎵 **NOTE** For a full listing of the parameters and their corresponding display pages, refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

Table of Contents

Application Index

Basics Section

Multi Mode

Voice Mode

Utility Mode

MIDI Mode

Appendix

This convenient, easy-to-use index is divided to general categories to help you when you want to find information on a specific topic or function.

Basics Section

The Controls & Connectors

Front Panel
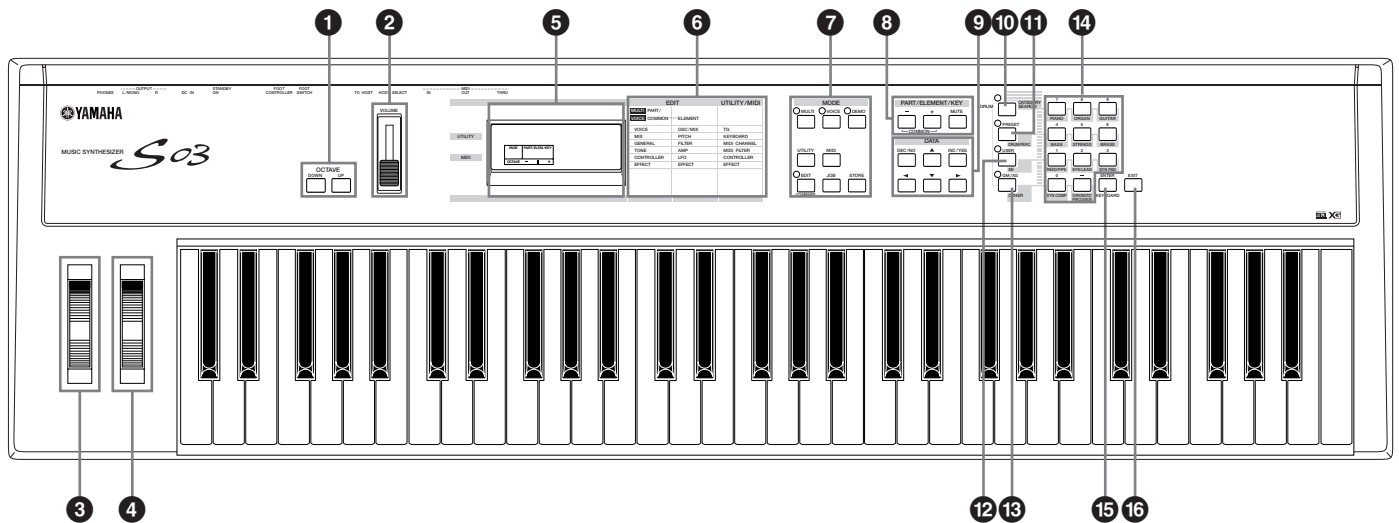
❶ OCTAVE [UP] and [DOWN] buttons (Page 36)
Press either of these buttons to shift the note range of the keyboard up or down in octaves. Press them together to restore the normal range (0).

❷ [VOLUME] slider (Page 15)
Adjusts the master volume output from the OUTPUT L/R jacks and the PHONES jack. Move the slider upwards to raise the level.

❸ PITCH bend wheel (Page 44)
Controls the pitch bend effect.

❹ MODULATION wheel (Page 44)
Controls the modulation effect. You can also assign other parameters and functions to this controller.

❺ LCD (Liquid Crystal Display)
This backlit LCD displays various operation messages and information.

❻ Parameter Type List (Page 30)
Follow the arrow in the LCD across to the appropriate column in the list; the arrow indicates the type of the currently selected parameter.

❼ MODE buttons (Page 19)
Press these to buttons to select one of the modes: Multi, Voice, Utility, or another mode.

❽ [PART/ELEMENT/KEY] buttons
These buttons are used to select Parts/Elements/Drum keys in the Multi Edit or Voice Edit Mode.

❽-1 [+]/[–] buttons (Page 30)
In the Multi Mode, these buttons select Parts 1 to 16. In the Multi Part Edit mode, press both of these buttons simultaneously to call up the Common Edit screens. To return to the Part Edit screens, press only one of these buttons, [–] or [+].
In the Voice Edit Mode, these buttons select Elements 1 to 4 or the Drum keys. In the Voice Element Edit mode, press both of these buttons simultaneously to call up the Common Edit screens. To return to the Element Edit screens, press only one of these buttons, [–] or [+].

❽-2 [MUTE] button (Page 48, 55)
In the Multi Mode, this button mutes the selected Parts. In the Voice Edit Mode, this button mutes the selected Elements or Drum keys.

❾ **DATA buttons (Page 30)**
These are used during editing for selecting various pages and for setting parameter values.

❾-1 **[DEC/NO] button (Page 31)**
Use this to decrease the value of the selected parameter. To decrease the value by 10, simultaneously hold down this button and press the [INC/YES] button. The button can also be used to cancel a Job or Store operation.

❾-2 **[INC/YES] button (Page 31)**
Use this to increase the value of the selected parameter. To increase the value by 10, simultaneously hold down this button and press the [DEC/NO] button. The button can also be used to execute a Job or Store operation.

❾-3 **[▲]/[▼] buttons (Page 30)**
Use these to select the screen "pages" in each Mode.

❾-4 **[◀]/[▶] buttons (Page 30)**
Use these to select the value to be set in the LCD, or to display continuous parts of the page (on the left and right), for pages that consist of several parts.

❿ **[CATEGORY SEARCH/DRUM] button (Pages 34, 35)**
Turns on the Category Search function (page 35). This function allows you to instantly select a desired Voice category from the numeric keypad or the Memory buttons. You can also assign the drum bank of each memory by simultaneously pressing this button and the [USER/(SE)] button or the [GM/XG /(OTHER)] button.

⓫ **[PRESET/(DRUM/PERC)] button (Page 33)**
In the Multi and Voice modes, this lets you select the Preset Memory programs. When the Category Search function (page 35) is active, this is used to specify the DRUM/PERC Voice category.

⓬ **[USER/(SE)] button (Page 33)**
In the Multi and Voice modes, this lets you select the User Memory programs. You can also specify a User Memory Drum bank by simultaneously pressing both this button and the [CATEGORY SEARCH/DRUM] button. When the Category Search function (page 35) is active, this is used to specify the SE Voice category.

⓭ **[GM/XG/(OTHER)] button (Page 33)**
In the Multi and Voice modes, this lets you select the GM/XG Memory programs. You can also specify a GM/XG Memory Drum bank by simultaneously pressing both this button and the [CATEGORY SEARCH/DRUM] button. When the Category Search function (page 35) is active, this is used to specify the OTHER: CO, ME Voice categories.

⓮ **Numeric keypad (Pages 32, 35)**
This is used to select specific Multi or Program numbers. In the Edit mode, it is used to input parameter data values. The selected value is actually entered or executed only after pressing the [ENTER] button. This is also used to select the various Voice categories (page 70) when the Category Search function (page 35) is set to ON.

⓯ **[ENTER/KEYBOARD] button**
This is used to enter or execute the value typed in from the numeric keypad. This can also be used to set parameters whose values are expressed as a note (from C-2 - G8); simultaneously hold this button and press the desired key on the keyboard. It is also used for executing various jobs and store operations.

⓱ **[EXIT] button (Page 31)**
During editing or when in a mode other than Multi/Voice Play, pressing this button exits from the mode and returns to the Multi/Voice Play mode.

Rear Panel
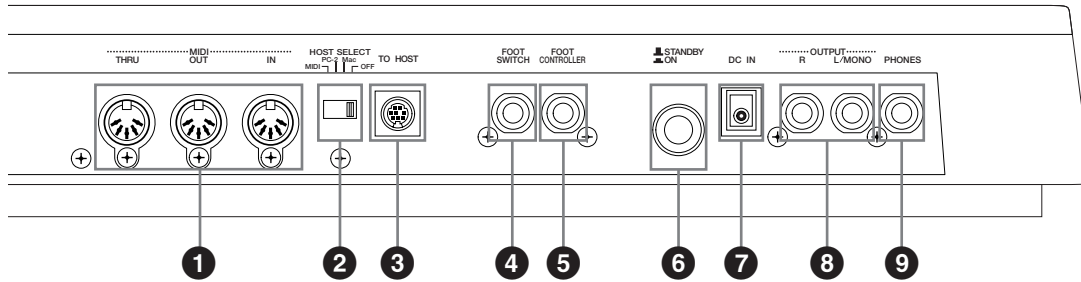
❶ MIDI IN/OUT/THRU terminals (Page 12)
MIDI IN receives MIDI messages from an external
MIDI device. Use this connector to control the S03
from an external MIDI device. MIDI OUT sends
out MIDI messages generated by the S03 (including
notes played on the keyboard and panel control
movements) to an external MIDI sound module or
device. MIDI THRU simply relays the MIDI
messages received at MIDI IN. Connect other
devices here.

❷ HOST SELECT switch (Page 12)
For selecting the type of computer connected to the
S03 via the TO HOST connector. When using the
MIDI IN/OUT/THRU terminals, set this switch to
MIDI.

❸ TO HOST terminal (Page 13)
For connection to a computer, using an optional
serial computer cable.

❹ FOOT SWITCH jack (Pages 14, 46)
For connecting an optional footswitch (FC4 or
FC5). Depending on the assigned function, you can
use the footswitch to turn specific functions on and
off.

❺ FOOT CONTROLLER jack (Pages 14, 45)
For connecting an optional foot controller (FC7,
etc.). This gives you real-time control over various
aspects of the sound, such as tone, pitch, and
volume.

❻ STANDBY/ON switch (Page 15)
Use this to turn the S03 on or off.

⚠ Even when the switch is in the "STANDBY" position,
electricity is still flowing to the instrument at a minimum
level. When not using the S03 for an extended period of
time, be sure to unplug the AC power adaptor from the
wall AC outlet.

❼ DC IN terminal (Page 11)
For connecting an appropriate AC power adaptor
(PA-3B or an equivalent recommended by Yamaha)
to supply power to the S03.

❽ OUTPUT L/MONO and R jack (Page 11)
Line level audio signals are output from the S03 via
these phone jacks (1/4" mono phone plug). For
monophonic output, use just the L/MONO jack.

❾ PHONES jack (Page 11)
For connection to a pair of stereo headphones.

Before Use

This section explains how to connect to an AC power source, audio and MIDI devices, and a computer system. Only switch the S03 on after you have made all the necessary connections. We strongly recommended you read this section BEFORE using the S03.

Power Supply

S03 Rear Panel

DC IN

To electrical outlet
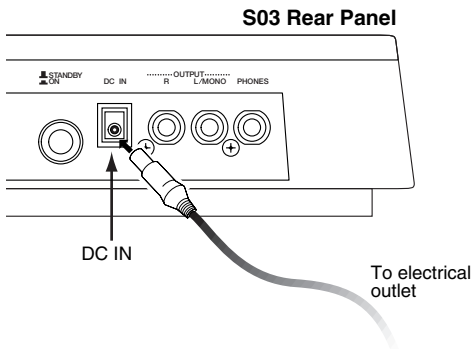
❶ Make sure that the S03's STANDBY/ON switch is at the STANDBY (off) position.

❷ Connect the PA-3B's DC plug to the S03's DC IN terminal on the instrument's rear panel.

❸ Connect the adaptor's AC plug to the nearest electrical outlet.

⚠ Do not attempt to use an AC adaptor other than the Yamaha PA-3B or an equivalent recommended by Yamaha. The use of an incompatible adaptor may cause irreparable damage to the S03, and may even pose a serious shock hazard! ALWAYS UNPLUG THE AC ADAPTOR FROM THE AC POWER OUTLET WHEN THE S03 IS NOT IN USE.

⚠ Even when the switch is in the "STANDBY" position, electricity is still flowing to the instrument at a minimum level. When not using the S03 for an extended period of time, be sure to unplug the AC power adaptor from the wall AC outlet.
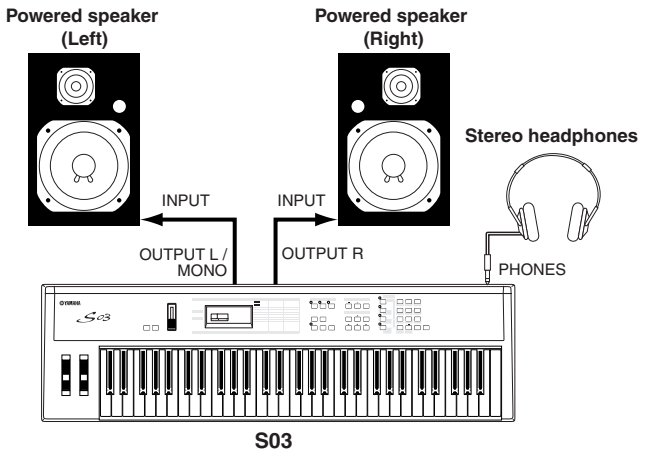
Connections

Connecting to External Audio Equipment

Since the S03 has no built-in speakers, you need to monitor its sound output via external audio equipment. Alternatively, you could use a pair of headphones.
There are several methods of connecting to external audio equipment, as described in the following illustrations.

Connecting Stereo Powered Speakers

A pair of powered speakers can accurately produce the S03's rich sounds with their own pan and effect settings. Connect your powered speakers to the OUTPUT L/MONO and R jacks on the rear panel.

Powered speaker (Left)　　**Powered speaker (Right)**

Stereo headphones

INPUT　　INPUT

OUTPUT L / MONO　　OUTPUT R　　PHONES

S03

🎹 NOTE When using just one powered speaker, connect it to the OUTPUT L/MONO jack on the rear panel.

Connecting to a Mixer

If you want to integrate the S03 into a larger system with other instruments and additional audio processing capabilities, connect it to a mixer, amplifier and stereo monitor system as shown below.
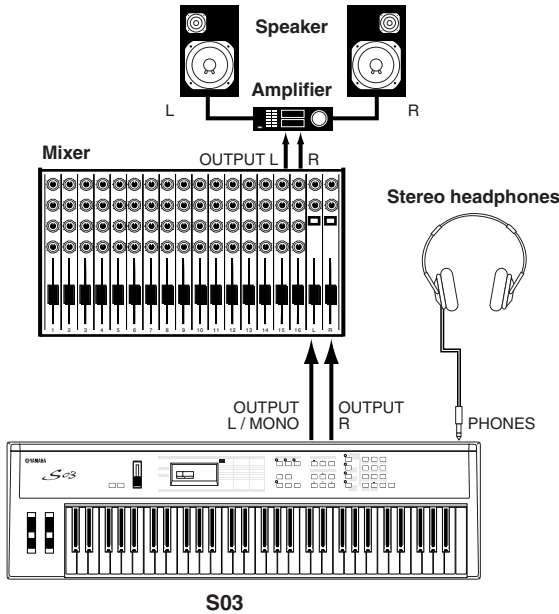

♪ NOTE Connecting a pair of headphones does not affect audio output from the OUTPUT (L/MONO and R) jacks. The audio output at the PHONES jack and the OUTPUT jacks is exactly the same.

Connecting External MIDI Equipment

You can connect an external MIDI device using a MIDI cable (available separately) and control it from the S03. You can also use an external MIDI keyboard or sequencer to control the S03's internal sounds. This section introduces several different MIDI applications.

♪ NOTE The HOST SELECT switch on the rear panel should be set to "MIDI" Otherwise, MIDI data will not be transmitted from the S03's MIDI OUT connector.

Controlling the S03 from an External MIDI Keyboard
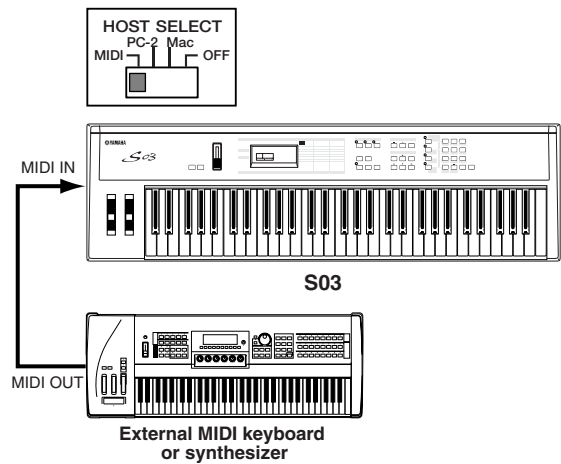
Controlling an External MIDI Keyboard with the S03
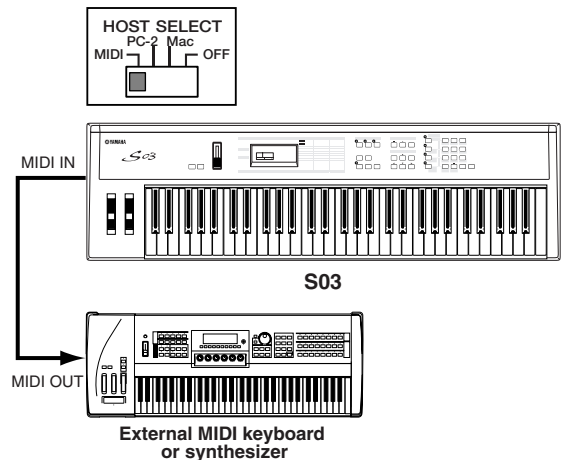
Recording and Playback using an External MIDI Sequencer

MIDI IN

MIDI OUT

External MIDI sequencer

HOST SELECT
PC-2 Mac
MIDI   OFF

MIDI IN

MIDI OUT

S03

Controlling Another MIDI Device via MIDI THRU
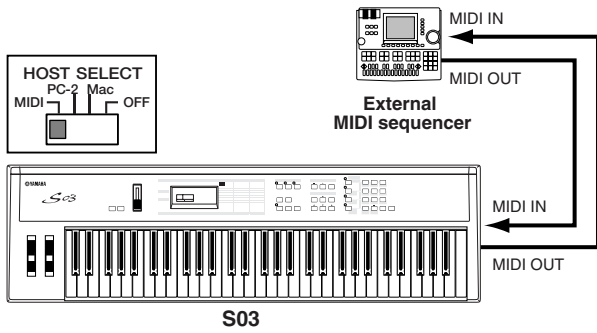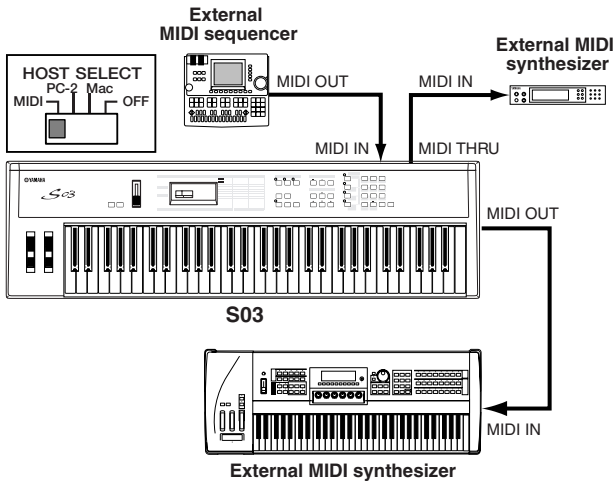
External MIDI sequencer

External MIDI synthesizer

HOST SELECT
PC-2 Mac
MIDI   OFF

MIDI OUT   MIDI IN

MIDI IN   MIDI THRU

MIDI OUT

S03

MIDI IN

External MIDI synthesizer

With the above MIDI connections, you can send MIDI data from the S03's MIDI OUT terminal, while sending MIDI data from the external sequencer to an external MIDI synthesizer via the S03's MIDI THRU terminal.

♪ **NOTE** The MIDI cable should be no greater than 15 meters in length, and there should be no more than three devices in a MIDI chain (chained in series via each unit's MIDI THRU). To connect more units, use a MIDI Thru Box for parallel connections. You may encounter errors if the MIDI cables are too long or if too many devices are chained together via their MIDI THRU connectors.

Connecting to a Personal Computer

You can use a connected computer to control the S03 and to transfer S03 data to/from computer via MIDI. With the included Voice Editor program, for instance, you can edit the Voices of the S03.
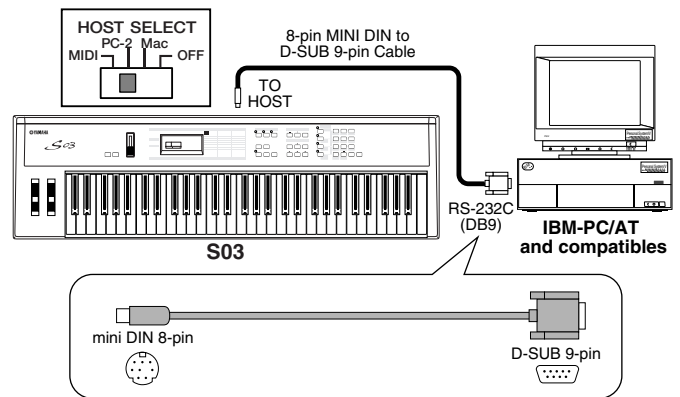
There are two ways to connect your S03 to a computer:

1: Serial connection (the computer's serial port to the S03's TO HOST terminal)

2: MIDI connection (the computer's MIDI interface or external MIDI interface to the S03's MIDI IN and OUT)

Depending on your particular computer, the connections may differ. (See below.)

♪ **NOTE** You may also want to change the Local On/Off setting (page 93), depending on how you are using the S03 in your MIDI system.

1: Serial Port to TO HOST

IBM-PC/AT

HOST SELECT
PC-2 Mac
MIDI   OFF

8-pin MINI DIN to D-SUB 9-pin Cable

TO HOST

RS-232C (DB9)

IBM-PC/AT and compatibles

S03

mini DIN 8-pin

D-SUB 9-pin

Macintosh

HOST SELECT
PC-2 Mac
MIDI   OFF

Macintosh Peripheral Cable (M0197)

TO HOST

Macintosh

S03

mini DIN 8-pin

mini DIN 8-pin
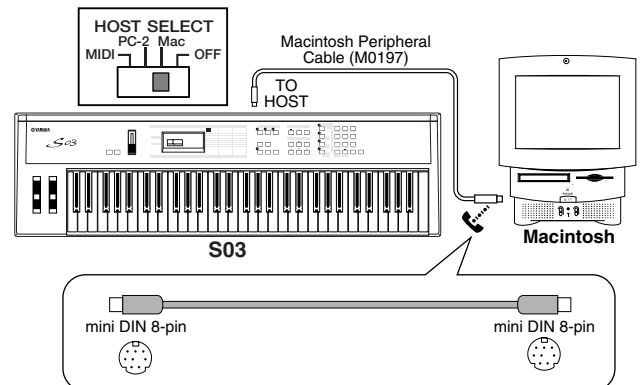
2: MIDI Interface to MIDI IN and OUT

Using the computer's MIDI interface

Using an external MIDI interface

■ Connection to serial port

■ Connection to USB terminal

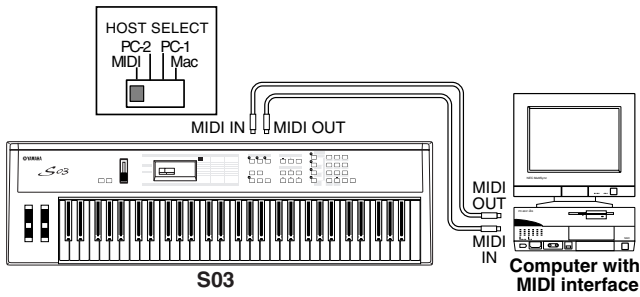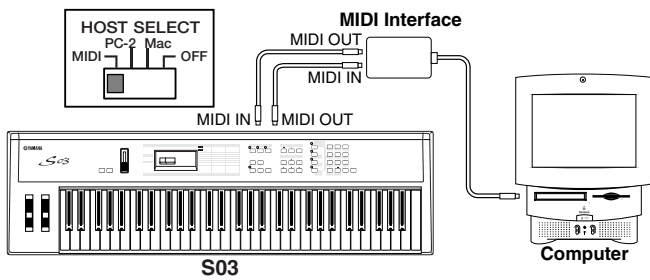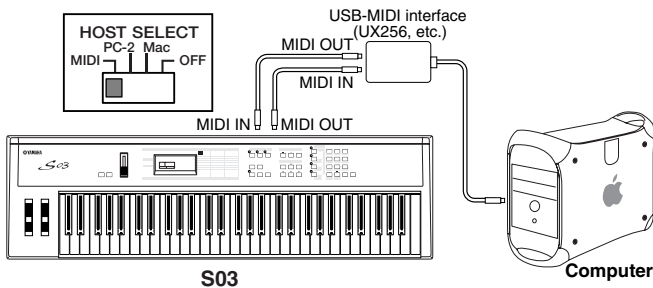**♪ NOTE** You will also need the appropriate MIDI application (sequencer, editor, etc.), compatible with your computer platform.

Connecting Controllers

• •

The S03 has controller jacks on the rear panel, including FOOT SWITCH and FOOT CONTROLLER. You can connect optional controllers such as a footswitch (the FC4 or FC5) and foot controller (the FC7) to control tone, volume, pitch and other parameters.

♪ NOTE Details about how to use these controllers are given on page 45.

FOOT CONTROLLER
FC7

FOOT SWITCH
FC4 or FC5
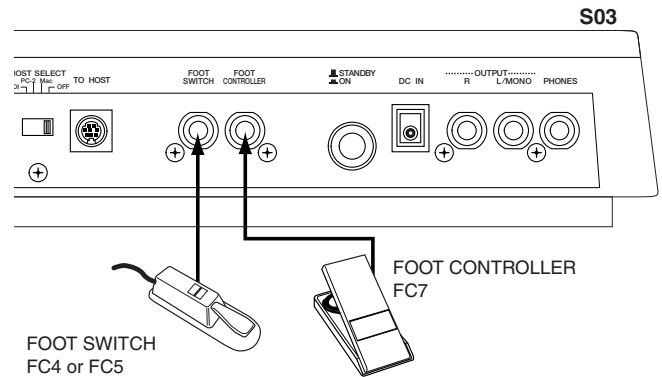
Powering Up

Power-on Procedure

When you have made all the necessary connections between your S03 and any other devices, make sure that all volume settings are turned down all the way to zero. Then turn on every device in your setup in the order of MIDI masters (senders), MIDI slaves (receivers), then the audio equipment (mixers, amplifiers, speakers, etc.). This ensures smooth MIDI operation and prevents speaker damage.
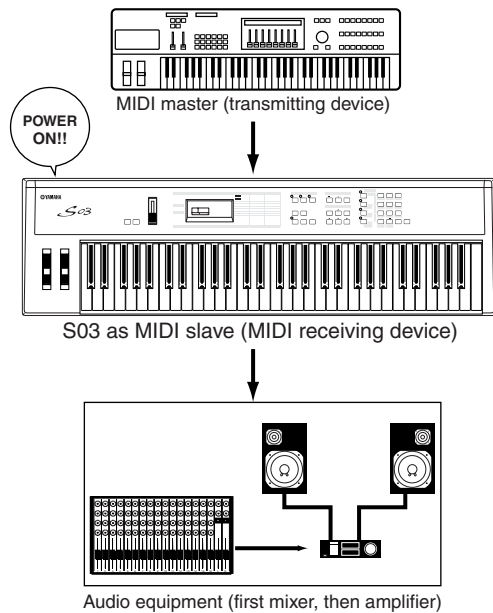
When powering down the setup, first turn down the volume for each audio device, then switch off each device in the reverse order (first audio devices, then MIDI).

When using the S03 as MIDI slave:

MIDI master (transmitting device)

POWER ON!!

S03 as MIDI slave (MIDI receiving device)

Audio equipment (first mixer, then amplifier)

Turning on the S03

⚠️ In order to avoid possible damage to the speakers or other connected electronic equipment, always switch on the power of the S03 before switching on the power of the amplified speakers or mixer and amplifier. Likewise, always switch off the power of the S03 after switching off the power of the amplified speakers or mixer and amplifier.

⚠️ Even when the switch is in the "STANDBY" position, electricity is still flowing to the instrument at a minimum level. When not using the S03 for an extended period of time, be sure to unplug the AC power adaptor from the wall AC outlet.

🎵 NOTE Before you switch your S03 on or off, first turn down the volume of any connected audio equipment.

❶ Press the STANDBY/ON switch
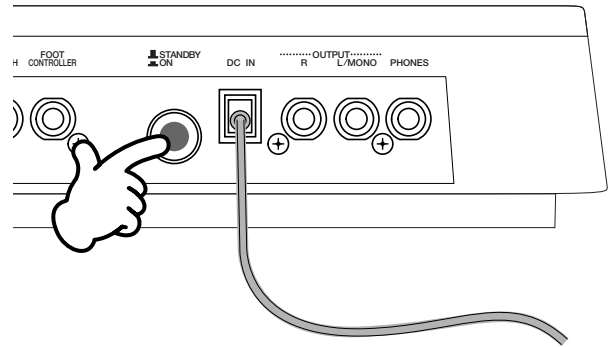
❷ A splash screen ("Welcome to S03") is displayed briefly.

❸ The Multi or Voice Play Mode screen appears next.

PF:GrandPno
PAGE PART/ELEM/KEY XG001
OCTAVE − +

❹ Turn up the amplifier's volume as necessary.

❺ Adjust the S03's [VOLUME] slider to set an appropriate volume level.

VOLUME

Demo Playback

The S03 features a variety of demo songs, showcasing its dynamic sound and sophisticated functions.

♪ NOTE Make sure synthesizer is ready for playback. Details are given in the section "Before Use" on page 11.

⚠ At the "Demo" screen, any data in the instrument's User Voice memory will be overwritten by the data for the demo song. Important data should be saved to the external MIDI device or computer beforehand.

⚠ At the "DEMO" screen, the Master Tune parameter (in Utility) will be overwritten and set to "0."

❶ Press the [DEMO] button.
The following screen appears.
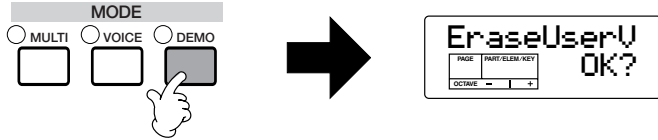
❷ Press the [INC/YES] button to call up the Demo screen and automatically start playback of the Demo song.

❸ To stop Demo playback, press one of the following buttons: [MULTI], [VOICE], or [EXIT].
This exits from the Demo mode and automatically returns to the Multi mode, Voice mode, or the mode previously selected.

♪ NOTE Demo song playback continues indefinitely until stopped.
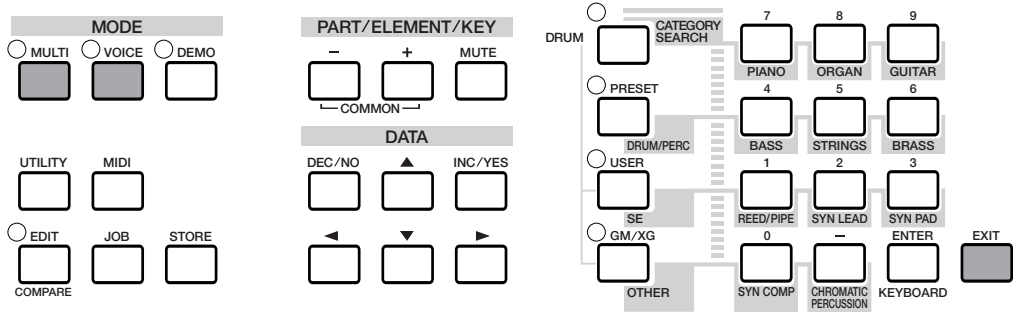
Demo Song Selection

While the Demo song is playing back, you can select the particular Demo song that you wish to hear.
Enter the desired Demo song category from the numeric keypad to call up the song.
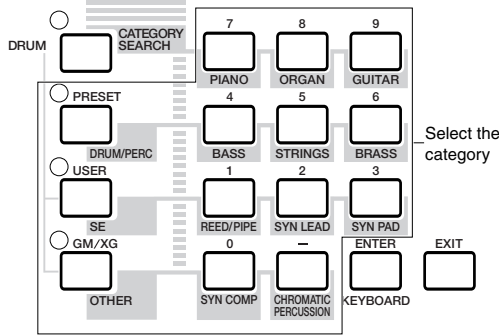
For example, you can play the piano song by pressing button 7 (PIANO) in the numeric keypad. If you don't select a particular song, an ensemble (OTHER) song will play back automatically.

♪ NOTE When there are several Demo songs contained in one category, you can select from among the available songs by using the [DEC/NO] and [INC/YES] buttons.

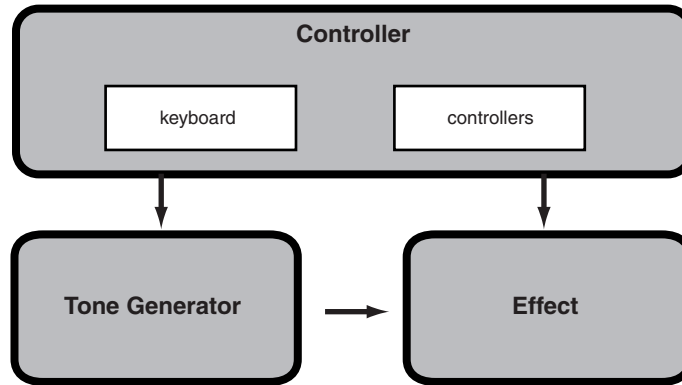# Overview of the S03

The S03 has a wide variety of advanced and convenient features. This section gives you an overview of these features.
The following diagram shows the various component sections or "blocks" of the S03.

Controller

This block consists of the keyboard, Pitch Bend and Modulation wheels and so on. The keyboard itself doesn't generate sounds, but instead sends note, velocity and other information to the S03's tone generator section for the notes you play. The controllers also send non-note performance data. Information from the keyboard and controllers can be transmitted to other external MIDI devices through the MIDI OUT connector.

Tone Generator

This block plays back sounds according to information received from the keyboard and controllers. The following example illustrates the path taken by the signal from an Element in the Voice Mode.

Controls the pitch of each Element output from the OSC section.

Controls the output level (amplitude) of each Element output from the FILTER section. The signals are then sent at this level to the Effects Units.

Outputs the waveform of each Element. Each Voice consists of up to four Elements.

Changes the tonal quality of each Element output from the PITCH section.
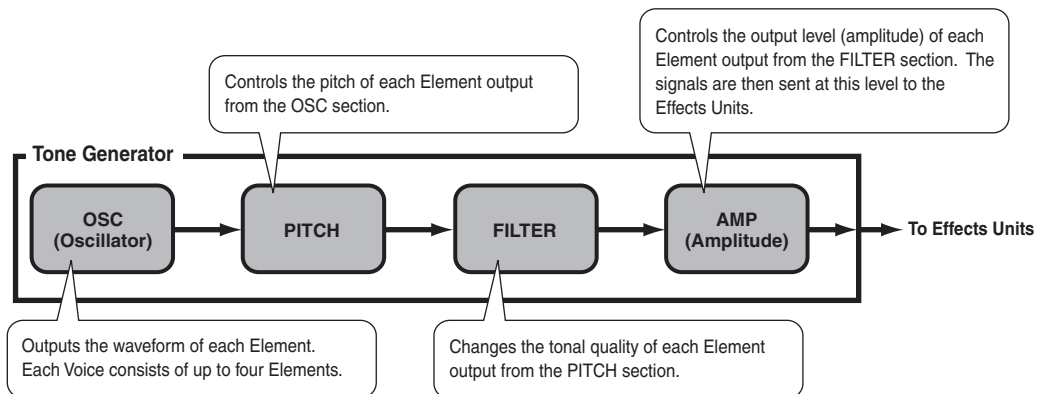
About the Tone Generator

The tone generator of the S03 utilizes the sophisticated AWM2 system.
AWM2 (Advanced Wave Memory 2) is a synthesis system based on the use of sampled waveforms, and is used in many Yamaha synthesizers. For extra realism, each AWM2 Voice uses multiple samples of a real instrument's waveform. Furthermore, a wide variety of envelope generator, filter, modulation, and other parameters can be applied to the basic waveform.

NOTE AWM2 is not just limited to conventional pitched instruments (Normal Voices), but also produces various drum and percussion instruments (Drum Voices). For details about Normal and Drum Voices, see page 26.

Maximum Polyphony

The maximum polyphony of the S03 is 64 notes. However, the actual note polyphony will vary depending on the number of Elements in the Voice. To calculate the actual polyphony, divide the total polyphony of 64 by the number of Elements in the Voice. For instance, if a Voice consists of two Elements, the maximum note polyphony for the Voice is 32.
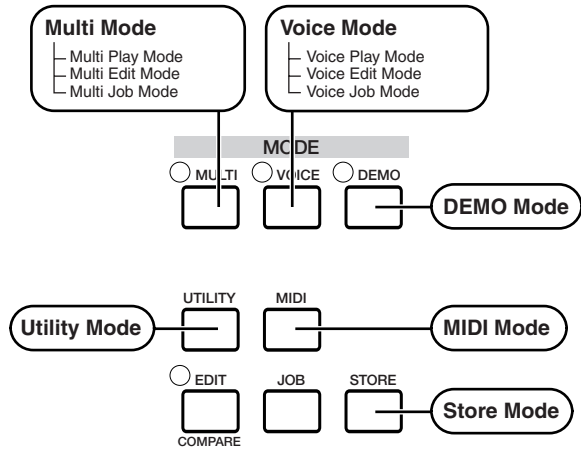
Effects

The effects can be used to change or enhance the sound of a Multi or Voice.
These include the effects of the Reverb section (11 types) for adding ambient after-tones to the sound, the Chorus section (11 types) that add animation and depth, and the Variation section (42 types) which features a wealth of additional effects.

NOTE For more details about the effects, see page 53.

About the Modes

The S03 has various modes, each covering a different set of operations and functions.

Multi Mode
— Multi Play Mode
— Multi Edit Mode
— Multi Job Mode

Voice Mode
— Voice Play Mode
— Voice Edit Mode
— Voice Job Mode

MODE
○ MULTI ○ VOICE ○ DEMO —— DEMO Mode

UTILITY   MIDI
Utility Mode   MIDI Mode

○ EDIT   JOB   STORE
COMPARE   Store Mode

Multi Mode (Page 55)

Multi Play Mode

Select this mode when you want to use the S03 as a multi-timbral tone generator. In this mode, you can use an external MIDI sequencer to play several different instrument parts simultaneously. This mode can also be used to combine several different Voices together in a layer.

Multi Edit Mode

In this mode, you can edit and create Multis. You can save up to 32 Multis to internal memory.

Multi Job Mode

In this mode, you can copy and initialize Multis, and perform other similar operations (Jobs).

Voice Mode (Page 70)

Voice Play Mode

Normal Voices and Drum Voices can be played in this mode. You can select from the Preset Voices (128 Normal Voices), User Voices (128 Normal Voices plus two Drum Kits) and XG Voices (480 Normal Voices plus 20 Drum Kits). The S03 also features a convenient Category Search function that lets quickly select a Voice according to its instrument type.

Voice Edit Mode

Normal Voices and Drum Voices can be created and edited in this mode. You can save up to 128 edited Normal Voices and two edited Drum Kits as User Voices in internal memory.

Voice Job Mode

In this mode, you can copy Elements and initialize Voices, and perform other similar operations (Jobs).

DEMO Mode (Page 16)

In this mode, you can play the Demo songs contained in internal memory. The various Demo songs play back continuously.

Utility Mode (Page 90)

This mode contains global settings related to the entire system of the S03, such as master tuning and controller-related settings.

MIDI Mode (Page 93)

In this mode, you can make MIDI-related settings, such as the MIDI transmit/receive channels and device number.

Store Mode (Pages 69, 89)

In this mode, you can store your original Voices and Multis to internal memory.

Function Tree chart

Parameter Table

The numbers in each column indicate the display PAGE corresponding to the parameter at left (with the exception of the column on the far right, which indicates the corresponding manual page). For example, you can see that the Reverb Send parameter is found on three separate display pages: PAGE 22 of Multi Part Edit, PAGE 11 of Normal Voice Common Edit, and PAGE 9 of Drum Voice Key Edit.

This table is helpful in locating the corresponding display pages in different modes. This is handy when you want to make the same or similar settings to the same parameter in a different mode — for example, setting the Reverb Send in the Multi mode to the same value as Reverb Send in the Voice mode. It's also handy for cross-checking same parameters for programming complex sound changes — such as setting the Voice's Filter Cutoff to a certain value, then going to Cutoff in the Multi mode and tweaking it further.

Since the owner's manual page reference is also provided, you can quickly find the corresponding explanation by checking the currently selected mode and PAGE number on the S03, and referring to this table.

♪ NOTE When the parameter is the same for both the Voice mode and Multi mode, the manual page reference is generally for the explanation in the Multi mode.

Parameter Type	LCD Display (parameter name)	Multi Edit		Voice Edit				UTILITY	MIDI	Owner's Manual Page
		Common	Part	Common		Element/Key				
				Normal	Drum	Normal	Drum			
GENERAL	Name	1		1	1					56, 71
	Total Vol (Total Volume)	2		2						56, 71
	Total Lvl (Level)			2		3	1			71, 73, 85
	Transpose	3								56
	Rcv Ch (MIDI Receive Channel)		6						3	61, 94
	NoteShift/Detune		7			7				61, 74
	Mono/Poly		8	3						61, 71
	Part Mode		9							61
	OrgKt (Original Kit)				2					85
EFFECT*	RevEF (Reverb Effect Type)	4								56
	Reverb Parameters	5								56
	Rev Return (Reverb Return)	6								56
	Reverb Pan	7								57
	ChoEF (Chorus Effect Type)	8								57
	Chorus Parameters	9								57
	Cho Return (Chorus Return)	10								57
	Chorus Pan	11								57
	SndCho→Rev (Send Chorus to Reverb)	12		13						57
	VarEF (Variation Effect Type)	13		14						57
	Variation Parameters	14		15						57
	VarConnect (Variation Connection)	15								58
	Var Return (Variation Return)	16								58
	Var Pan	17								58
	Snd Var→Rev (Send Variation to Reverb)	18								58
	Snd Var→Cho (Send Variation to Chorus)	19								58
	MW VarCtl (MW Variation Effect Control Depth)	20		16						58
	AC1VarCtl (AC1 Variation Effect Control Depth)	21		17						66
	ReverbSend		22	11			9			66
	ChorusSend		23	12			10			66
	Var Send (Variation Send)		24							67
	V EfBypass (Voice Effect Bypass)							8		92
VOICE	Voice Selection		1							59
MIX	Volume		2							60
	Pan		3			4	2			60, 73, 85
	NtLmt-H (Note Limit Low/High)		4			5				60, 73
	VelLmt-L (Velocity Limit Low/High)		5			6				60, 74
TONE	VelSnsDpt/Ofs (Velocity Sensitivity Depth/Offset)		10	4						62
	Cutoff/Resonance		11			13	7			63, 77, 86
	Attack/Decay/Release Tm (Attack/Decay/Release Time)		12							63
	PEG L/Tm (PEG Level/Time)		13							64
	Vib Rate/Depth/Delay (Vibrato Rate/Depth/Delay)		14							64
CONTROLLER*	Porta Sw/Time (Portamento Switch/Time)		15	5						65
	PB Range (Pitch Bend Range)		16	6						65
	MW FltCtl (MW Filter Control)		17	7						65
	MW PMod (MW Pitch Modulation Depth)		18	8						65
	MW FMod (MW Filter Modulation Depth)		18	8						65
	MW AMod (MW Amplitude Modulation Depth)		18	8						65
	AC1 CC No (AC1 Control Change Number)		19					7		66, 92
	AC1FltCtl (AC1 Filter Control)		20	9						66
	AC1 FMod (AC1 Filter Modulation Depth)		21	10						66
	AC1 AMod (AC1 Amplitude Modulation Depth)		21	10						66
	MWTxCtlNo (MW Transmit Control Number)							4		91
	FCTxCtlNo (Foot Controller Transmit Control Number)							4		91
	FSTxCtlNo (Footswitch Transmit Control Number)							5		91
	Ctl Reset (Controller Reset)							6		91

Parameter Type	LCD Display (parameter name)	Multi Edit Common	Multi Edit Part	Voice Edit Common Normal	Voice Edit Common Drum	Voice Edit Element/Key Normal	Voice Edit Element/Key Drum	UTILITY	MIDI	Owner's Manual Page
OSC/MIX (Oscillator/Mixer)	Element Sw (Element Switch)					1				73
	Wave Selection					2				73
	Level					3				85
	Alt.Group (Alternate Group)						3			85
	Key Assign						4			85
	RxNoteOff/On (Receive Note On/Off)						5			86
PITCH	NoteShift/Detune		7			7				61, 74
	PchSclSns (Pitch Scale Sensitivity)					8				74
	PchSclCN (Pitch Scale Center Note)					8				74
	PEG R (PEG Rate)					9				75
	PEG L (PEG Level)					10				75
	PEGSclSns (PEG Scale Sensitivity)					11				76
	PEGSclCN (PEG Scale Center Note)					11				76
	PEGRtVel (PEG Rate Velocity)					12				76
	PEGLvlVel (PEG Level Velocity)					12				76
	PitchCors/Fine (Pitch Coarse/Fine)						6			86
FILTER	Cutoff/Resonance		11			13	7			63, 77, 86
	CutoffVel (Cutoff Velocity Sensitivity)					14				77
	ResoVel (Resonance Velocity Sensitivity)					14				77
	FltSclFlag (Filter Scale Flag)					15				77
	Flt BP1~4 (Filter Scale Break Point 1~4)					16				78
	Flt Ofs1~4 (Filter Scale Offset 1~4)					17				78
	FltSclSns (Filter Scale Sensitivity)					18				78
	FltSclVel (Filter Scale Velocity Sensitivity)					18				78
	FEG R (FEG Rate)					19				79
	FEG L (FEG Level)					20				79
	FEGSclSens (FEG Scale Sensitivity)					21				79
	FEGAtkVel (FEG Attack Velocity)					22				80
	FEGOthVel (FEG Other Velocity)					22				80
AMP (Amplitude)	AEG R (AEG Rate)					23				80
	AEG L (AEG Level)					24				80
	AEGSclSens (AEG Scale Sensitivity)					25				81
	AEGLvlVel (AEG Level Velocity Sensitivity)					26				81
	AEGAtkVel (AEG Attack Velocity Sensitivity)					26				81
	LvlSclFlag (AEG Level Scale Flag)					27				81
	Lvl BP1~4 (Level Break Point 1~4)					28				81
	Lvl Ofs1~4 (Level Offset 1~4)					29				82
	LvlSclSens (Level Scale Sensitivity)					30				82
	KeyonDelay					31				82
	EG Attack/Decay1/Decay2(EG Attack/Decay1/Decay2 Rate)						8			86
LFO (Low Frequency Oscillator)	LFO Wave					32				82
	LFO Phase (LFO Phase Initialize)					32				82
	LFO Speed					33				83
	LFO PMod (LFO Pitch Modulation)					34				83
	LFO FMod (LFO Filter Modulation)					34				83
	LFO AMod (LFO Amplitude Modulation)					34				83
	PLFODelay (Pitch LFO Delay)					35				83
	PLFO Fade (Pitch LFO Fade Time)					35				83
TG (Tone Generator)	MasterTune							1		90
KEYBOARD	Kbd Trans (Keyboard Transpose)							2		90
	Vel Curve (Velocity Curve)							3		90
	Fixed Vel (Fixed Velocity)							3		90
MIDI CHANNEL	Device No (Device Number)								1	93
	Local Sw (Local On/Off Switch)								2	93
	Rcv Ch (Voice Mode MIDI Receive Channel)								3	94
	Trans Ch (MIDI Transmit Channel)								4	94
MIDI FILTER	RxPgmChng (Receive Program Change On/Off)								5	94
	RxBankSel (Receive Bank Select On/Off)								5	94
	TxPgmChng (Transmit Program Change On/Off)								6	94
	TxBankSel (Transmit Bank Select On/Off)								6	94
	Thru Port								7	94

🎵 NOTE For parameters in different modes having the same name, the available parameter values and settings for that parameter may differ depending on the mode. Refer to each parameter explanation for details.

🎵 NOTE For details on parameters for the Reverb, Chorus and Variation effects, refer to the separate Data List.

🎵 NOTE For information on the Job pages, refer to the Function Tree chart (page 20).

*   In the Multi mode, the Voice Common Effect/Controller settings are ignored, and the Multi settings become effective. The Variation Effect/Controller settings of the Voice mode can be copied to the Multi mode by using the Multi Job function (page 68).

Multis

A Multi consists of up to 16 Parts, each of which can play a Normal Voice or Drum Voice Part.

By assigning different Voices and MIDI channels to each part, and by using a sequencer or computer for song data playback, you can have a complete ensemble of 16 independent instrument sounds.

You can also play Multis from the keyboard. This allows you to set up layers of different Voices, or special key splits in which your right and left hands can play separate Voices (page 41).

Multi

Part 1~16

External MIDI sequencer

MIDI CH 1~16

Song File

CH1

CH16

Different Voice for each part

Multi

Part 1~16

Two Layered Voices
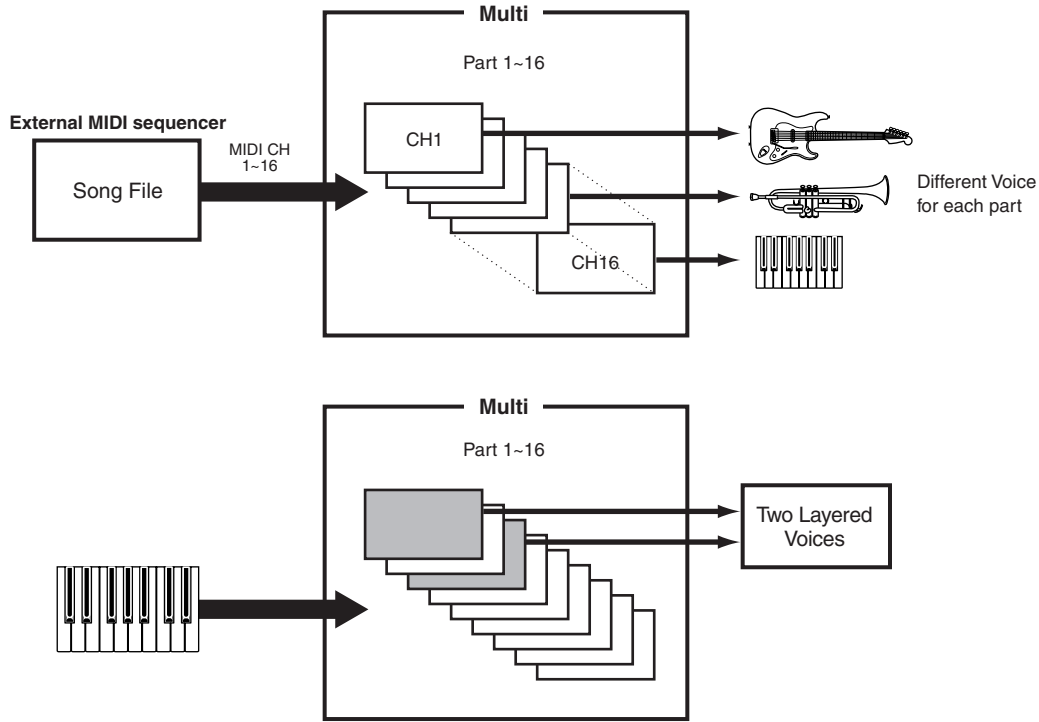
Voices

A Voice is a single instrument sound, created by using the Elements and setting various parameters. In the Voice Play mode, you can select and play any of these Voices. In the Multi Play mode, you assign a different Voice to each part and use an external sequencer to play several Voices simultaneously.
Voices are stored in the internal memory (PRESET, USER, GM/XG).
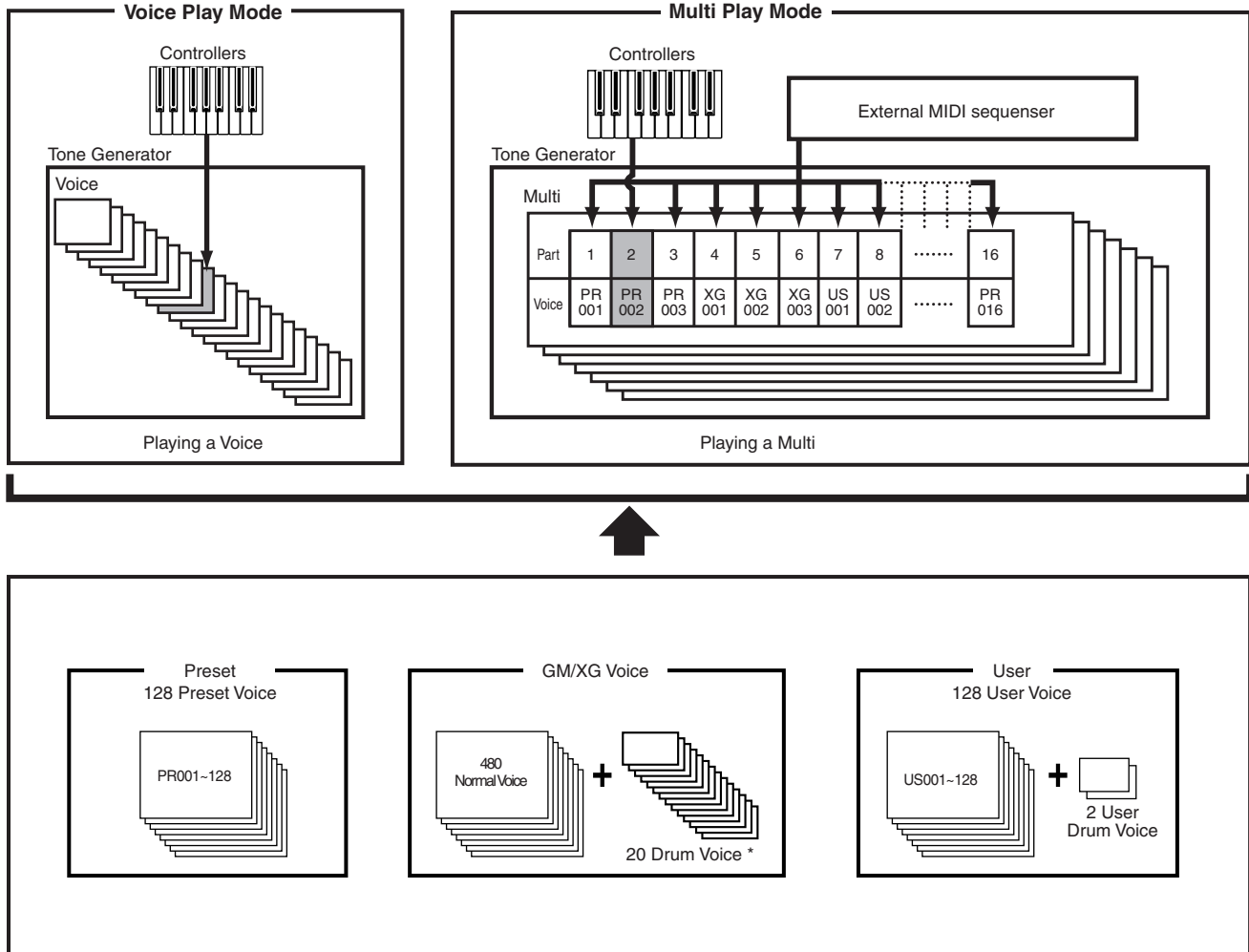
* Drum Voices XG121 ~ 128 are not of the GM/XG set, but are original drum kits specifically programmed for the S03.

Overview of Voices/Waves

Each Voice can consist of up to four Elements. Each Element itself is a high-quality waveform or instrument sound.
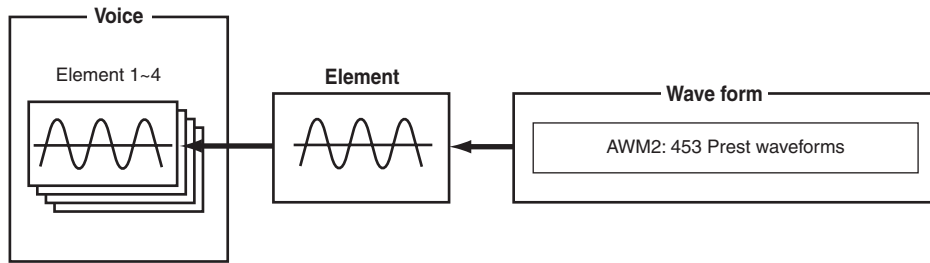
There are two Voice types: Normal Voices and Drum Voices. Normal Voices are mainly pitched instrument sounds that can be played over the range of the keyboard. Drum Voices are mainly percussion/drum sounds that are assigned to individual notes on the keyboard. The Drum Voices also include special sound effects.
In general, a Voice (containing up to four Elements) can be played across the entire range of the keyboard. However, this can be changed; the actual key range for the Voice is determined by the Note Limit parameters (page 73).
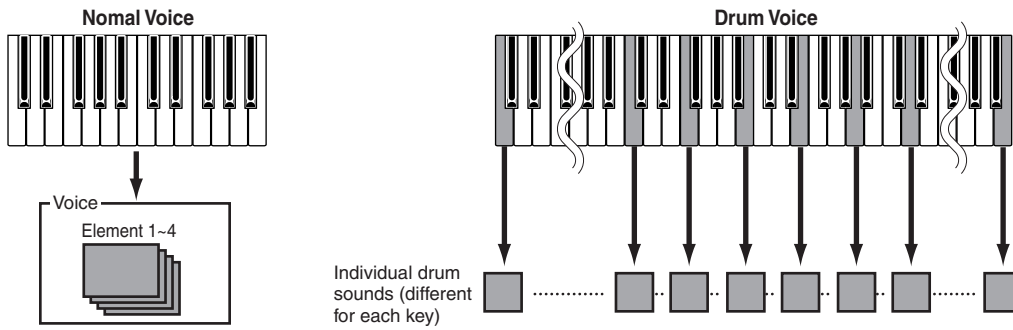
♪ NOTE A total of 480 (XG) and 128 (Preset) Normal Voices plus 20 Drum Voices are available as presets. You can create and store your own original Voices; the S03 has User memory space for 128 User Normal Voices and two User Drum Voices.

Waves

Waves (or waveforms) are the basic sonic building blocks, and are used as Elements in making up a Voice. A total of 453 high-quality preset Waves are available. As shown in the following illustration, when creating a Voice, you can select the Wave to be used as an Element and then set its level, pitch, tone and other parameters.
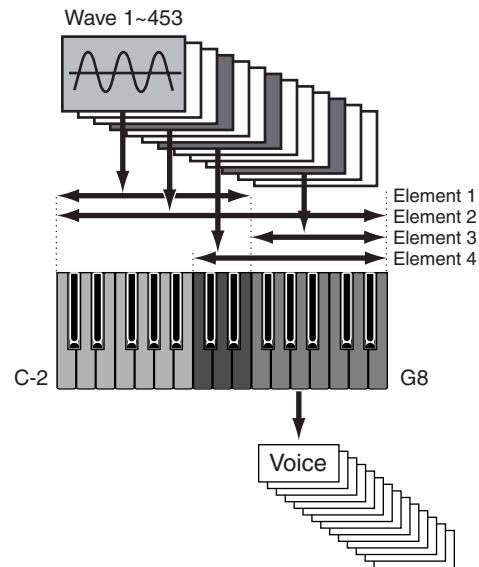
Basic Operations

In this section, you'll learn the fundamental operations of the S03.

Selecting a Mode

There are several operation modes — the Multi Play mode, Voice Play mode, etc. — each of which enables you to work efficiently with the S03's various functions.

NOTE For an overview of the various modes, see page 19.

There are separate Play modes for Multis and Voices. To enter each of these modes, use the appropriate MODE button ([Multi] for Multi Play mode, [VOICE] for Voice Play mode).
There are also separate Edit and Job modes for Multis and Voices. To enter the Edit or Job mode, simply press the [EDIT] or [JOB] button while in each respective Play mode.

Similarly, pressing the [STORE] button in the Multi or Voice mode takes you into the Store mode where you can store Multis or Voices.
In addition the modes mentioned above, there is also a Utility mode, which is for making global settings to the instrument, and the MIDI mode, which contains MIDI-related settings. Finally, there is the Demo mode, which allows you to play back the Demo songs.

To select these, press the [UTILITY] button for the Utility mode, the [MIDI] button for the MIDI mode and the [DEMO] button for the Demo mode.
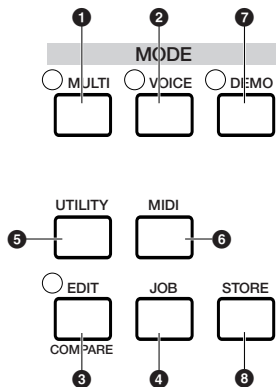
Play Modes
• •

❶ Multi Play Mode (Page 37)

Press the [MULTI] button (the LED lights) to enter the Multi Play mode. To exit to another mode, simply press the respective button for that mode.

```
--:Init Mlt
PAGE  PART/ELEM/KEY
 1        MLT01
OCTAVE  −  |  +
```

❷ Voice Play Mode (Page 33)

Press the [VOICE] button (the LED lights) to enter the Voice Play mode. To exit to another mode, simply press the respective button for that mode.

```
PF:GrandPno
PAGE  PART/ELEM/KEY
          XG001
OCTAVE  −  |  +
```

Edit Modes
• •

There are also separate Edit and Job modes for each Play mode. The [EDIT] lamp lights along with the appropriate Play mode lamp, [MULTI] or [VOICE].

❸ Multi Edit Mode (Page 55)

Press the [EDIT] button in the Multi Play mode. To exit to another mode, simply press the respective button for that mode. Press the [EXIT] button to return to the Multi Play mode.

```
--:Init Mlt
PAGE  PART/ELEM/KEY
 1        Name
OCTAVE  −  |  +
```

❸ Voice Edit Mode (Pages 47, 70)

Press the [EDIT] button in the Voice Play mode. To exit to another mode, simply press the respective button for that mode. Press the [EXIT] button to return to the Voice Play mode.

```
PF:GrandPno
PAGE  PART/ELEM/KEY  XG001
OCTAVE  −    +
```

Job Modes

Each Play mode features a separate Job mode. You can select the desired Job mode when the appropriate Play mode lamp, [MULTI] or [VOICE], is lit.

❹ Multi Job Mode (Page 67)

Press the [JOB] button in Multi Play mode. To exit to another mode, simply press the respective button for that mode. Press the [EXIT] button to return to the Multi Play mode.

```
Job:Init
PAGE  PART/ELEM/KEY  multi
OCTAVE  −    +
```

❹ Voice Job Mode (Page 87)

Press the [Job] button in Voice Play mode. To exit to another mode, simply press the respective button for that mode. Press the [EXIT] button to return to the Voice Play mode.

```
Job:Init
PAGE  PART/ELEM/KEY  voice
OCTAVE  −    +
```

Other Modes

❺ Utility Mode (Page 90)

Press the [UTILITY] button to enter the Utility Mode. To exit to another mode, simply press the respective button for that mode. If one of the Play mode lamps ([MULTI] or [VOICE]) is lit, the corresponding Play mode is still active, even while entering this mode. An arrow appears in the upper left of the LCD, pointing to "UTILITY" on the panel, indicating the Utility mode.

```
UTILITY  ◄MasterTune
MIDI     PAGE 1  +0000
```
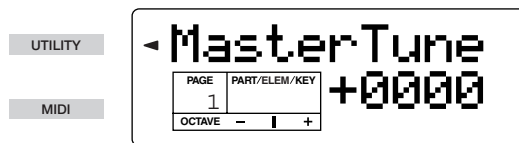
❻ MIDI Mode (Page 93)

Press the [MIDI] button to enter the MIDI mode. To exit to another mode, simply press the respective button for that mode. If one of the Play mode lamps ([MULTI] or [VOICE]) is lit, the corresponding Play mode is still active, even while entering this mode. An arrow appears in the lower left of the LCD, pointing to "MIDI" on the panel, indicating the MIDI mode.

```
UTILITY   Device No
MIDI  ◄   all
PAGE 1
```
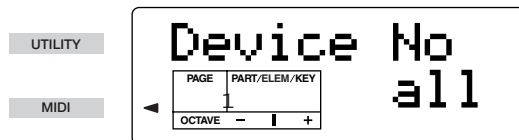
❼ Demo Mode (Page 16)

Press the [DEMO] button (the LED lights) to enter the Demo mode. To exit from the Demo mode and switch to the Multi or Voice Play mode, press the [EXIT], [MULTI] or [VOICE] button.

⚠ At the "Demo" screen, any data in the instrument's User Voice memory will be overwritten by the data for the demo song. Important data should be saved to the external MIDI device or computer beforehand.

⚠ At the "DEMO" screen, the Master Tune parameter (in Utility) will be overwritten and set to "0."

❽ Store Mode (Pages 69, 89)

Pressing the [STORE] button in the Multi or Voice mode enters the Store mode where you can store Multis or Voices. The Play mode lamp ([MULTI] or [VOICE]) remains lit, even when entering this mode. To exit to another mode, simply press the corresponding mode's button. Pressing the [EXIT] button exits from the Store mode.

```
Store
PAGE  PART/ELEM/KEY  MLT01
OCTAVE  −    +
```
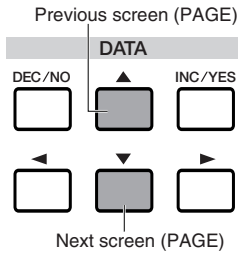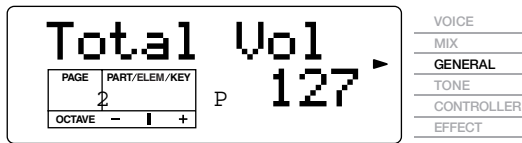
Selecting a Screen

You can switch between screens by using the [▲]/[▼], [◀]/[▶], [+]/[–] and [EXIT] buttons.
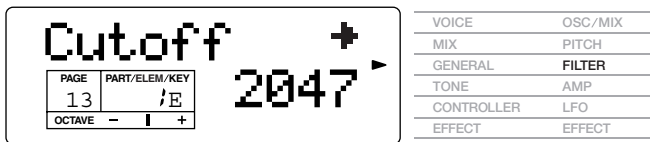
[▲]/[▼] buttons

Many of the displays consist of different screens. Use the [▲]/[▼] buttons to select the various screens.

Previous screen (PAGE)

DATA

DEC/NO   ▲   INC/YES

◀   ▼   ►

Next screen (PAGE)

When selecting the various display pages, an arrow appears at the right of the LCD, indicating the parameter type in the printed list on the panel. For example, if the display for the Total Volume parameter in the Multi Edit mode is called up, the arrow in the LCD indicates that this parameter belongs to the General type.

```
Total Vol  ▶
PAGE  PART/ELEM/KEY   P  127
  2
OCTAVE  −  |  +
```

VOICE
MIX
GENERAL
TONE
CONTROLLER
EFFECT

In the example below, the display for the (Element) Cutoff parameter in the Voice Edit mode is shown, and the arrow indicates that this parameter belongs to the Filter type.

```
Cutoff      ♦
PAGE  PART/ELEM/KEY      2047 ▶
 13       /E
OCTAVE  −  |  +
```

VOICE   OSC/MIX
MIX   PITCH
GENERAL   **FILTER**
TONE   AMP
CONTROLLER   LFO
EFFECT   EFFECT

[◀]/[▶] buttons

Some of the display pages have multiple "screens." These are indicated by special arrow marks in the top right of the LCD (see below). Use the [◀]/[▶] buttons to select these pages.
When the first screen of a mulitple-page set is called up, the arrow points to the right (→), indicating further screens are available. When a page in the middle of the set is called up, arrows point in both directions (← →), indicating you can select either the next or previous screens. When the last screen is called up, the arrow points to the left (←), indicating no further screens are available.
For certain parameters (such as Voice Name, etc.), these buttons are used to move the cursor position in the display.

```
Decay Tm ♦
PAGE  PART/ELEM/KEY
 12   ♪  1    +00 ▶
OCTAVE  −  |  +
```

DATA

DEC/NO   ▲   INC/YES

◀   ▼   ►

Selects the previous screen.   Selects the next screen.
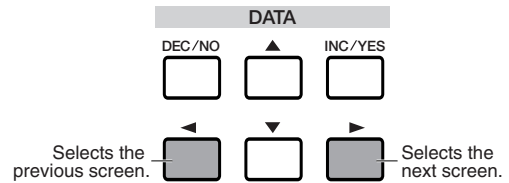
[+]/[–] buttons

In the Multi Edit mode, these buttons are used to select each part. To select the Common parameters, press both buttons simultaneously. In the Voice Edit mode, these buttons are used to select each Element. To select the Common parameters, press both buttons simultaneously.

PART/ELEMENT/KEY

−   +   MUTE

└─ COMMON ─┘
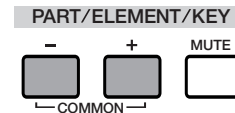
📝 **NOTE** For details on the parameters and page configurations of the Multi Edit and Voice Edit modes, refer to the relevant mode explanations in the Reference section of this manual.

[EXIT] button

Press the [EXIT] button to move up (exit) in the hierarchical structure and return to the previous screen.
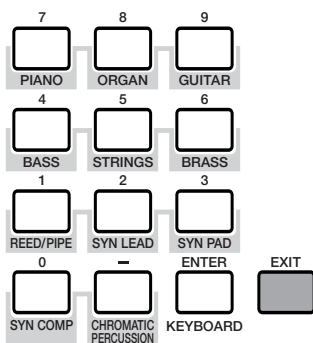
♪ NOTE Depending on the particular operation, the [EXIT] button performs other functions as well. These alternate functions are indicated in the appropriate sections of the manual.

Entering Data

Use the [INC/YES] and [DEC/NO] buttons to increment through the values, or input the value directly by using the numeric keypad and the [ENTER] button.
For certain parameters (such as Voice Name, etc.) which have more than one value to be set, use the [◀]/[▶] buttons to move the cursor position in the display, then set the value accordingly.

[INC/YES] and [DEC/NO] buttons

These are used to change the value of the currently selected parameter. You can use the [INC/YES] button to increment a parameter setting by one step, or the [DEC/NO] button to decrement it. If you hold down either button, the value is continuously changed. You can also use these buttons to answer "YES" or "NO" when a confirmation message is displayed.
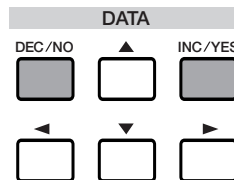
Numeric keypad, [ENTER] button

You can specify the value for the selected parameter by using the numeric keypad, then actually set that value by pressing the [ENTER] button. For example, to set a value of "100," press (in order) the numeric keypad buttons [1], [0], and [0]. (The parameter indicator flashes.) Finally, press the [ENTER] button to set the value.

The displayed value flashes.

Specify the value.   Set the value.

Moving the Cursor Position

For certain parameters, such as Voice Name and others, the [◀]/[▶] buttons are used to move the cursor position in the display. (The selected character flashes.) Move the cursor to the desired position, then set the value.

DATA

DEC/NO   ▲   INC/YES

◀   ▼   ▶

Types of Parameters (Absolute and Relative)

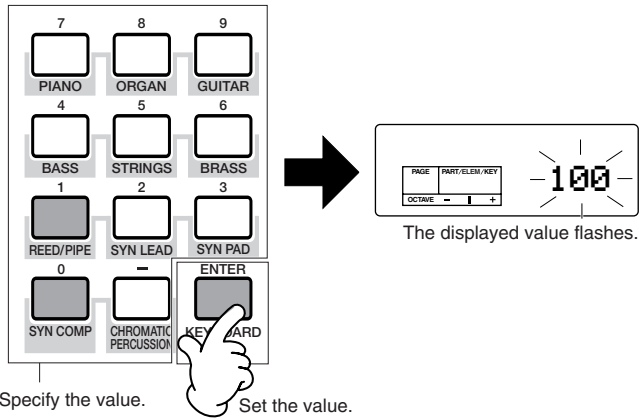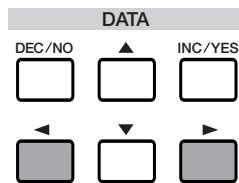There are many ways to set parameters. Some parameters require you to directly enter numerical settings or alphabetic characters. With others, you can choose from a number of available settings. Furthermore, some types of parameters are "absolute" whereas others are "relative."
For example, the absolute parameter in the following illustration can be set to either "mono" or "poly." For other absolute parameters such as Volume, the setting can be any value between zero and 127. The Volume setting has a linear, one-to-one relationship with the actual volume, as shown in the graph on the left.
However, relative parameters do not follow the same relationship. The graph on the bottom shows the role of the Velocity Offset parameter. The value you have set here, known as an "offset," is added to, or subtracted from, the actual value. With Velocity Offset, the specified offset value is added to, or subtracted from, the actual velocity of the notes you play on the keyboard. Sometimes, these types of relative parameters are set as a percentage.
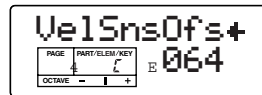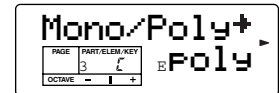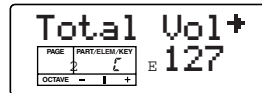
1. Total Volume (absolute)

Volume

0

127
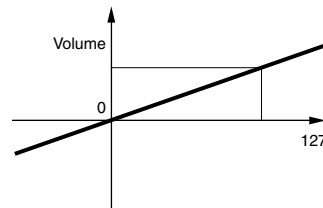
2. Velocity offset (relative)

Offset
+64

Offset added (+10)

Actual velocity

0

Offset subtracted (−10)

Volume

−64
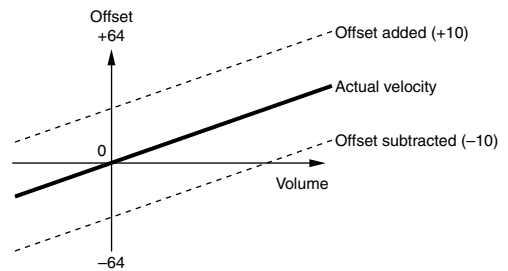
Playing the S03

Playing the Voices

You can freely select and play Voices from the PRESET, USER and GM/XG memory groups, as explained below.

♪NOTE Details about voice, see page 25.

♪NOTE The user memory can contain up to 128 Normal Voices and 2 Drum Voices.
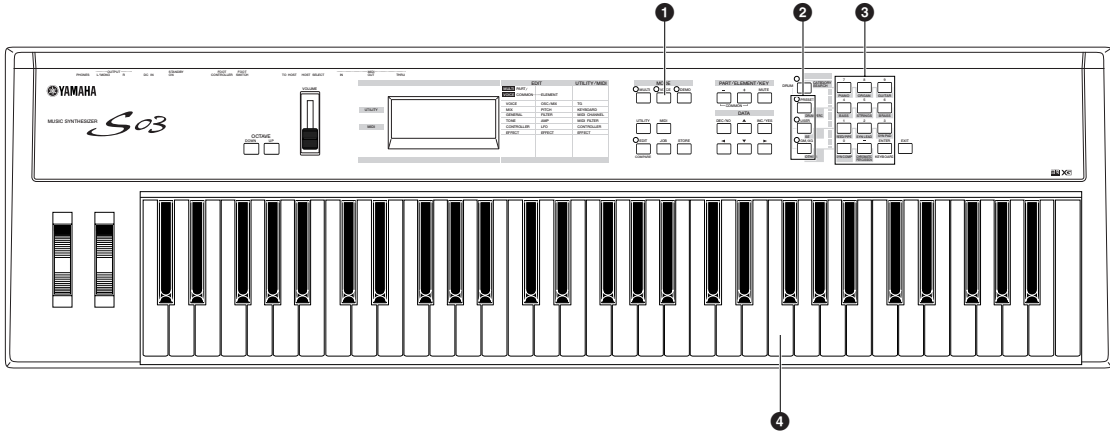
❶ Press the [VOICE] button.

Press the [VOICE] button (the LED lights) to enter the Voice Play mode. The following display appears.

Now, play the Voice (indicated in the display) from the keyboard.

❷ Press a MEMORY button to select a Voice Memory.

There are three different memory sections for the Normal Voices: PRESET, USER, and GM/XG. The various Voices are assigned to each memory section as shown below. The GM/XG Voices are divided into several different banks.
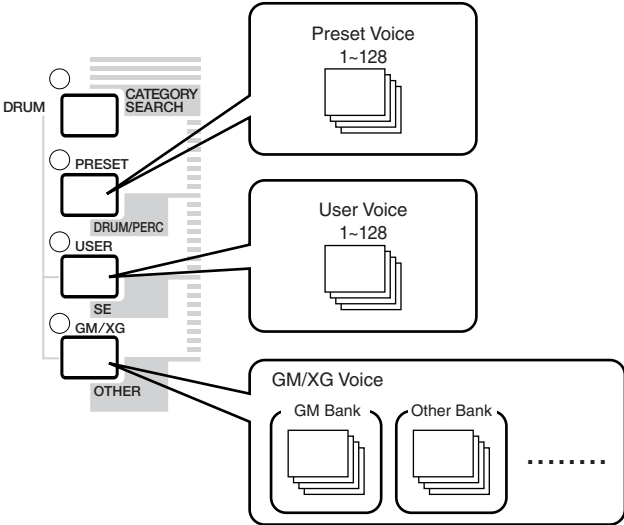
The Drum Voices are stored in separate areas of the User and GM/XG memory sections.

• **To call up the User Drum memory (USDR1/ USDR2):**
Press the [USER] button while holding down the [DRUM] button.

• **To call up the GM/XG Drum memory**
• **To call up the XG SFX Kit memory**
Press the [GM/XG] button while holding down the [DRUM] button.
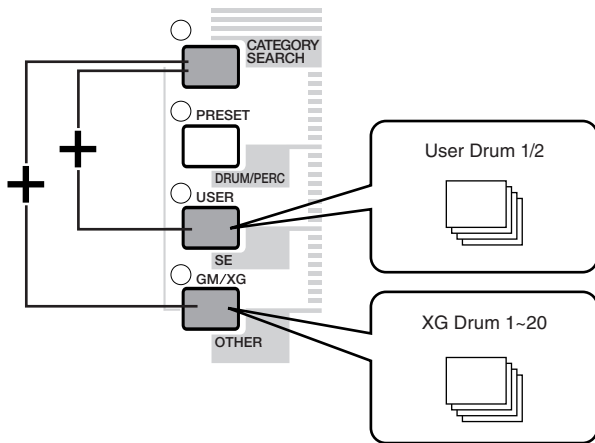
🎵 NOTE PRESET, of course, contains the Preset Voices. The XG Voices are assigned in order according to the GM format, starting with Bank 1, and various XG Voices are distributed throughout the GM/XG memory banks. USER is stored in internal RAM memory and contains factory default Voices. These can be overwritten, but can be recalled from the original factory settings at any time if required.

❸ Select a Voice number.

Selecting with the [INC/YES] and [DEC/NO] buttons

First, press the [ENTER] button to specify the Voice Memory, then press the [INC/YES] button to increment the Voice Number, and press [DEC/NO] to decrement it.
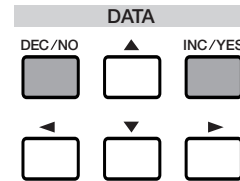
Selecting with the numeric keypad and [ENTER] button

First, specify the Voice number with the numeric keypad, then press the [ENTER] button to actually set it. For example, to select voice number 100, press buttons [1], [0] and [0] in order. (The indicated number flashes.) Finally, press the [ENTER] button to select the Voice.

The displayed value flashes.

Specify the number. Set the number.
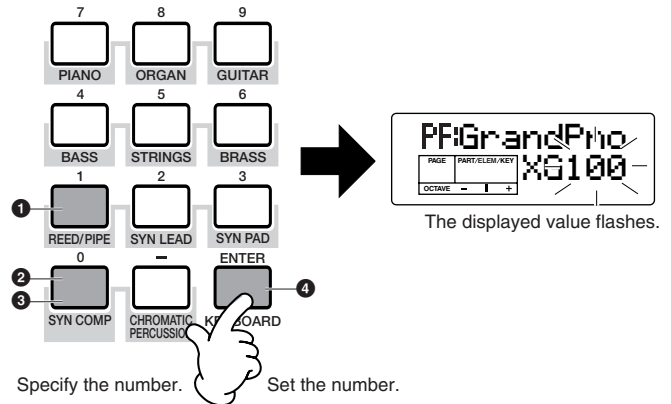
🎵 NOTE For one- or two-digit numbers, it's not necessary to enter all three digits (such as, "001" or "010"). For example, to enter Voice number "3," simply press numeric keypad button [3], then press the [ENTER] button.

❹ Now, play the keyboard and hear the selected Voice. Try selecting and playing other Voices as well.

•••••••••••••••••••••••••••••••••••••••

Selecting XG Banks

The XG Voices are divided up into several different banks. This gives you access to an even greater number of Voices and a wider variety of sounds.

❶ Make sure that XG memory is selected, then call up the BK (Bank Select) display by using the [◀] button.

DATA

DEC/NO   ▲   INC/YES

◀   ▼   ▶

➡

```
PF:GrandPno
PAGE  PART/ELEM/KEY  BK000
OCTAVE  –    +
```
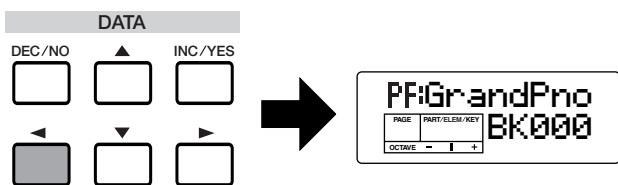
❷ Select the desired Bank number by using the [INC/YES] and [DEC/NO] buttons, or by using the numeric keypad and the [ENTER] button.

The bank is now changed. Return to the XG display by using the [◀]/[▶] buttons and select the desired Voice number.

🎵 NOTE For details about Bank types, refer to the separate Data List booklet.

Using Voice Category Search

With the Voice Category Search feature, you can quickly find Voices within a specified Voice Category. For example, by selecting the PIANO Voice Category, you can instantly call up for selection all and only those Voices which fall into the "PF" (PIANO) Voice Category.

❶ Press the [CATEGORY SEARCH] button in Voice Mode. Its LED will light and Category Search will be enabled. The Memory buttons and the numeric keypad are used for selecting categories.

```
○          [  ]      7      8      9
DRUM   CATEGORY
       SEARCH      PIANO  ORGAN  GUITAR

○ PRESET          4      5      6
                  BASS  STRINGS  BRASS        Select the
○ USER                                        category
                  1      2      3
  SE             REED/PIPE SYN LEAD SYN PAD
○ GM/XG           0      –    ENTER   EXIT
  OTHER          SYN COMP CHROMATIC KEYBOARD
                          PERCUSSION
```
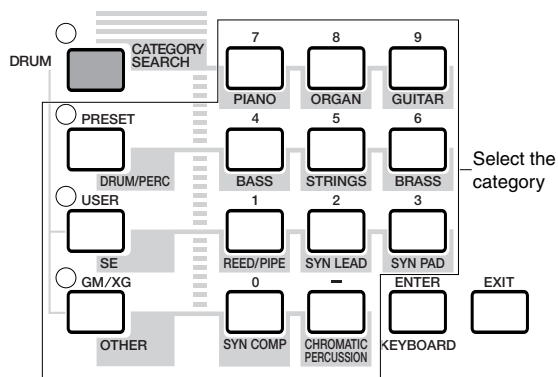
🎵 NOTE Press the [EXIT] button to disable Category Search.

🎵 NOTE The category names are printed under each button. To switch between the "ME" and "CO" categories, press the [OTHER] button.

🎵 NOTE Refer to the Category List on page 71 for more information on Voice category types.

❷ Specify the desired Category using the buttons above. The first Voice in that Category will be automatically selected.

🎵 NOTE In this step, the lowest numbered Voice of the category is selected.

🎵 NOTE The S03 searches in the following order: PRESET, then USER, then GM/XG.

❸ Press the [INC/YES] button to increment the Voice number in that category and press the [DEC/NO] button to decrement it.

🎵 NOTE You can use the same operation as described here in selecting Voices for Multi Part Edit (page 59).

Transposing the Octave

If you need to raise or lower the keyboard note range for the Voice, you can use the OCTAVE[UP] button to raise the range by an octave and the OCTAVE [DOWN] button to lower it by an octave. You can shift the note range by up to three octaves in either direction. The current octave setting is shown in the left corner of the display while the OCTAVE [UP] or [DOWN] button is being held down.

For instance, if you press the OCTAVE [UP] button twice (+ 2), pressing note C3 on the keyboard will actually play note C5 (i.e., the note you play is shifted up two octaves). To return to the standard octave range (0), press the OCTAVE [UP] and [DOWN] buttons simultaneously.
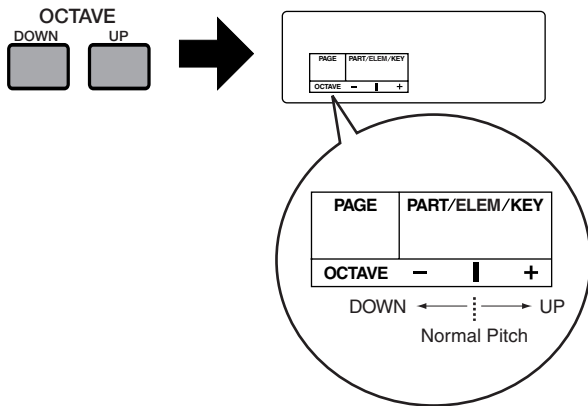
NOTE If you set the octave beyond the limits of the Voice's note range, notes played outside of the range will sound one octave higher or lower than normal.

NOTE The OCTAVE [UP] and [DOWN] buttons may not function if the "Note Shift" parameter (pages 61, 74) in Voice Edit Mode, and also the "Kbd Trans (Keyboard Transpose)" parameter (page 90) in the Utility Mode have been set to shift the range.

NOTE You can also use the OCTAVE [UP] and[DOWN] buttons in Multi Play Mode.

Using Multi Mode

Playing in Multi Mode

In the Multi Play mode, you can select and play any of the Multis.

🎵 **NOTE** For more details about Multis, see page 24.

🎵 **NOTE** Up to 32 Multis can be stored in the USER (internal) memory. These Multi settings are available in Multi Edit mode (page 55).

Here, we'll show you how to get started with Multi Play after selecting a Multi.
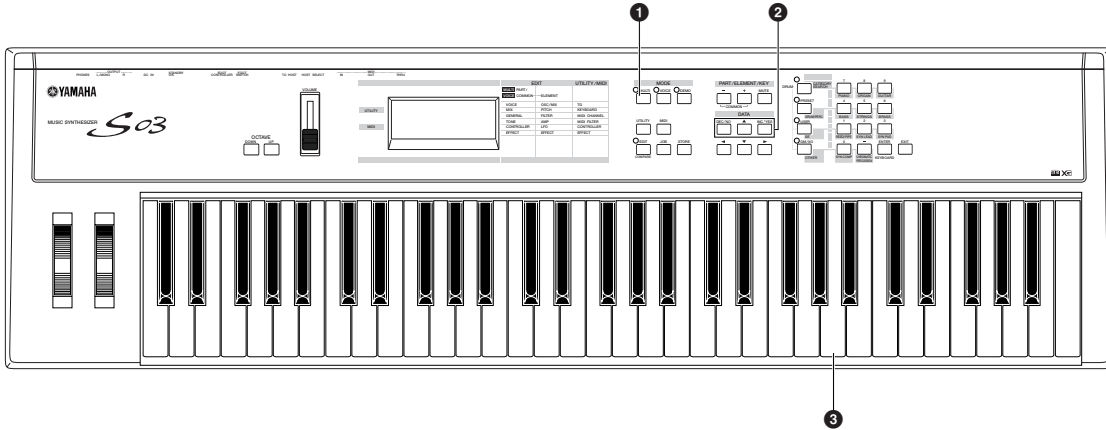
❶ Press the [Multi] button

The [MULTI] button LED will light, showing that you are now in the Multi Play mode. The following appears in the display.
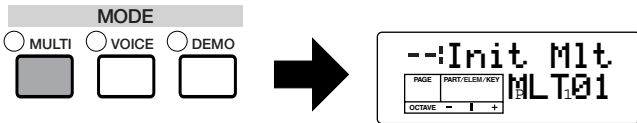
At this point, you can play the Multi (named on the screen) via keyboard.

Up to 32 Multis can be stored in the USER (internal) memory.
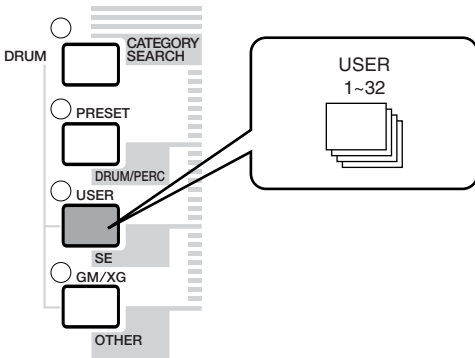
🎵 **NOTE** USER is stored in internal Random Access Memory (RAM) and contains the factory default Multis. These can be overwritten but can be recalled at any time.

❷ Select a Multi Number

Press the [INC/YES] button to increment the Multi Number. Press the [DEC/NO] button to decrement the Multi Number.
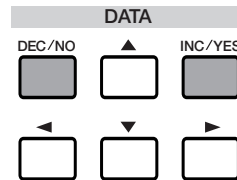
🎵 **NOTE** This is selected in the same way as in selecting Voices, using the numeric keypad and the [ENTER] button. Refer to the instructions on selecting Voice numbers (page 34).

❸ You can now play Parts in the Multi via the keyboard.

If the MIDI receive channel parameter is the same for any Parts, those Parts can be played in unison. Now try selecting other Multis.

♪NOTE To play a Voice from the keyboard, make sure that the MIDI Receive Channel for that Voice's Part and the MIDI Transmit Channel for the keyboard are both set to the same value.

Using the S03 as a Multitimbral Tone Generator (Multi Edit)

Multi mode lets you configure the S03 as a multitimbral tone generator for use with computer-based music software or external sequencers. If each track in a song file uses a different MIDI channel, then the Parts in a Multi can be each assigned to those MIDI channels correspondingly. Therefore, you can play back a song file on an external sequencer and have different Voices playing on different tracks simultaneously.
In the following example, we will create a Multi suited to playing back a song file consisting of three Parts: piano, bass and drums. The piano track is assigned to MIDI channel 2, the bass track to channel 3, and the drums to channel 10.

♪NOTE You can use the included XGworks lite sequencer software (see the attached Installation Guide) to play multiple Parts on the S03. Before doing that, however, make sure that all connections between the computer and the S03 have been properly made (page 13).

Song File

Track 1	Piano	Transmit Ch.2
Track 2	Bass	Transmit Ch.3
Track 3	Drums	Transmit Ch.10

Multi

Part 2	Piano Voice	Receive Ch.2
Part 3	Bass Voice	Receive Ch.3
Part 10	Drum Voice	Receive Ch.10

Computer
(sequencer software)

Tone generator

S03
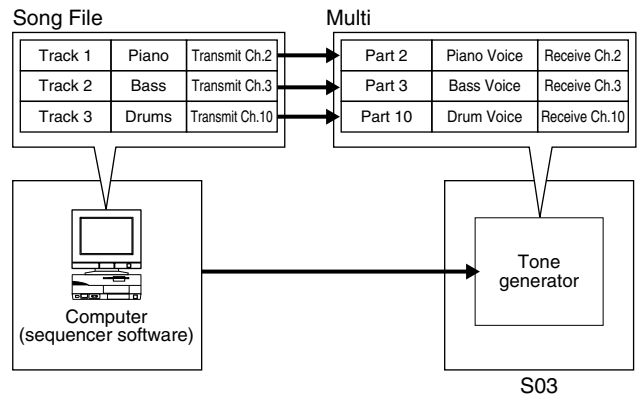
❶ After pressing the [MULTI] button, press the [EDIT] button (the respective LEDs will light). You are now in the Multi Edit mode.

MODE
MULTI   VOICE   DEMO

UTILITY   MIDI

EDIT   JOB   STORE
COMPARE
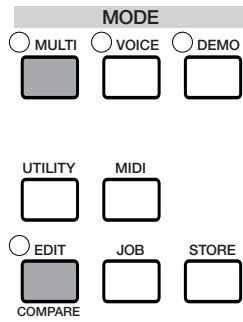
♪ **NOTE** Before entering the Multi Edit mode, you need to select a Multi for editing.

❷ If the Common Edit display is shown, press the [+] or [–] button to switch to the Part Edit display.

PART/ELEMENT/KEY
–   +   MUTE
└─ COMMON ─┘

Total Vol
PAGE PART/ELEM./KEY
2   E 127
OCTAVE – │ +

Common indicator

Volume
PAGE PART/ELEM./KEY
2   P 100
OCTAVE – │ +

Part indicator

❸ Use the [+] and [–] buttons to select Parts. Here, you can select P2 (Part 2) for the piano, P3 (Part 3) for bass and P10 (Part 10) for drums. First, let's select P2 (Part 2).

PART/ELEMENT/KEY
–   +   MUTE
└─ COMMON ─┘
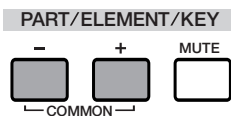
❹ Use the [▲] and [▼] buttons to switch to the Voice Selection screen (PAGE 1), then specify the Voice to be used as the piano Part.

PF:GrandPno
PAGE PART/ELEM./KEY
1   XG001
OCTAVE – +

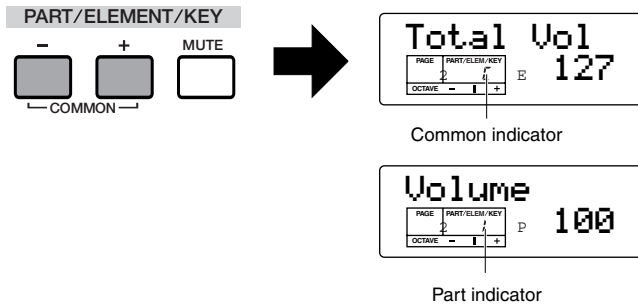**❺** Next, use the [▲] and [▼] buttons to switch to the Volume screen (PAGE 2), then set the volume for the piano Part as well as its Pan position, Chorus and Reverb Send levels, if necessary. For details, see page 56.

Volume
PAGE PART/ELEM./KEY
2   001
OCTAVE – +

❻ Continue using the [▲] and [▼] buttons and switch to the Rcv Ch (MIDI Receive Channel) screen (PAGE 6). Set the parameter to 2.

Rcv Ch
PAGE PART/ELEM./KEY
6   P 02
OCTAVE – +
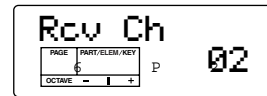
❼ Use the [▲] and [▼] buttons and switch to the Mono/Poly screen (PAGE 8). Set the parameter to "poly" (polyphonic).

Mono/Poly
PAGE PART/ELEM./KEY
8   P Poly
OCTAVE – +

♪ **NOTE** For Parts that do not require polyphony, the Mode parameter can be set to "mono" (monophonic).

❽ Use the [▲] and [▼] buttons and switch to the Part Mode screen (PAGE 9). Set the parameter to "norm" (normal).

Part Mode
PAGE PART/ELEM./KEY
9   P norm
OCTAVE – +

♪ **NOTE** In the case of a Drum Part, set the mode to "drum."

♪ **NOTE** For details about the Part mode, see page 61.

⑨ Use the [▲] and [▼] buttons to call up the NtLmt (Note Limit) and VelLmt (Velocity Limit) settings, and check whether or not the Part of the piano Voice is set appropriately — in other words, make sure that the Note or Velocity settings do not prevent the Voice from being played normally. Except in special cases, you should generally avoid setting limits on the note and velocity ranges, in order to ensure that notes are sounded properly and are not cut off.

```
NtLmt-L    +
PAGE  PART/ELEM/KEY
      4              P C-2
OCTAVE  −  |  +
```

By following steps **❸** to **❾** above, when you play back a song file in the sequencer, the piano track is transmitted thr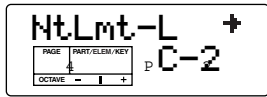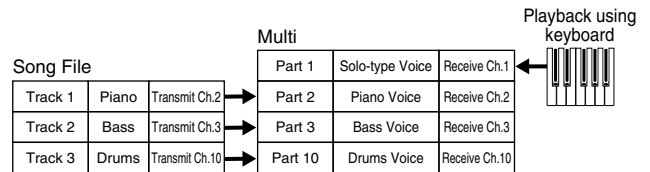ough MIDI channel 2. The MIDI data is received by the S03 which then plays the Voice for the Part assigned to MIDI channel 2.

⑩ Repeat steps **❸** to **❾** above, but set up Part 3 for bass and to receive on MIDI channel 3.

⑪ Repeat steps **❸** to **❾** again, setting up Part 10 for drums and to receive on MIDI channel 10.

♪ **NOTE** To avoid situations where the Voices of unused Parts are suddenly played back, you should set the MIDI receive channels for unused Parts to "off."

♪ **NOTE** There are many other Part-specific parameters in the Multi Edit mode. For details, see page 55.

⑫ Before exiting Multi Edit Mode, you need to store the settings for the Multi. For details about storing Multis, see page 69.

Now, when you select this Multi in the Multi Play mode, you can play back the song file on computer (sequencer), and the piano, bass and drum Parts will be played back according to each track's MIDI channel.

Performing Live While Playing Back a Song File

While playing back the song file with the piano, bass and drum Parts assigned earlier, you can set up the Multi so that you can also play another Part live.

Song File				Multi		
				Part 1	Solo-type Voice	Receive Ch.1
Track 1	Piano	Transmit Ch.2	→	Part 2	Piano Voice	Receive Ch.2
Track 2	Bass	Transmit Ch.3	→	Part 3	Bass Voice	Receive Ch.3
Track 3	Drums	Transmit Ch.10	→	Part 10	Drums Voice	Receive Ch.10

This is the same as the Multi created earlier (page 38), but with the addition of another Part for live playback. Be careful to make the following important settings.

• In the Multi created earlier, Parts 2, 3 and 10 were being used. As an example, we will now assign another Part (Part 1) to a solo-type Voice and set the MIDI Receive Channel to 1.

• At the Trans Ch (PAGE 4) screen in MIDI Mode, set the MIDI Receive Channel to 1.
The Voice for Part 1 can now be played live using the keyboard.

♪ **NOTE** Because the S03 features a fully-compatible XG tone generator, you can play any of the wide variety of commercially available XG/GM song software. This ensures broad dynamic and expressive range, with a wide variety of rich instrument sounds and effects. You can also mute specific parts of the MIDI data — allowing you to practice the missing parts yourself, or to use the song data as instrumental backing for your own singing and playing.

Splitting the Keyboard — Setting Upper and Lower Ranges for the Voices

The illustration below shows an example in which the keyboard has been effectively divided into two spearate key ranges, letting you play one Voice over one range, and a second Voice over the other. In the following example, the Voices change at the note C3, letting you play a string Voice in the lower range and a piano Voice in the upper. To set up the Voices in this way, follow the instructions below.
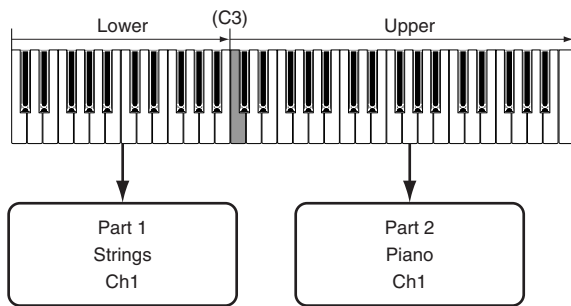
❶ Press the [MULTI] button, followed by the [EDIT] button (each LED will light) to enter the Multi Edit mode.

♪NOTE You need to select the Multi before entering the Multi Edit mode (page 37).

❷ If the Common Edit screen is shown, press the [+] or [–] button to select the Part Edit display.

❸ Select a Part for the lower range by using the PART [+] and [–] buttons. For this example, select "P1 (Part 1)."

❹ Use the [▲] and [▼] buttons (if necessary) and call up the Voice Selection screen (PAGE 1) to select a strings Voice for the lower range Part.

♪NOTE For details about Voice selection, see page 59.

❺ Use the [▲] and [▼] buttons to call up the Volume screen (PAGE 2), then set the volume for the piano Part as well as its Pan position, Chorus and Reverb Send levels, if necessary. For details, see page 56.

❻ Use the [▲] and [▼] buttons to call up the NtLmt screen (PAGE 4), and specify a key range for the lower and upper Parts. Switch between the NtLmt-L (Note Limit Low) and NtLmt-H (Note Limit High) screens by pressing the [◀] and [▶] buttons. Select "C-2" for the lowest note and "B2" for the highest.
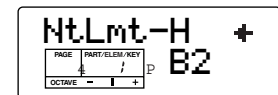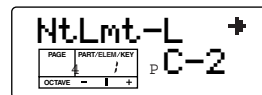
❼ Use the [▲] and [▼] buttons to call up the Rcv Ch (MIDI Receive Channel) screen (PAGE 6). Select "1" for "RcvCh."

♪NOTE Set the MIDI Transmit Channel to 1 from the Trans Ch display (PAGE 4) in the MIDI mode. Now you are ready to play the Part 1 Voice within the lower range. The Voice assigned to Part 1 can be played over MIDI Receive Channel 1.

❽ Use the [▲] and [▼] buttons to call up the Mono/ Poly screen (PAGE 8). Set the parameter to "poly" (polyphonic).

❾ Use the [▲] and [▼] buttons to call up the Part Mode screen (PAGE 9). Set the parameter to "norm" (normal)

With settings made in steps ❸ to ❾ above, you can now play the strings voice assigned to "P1" (Part 1) and set to MIDI Receive Channel 1 (RcvCh) — when you play in the key range of B2 and lower.

❿ Make the settings for the upper Part (Part 2), in the same manner as you did in steps ❸ to ❾.

For Part 2, select a piano Voice, setting the Note Limit Low to "C3" and the Note Limit High to the maximum of "G8." Also set the MIDI Receive Channel to 1, as you did with Part 1. The piano Voice of Part 2 sounds when you play keys higher than C3.

🎵NOTE In the Edit mode, the selected Part's Voice is played back.

🎵NOTE To avoid situations where the Voices of unused Parts are suddenly played back, you should set the MIDI receive channels for unused Parts to "off."

🎵NOTE There are many other Part-specific parameters in the Multi Edit mode. For details, see page 55.

⓫ Before exiting the Multi Edit mode, store the above settings to a Multi. For instructions on storing a Multi, refer to page 69.

Now that you've created and stored the Multi, you can call it up anytime within the Multi play mode — and play a strings Voice from keys B2 and below, while playing a piano Voice from keys C3 and above.

Layering Two Voices (Parts) Together

The illustration below gives one application example of combining two Voices in a layer. In this example, a strings Voice is selected for Part 1 and a piano Voice is selected for Part2, and the two are played together in unison.
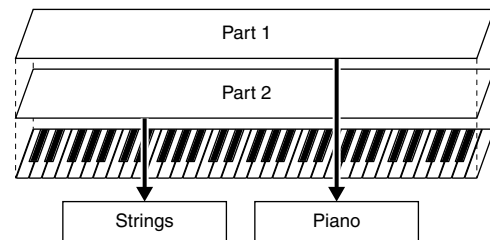
This Multi can be easily created and set so that both Parts 1 and 2 are layered together across the entire range of the keyboard.

• For both Part 1 and Part 2, set the Note Limit Low parameter to "C-2" and the Note Limit High parameter to "G8."

🎵NOTE In the Edit mode, the selected Part's Voice is played back.

Saving S03 Settings to an External Device (Bulk Dump Send)

Using the Bulk Dump function, you can transmit your S03 settings to an external device, such as a computer, and save them. This is a fast and convenient way to back up your important data. You can also use this function to record important S03 data at the beginning of a song, so that all your original settings and data are automatically reset when your play back the song.
The following explanation shows you how to do this using the realtime recording functions of the included XGworks (lite) sequencer. In this example, track 1 is used for recording the User Multi data.

🎵NOTE Naturally, this operation is not limited to use with XGworks (lite); other sequencers will work for this just as well. For specific information and operation instructions, refer to the owner's manual (or help messages) of your particular sequencer.

🎵NOTE The actual XGworks (lite) operations described hear may differ slightly depending on the version of XGworks (lite) you are using and your particular computer.

🎵NOTE Make sure that the S03 is properly connected to the computer (page 13). For information on settings for XGworks (lite), refer to the on-line manual included with the software.

❶ In the Multi mode, select the S03 Multi you want to transmit.

❷ Press [JOB] to enter the Multi Job mode.

❸ From the "BlkDmp" parameter (PAGE 5) in the Multi Job mode, select the data type for transmitting. Here, select "Curnt" (Current) to transmit the currently selected Multi data, then press the [ENTER] button.

```
Job:BlkDmp
 PAGE  PART/ELEM/KEY   Sure?
 OCTAVE   −   │   +
```

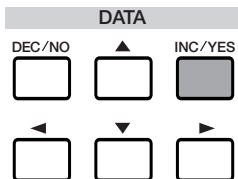❹ In XGworks (lite), specify track 1 for recording.

Select the track for recording

Press the Record button to activate recording standby

❺ After starting recording on XGworks (lite), press the S03's [INC/YES] button to transmit the data.

Press the Play button to activate recording

DATA

DEC/NO   ▲   INC/YES

◄   ▼   ►

Bulk transmit start

❻ When data transmission is finished, stop recording on XGworks (lite). Check the List Window to confirm that the data (shown in hexadecimal) has been properly received and recorded by XGworks (lite).

🎵 NOTE For information about recording or saving, refer to the on-line manual included with the XGworks (lite).

Now, whenever you play back the song file with this recorded data, the appropriate S03 Multi settings are sent as System Exclusive messages (page 99) from XGworks (lite).

🎵 NOTE For best results, try to keep the playback tempo at the same setting as was used for recording.

🎵 NOTE When you assign the User Voice to the selected Multi's Part, record the User Voice as the same manner. Select the AllUS (All User Voices) in the BlkDmp screen (PAGE 3) in the Voice Job mode, then transmit the bulk data using the same method as Multi.

🎵 NOTE If necessary, S03 system (Utility and MIDI) data can also be recorded. In the BlkDmp screen of the Multi Job or Voice Job mode, select "Systm."

🎵 NOTE To save the all S03 settings, transmit all three data types below, and record/save them to the computer.
- **All:** All Multis (Multi Job mode)
- **AllUs:** All User Voices (Voice Job mode)
- **Systm:** System (Multi Job or Voice Job mode)

Using Controllers

The S03 is equipped with Pitch Bend and Modulation Wheels. By connecting an optional Foot Controller or Footswitch, you can also control a variety of parameters (such as changing the sound, changing Program Numbers, etc.) with your feet— and leave your hands free to play the keyboard.

Pitch Bend Wheel

This wheel's function is to control pitch. Move the wheel upward/downward to bend the pitch upward/downward. The effect can also be reversed.

Pitch up

Pitch down

Pitch Bend Wheel
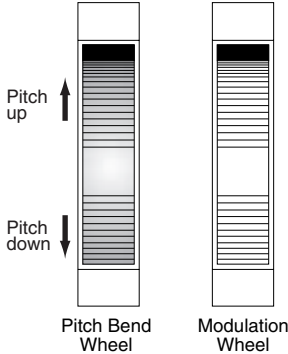
Modulation Wheel

♪ **NOTE** The Pitch Bend Range can be set for each Voice (page 65).

Modulation Wheel

The more you move this wheel upwards, the greater the modulation that is applied to the sound.

Deeper

Pitch Bend Wheel
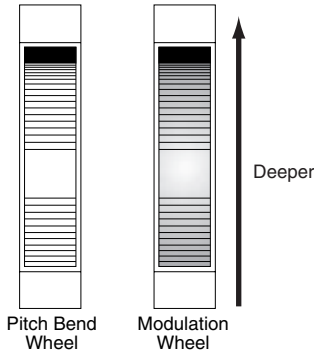
Modulation Wheel

♪ **NOTE** The Modulation Depth can also be set. Also, the wheel can be assigned to control different parameters, such as Volume or Pan (page 91).

♪ **NOTE** The Modulation Wheel can also be set to control the tone, amplitude (volume), pitch, or filter setting of the Voice.
The Modulation Wheel can be used to control the parameters below.

- MW Variation Control Depth
- MW Filter Control
- MW Pitch Modulation Depth
- MW Filter Modulation Depth
- MW Amplitude Modulation Depth

### Controllers and External MIDI Control

Various control functions can be assigned to the Modulation Wheel and the Assignable Controller (page 66). Besides these other functions, the controllers are already set to control the tone, volume, pitch, and filter settings. When the controller is used, it not only affects the built-in tone generator of the S03, but also simultaneously outputs corresponding MIDI data via the MIDI OUT terminal.

MIDI OUT   MIDI IN

MIDI Control

Modulation Wheel
Assignable Controller 1

Voice Control

Tone Volume Pitch ....

Tone generator
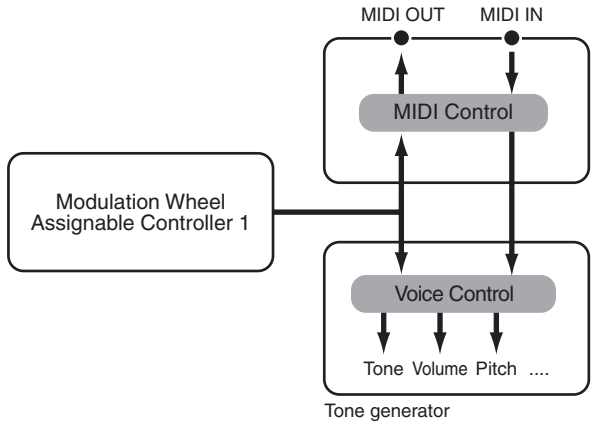
♪ **NOTE** When the Multi mode is active, this controls the Part for which the Transmit Channel setting of the MIDI mode (PAGE 4) and the Receive Channel setting of Multi Part Edit (PAGE 6) are the same.

Foot Controller

An optional Foot Controller (such as the FC7), connected to the FOOT CONTROLLER jack (page 10) on the rear panel, can be assigned to any one of a number of controller parameters. By using a foot controller for parameter control, both your hands are left free to play the keyboard (or to operate other controllers). This is very convenient when performing live.

Foot Controller
FC7
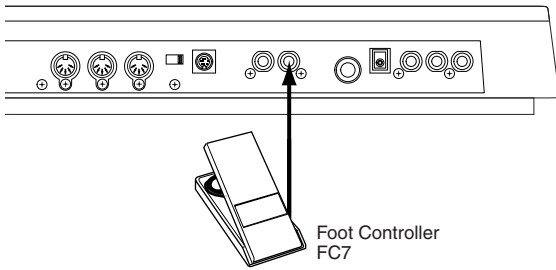
♪ NOTE By setting the AC1 to the same control number as the Foot Controller, you can use the Foot Controller to continuously control the parameters below for each Part or Voice.

- AC1 Filter Control
- AC1 Filter Modulation Depth
- AC1 Amplitude Modulation Depth
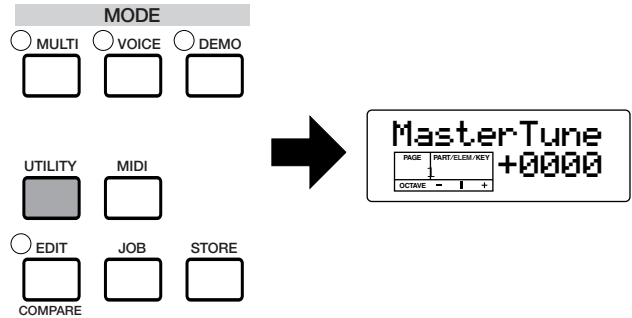- AC1 Variation Control Depth

The control number for AC1 can be set in the following pages:
Multi Part Edit PAGE 19 (when controlling in the Multi mode)
Utility PAGE 7 (when controlling in the Voice mode)

See next section below for information on setting the control number for the Foot Controller.
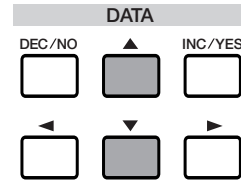
Using the Foot Controller to Control Parameters

In live performance, you can use the Foot Controller onstage to keep your hands free to play the keyboard, yet still be able to control various functions necessary for your songs or performance. In the following example, we'll show you how to set up the Foot Controller to function the same as (and substitute for) the Modulation Wheel.

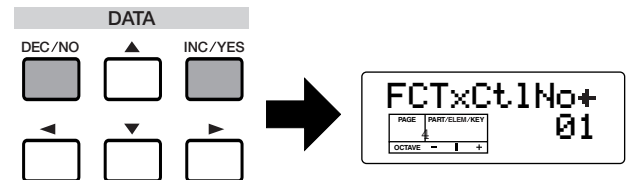❶ Press the [UTILITY] button to enter the Utility mode.

MODE

MULTI   VOICE   DEMO

UTILITY   MIDI

EDIT   JOB   STORE

COMPARE

```
MasterTune
          +0000
PAGE  PART/ELEM/KEY
OCTAVE  -  |  +
```

❷ Press the [▲] and [▼] buttons to call up the FCTxCtlNo (FC transmit Control Number) screen (PAGE 4).

DATA

DEC/NO   ▲   INC/YES

◄   ▼   ►

♪ NOTE Select this parameter by using the [►] button when the MWTxCtlNo screen is displayed.

❸ Use the [INC/DEC] buttons to select "01" (Modulation Wheel).

DATA

DEC/NO   ▲   INC/YES

◄   ▼   ►

```
FCTxCtlNo+
              01
PAGE  PART/ELEM/KEY
OCTAVE  -  |  +
```

The Foot Controller can now be used to perform the same control function as that of the Modulation Wheel.

♪ NOTE For details about Control Numbers and Control Change messages, refer to the separate Data List.

Foot Switch

An optional Yamaha FC4 or FC5 Foot Switch connected to the rear panel FOOT SWITCH jack (page 10) can be assigned to a range of parameters. This is designed for switch-type (on/off) controls such as incrementing/decrementing Voice or Multi numbers, and cannot be used for continuous control of a parameter. The default factory setting for this is to control sustain (FSTxCtlNo = 64).
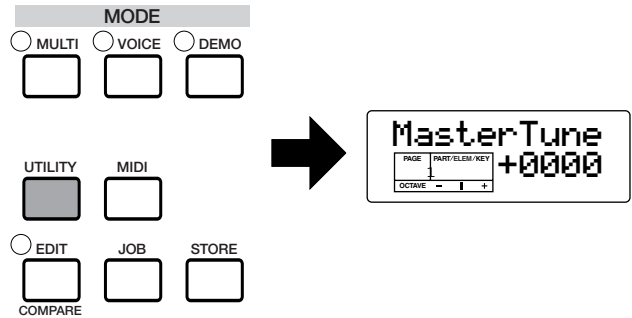
Foot Switch
FC4 or FC5
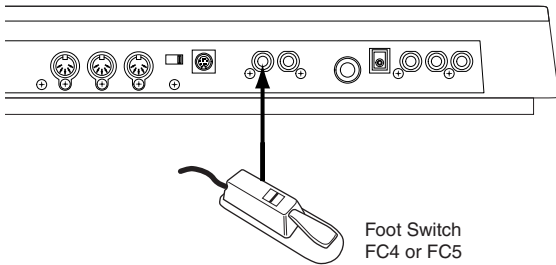
NOTE See next section below for information on setting the control number for the Foot Switch. For details about Control Numbers and Control Change messages, refer to the separate Data List.
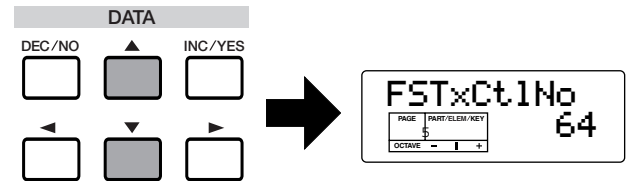
Using the Foot Switch to Advance Through Programs

When performing live, you can set up the Foot Switch to change Voices or Multis with your feet, without having to take your hands from the keyboard. For example, if you arrange the Voices/Multis in memory in consecutive order (as you'll use them), you can easily advance through them one-by-one by pressing the Foot Switch while you perform. The following instruction steps show you how to do this.

❶ Press the [UTILITY] button to enter the Utility mode.

MODE

◯ MULTI   ◯ VOICE   ◯ DEMO

UTILITY   MIDI

◯ EDIT   JOB   STORE

COMPARE

```
MasterTune
PAGE  PART/ELEM/KEY    +0000
OCTAVE  –  |  +
```

❷ Use the [▲] and [▼] buttons to to call up the FSTxCtrlNo (FS transmit Control Number) screen (PAGE 5).

DATA

DEC/NO   ▲   INC/YES

◄   ▼   ►

```
FSTxCtlNo
PAGE  PART/ELEM/KEY       64
OCTAVE  –  |  +
```

❸ Press the [INC/DEC] buttons to select "96" (PCInc). (Or, input the number 96 and press the [ENTER] button.)

DATA

DEC/NO   ▲   INC/YES

◄   ▼   ►

```
FSTxCtlNo
PAGE  PART/ELEM/KEY    PCInc
OCTAVE  –  |  +
```
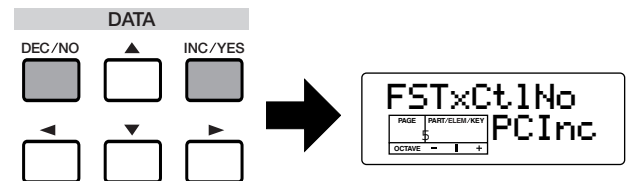
In the Voice/Multi mode, the Foot Switch can now be used to advance through program numbers.

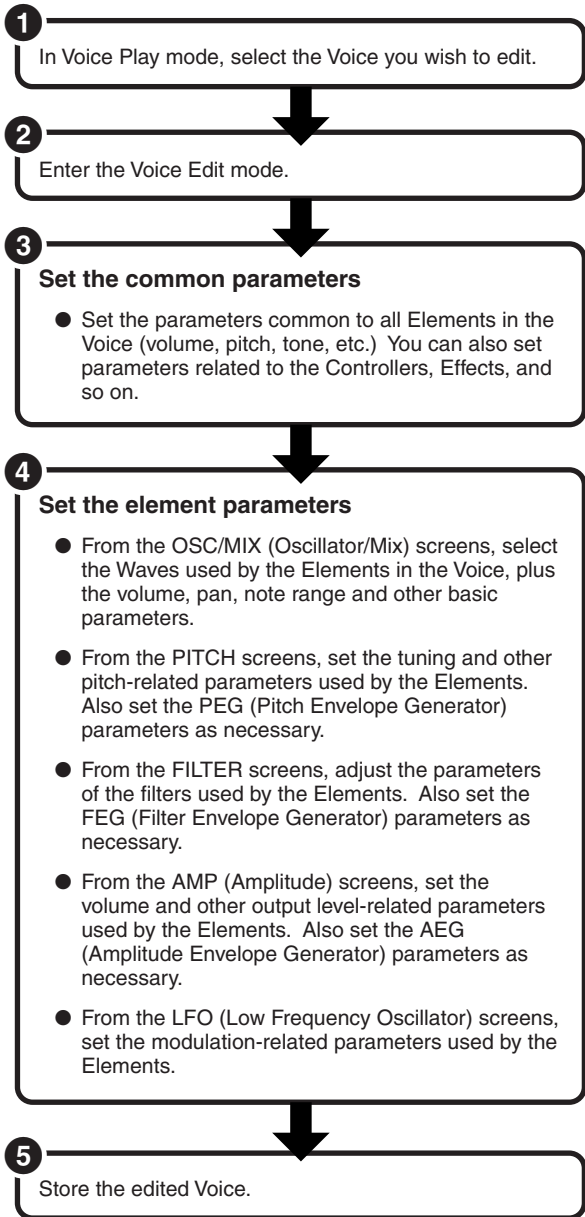# Voice Edit

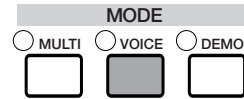The following procedure shows you the fundamentals in creating and editing Voices.

Of course, this is just one example; you are free to set any parameters in any way you like. Details about each parameter are given in the Reference section of this manual.

🎵 NOTE All parameter settings are stored along with the Voice itself.

1
In Voice Play mode, select the Voice you wish to edit.

2
Enter the Voice Edit mode.

3
Set the common parameters
● Set the parameters common to all Elements in the Voice (volume, pitch, tone, etc.) You can also set parameters related to the Controllers, Effects, and so on.

4
Set the element parameters
● From the OSC/MIX (Oscillator/Mix) screens, select the Waves used by the Elements in the Voice, plus the volume, pan, note range and other basic parameters.

● From the PITCH screens, set the tuning and other pitch-related parameters used by the Elements. Also set the PEG (Pitch Envelope Generator) parameters as necessary.

● From the FILTER screens, adjust the parameters of the filters used by the Elements. Also set the FEG (Filter Envelope Generator) parameters as necessary.

● From the AMP (Amplitude) screens, set the volume and other output level-related parameters used by the Elements. Also set the AEG (Amplitude Envelope Generator) parameters as necessary.

● From the LFO (Low Frequency Oscillator) screens, set the modulation-related parameters used by the Elements.

5
Store the edited Voice.

❶ Selecting a Voice to Edit

Enter the Voice Play mode by pressing a [VOICE] button.
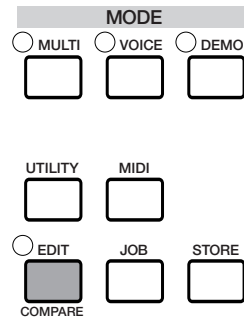
MODE
○ MULTI   ○ VOICE   ○ DEMO

Select the Voice Number of the Voice you wish to edit (page 34).

🎵 NOTE When you're creating a Voice by editing an existing one, it helps to select a Voice with a sound that's relatively similar to the one you intend to create. In this way, you can avoid having to make large changes and many parameter edits — allowing you to create a Voice quickly and easily. If you are creating a Voice from scratch, use the convenient Initialize function (in the Voice Job mode) to initialize a Voice in internal user memory. For details, see pages 87 and 88.

❷ Entering the Voice Edit Mode

All Voice creation and editing is carried out in Voice Edit Mode.
To enter the Voice Edit mode, press the [EDIT] button while in the Voice Play mode.

MODE
○ MULTI   ○ VOICE   ○ DEMO

UTILITY   MIDI

○ EDIT   JOB   STORE
COMPARE

Common Edit and Editing Individual Elements

Voices can consist of up to four Elements (page 26). Use Common Edit to edit the settings common to all four Elements. The Voice Edit mode can be divided into screens for Common Edit and those for editing each Element. In the Voice Edit mode, simultaneously press both the [–] and [+] buttons to switch between the Common Edit screens and the screens for editing each Element.
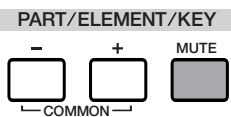
Common Edit screens

PF:GrandPno
Name

Common indicator

Element Edit screens

PART/ELEMENT/KEY
–   +   MUTE
COMMON
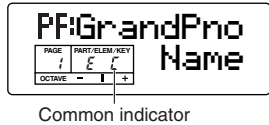
Element SW
on
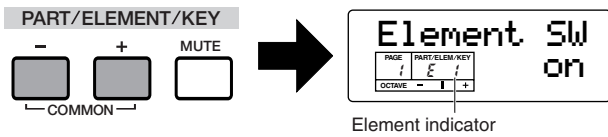
Element indicator

Switching Elements On/Off (Mute)

In Voice Edit Mode, an Element can be switched on/off temporarily when you press the [MUTE] button. The Element indicator which is muted will flash. This lets you mute other Elements in the Voice so that you can listen to the changes to the Element that you are editing.

PART/ELEMENT/KEY
–   +   MUTE
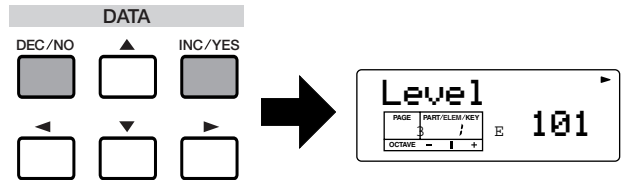COMMON

Switching Between Screens and Entering Settings

After selecting a Common Edit screen or an edit screen for an Element (1 to 4), press the [▲] and [▼] buttons to switch to other screens.

DATA
DEC/NO   ▲   INC/YES
◄   ▼   ►
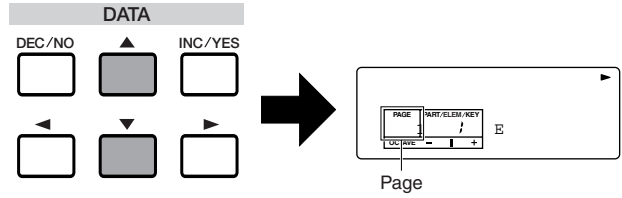
Page

The S03 has a huge variety of available parameters. As you change the display pages, an arrow mark on the right side of the display points to the parameter chart printed on the panel, indicating the parameter type and what aspect of the instrument it's related to.

Level   100

VOICE	OSC/MIX
MIX	PITCH
GENERAL	FILTER
TONE	AMP
CONTROLLER	LFO
EFFECT	EFFECT

Use the INC/YES and DEC/NO buttons to set each parameter value.

DATA
DEC/NO   ▲   INC/YES
◄   ▼   ►

Level   101

Some parameters have multiple "pages," indicated by a special arrow mark ("→") in the top right of the LCD (see below). Use the [◄]/[►] buttons to select these pages.
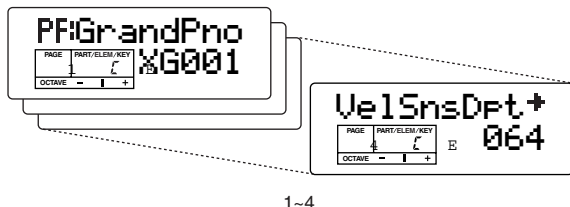
DATA
DEC/NO   ▲   INC/YES
◄   ▼   ►

NtLmt-L   C-2

NtLmt-H   G8
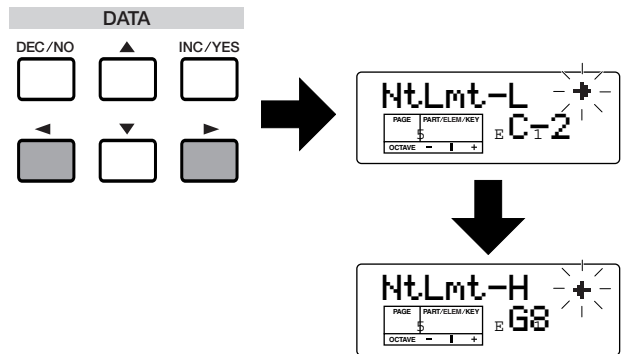
❸ Set the Common Parameters

••

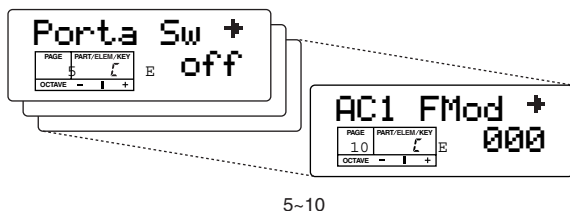Each Voice consists of up to four Elements. Here, the parameters common to all Elements are explained.

● GENERAL (Common General)

In PAGES 1 to 4, you can set the Voice Name, Voice output settings and other general parameters.

```
PF:GrandPno
PAGE  PART/ELEM/KEY
  1      1       E  XG001
OCTAVE  –    +
```

```
VelSnsDpt ✦
PAGE  PART/ELEM/KEY
  4      1      E  064
OCTAVE  –    +
```
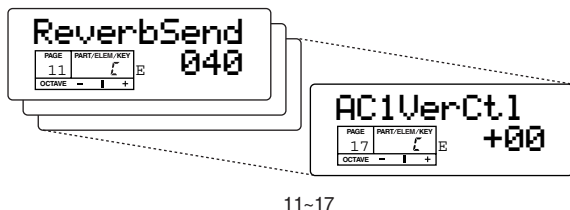
1~4

● CONTROLLER (Common Controller)

In PAGES 5 to 10, you can assign and set various functions for the controllers on the front (such as the Modulation and Pitch Bend Wheels) and the controllers connectable to the rear panel. For example, you can assign parameters to the Modulation Wheel so that you can change the tone of Voice in real time. For details about different controller uses, see page 45.

```
Porta Sw ✦
PAGE  PART/ELEM/KEY
  5      1     E  off
OCTAVE  –    +
```

```
AC1 FMod ✦
PAGE  PART/ELEM/KEY
  10     1     E  000
OCTAVE  –    +
```

5~10

● EFFECT (Common Effect)
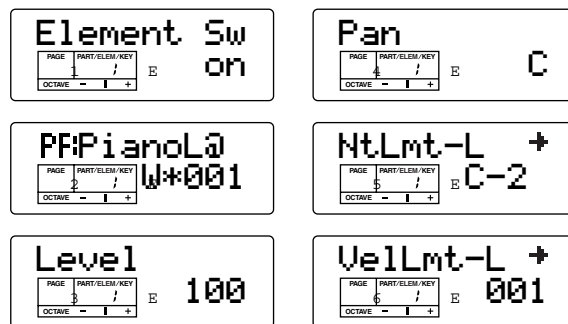
In PAGES 11 to 17, you can set the Effects parameters for the Voice. There are System Effects (Reverb and Chorus) and Variation Effects.

```
ReverbSend
PAGE  PART/ELEM/KEY
  11     1     E  040
OCTAVE  –    +
```

```
AC1VerCtl
PAGE  PART/ELEM/KEY
  17     1     E  +00
OCTAVE  –    +
```

11~17

❹ Set the Element Parameters

••

● OSC/MIX (Oscillator/Mix)

In PAGES 1 to 6, you can set the various parameters controlling the waveforms on which the Voice is based. You can select the Wave used for the Element, the volume and note range of each Element and so on.

```
Element Sw
PAGE  PART/ELEM/KEY
  1     1      E  on
OCTAVE  –    +
```

```
Pan
PAGE  PART/ELEM/KEY
  4     1      E  C
OCTAVE  –    +
```

```
PF:PianoL@
PAGE  PART/ELEM/KEY
  2     1     W*001
OCTAVE  –    +
```

```
NtLmt-L  ✦
PAGE  PART/ELEM/KEY
  5     1     E C-2
OCTAVE  –    +
```

```
Level
PAGE  PART/ELEM/KEY
  3     1     E  100
OCTAVE  –    +
```

```
VelLmt-L ✦
PAGE  PART/ELEM/KEY
  6     1     E  001
OCTAVE  –    +
```

Element Sw (Element Switch)
Determines whether each Element sounds or not.

Wave Selection
Select the Wave for each Element.

Level
Pan
Set the volume (output level) and stereo pan position of each Element.

NtLmt-L/H (Note Limit Low/High)
VelLmt-L/H (Velocity Limit Low/High)
Set the note range for each Element (the range of notes on the keyboard over which the Element will sound) and also the velocity response (the range of note velocities within which the Element will sound). You can assign different settings for each Element. With these parameters, you can layer Elements and control their output.
For example, you could set one Element to sound in an upper range of the keyboard, and another Element to sound in a lower range. Thus, even within the same Voice, you can have two different sounds for different areas of the keyboard or you can make the two Element ranges overlap so that their sounds are layered over a set range. Furthermore, you can set each Element to respond to different velocity ranges so that one Element sounds for lower note velocities, whereas another Element sounds for higher note velocities.
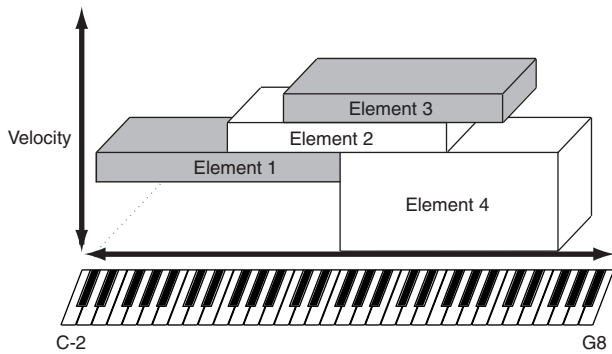
● **PITCH**
In PAGES 7 to 12, you can set the basic pitch parameters for each Element. You can detune Elements, apply Pitch Scaling and so on. Also, by setting the PEG (Pitch Envelope Generator), you can control how the pitch changes over time.

PEG (Pitch Envelope Generator)
Using the PEG, you can control the transition in pitch from the moment a note is pressed on the keyboard to the point at which it is released. This is useful for creating automatic changes in pitch. Furthermore, different PEG parameters can be set for each Element.
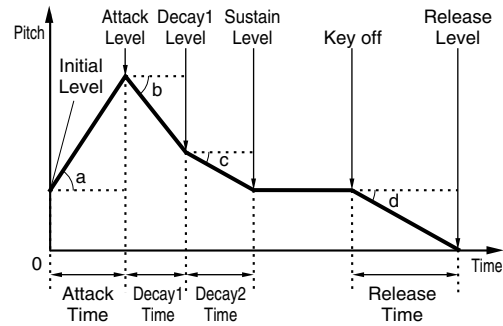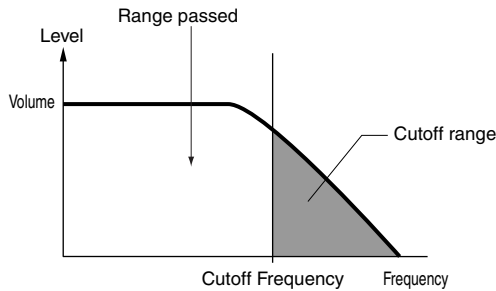

In the illustration, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the pitch goes to the next set Level — in other words, the time it takes for the pitch to change (between Level settings) becomes shorter.

🎹 **NOTE** For details about the PEG parameters, see page 75.

● FILTER

In PAGES 13 to 22, you can use the filter to change the tonal characteristics of each Element, by adjusting overtones (harmonic tones) included in the waveform from the Element. The S03 employs an LPF (low pass filter). Only frequencies below this point are passed. You can also set the Filter Envelope Generator (FEG) for time variance of how the filter works, which results in a dynamic change in tonal characteristics. Here, we'll show you how the FEG works.

FEG (Filter Envelope Generator)

Using the FEG, you can control the transition in tone from the moment a note is pressed on the keyboard to the point at which it is released. When you press a note on the keyboard, the cutoff frequency will change according to these envelope settings. This is useful for creating automatic wah effects, for example. Furthermore, different FEG parameters can be set for each Element.
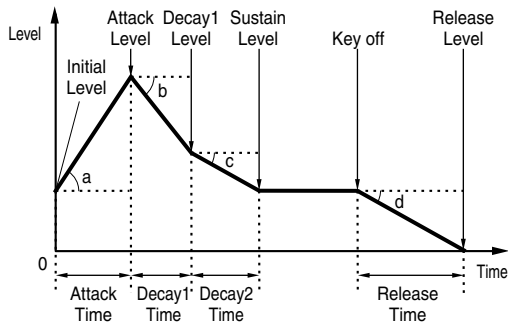
In the illustration, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the filter goes to the next set Level — in other words, the time it takes for the filter to change (between Level settings) becomes shorter.

NOTE For details about the FEG parameters, see page 79.

● AMP (Amplitude)

In PAGES 23 to 31, you can set the volume of each Element after the OSC (Oscillator), PITCH and FILTER parameters have been applied, as well as the final overall volume of the signal sent to the outputs.
The signal of each Element is sent at the specified volume to the next Effect section.
Also, by setting the AEG (Amplitude Envelope Generator), you can control how the volume changes over time.
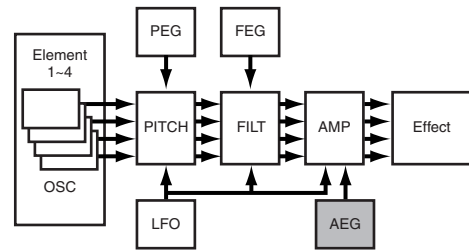
NOTE The final volume for all Elements is set in the Total Vol (Total Volume) parameter, Common Edit PAGE 2.

AEG (Amplitude Envelope Generator)

By using the AEG, you can control the transition in volume from the moment a note is pressed on the keyboard to the point at which it is released. When you press a note on the keyboard, the volume will change according to these envelope settings. Furthermore, different AEG parameters can be set for each Element.
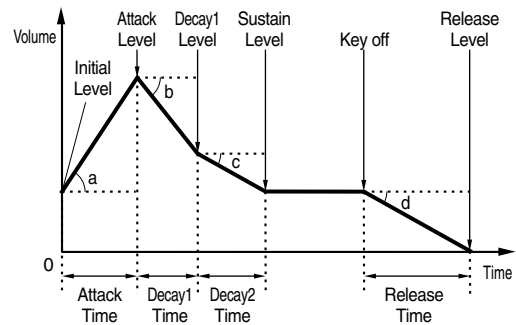
In the illustration, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the volume goes to the next set Level — in other words, the time it takes for the volume to change (between Level settings) becomes shorter.

NOTE For details about the AEG parameters, see page 80.

About EG Rate and Time (Voice Mode)

The EG (Envelope Generator) processes and shapes the output level of the tone generator from the moment you press a key until the sound decays to silence. The level (Y-axis in the illustrations below) is a different aspect of the sound, depending on which EG is being used. For the PEG, level corresponds to Pitch. For the FEG, it corresponds to the cutoff frequency. For the AEG, it corresponds to the volume.

The behavior of the EG over time is controlled by the Rate (R) parameters. Rate refers to the time it takes to go from one level to the next (for example, from the initial level to the attack level).

The illustrations below show how different Rate settings affect the sound. To extend the time between level changes and make it long, set the Rate (R) to a small value.
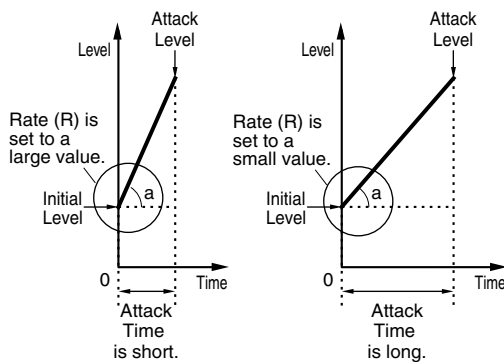
## ● LFO (Low Frequency Oscillator)

In PAGES 32 to 35, you can edit the LFO, which (as its name suggests) produces waveforms of a low frequency. These waveforms can be used to vary the pitch, filter or amplitude of each Element to create effects such as vibrato, wah and tremolo. However, the actual available LFO parameters will vary according to the type of Element.

The LFO is capable of producing a wide variety of effects in various ways. By modulating the pitch over an adjustable amount, it creates vibrato. By modulating the filter over an adjustable range of frequencies, it creates wah-wah and dynamic filter sweep effects. By modulating the volume (or "amplitude") of the sound over an adjustable depth, it creates tremolo.
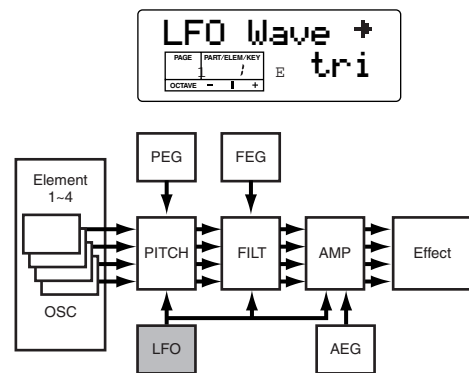
❺ Storing Edited Voices

Up to 128 new/edited Normal Voices and 2 new/edited Drum Voices can be stored to internal user memory.
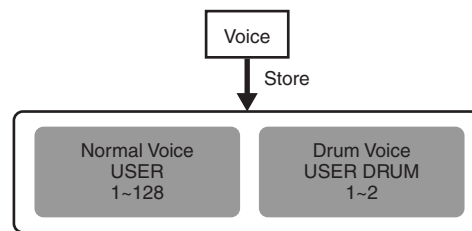
⚠ When storing a Voice, any existing data at the storage location will be lost. You should always back up important data to computer or some other storage medium beforehand.

🎵NOTE For details about storing Voices, see page 89.

Effects

In the final stages of programming, you can set the effects parameters to further change the sound's character. In general, System Effects apply to the overall sound, whether it is a Voice, a Multi. Insertion Effects, on the other hand, can be applied individually to each Voice. The S03 has two System Effect sections (Reverb and Chorus) plus a Variation Effect section (see below).
Different effects settings can be set per Voice (in the Voice mode) and per Multi (in the Multi mode), though the connection between the Effect sections will vary in each case.

Reverb Section

The Reverb section includes a selection of 11 different reverb-type effects, including realistic simulations of the natural reverberation found in various halls and rooms. In the Multi mode, the Reverb settings will apply to the Multi as a whole.
In the Voice mode, the Reverb Send parameter can be set for each Voice.

Chorus Section

The Chorus section includes a selection of 11 chorus-type effects, including a flanger and others. Most of these effects are ideal for adding thickness to the sound. In the Multi mode, the Chorus settings will apply to the Multi as a whole. In the Voice mode, the Chorus Send parameter can be set for each Voice.

Variation Effects

A total of 42 different Effect types are available in the Variation section. These range from conventional effects such as Reverb, for enhancing the sound, to wilder effects such as Distortion, for actively changing the sound, or creating new sounds.

🎵 NOTE For details about each Effect Type, refer to the Effect Type List in the separate Data List.

System and Insertion Effects

The S03 effects sections can be designated as either System or Insertion effects. Reverb and Chorus are always System effects, which means they can be applied to any or all Parts. The Variation effect can also be a System effect, or it can be designated as an Insertion effect, which means it can be dedicated to a specific Part.

Basically, S03 System and Insertion effects work the same way as in a sound mixer, as shown in the diagram on the next page. For example, System effects can be applied to instruments (i.e., Parts) which are connected to the various mixer channels; the amount of each System effect is determined by channel "send" and system "return" level controls. An Insertion effect can be connected ("inserted") into the signal flow of a specific channel in order to process the sound of that instrument (i.e., Voice/Part) only.

In the Voice mode of the S03, the Insertion effect (Variation) can be applied to a Voice, while in the Multi Play mode it can only be applied to a single Part.
The System and Insertion effect configurations can be controlled in detail by XG song data (signified by the XG mark) when the S03 is in the Multi Play mode.

Effects in Voice Mode

In the Voice mode, you can set the Effect Send parameter for the Reverb and Chorus sections, and store them with each Voice.

For the Variation Effect, the Effect Type and the various effect parameters can be set, as well as the effect on/off setting for each Voice. The signals that are processed by the Variation block are mixed and sent to the Reverb and Chorus sections.
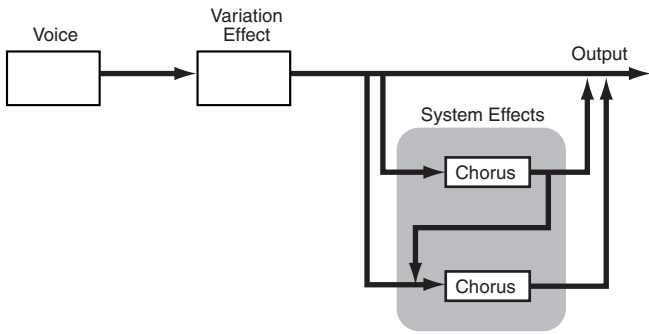

🎵 **NOTE** Drum Voices in Voice mode have no Variation effect.

Effects in Multi Mode

You can set the desired Effect type for each Effect section as well as its parameter values for each Multi in the Multi mode. By using Variation as an Insertion effect, you can apply the effect to only one of the Parts (see illustration below).

As shown in the illustration below, the Reverb section and Chorus section function as System effects, which process all of the Parts, according to each Part's effect send setting and the global effect return setting — just like on an actual mixer. When using Variation as an Insertion effect, the signal connection is serial, and the effect is applied only to the selected Part — just like patching in an outboard effect on a single instrument channel.
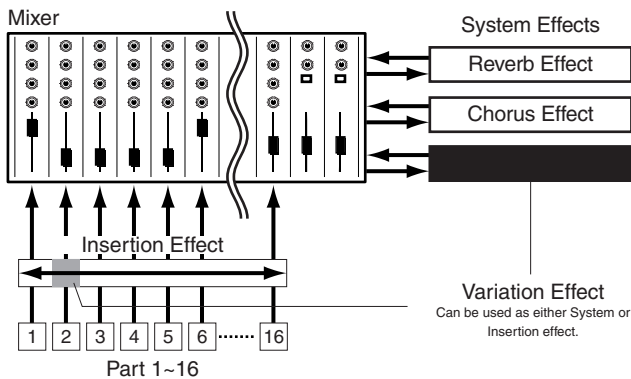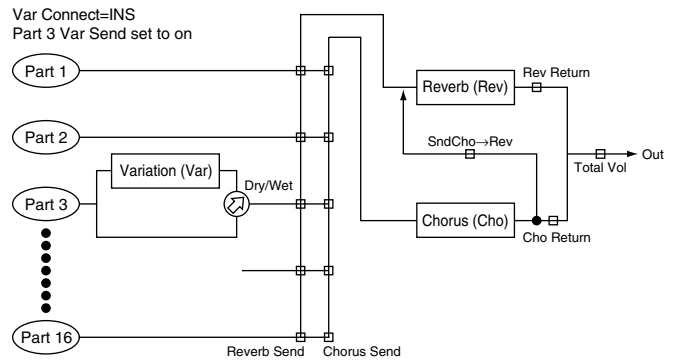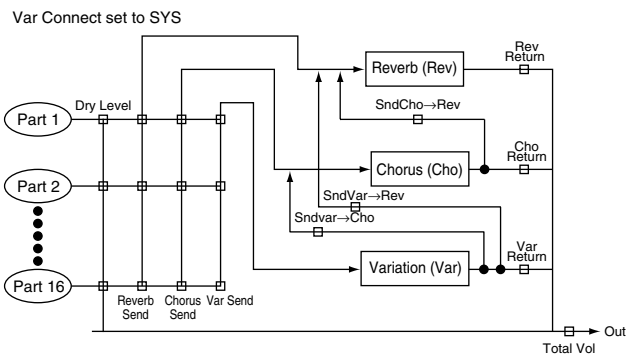

Voice
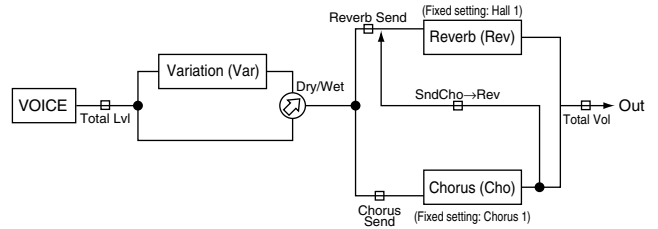
* Depending on the selected effect type, the Dry/Wet parameter may not be available. For details, refer to the Effect Parameter List in the separate Data List booklet.

Multi

* Depending on the selected effect type, the Dry/Wet parameter may not be available. For details, refer to the Effect Parameter List in the separate Data List booklet.

* The default value of Dry Level is 127. This cannot be set from the panel of the S03; however, it can be set by transmitting appropriate MIDI messages from an external device.

Multi Mode

Multi Edit

In this mode, you can set Multi Edit parameters. These can roughly be divided into Common parameters, which apply to all Parts, and Part-specific parameters.

🎵 NOTE You need to select the Multi before entering Multi Edit mode (page 37). All parameters can be set and stored per Multi.

🎵 NOTE For details about using the Multi mode, see page 37.

🎵 NOTE See page 28 on how to enter Multi Edit mode.

The E Indicator

If you alter any parameters in Multi Edit mode, the E (Edit) indicator will be displayed in the PAGE column of the screen after exiting from the Multi Edit mode. This gives a quick indication that the current Multi has been modified but not yet stored.

Edit Indicator
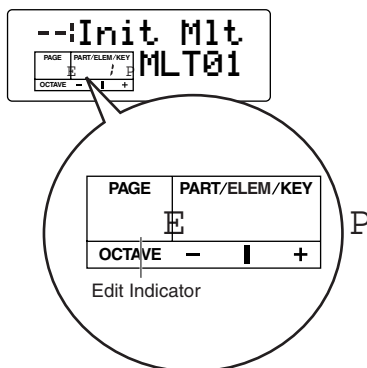
The Compare Function

Use this to listen to the difference between the Multi with your edited settings and the same Multi prior to editing.

❶ Press the [COMPARE (EDIT)] button while in Multi Edit mode. The EDIT LED will flash and the Multi settings prior to editing will temporarily be reinstated for comparison purposes.

🎵 NOTE While the Compare function is enabled, the DEC/NO and INC/YES buttons cannot be used for editing.

❷ Press the [EDIT] button again to disable the Compare function and restore your recently edited settings.

Switching Parts On/Off

In the Multi Edit mode, a Part can be switched on/off when you press the [MUTE] button. The Part indicator which is muted will flash. This lets you mute other Parts in the Multi so that you can listen to the changes to the Part that you are editing.

Multi Store

The edited settings for the current Multi will be lost if you select another Multi or mode. To avoid losing important data, you should always use Multi Store to store your edited Multi. For details about the Multi Store procedure, see page 69.

🎵 NOTE When creating a new Multi from scratch, it can be useful, prior to editing, to clear the settings for the current Multi using the Initialize Multi function in the Multi Job mode (pages 67 and 68).

Common Edit and Editing Individual Parts

A Multi can consist of 16 Voice Parts (page 24). The parameters common to all Parts are known as a Common Edit. The Multi Edit mode can be divided into screens for Common Edit and those for editing each Part. In the Multi Edit mode, simultaneously press both the [+] and [–] buttons to select the Common Edit screens.

Common Edit screens

Common indicator

Part Edit screens

Part indicator
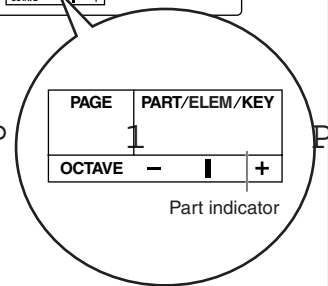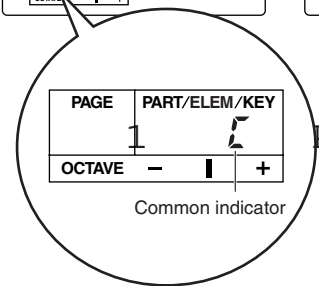
Common (Settings for all Parts)

Here we explain how to edit common settings for all Parts in a Multi. There are two types available, each of which consists of multiple pages.
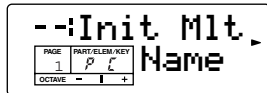
♪**NOTE** Refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

Common General (PAGES 1 to 3)
• •
Common Effect (PAGES 4 to 21)
• •

1. Name

You can set a Multi Name consisting of up to 8 characters. You can also select the Category Name to the left of the Multi Name.

```
--:Init Mlt
PAGE  PART/ELEM/KEY  Name
 1    P  C
OCTAVE  -  |  +
```

♪**NOTE** The method of setting the Multi Name is the same as for the Voice Name. Details are given on page 71.

2. Total Vol (Total Volume)

Set the overall volume of the Multi.

```
Total Vol
PAGE  PART/ELEM/KEY   127
 2    P  C
OCTAVE  -  |  +
```

❏ **Settings:** 0 ~ 127

3. Transpose

This determines the overall Transpose setting of the Parts, in semitone units. It does not affect information transmitted via MIDI.
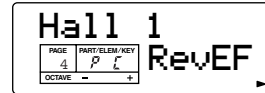
```
Transpose
PAGE  PART/ELEM/KEY  +00
 3    P  C
OCTAVE  -  |  +
```

❏ **Settings**: –24 (–2 octaves) ~ +24 (+2 octaves)

♪**NOTE** This parameter has no effect for Parts set to the Drum mode (page 61).
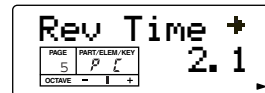
4. RevEF (Reverb Effect Type)

Select the Reverb Effect Type here, then set the effect's parameters in the following PAGES.

```
Hall 1
PAGE  PART/ELEM/KEY  RevEF
 4    P  C
OCTAVE  -  |  +
```

❏ **Settings:** Details are given in the Effect Type list in the separate Data List.

5. Reverb Parameters

Set the various Reverb effect parameters.

```
Rev Time
PAGE  PART/ELEM/KEY   2.1
 5    P  C
OCTAVE  -  |  +
```

❏ **Settings**: The number of parameters and the contents of each screen will vary depending on the selected Effect Type. Details are given in the Effect Type/Parameter list in the separate Data List.

6. Rev Return (Reverb Return)

Set the Return level of the Reverb Effect.

```
Rev Return
PAGE  PART/ELEM/KEY   064
 6    P  C
OCTAVE  -  |  +
```

❏ **Settings**: 0 ~ 127

7. Reverb Pan

Set the stereo pan position of the Reverb Effect.

```
Reverb Pan
PAGE  PART/ELEM/KEY        C
 7    P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: L63 (Left) ~ C (Center) ~ R63 (Right)

▶**NOTE** You can also enter the settings below using the numeric keypad.
  1 ~ 63: L63 ~ L01
  64: C (Center)
 **65 ~ 127: R01 ~ R63**

8. ChoEF (Chorus Effect Type)

Select the Chorus Effect Type here, then set the effect's parameters in the following PAGES.

```
Chorus 1
PAGE  PART/ELEM/KEY   ChoEF
 8    P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: Details are given in the Effect Type list in the separate Data List.

9. Chorus Parameters

Set the various Chorus effect parameters.

```
LFO Freq +
PAGE  PART/ELEM/KEY      0.25
 9    P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: The number of parameters and the contents of each screen will vary depending on the selected Effect Type. Details are given in the Effect Type/ Parameter list in the separate Data List.

10. Cho Return (Chorus Return)

Set the Return level of the Chorus Effect.

```
Cho Return
PAGE  PART/ELEM/KEY      064
 10   P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: 0 ~ 127

11. Chorus Pan

Set the stereo pan position of the Chorus Effect.
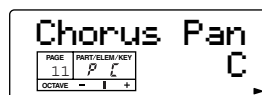
```
Chorus Pan
PAGE  PART/ELEM/KEY        C
 11   P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: L63 (Left) ~ C (Center) ~ R63 (Right)

▶**NOTE** You can also enter the settings below using the numeric keypad.
  1 ~ 63: L63 ~ L01
  64: C (Center)
  65 ~ 127: R01 ~ R63

12. SndCho→Rev (Send Chorus to Reverb)

Set the send level of the signal sent from the Chorus Effect to the Reverb Effect.

```
SndCho+Rev
PAGE  PART/ELEM/KEY      000
 12   P  C
OCTAVE  −  |  +            ►
```

❑ **Settings**: 0 ~ 127

13. VarEF (Variation Effect Type)

Select the Variation Effect Type here, then set the effect's parameters in the following PAGES.

```
Delay LCR
PAGE  PART/ELEM/KEY   VarEF
 13   P  C
OCTAVE  −  |  +            ►
```
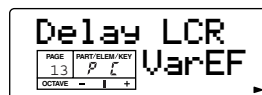
❑ **Settings**: Details are given in the Effect Type list in the separate Data List.
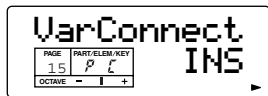
14. Variation Parameters

Set the various Variation effect parameters.

❑ **Settings**: The number of parameters and the contents of each screen will vary depending on the selected Effect Type. Details are given in the Effect Type/ Parameter list in the separate Data List.

15. VarConnect (Variation Connection)

This determines how the Variation Effect is used in the signal processing chain — as an Insertion effect or as a System effect.

```
VarConnect
PAGE  PART/ELEM/KEY       INS
 15    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: INS (Insertion), SYS (System)

🎵 **NOTE** The function of the Variation Effect changes depending on this setting, as do the types of parameter changes.

🎵 **NOTE** For more details on System and Insertion Effects, see page 53.

16. Var Return (Variation Return)

Set the Return level of the Variation Effect.

```
Var Return
PAGE  PART/ELEM/KEY      064
 16    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: 0 ~ 127

🎵 **NOTE** This can be set only when Variation Connection (above) is set to "SYS." When Variation Connection is set to "INS," "∗∗∗" appears in the display and the setting cannot be changed.

17. Var Pan (Variation Pan)

Set the stereo pan position of the Variation Effect.
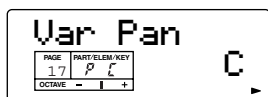
```
Var Pan
PAGE  PART/ELEM/KEY        C
 17    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: L63 (Left) ~ C (Center) ~ R63 (Right)

🎵 **NOTE** You can also enter the settings below using the numeric keypad.
  1 ~ 63: L63 ~ L01
  64: C (Center)
  65 ~ 127: R01 ~ R63

🎵 **NOTE** This can be set only when Variation Connection (above) is set to "SYS." When Variation Connection is set to "INS," "∗∗∗" appears in the display and the setting cannot be changed.

18. SndVar→Rev (Send Variation to Reverb)

Set the send level of the signal sent from the Variation Effect to the Reverb Effect.
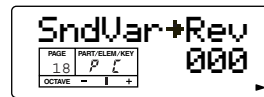
```
SndVar+Rev
PAGE  PART/ELEM/KEY      000
 18    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: 0 ~ 127

🎵 **NOTE** This can be set only when Variation Connection (above) is set to "SYS." When Variation Connection is set to "INS," "∗∗∗" appears in the display and the setting cannot be changed.

19. SndVar→Cho (Send Variation to Chorus)

Set the send level of the signal sent from the Variation Effect to the Chorus Effect.
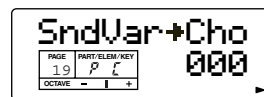
```
SndVar+Cho
PAGE  PART/ELEM/KEY      000
 19    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: 0 ~ 127

🎵 **NOTE** This can be set only when Variation Connection (above) is set to "SYS." When Variation Connection is set to "INS," "∗∗∗" appears in the display and the setting cannot be changed.

20. MW VarCtl (MW Variation Effect Control Depth)

This determines the degree to which the Modulation wheel controls the Variation Effect.
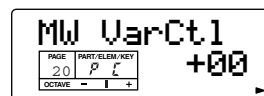
```
MW VarCtl
PAGE  PART/ELEM/KEY      +00
 20    P  C
OCTAVE  −  |  +              ▸
```

❏ **Settings**: −64 ~ +63

🎵 **NOTE** This can be set only when Variation Connection (above) is set to "INS." When Variation Connection is set to "SYS," "∗∗∗" appears in the display and the setting cannot be changed.

🎵 **NOTE** The particular parameter that can be controlled with the Modulation wheel is fixed for each of the Variation effects. Refer to the separate Data List for details.

21. AC1VarCtl
(AC1 Variation Effect Control Depth)

This determines the degree to which the Assignable Controller 1 controls the Variation Effect.

```
AC1VarCtl
PAGE  PART/ELEM/KEY    +00
 21    P  C
OCTAVE  -   |   +         ▶
```

❏ **Settings**: –64 ~ +63

♪**NOTE** This can be set only when Variation Connection (above) is set to "INS." When Variation Connection is set to "SYS," "***" appears in the display and the setting cannot be changed.

♪**NOTE** The particular parameter that can be controlled with the Assignable Controller 1 is fixed for each of the Variation effects. Refer to the separate Data List for details.

♪**NOTE** For information on the AC1, refer to AC1 CC No (pages 66 and 92) in the Multi and Utility modes.

Part
(Settings for each Part)

The following is an explanation of the Part parameters used to edit each Multi.

♪**NOTE** Refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

Voice Selection (PAGE 1)
. . . .
Part Mix (PAGES 2 to 5)
. . . .
Part General (PAGES 6 to 9)
. . . .
Part Tone (PAGES 10 to 14)
. . . .
Part Controller (PAGES 15 to 21)
. . . .
Part Effect (PAGES 22 to 24)
. . . .

1. Voice Selection

You can assign a Voice to each Part. Use the [+] and [–] buttons to select the Part, then select its Voice. The display will vary as follows according to the Memory selected.

♪**NOTE** Specify the particular Voice Memory by pressing the appropriate Memory button: PRESET, USER or GM/XG.

♪**NOTE** To select a Drum Voice, simultaneously hold down the [DRUM] button and press the appropriate Memory button: [USER] or [GM/XG].

♪**NOTE** The Voice can be set by using the same method as with Category Search (page 35).

♪**NOTE** For details about Categories, refer to the Category List on page 71. For details about using Category Search, see page 35.

●**PRESET**

```
PR:StPiano1 ▶
PAGE  PART/ELEM/KEY   PR001
 1     P  1
OCTAVE  -   |   +
```

❏ **Settings**: PR001 ~ PR128

●**USER**

❑ **Settings**: US001 ~ US128, USDR01 ~ USDR02

```
ST:Synth St
PAGE  PART/ELEM/KEY  US001
  1    P 1
OCTAVE  -  |  +
```

●**GM/XG**

```
PF:GrandPno
PAGE  PART/ELEM/KEY  XG001
  1    P 1
OCTAVE  -  |  +
```

Use the [◀] and [▶] buttons to switch among the
different banks for selecting program numbers.

❑ **Settings**:

Bank Select: BK*** (Refer to the XG Voice List and
XG Drum List in the separate Data List.

Program Number: XG001 ~ XG128 (The actual number of
available programs differs depedning on
the selected bank. For details, refer to
the XG Voice List and XG Drum List in
the separate Data List.)

2. Volume

Set the output level of the Part.

```
Volume        ▶
PAGE  PART/ELEM/KEY  100
  2    P 1
OCTAVE  -  |  +
```
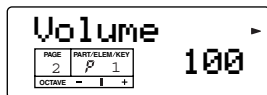
❑ **Settings**: 0 ~ 127

3. Pan

Set the stereo pan position of the Part.
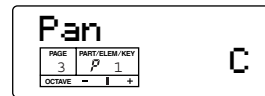
```
Pan
PAGE  PART/ELEM/KEY   C
  3    P 1
OCTAVE  -  |  +
```

❑ **Settings**: Rnd (random; the pan position moves randomly
each time a key is played), L63 (Left) ~ C (Center)
~ R63 (Right)

📝 **NOTE** You can also enter the settings below using the numeric
keypad.
0: Rnd
1 ~ 63: L63 ~ L01
64: C (Center)
65 ~ 127: R01 ~ R63

4-1. NtLmt-L (Note Limit Low)
4-2. NtLmt-H (Note Limit High)

Set the lowest and highest notes of the keyboard range
for each Part. Each Part will only sound for notes
played within its specified range.
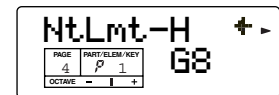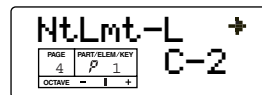
```
NtLmt-L   ✦          NtLmt-H  ✦ ▶
PAGE  PART/ELEM/KEY  C-2      PAGE  PART/ELEM/KEY  G8
  4    P 1                      4    P 1
OCTAVE  -  |  +                OCTAVE  -  |  +
```

❑ **Settings**: C-2 ~ G8

📝 **NOTE** You can set the lowest and highest notes in the range by
pressing notes on the keyboard while holding down the
[ENTER] button.

📝 **NOTE** For more information and some example settings, see
page 41.

5-1. VelLmt-L (Velocity Limit Low)
5-2. VelLmt-H (Velocity Limit High)

Set the minimum and maximum values of the velocity
range within which each Part will respond. Each Part
will only sound for notes played within its specified
velocity range.

```
VelLmt-L  ✦          VelLmt-H ✦ ▶
PAGE  PART/ELEM/KEY  001      PAGE  PART/ELEM/KEY  127
  5    P 1                      5    P 1
OCTAVE  -  |  +                OCTAVE  -  |  +
```
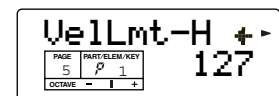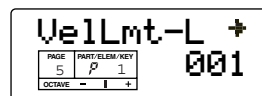
❑ **Settings**: 1 ~ 127

6. Rcv Ch (MIDI Receive Channel)

Set the MIDI Receive Channel for each Part. Each Part receives MIDI messages according to the channel set here. Select "off" for Parts that you do not want to respond to MIDI.

```
Rcv Ch
PAGE  PART/ELEM/KEY        01 ▸
 6    ♪  1
OCTAVE  −  I  +
```
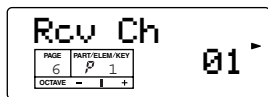
❏ **Settings**: 1 ~ 16, off

♪**NOTE** For information on setting the MIDI Receive channel in the Voice mode, see page 94.

7-1. NoteShift
7-2. Detune

These parameters determine the pitch of each Part.

```
NoteShift+          Detune     +
PAGE  PART/ELEM/KEY    +00 ▸    PAGE  PART/ELEM/KEY  −12.0 ▸
 7    ♪  1                       7    ♪  1
OCTAVE  −  I  +                 OCTAVE  −  I  +
```
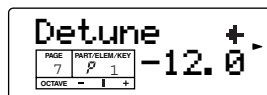
■ **NoteShift**

Set the amount (in semitones) by which the note pitch is shifted.

❏ **Settings**: −24 ~ 0 ~ +24

■ **Detune**

Determines the fine tuning setting of the pitch. Use this to create warm detuning effects by setting each Part to a slightly different value.

❏ **Settings**: −12.8 (Hz) ~ 0 ~ +12.7 (Hz)

♪**NOTE** Ignore the decimal place when inputting values from the numeric keypad. For example, to enter the value "−1.5," press the following buttons in order: "−," "1," then "5."

8. Mono/Poly

Select monophonic or polyphonic playback. Select whether each Part is played back monophonically (single notes only) or polyphonically (multiple simultaneous notes).

```
Mono/Poly
PAGE  PART/ELEM/KEY   Poly ▸
 8    ♪  1
OCTAVE  −  I  +
```

❏ **Settings**: mono, poly

♪**NOTE** When the Part Mode is set to "drum," "∗∗∗" appears in the display and the parameter cannot be set.

9. Part Mode

This determines whether the Part uses Normal Voices or Drum Voices.

```
Part Mode
PAGE  PART/ELEM/KEY   norm ▸
 9    ♪  1
OCTAVE  −  I  +
```
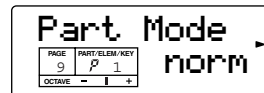
❏ **Settings**:

norm (Normal Voice)
With this setting, Normal Voices can be assigned to the Part.

drum (Drum Voice)
With this setting, Drum Voices can be assigned to the Part.

drumS1/2 (Drum Setup 1/2)
Used to play commercially available song data (switches automatically).

♪**NOTE** The part set to a setting other than "norm" is called a Drum Part.

♪**NOTE** If you've edited a drum kit in Drum Voice Edit mode and you wish to use that kit, set this to "drum."

♪**NOTE** When an XG System On message is received from an external sequencer, this is automatically set to "drumS1." In order to use the settigs made in Drum Voice Edit, record the appropriate message in the song data (Part Mode set to Drum). Refer to the MIDI Data Format section in the separate Data List.

F0 43 10 4C 08 nn 07 01 F7 (nn = Part number) (hexadecimal)

10-1. VelSnsDpt
(Velocity Sensitivity Depth)

10-2. VelSnsOfs
(Velocity Sensitivity Offset)

Set the Velocity Sensitivity and Velocity Offset for each Part.
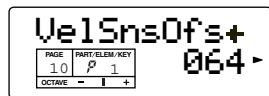
❏ **Settings**: 0 ~ 127

■ **VelSnsDpt**

As illustrated below, a large setting will cause large changes in velocity when you play the keyboard.
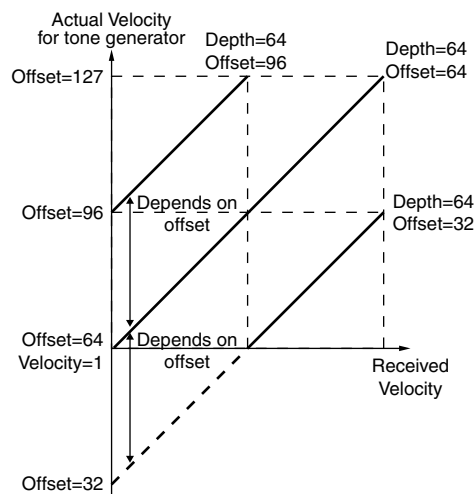
Changes to velocity curve according to VelDepth
(with offset set to 64)
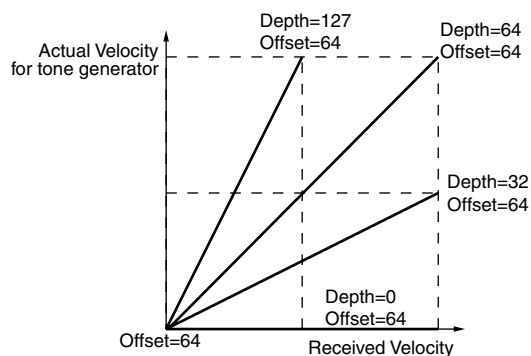
■ **VelSnsOfs**

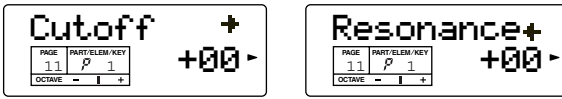As illustrated below, the velocity will be increased by the specified amount.

Changes to velocity curve according to VelDepth
(with offset set to 64)

11-1. Cutoff
11-2. Resonance

You can set Filter parameters to change the tonal characteristics of each Part

Filter is the section of the tone generator that changes the tonal qualities of a Voice by passing only a limited frequency range and cutting signals outside that range. The S03 employs an LPF (low pass filter).

❏ **Settings**: –64 ~ +63

■ Cutoff
Set the Cutoff frequency of the low pass filter. Only frequencies below this point are passed.
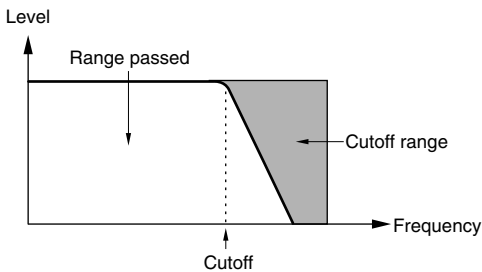
■ Resonance
Set the amount of Resonance (harmonic boost) applied to the signal around the Cutoff frequency. This is a useful way of adding further character to the sound.
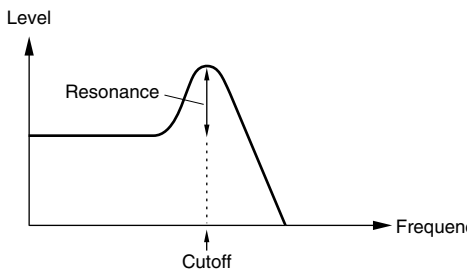
12-1. Attack Tm (Attack Time)
12-2. Decay Tm (Decay Time)
12-3. Releas Tm (Release Time)

This determines the EG (Envelope Generator) Parameters for each Part. There are three parameters governing the transition in tone and output level from the moment a note is pressed on the keyboard to the moment it is released or the point at which the level has faded to zero.

NOTE These three parameters affect both the AEG and the FEG.
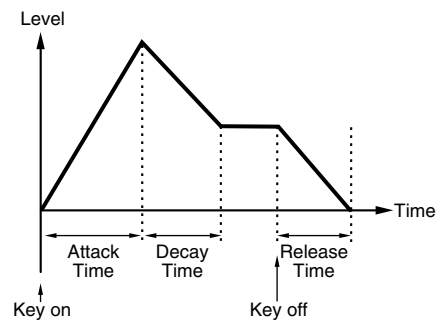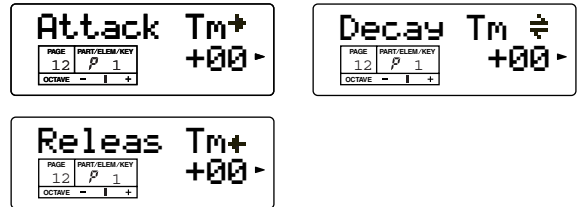
❏ **Settings**: –64 ~ +63

■ Attack Tm
Determines the transition time from the moment a key on the keyboard is pressed to the point at which the level of the Voice reaches its peak. Positive values will lengthen the transition time and negative values will shorten it.

■ Decay Tm
Determines the transition time from the point at which the level of the Voice reaches its peak to the point at which it levels off. Positive values will lengthen the transition time and negative values will shorten it.

■ Releas Tm
Determines the transition time from when the key is released to when the sound level decays to zero. Positive values will lengthen the transition time and negative values will shorten it.

13-1. PEGIntL (PEG Initial Level)
13-2. PEGAtkTm (PEG Attack Time)
13-3. PEGRelL (PEG Release Level)
13-4. PEGRelTm (PEG Release Time)

You can set PEG (Pitch Envelope Generator) Parameters for each Part. There are four parameters that control how the pitch changes from the moment a note is pressed on the keyboard to the moment it is released or the point at which the level has faded to zero.
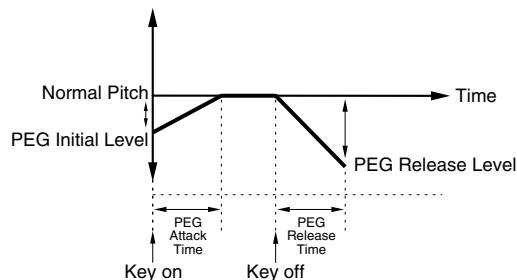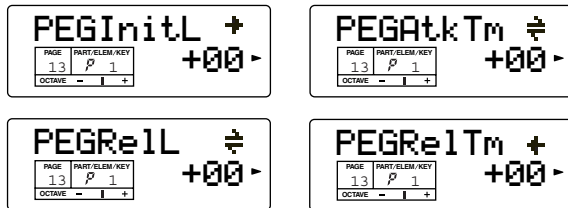
❏ **Settings**: –64 ~ +63

■ **PEGIntL**
Determines the initial pitch, or the pitch that sounds the moment the key is played.

■ **PEGAtkTm**
Determines the time it takes after you play the key for the pitch to return to normal (or original), from the pitch set in PEG Initial Level above.

■ **PEGRelL**
Determines the final pitch that is reached after you release your finger from the key.

■ **PEGRelTm**
Determines the time it takes for the pitch to reach the setting made in PEG Release Level above, from when you release your finger from the key.

14-1. Vib Rate (Vibrato Rate)
14-2. Vib Depth (Vibrato Depth)
14-3. Vib Delay (Vibrato Delay)
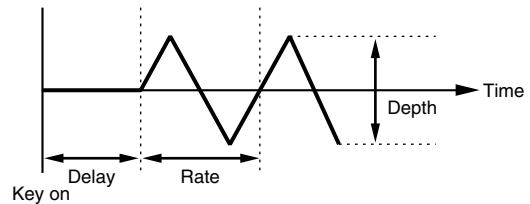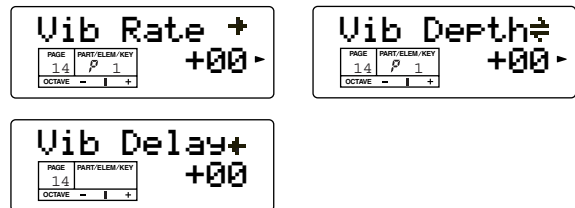
❏ **Settings**: –64 ~ +63

■ **Vib Rate**
Determines the speed of pitch modulation.

■ **Vib Depth**
Determines the depth or degree of pitch modulation.

NOTE This Parameter is not available for Drum Parts.

■ **Vib Delay**
Determines the amount of time that elapses from when a key is played to when the Vibrato effect starts. The higher the value, the longer the delay before the onset of the Vibrato effect.

NOTE The Parameter is not available for Drum Parts.

15-1. Porta Sw (Portamento Switch)

15-2. PortaTime (Portamento Time)

Set the Portamento parameters. Portamento creates a smooth transition from the pitch of the first note played to the pitch of the next.

■ **Porta Sw**

Switch Portamento on or off.

❏ **Settings**: off, on

■ **PortaTime**

Set the pitch transition time. Higher values result in longer transition times.

❏ **Settings**: 0 ~ 127

16. PB Range (Pitch Bend Range)

Set the amount (in semitones) by which the pitch of the note is varied when you move the Pitch Bend wheel up/down. For example, if you set a value of + 12, moving the wheel up raises the pitch by a maximum of octave.

❏ **Settings**: –24 ~ + 24

17. MW FltCtl (MW Filter Control)

Set the depth of control of the Modulation wheel over the filter cutoff frequency.

❏ **Settings**: –64 ~ + 63

18-1. MW PMod (MW Pitch Modulation Depth)

18-2. MW FMod (MW Filter Modulation Depth)

18-3. MW AMod (MW Amplitude Modulation Depth)

These parameters let you set the depth of control the Modulation wheel has over the pitch, filter and amplitude modulation of the Voice.
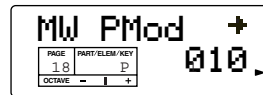
❏ **Settings**: 0 ~ 127

■ **MW PMod**

Set the amount by which the pitch modulation changes when the Modulation wheel is used. The larger the setting, the greater the depth of control. (The vibrato effect becomes deeper.)

■ **MW FMod**

Set the amount by which the filter Cutoff frequency changes when the Modulation wheel is used. The larger the setting, the greater the depth of control. (The wah effect becomes deeper.)

■ **MW AMod**

Set the amount by which the amplitude modulation changes when the Modulation Wheel is used. A larger setting produces greater modulation depth. (The tremolo effect becomes deeper.)

NOTE Depending on the selected LFO wave type and the amplitude modulation depth setting, noise may result when the controller is moved. If this happens, reduce the modulation depth value.

19. AC1 CC No
(AC1 Control Change Number)

Determines the Control Change number for the AC1 (Assignable Controller 1) of each Part

```
AC1 CC No
PAGE  PART/ELEM/KEY
 19        P      ₁ 00
OCTAVE  –  |  +
```
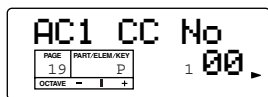
❏ **Settings**: 0 ~ 95

🎵**NOTE** The AC1 CC No parameter in the Voice mode is set in the Utility mode (PAGE 7).

AC1 (Assignable Controller 1)

The AC1 (Assignable Controller 1) is only available by using an external MIDI controller (such as a foot controller connected to a MIDI keyboard). By setting the AC1 Control Change number here to match the controller on the connected MIDI device, you can use that controller to change the sound, according to the settings made in the other AC1 parameters — such as AC1FltCtl, AC1 FMod/PMod, or the Variation Effect's AC1VarCtl.

For example, by setting AC1 to "2" here, you can use a breath controller to control the Voice of a Part.

If the connected MIDI controller is set to "0," the Part cannot be controlled, even by setting the proper Control Change number. For best results, also make sure that the sensitivity parameters (AC1FitCl, AC1 FMod/PMod, or the Variation Effect's AC1VarCtl) are set appropriately, as needed.

---

20. AC1FltCtl (AC1 Filter Control)

Set the amount by which the filter cutoff frequency changes when the controller (Assignable Controller 1) is used.

```
AC1FltCtl
PAGE  PART/ELEM/KEY
 20        P       +00
OCTAVE  –  |  +
```

❏ **Settings**: –64 ~ +63

21-1. AC1 FMod
(AC1 Filter Modulation Depth)
21-2. AC1 AMod
(AC1 Amplitude Modulation Depth)

These parameters let you set the depth of control the Control Change messages (via Assignable Controller 1) have over the filter and amplitude of the Part (Voice).

```
AC1 FMod +          AC1 AMod +
PAGE  PART/ELEM/KEY          PAGE  PART/ELEM/KEY
 21        P      000         21        P      000
OCTAVE  –  |  +              OCTAVE  –  |  +
```

❏ **Settings**: 0 ~ 127

■ **AC1 FMod**
Set the amount by which the filter Cutoff frequency changes when Assignable Controller 1 is used. The larger the setting, the greater the depth of control. (The wah effect becomes deeper.)

■ **AC1 AMod**
Set the depth of control that Assignable Controller 1 has over the amplitude modulation. A larger setting means a larger modulation depth. (The tremolo effect becomes deeper.)

🎵**NOTE** Depending on the selected LFO wave type and the amplitude modulation depth setting, noise may result when the controller is moved. If this happens, reduce the modulation depth value.

22. ReverbSend

Set the send level of the Reverb Effect.

```
ReverbSend
PAGE  PART/ELEM/KEY
 22        P      040
OCTAVE  –  |  +
```

❏ **Settings**: 0 ~ 127

🎵**NOTE** In the value is too high, noise may result. If this happens, reduce the value.

23. ChorusSend

Set the send level of the Chorus Effect.

```
ChorusSend
PAGE  PART/ELEM/KEY
 23        P      000
OCTAVE  –  |  +
```

❏ **Settings**: 0 ~ 127

24. Var Send (Variation Send)

When the Variation effect is set as an Insertion effect, this determines whether the Variation effect is applied or not. When the Variation effect is set as an System effect, this determines the send level for the effect. (Make the Insertion/System setting from the Variation Connection parameter (PAGE 15) in Multi Common Edit; see page 58.)

```
Var Send
  [PAGE] [PART/ELEM/KEY]   off
   24        P
  [OCTAVE] [ - ] [ | ] [ + ]        ▶
```

❏ **Settings**:

When VarConnect is set to "INS":
on (effect is applied), off (effect is not applied)

When VarConnect is set to "SYS":
0 ~ 127

♪NOTE When VarConnect is set to "INS," this parameter determines whether or not the Variation effect is applied to the particular Part. In this condition, the Variation effect cannot be used for several Parts at the same time. Only the Part last selected will be routed through the Variation effect. When VarConnect is set to "SYS," this parameter lets you adjust the send level for the Variation effect for each Part. Also set the related Multi Common Edit parameters (in PAGES 16 to 21) as desired.

♪NOTE For more details on the Effects, see page 53.

Multi Job

You can perform various operations (Jobs) in the Multi Job mode. For example, you can initialize Multis to their original settings (including those currently being edited) or copy Parts.

♪NOTE Before entering the Multi Job mode and using the Initialize or Copy function, you must select the Multi you wish to use the particular operation on (page 37).

♪NOTE For details about how to enter the Multi Job mode, see page 28.

Performing a Job

❶ In the Multi Play mode, select the Multi Number you wish to perform the Job on.

❷ Press the [JOB] button to enter the Multi Job mode.

❸ Use the [▲][▼] buttons and switch to the screen showing the Job you wish to perform.

```
Job:Init
  [PAGE] [PART/ELEM/KEY]  multi
   1
  [OCTAVE] [ - ] [ | ] [ + ]
```

❹ Use the [DEC/NO] and [INC/YES] buttons to select the parameter you wish to perform the Job on.

♪NOTE This step is not applicable for the Bulk Dump Job.

♪NOTE Use the [+]/[–] buttons to set the Part or destination Part when using Init Part/CpyVar/CpyCtl or Copy Part (CpyPart).

❺ When you press the [ENTER] button, you will be prompted for confirmation.

```
Job:Init
  [PAGE] [PART/ELEM/KEY]  Sure?
   1
  [OCTAVE] [ - ] [ | ] [ + ]
```

❻ Press the [INC/YES] button to confirm. A "Completed" message appears when the Job has been completed, and operation returns to the original screen.

Press the [DEC/NO] button to cancel the Job.

♪NOTE For Jobs that take longer to process, you will see the message "Excuting.." during processing. If you switch off the power to the S03 while this message is displayed, you risk corrupting your data.

❼ Press the [Multi] button to exit the Multi Job mode and return to the Multi Play mode.

1. Init (Initialize)

You can reset (initialize) all parameters of a Multi to their default settings. You can also selectively initialize certain parameters, such as Common settings, settings for each Part, and so on. Note that this does not return the Multi to its original state prior to editing. Instead, it is useful when building a completely new Multi from scratch.

```
Job:Init
PAGE  PART/ELEM/KEY      multi
  1
OCTAVE  –  |  +
```

■ **Select Parameter Type to be Initialized**
Use the [DEC/NO] and [INC/YES] buttons to select the parameter to be initialized. When this is set to "Part," use the [+]/[–] buttons to select the desired Part (1 - 16).

❏ **Settings:** multi (Current Multi), cmmn (Current Common), part (Current Part 1 ~ 16)

2. CpyVar (Copy Variation Effect)

When Var Connect is set to "SYS," this lets you copy the Effect settings for the Voice assigned to the Current Part.
When Var Connect is set to "INS," this lets you copy the Variation Effect settings for the Voice assigned to the Part for which "Var Send" (PAGE 24 in Multi Part Edit) was set to "on." If all of the Parts' Var Send settings are "off," the Part having the Voice Effect settings to be copied can be selected, just as above (when Var Connect is set to "SYS").

Var Connect=SYS
```
Job:CpyVar
PAGE  PART/ELEM/KEY
  2          P        1
OCTAVE  –  |  +
```

Var Connect=INS
```
Job:CpyVar
PAGE  PART/ELEM/KEY
  2          P
OCTAVE  –  |  +
```

❏ **Settings:**
P1 ~ P16 (Part 1 ~ 16) (When Var Connect is set to "SYS," or when Var Connect is set to "INS" and all Parts' Var Send settings are "off.")
No Parameter (When Var Connect is set to "INS" and one Part's Var Send settings is "on.")

🎵 **NOTE** The following parameters can be copied.
  • Variation Effect Type
  • Variation Parameters
  • MW Variation Control Depth
  • AC1 Variation Control Depth

🎵 **NOTE** When you copy the Variation effect data of a Drum Voice, the 2 Band EQ effect settings are copied.

3. CpyCtl (Copy Controller)

This let you copy the Controller settings for the Voice assigned to the Part.

```
Job:CpyCtl
PAGE  PART/ELEM/KEY
  3          P        1
OCTAVE  –  |  +
```

❏ **Settings:** 1 ~ 16, A (All Parts)

🎵 **NOTE** The following parameters can be copied.
  • MW Filter Control
  • MW Pitch Modulation Depth
  • MW Filter Modulation Depth
  • MW Amplitude Modulation Depth
  • Pitch Bend Range
  • AC1 Filter Control
  • AC1 Filter Modulation Depth
  • AC1 Amplitude Modulation Depth
  • Portamento Switch
  • Portamento Time

4. CpyPart (Copy Part)

This lets you copy Part parameter settings of the Multi being edited to another Part in the same Part. Use the [DEC/NO] and [INC/YES] buttons to select the source Part. Use the [–] and [+] buttons to select the desired destination Part (1 - 16).
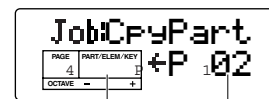
```
Job:CpyPart
PAGE  PART/ELEM/KEY
  4          P      ←P  02
OCTAVE  –  |  +
```
desired destination   source Part
Part (1 - 16)

❏ **Settings:** P1 ~ P16 (Part 1 ~ 16)

5. BlkDmp (Bulk Dump)

You can send all the parameter settings for the current Multi or all Multis to your computer or some other external MIDI device using Bulk Dump.

```
Job:BlkDmp
PAGE  PART/ELEM/KEY      Curnt
  5
OCTAVE  –  |  +
```

❏ **Settings:** Curnt (Current Multi), All (All Multis), Systm (All Utility and MIDI data)

🎵 **NOTE** To send Voice data, refer to the corresponding Bulk Dump function in the Voice Jobs (page 88).

🎵 **NOTE** In order to perform a Bulk Dump, the appropriate MIDI Device Number must be set. For details, see page 93.

🎵 **NOTE** For an application example showing how to use the Bulk Dump function, see page 42.

Multi Store

You can store (save) your original parameter settings for up to 32 Multis to User Memory. The procedure is as follows.

♪ NOTE When you perform this, the settings for the destination Multi will be overwritten. Important data should always be backed up to computer, Yamaha MIDI Data Filer MDF3 or some other storage device.

❶ Press the [STORE] button after editing a Multi. The Multi Store screen appears.

```
Store
PAGE  PART/ELEM/KEY  MLT01
OCTAVE  −  |  +
```

❷ Use [DEC/NO] and [INC/YES] buttons to select the destination Multi Number.

❸ When you press the [ENTER] button, you will be prompted for confirmation.

```
Store
PAGE  PART/ELEM/KEY  Sure?
OCTAVE  −  |  +
```

❹ Press the [INC/YES] button to confirm. The message "Excuting.." will be displayed while the Job is being processed. When it has been completed, a "Completed" message appears, and operation returns to the Multi Play mode.

♪ NOTE You can press the [DEC/NO] button to cancel the Job. This will return you to the original screen.

Voice Mode

Voice Edit

There are two types of Voices: Normal Voices and Drum Voices. The following is an explanation of the parameters used to edit each Voice.

NOTE Details about the Voice types and the Voice Memories are given on Page 25.

NOTE For more information on playing Voices, see page 33.

NOTE You need to select the Voice before entering Voice Edit mode (Page 33). All parameters can be set and stored per Voice.

NOTE See page 28 on how to enter Voice Edit mode.

The E Indicator

If you alter any parameters in Voice Edit mode, the E (Edit) indicator will be displayed in the PAGE column of the screen after exiting from the Voice Edit mode. This gives a quick indication that the current Voice has been modified but not yet stored.

Edit indicator
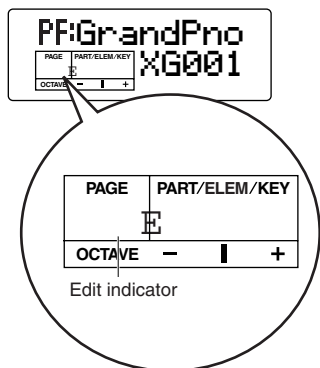
The Compare Function

Use this to listen to the difference between the Voice with your edited settings and the same Voice prior to editing.

❶ Press the [COMPARE (EDIT)] button while in Voice Edit mode. The EDIT LED will flash and the Voice settings prior to editing will temporarily be reinstated for comparison purposes.

NOTE While the Compare function is enabled, the DEC/NO and INC/YES buttons cannot be used for editing.

❷ Press the [EDIT] button again to disable the Compare function and restore your recently edited settings.

Switching Elements On/Off

In Voice Edit Mode, an Element can be switched on/off when you press the [MUTE] button. This lets you mute other Elements in the Voice so that you can listen to the changes to the Element that you are editing.
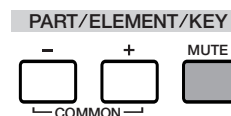
Voice Store

The edited settings for the current Voice will be lost if you select another Voice or mode. To avoid losing important data, you should always use Voice Store to store your edited Voice. For details about the Voice Store procedure, see page 89.

NOTE When creating a new Voice from scratch, it can be useful, prior to editing, to clear the settings for the current Voice using the Initialize Voice function in the Voice Job mode (pages 87 and 88).

Normal Voice

When editing Normal Voices, there are 52 PAGES consisting of 17 Common Edit settings (common to all four Elements) and 35 Element-specific settings.

NOTE For information on how to switch between the Common Edit displays and the Element Edit displays, see page 48.

NOTE Many parameters are the same as those for the Multis. For details about those parameters, see page 22.

NOTE Refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

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Common General (PAGES 1 to 4)
Common Controller (PAGES 5 to 10)
Common Effect (PAGES 11 to 17)

The following is an explanation of the Common parameters used to edit each Voice.

1. Name

You can set a Voice Name consisting of up to 8 characters. You can also select the Category Name to the left of the Voice Name.

```
PF:GrandPno
PAGE  PART/ELEM/KEY  Name
 1        C
OCTAVE  -  |  +
```

Setting the Voice Name

❶ Use the [◀] and [▶] buttons to move the cursor to the position of the next character. By assigning a Category Name, it will be easier to identify the Voice later. The Category Search function (page 35) can also be used to search for it. If no Category Name is set, the Category will be shown as two hyphens.

❷ Use the [◀] and [▶] buttons to move the cursor to the position of the first character. The selected character will flash.

❸ Use the [DEC/NO] and [INC/YES] buttons to enter an alphabetic character/symbol or use the numeric keypad to enter a numeric character.

❹ Use the [◀] and [▶] buttons to move the cursor to the position of the next character.

❺ Repeat Steps 3 and 4 until all the characters have been set for your Voice Name.

❏ **Available numbers and letters**

	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/	0	1	2
3	4	5	6	7	8	9	:	;	<	=	>	?	@	A	B	C	D	E
F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z	[	¥	]	^	_	`	a	b	c	d	e	f	g	h	i	j	k
l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{			}	→
←

LCD	Category	LCD	Category
––	Unassigned	SC	Synth Comping
PF	Piano	CP	Chromatic Percussion
OR	Organ	DR	Drums
GT	Guitar	SE	Sound Effects
BA	Bass	ME	Musical Effects
ST	Strings/Orchestral	CO	Combination
BR	Brass	(OTHER)	Musical Effects/Combination
RP	Reed/Pipe		
LD	Synth Lead		
PD	Synth Pad		

2-1. Total Vol (Total Volume)
2-2. Total Lvl (Total Level)

Set the output level of the Voice. Total Volume determines the overall volume, including the applied effect. Total Level determines the level of the Voice that is sent to the effect.

```
Total Vol
PAGE  PART/ELEM/KEY
 2        C      E  127
OCTAVE  -  |  +
```

```
Total Lvl
PAGE  PART/ELEM/KEY
 2        C      E  127
OCTAVE  -  |  +
```
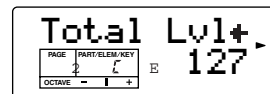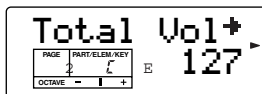
❏ **Settings:** 0 ~ 127

3. Mono/Poly

Select monophonic or polyphonic playback. Select whether a voice is played back monophonically (single notes only) or polyphonically (multiple simultaneous notes).

```
Mono/Poly
PAGE  PART/ELEM/KEY
 3        C      E Poly
OCTAVE  -  |  +
```

❏ **Settings:** mono, poly

4-1. VelSnsDpt (Velocity Sensitivity Depth)

4-2. VelSnsOfs (Velocity Sensitivity Offset)

The parameters and settings are the same as those for the Multis. For details, see page 62.

5-1. Porta Sw (Portamento Switch)

5-2. PortaTime (Portamento Time)

6. PB Range (Pitch Bend Range)

7. MW FltCtl (MW Filter Control)

8-1. MW PMod (MW Pitch Modulation Depth)

8-2. MW FMod (MW Filter Modulation Depth)

8-3. MW AMod (MW Amplitude Modulation Depth)

9. AC1FltCtl (AC1 Filter Control)

10-1. AC1 FMod (AC1 Filter Modulation Depth)

10-2. AC1 AMod (AC1 Amplitude Modulation Depth)

The parameters and settings are the same as those for the Multis. For details, see pages 65 and 66.

11. ReverbSend

12. ChorusSend

The parameters and settings are the same as those for the Multis. For details, see page 66.

13. SndCho→Rev (Send Chorus to Reverb)

14. VarEF (Variation Effect Type)

15. Variation Parameters

The parameters and settings are the same as those for the Multis. For details, see page 57.

16. MW VarCtl (MW Variation Effect Control Depth)

17. AC1 VarCtl (AC1 Variation Effect Control Depth)

The parameters and settings are the same as those for the Multis. For details, see pages 58 and 59.

Voice Mode/Multi Mode Parameters

Normal Voice Common Edit PAGE	LCD (parameter name)	Multi Part Edit PAGE	Owner's Manual Page
4-1	VelSnsDpt (Velocity Sensitivity Depth)	10-1	62
4-2	VelSnsOfs (Velocity Sensitivity Offset)	10-2	62
5-1	Porta Sw (Portamento Switch)	15-1	65
5-2	PortaTime (Portamento Time)	15-2	65
6	PB Range (Pitch Bend Range)	16	65
7	MW FltCtl (MW Filter Control)	17	65
8-1	MW PMod (MW Pitch Modulation Depth)	18-1	65
8-2	MW FMod (MW Filter Modulation Depth)	18-2	65
8-3	MW AMod (MW Amplitude Modulation Depth)	18-3	65
9	AC1FltCtl (AC1 Filter Control)	20	65
10-1	AC1 FMod (AC1 Filter Modulation Depth)	21-1	66
10-2	AC1 AMod (AC1 Amplitude Modulation Depth)	21-2	66
11	ReverbSend	22	66
12	ChorusSend	23	66
		Multi Common Edit PAGE	
13	SndCho→Rev (Send Chorus to Reverb)	12	57
14	VarEF (Variation Effect Type)	13	57
15	Variation Parameters	14	57
16	MW VarCtl (MW Variation Effect Control Depth)	20	58
17	AC1 VarCtl (AC1 Variation Effect Control Depth)	21	59

Element Oscillator/Mixer (PAGES 1 to 6)
. . . .
Element Pitch (PAGES 7 to 12)
. . . .
Element Filter (PAGES 13 to 22)
. . . .
Element Amplitude (PAGES 23 to 31)
. . . .
Element LFO (PAGES 32 to 35)
. . . .

The following is an explanation of the Element parameters used to edit each Voice.

♪NOTE The Element settings whose Element Switch is set to "off" can not be changed and "***" appears in the display.

1. Element Sw (Element Switch)

This determines whether each Element sounds or not.
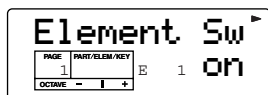
❏ **Settings:** off, on

2. Wave Selection

Select the Wave. Each Element can be assigned a different wave (sound).
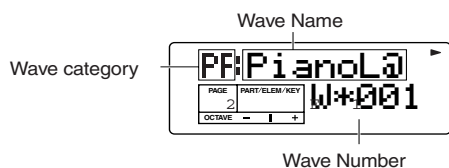
❏ **Settings:** 1 ~ 453

♪NOTE Wave numbers indicated with an asterisk (*) and Wave names indicated with an "at" mark (@) have fixed parameter values (depending on the sound range). For these waves, Element editing is limited to the Wave selection and Element Switch parameters. All other parameters' values are replaced by a series of asterisks in the LCD, indicating that they cannot be set.

3. Level

Set the output level of each Element.
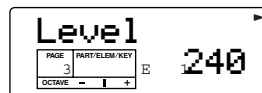
❏ **Settings:** 0 ~ 255

4. Pan

Set the Stereo Pan position for each wave.
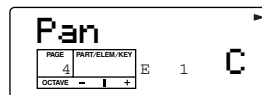
❏ **Settings:** Scale, L63 (Left) ~ C (Center) ~ R63 (Right)

Scale: Set the amount by which the sound is panned left and right according to the position of the note on the keyboard.

♪NOTE You can also enter the settings below using the numeric keypad.
0: Scale
1 ~ 63: L63 ~ L01
64: C (Center)
65 ~ 127: R01 ~ R63

5-1. NtLmt-L (Note Limit Low)
5-2. NtLmt-H (Note Limit High)

Set the lowest and highest notes of the keyboard range for each Element. Each Element will only sound for notes played within its specified range.
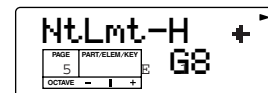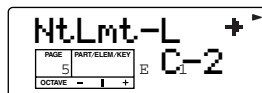
❏ **Settings:** C-2 ~ G8

♪NOTE You can set the lowest and highest notes in the range by pressing notes on the keyboard while holding down the [ENTER] button.

Voice Mode

Element Oscillator/Mixer **73**

6-1. VelLmt-L (Velocity Limit Low)

6-2. VelLmt-H (Velocity Limit High)

Set the minimum and maximum values of the velocity range within which each Element will respond. Each Element will only sound for notes played within its specified velocity range.

```
VelLmt-L +`      VelLmt-H +`
PAGE  PART/ELEM/KEY        PAGE  PART/ELEM/KEY
  6            E  1001       6            E  1127
OCTAVE  -    +              OCTAVE  -    +
```
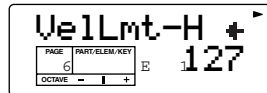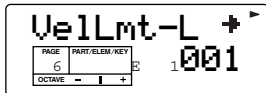
❏ **Settings:** 1 ~ 127

7-1. NoteShift

7-2. Detune

These parameters determine the pitch of each Element.

```
NoteShift+`      Detune   +`
PAGE  PART/ELEM/KEY        PAGE  PART/ELEM/KEY
  7            E  1+00       7            E  1+00
OCTAVE  -    +              OCTAVE  -    +
```
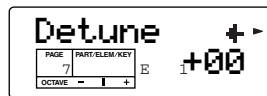
❏ **Settings:** –63 ~ 0 ~ +63

■ **NoteShift**
   Set the amount (in semitones) by which the note pitch is shifted.

■ **Detune**
   Determines the fine tuning setting of the pitch.

8-1. PchSclSns (Pitch Scale Sensitivity)

8-2. PchSclCN (Pitch Scale Center Note)

You can set the Pitch Scaling for each Element. Pitch Scaling controls the pitch according to the positions of the notes on the keyboard.

```
PchSclSns+`      PchSclCN +`
PAGE  PART/ELEM/KEY        PAGE  PART/ELEM/KEY
  8            E  100%       8            E  C3
OCTAVE  -    +              OCTAVE  -    +
```
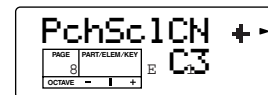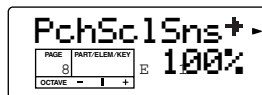
■ **PchSclSns**
   Adjust the sensitivity of the Pitch Scaling for each Element according to the position of the note on the keyboard. The "PchSclCN" parameter (below) is used as the basic pitch for this parameter.
   The higher the value, the lower the pitch becomes when playing low notes, and the higher the pitch becomes when playing high notes.

   ❏ **Settings:** 0%, 5%, 10%, 20%, 50%, 100% At +100%, adjacent notes are pitched one semitone (100 cents) apart.

■ **PchSclCN**
   Set the basic pitch used by the PchSclSns parameter (above).

   ❏ **Settings:** C-2 ~ G8

   🎵 NOTE You can also set this parameter by pressing the respective note on the keyboard while holding down the [ENTER] button.

Voice Mode
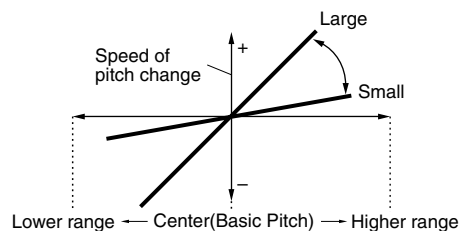
9-1. PEGAtkR (PEG Attack Rate)
9-2. PEGDcy1R (PEG Decay 1 Rate)
9-3. PEGDcy2R (PEG Decay 2 Rate)
9-4. PEGRelR (PEG Release Rate)

You can set various Rate parameters (the time it takes for the pitch to change from one level to the next) for the Pitch Envelope Generator (PEG). Combined with the PEG Level settings below, these can be used control the change in sound from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
PEGAtkR  ÷▶        PEGDcy1R ÷▶
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 9        E  1  C3   9        E  1  00
OCTAVE  -  |  +     OCTAVE  -  |  +

PEGDcy2R ÷▶        PEGRelR  ÷▶
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 9        E  1  00   9        E  1  00
OCTAVE  -  |  +     OCTAVE  -  |  +
```
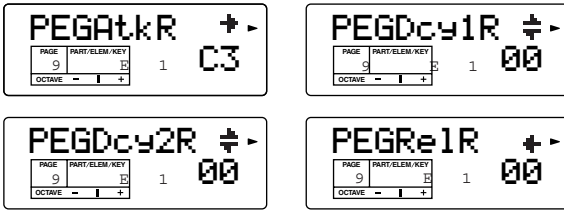
❏ **Settings:** 0 ~ 63

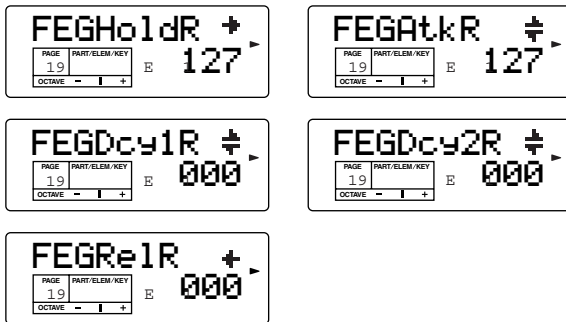# 10-1. PEGInitL (PEG Initial Level)
10-2. PEGAtkL (PEG Attack Level)
10-3. PEGDcy1L (PEG Decay 1 Level)
10-4. PEGSusL (PEG Sustain Level)
10-5. PEGRelL (PEG Release Level)

You can set various Level parameters for the Pitch Envelope Generator (PEG). Combined with the Rate settings above (PEG Atk/Dcy 1/Dcy 2/Rel R), these can be used control the change in sound from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
PEGInitL ÷▶        PEGAtkL  ÷▶
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 10      E +0000    10      E +0000
OCTAVE  -  |  +     OCTAVE  -  |  +

PEGDcy1L ÷▶        PEGSusL  ÷▶
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 10      E +0000    10      E +0000
OCTAVE  -  |  +     OCTAVE  -  |  +

PEGRelL  ÷▶
PAGE PART/ELEM/KEY
 10      E +0000
OCTAVE  -  |  +
```
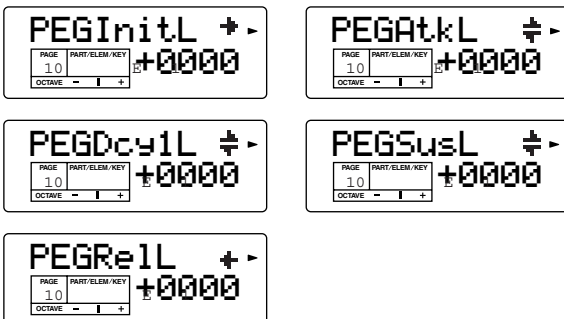
❏ **Settings:** –2400 ~ +2400

Pitch Envelope Generator Settings

You can set four Rate parameters (which control how fast the pitch changes from one Level to the next) and five Level (pitch) parameters, which control the change in pitch from the moment you press a note on the keyboard to the moment you release it. The Initial Level and Attack Rate settings determines from what pitch the note starts when it is played and the time it takes to reach the Attack Level pitch setting. The Decay 1 and 2 Rates control how long it takes for the pitch to reach the Decay 1 and 2 Levels, respectively. Finally, the Release Rate and Release Level parameters determine the final pitch that the sound goes to when a key is released and how long it takes to reach that pitch.

In the illustration, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the pitch goes to the next set Level — in other words, the time it takes for the pitch to change (between Level settings) becomes shorter. Velocity Sensitivity and other parameters can also be set if required.
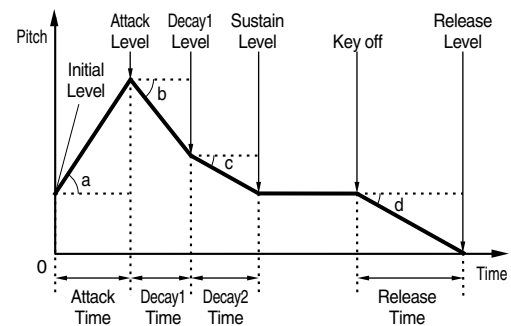
11-1. PEGSclSns (PEG Scale Sensitivity)
11-2. PEGSclCN (PEG Scale Center Note)

You can set PEG scale parameters for each Element. These parameters control the PEG speed and the degree of pitch change according to the position of the notes played on the keyboard.

```
PEGSclSns+·          PEGSclCN +·
PAGE PART/ELEM/KEY          PAGE PART/ELEM/KEY
 11          E  1 +0        11          E C3
OCTAVE - | +              OCTAVE - | +
```
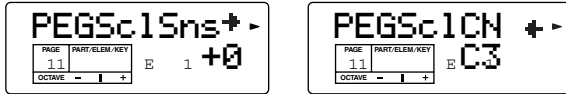
■ **PEGSclSns**

This determines the sensitivity of the PEG Rates for each element to note position. In other words, the speed of the pitch change varies according to the range of the keyboard that is played. The PEGSclCN parameter below is used as the basic or central pitch for this parameter. A positive setting will cause slower changes for lower notes and faster changes for higher notes. A negative setting will have the opposite effect.
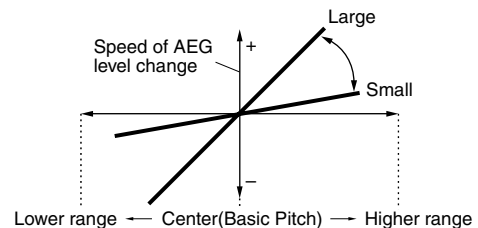
❏ **Settings:** –7 ~ +7

■ **PEGSclCN**

This determines the basic or central pitch used by the PEG Scale Sensitivity parameter above. When the center note is played, the PEG behaves according to its actual settings. The pitch change characteristics for other notes will vary in proportion to the EG Rate settings.

❏ **Settings:** C-2 ~ G8

NOTE You can also set this parameter by pressing the respective note on the keyboard while holding down the [ENTER] button.

```
Positive value
          +
Speed of PEG
pitch change
Lower range ←——————→ Higher range
          −
        Basic pitch
```

```
Negative value
          +
          Speed of PEG
          pitch change
Lower range ←——————→ Higher range
          −
        Basic pitch
```
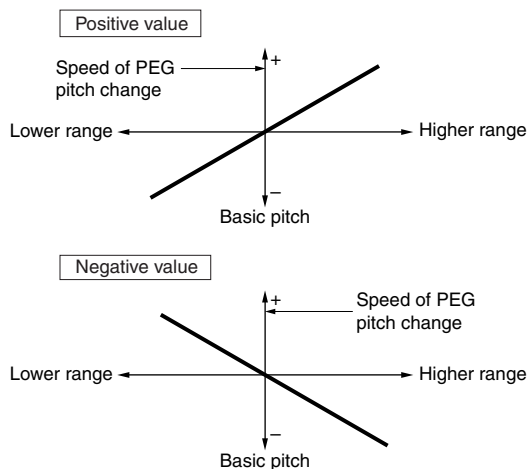
12-1. PEGRtVel (PEG Rate Velocity)
12-2. PEGLvlVel (PEG Level Velocity)

This determines how the Pitch Envelope Generator (PEG) responds to note velocity.

```
PEGRtVel +·          PEGLvlVel+·
PAGE PART/ELEM/KEY          PAGE PART/ELEM/KEY
 12          E  1 +0        12          E  1 +0
OCTAVE - | +              OCTAVE - | +
```
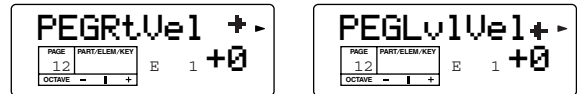
❏ **Settings:** –7 ~ +7

■ **PEGRtVel**

Set the velocity sensitivity of the PEG's Rate (speed) parameters. Positive settings will cause the pitch to rised when you play the keyboard harder (for a large Velocity value). A negative setting will have the opposite effect.

■ **PEGLvlVel**

Set the velocity sensitivity of the PEG Level. Positive settings will cause the pitch to rise the harder you play the keyboard and negative settings will cause it to fall.

Voice Mode

13-1. Cutoff
13-2. Resonance

You can set Filter parameters to change the tonal characteristics of each Element.

```
Cutoff    +       Resonance+
PAGE  PART/ELEM/KEY         PAGE  PART/ELEM/KEY
 13          E 0000          13        E  1 00
OCTAVE  –   |   +          OCTAVE  –   |   +
```
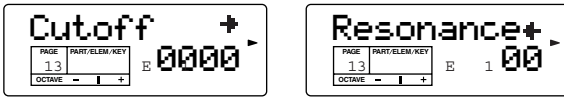
Filter is the section of the tone generator that changes the tonal qualities of a Voice by passing only a limited frequency range and cutting signals outside that range. The S03 employs an LPF (low pass filter).

■ Cutoff

Set the Cutoff frequency of the low pass filter. Only frequencies below this point are passed.
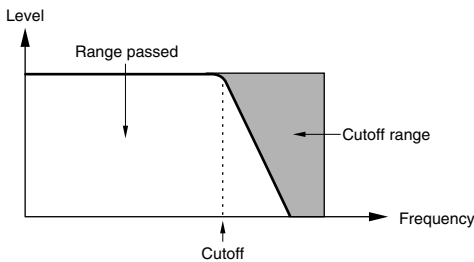
❏ **Settings:** 0 ~ 2047

■ Resonance

Set the amount of Resonance (harmonic boost) applied to the signal around the Cutoff frequency. This is a useful way of adding further character to the sound.
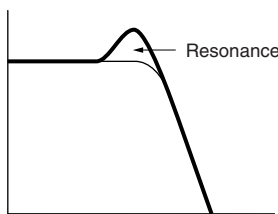
❏ **Settings:** 0 ~ 63

14-1. CutoffVel
(Cutoff Velocity Sensitivity)
14-2. ResoVel
(Resonance Velocity Sensitivity)

You can set Filter Sensitivity parameters for each Element.

```
CutoffVel+        ResoVel   +
PAGE  PART/ELEM/KEY         PAGE  PART/ELEM/KEY
 14          E  1 00         14        E  1 00
OCTAVE  –   |   +          OCTAVE  –   |   +
```
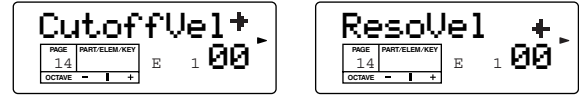
❏ **Settings:** 0 ~ 15

■ CutoffVel

Set the sensitivity of the Cutoff frequency to note velocity. A positive setting will raise the Cutoff frequency for notes played harder, and lower it for notes played more softly.

■ ResoVel

Set the sensitivity of the selected Resonance parameter to note velocity. A positive setting will produce large Resonance changes for notes played harder, and smaller changes for notes played more softly.

15. FltSclFlag (Filter Scale Flag)

You can set the Filter Scaling type. Filter Scaling controls the filter cutoff frequency according to the positions of the notes on the keyboard. There are four Break Points in the Flt BP screen (PAGE 16) used to divide and assign different settings across the keyboard. The Levels (Offsets) at each of Break Point are set in the Flt Ofs screen (PAGE 17).

♪ NOTE Details about Filter Scaling are given later in the section "Filter Scaling Settings" on page 78.

```
FltSclFlag
PAGE  PART/ELEM/KEY
 15          brk.p
OCTAVE  –   |   +
```

❏ **Settings:** brk.p (applies the BP parameter settings in the following pages), table (applies the settings which are preset for each voice)

♪ NOTE The "table" setting is effective only for XG Voices.

16-1. Flt BP1
(Filter Scale Break Point 1)

16-2. Flt BP2
(Filter Scale Break Point 2)

16-3. Flt BP3
(Filter Scale Break Point 3)

16-4. Flt BP4
(Filter Scale Break Point 4)

Set the Break Points for each Element. BP1 to BP4 will be automatically be arranged in ascending order across the keyboard.
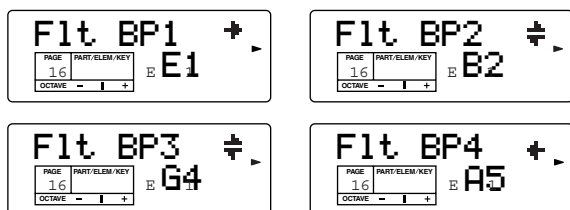
❑ **Settings:** Flt BP1 ~ Flt BP4: C-2 ~ G8

17-1. Flt Ofs1
(Filter Scale Offset 1)

17-2. Flt Ofs2
(Filter Scale Offset 2)

17-3. Flt Ofs3
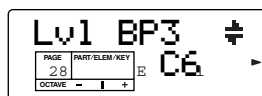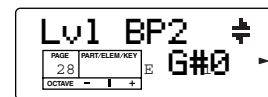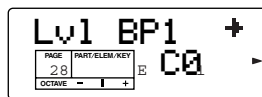## (Filter Scale Offset 3)

17-4. Flt Ofs4
(Filter Scale Offset 4)

Set the Filter Scaling Offset Levels. These Offsets are used by the Break Points (BP1/BP2/BP3/BP4).

NOTE Details about Filter Scaling are given later in the section "Filter Scaling Settings"on page 78.
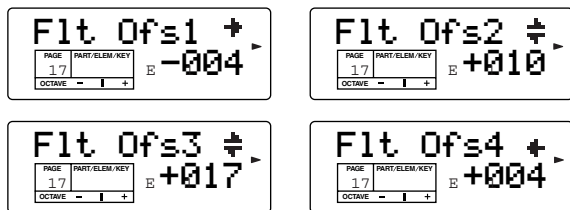
❑ **Settings:** Flt Ofs1 ~ Flt Ofs4: –128 ~ +127

18-1. FltSclSns
(Filter Scale Sensitivity)

18-2. FltSclVel
(Filter Scale Velocity Sensitivity)

❑ **Settings:** 0 ~ 15

■ **FltSclSns**

Determines the Time Scale (the speed of change in the FEG over the range of the keyboard) for each Element. The higher the value, the slower the change for lower notes and the faster the change for higher notes.

■ **FltSclVel**

Determines the velocity sensitivity of the FEG Level. For higher values, the more strongly you play the keys, the greater the sound change (FEG Level) becomes.

Filter Scaling Settings

By way of example, you could set the Levels (Offsets) and Break Points (BP1 to BP4) as follows.

	1	2	3	4
BP	E1	B2	G4	A5
Ofs	–4	+10	+17	+4

Here, the current Cutoff setting is 64. The Offsets are –4 at BP1 (set to note E1), + 10 at BP2 (set to note B2), + 17 at BP3 (set to note G4) and + 4 at BP4 (set to A5). That is, the Cutoff frequencies at each Break Point are 60, 74, 81 and 68, respectively. For other notes, the Cutoff frequencies will be on the straight line connecting the two adjacent Break Points.

NOTE The Break Point Levels are Offsets used to increase or decrease the current Cutoff setting at the specified notes. Regardless of the size of these Offsets, the minimum and maximum Cutoff limits (values of 0 and 127, respectively) cannot be exceeded.

NOTE A note set below the BP1 will become the BP1 Level. A note set above BP4 will become the BP4 Level.

19-1. FEGHoldR (FEG Hold Rate)
19-2. FEGAtkR (FEG Attack Rate)
19-3. FEGDcy1R (FEG Decay 1 Rate)
19-4. FEGDcy2R (FEG Decay 2 Rate)
19-5. FEGRelR (FEG Release Rate)

You can set various Rate parameters (the time it takes to get from one Level to the next) for the Filter Envelope Generator (FEG). Combined with the FEG Level settings, these can be used control the change in sound from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
FEGHoldR  +
PAGE PART/ELEM/KEY
 19           E 127
OCTAVE  -  |  +
```
```
FEGAtkR   +
PAGE PART/ELEM/KEY
 19           E 127
OCTAVE  -  |  +
```
```
FEGDcy1R  +
PAGE PART/ELEM/KEY
 19           E 000
OCTAVE  -  |  +
```
```
FEGDcy2R  +
PAGE PART/ELEM/KEY
 19           E 000
OCTAVE  -  |  +
```
```
FEGRelR   +
PAGE PART/ELEM/KEY
 19           E 000
OCTAVE  -  |  +
```

❏ **Settings:** 0 ~ 127

20-1. FEGInitL (FEG Initial Level)
20-2. FEGAtkL (FEG Attack Level)
20-3. FEGDcy1L (FEG Decay 1 Level)
20-4. FEGSusL (FEG Sustain Level)
20-5. FEGRelL (FEG Release Level)

You can set the Level parameters for the Filter Envelope Generator (FEG). Combined with the Rate settings above (FEG Hold/Atk/Dcy1/Dcy2/Rel R), these can be used control the change in sound from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
FEGInitL  +
PAGE PART/ELEM/KEY
 20         E +0000
OCTAVE  -  |  +
```
```
FEGAtkL   +
PAGE PART/ELEM/KEY
 20         E +0000
OCTAVE  -  |  +
```
```
FEGDcy1L  +
PAGE PART/ELEM/KEY
 20         E +0000
OCTAVE  -  |  +
```
```
FEGSusL   +
PAGE PART/ELEM/KEY
 20         E +0000
OCTAVE  -  |  +
```
```
FEGRelL   +
PAGE PART/ELEM/KEY
 20         E +0000
OCTAVE  -  |  +
```
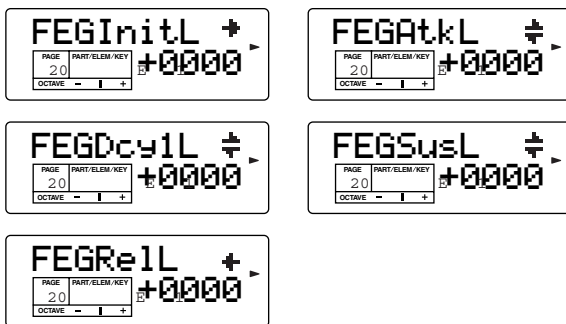
❏ **Settings:** –2047 ~ +2047

Filter Envelope Generator Settings

There are five Rate settings (controlling the speed of changes to the sound) and five Level settings (controlling the amount of filtering applied). As soon as a note is played, the filter is fixed at the Initial Level setting, and maintains that level for the length of time set in Hold Rate. The degree to which the filter changes after that is determined by the Attack Level and Decay 1 and 2 Levels; the time it takes between those changes is determined by the Attack Rate and Decay 1 and 2 Rates. When the note is released, the change in tone is determined by the Release Rate/Level settings.

In the illustration, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the filter goes to the next set Level — in other words, the time it takes for the filter to change (between Level settings) becomes shorter. Velocity Sensitivity and other parameters can also be set if required.
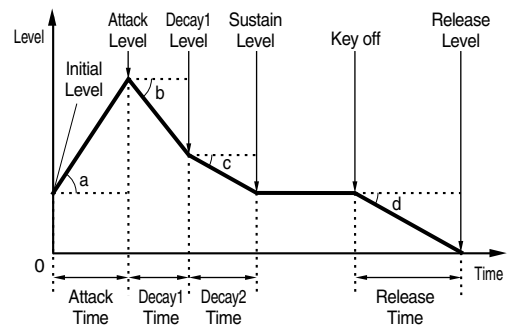
21. FEGSclSens (FEG Scale Sensitivity)

You can set the FEG Scale parameters for each Element. This parameter controls the Filter Cutoff and FEG behavior according to the position of the notes played on the keyboard.

NOTE The availability of the FEG Scale parameter depends on the Break Point and Offset settings in the Flt BP/Flt Ofs PAGES above.

```
FEGSclSens
PAGE PART/ELEM/KEY
 21         E 1  00
OCTAVE  -  |  +
```


❏ **Settings:** 0 ~ 15

Element Filter **79**

22-1. FEGAtkVel (FEG Attack Velocity)

22-2. FEGOthVel (FEG Other Velocity)

You can set parameters controlling the sensitivity of the Filter Envelope Generator (FEG) to note velocity.

```
FEGAtkVel +
PAGE  PART/ELEM/KEY   E  1 +0
22
OCTAVE  -  |  +
```

```
FEGOthVel +
PAGE  PART/ELEM/KEY   E   1 +0
22
OCTAVE  -  |  +
```

■ **FEGAtkVel**

Determines the velocity sensitivity of the FEG Attack Rate.

❏ **Settings:** –7 ~ +7

■ **FEGOthVel**

Determines the velocity sensitivity of all FEG Rates, other than Attack Rate.

❏ **Settings:** –7 ~ +7

23-1. AEGAtkR (AEG Attack Rate)

23-2. AEGDcy1R (AEG Decay 1 Rate)

23-3. AEGDcy2R (AEG Decay 2 Rate)

23-4. AEGRelR (AEG Release Rate)

You can set various Rate parameters (the time it takes for the volume to change from one level to the next) for the Amplitude Envelope Generator (AEG). Combined with the AEG Level settings below, these can be used control the change in output level from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
AEGAtkR  +
PAGE  PART/ELEM/KEY  E  127
23
OCTAVE  -  |  +
```

```
AEGDcy1R +
PAGE  PART/ELEM/KEY  E  000
23
OCTAVE  -  |  +
```

```
AEGDcy2R +
PAGE  PART/ELEM/KEY  E  000
23
OCTAVE  -  |  +
```

```
AEGRelR  +
PAGE  PART/ELEM/KEY  E  000
23
OCTAVE  -  |  +
```
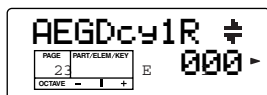
❏ **Settings:** 0 ~ 127

♪ NOTE For example, if the AEG Release Rate is set to a small value, the sustain becomes long.

24-1. AEGInitL (AEG Initial Level)

24-2. AEGDcy1L (AEG Decay 1 Level)

24-3. AEGSusL (AEG Sustain Level)

You can set various Level parameters for the Amplitude Envelope Generator (AEG). Combined with the Rate settings above (AEG Atk/Dcy 1/Dcy 2/ Rel R), these can be used control the change in output level from the moment a note is pressed on the keyboard to the moment it is released (see illustration below). You can set different values for each Element.

```
AEGInitL +
PAGE  PART/ELEM/KEY  E  255
24
OCTAVE  -  |  +
```

```
AEGDcy1L +
PAGE  PART/ELEM/KEY  E  255
24
OCTAVE  -  |  +
```

```
AEGSusL  +
PAGE  PART/ELEM/KEY  E  255
24
OCTAVE  -  |  +
```
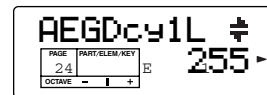
❏ **Settings:** 0 ~ 255

Amplitude Envelope Generator Settings

There are four Rate settings (which control how fast the volume changes from one Level to the next) and three Level settings (which control the actual volume). When you play a key, the volume goes to the Initial Level, at the speed set in Attack Rate. From there it goes to the Decay and Sustain Levels, at speeds set in Decay 1 and 2 Rates, respectively. When the note is released, the volume goes down to zero, at the speed set in Release Rate.

In the illustration below, the letters a - d indicate the respective Rate (R) settings for Attack - Release. The greater the value for each Rate, the faster the filter goes to the next set Level — in other words, the time it takes for the volume to change (between Level settings) becomes shorter. Velocity Sensitivity and other parameters can also be set if required.

---
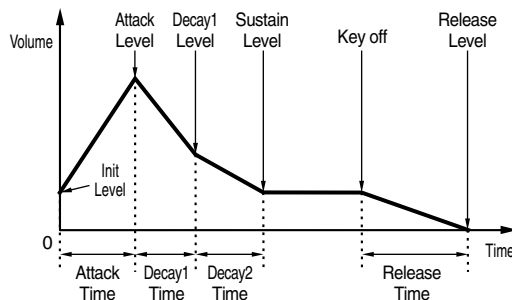
25. AEGSclSens
(AEG Scale Sensitivity)

This determines the AEG scaling parameters for each Element. This parameter controls the degree of the AEG according to the positions of notes on the keyboard.

🎵 NOTE The availability of the AEG Scale parameter depends on the Break Point and Offset settings in the LvlScl display.

```
AEGSclSens
PAGE  PART/ELEM/KEY
  25           E      .00 ▶
OCTAVE  —  |  +
```
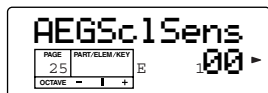
❏ **Settings:** 0 ~ 15

26-1. AEGLvlVel
(AEG Level Velocity Sensitivity)
26-2. AEGAtkVel
(AEG Attack Velocity Sensitivity)

This determines the sensitivity of the Amplitude Envelope Generator (AEG) to note velocity.

```
AEGLvlVel ♦          AEGAtkVel ♦
PAGE  PART/ELEM/KEY          PAGE  PART/ELEM/KEY
  26           E    .00 ▶      26           E    .00 ▶
OCTAVE  —  |  +              OCTAVE  —  |  +
```
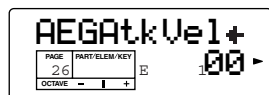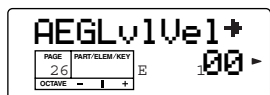
❏ **Settings:** 0 ~ 15

■ **AEGLvlVel**

This determines the sensitivity of the AEG Level to note velocity. For higher values, the more strongly you play the keys, the greater the change in volume (AEG Level).

■ **AEGAtkVel**

This determines the velocity sensitivity of the AEG' Attack Rate. For higher values, the Attack Rate becomes faster the harder you play the keyboard.

27. LvlSclFlag
(AEG Level Scale Flag)

You can set four Amplitude Scaling Break Points for each Element. Amplitude Scaling controls the amplitude according to the positions of the notes on the keyboard. There are four Break Points used to divide and assign different settings across the keyboard. The Levels (Offsets) at each of Break Point are set in the Level Offset display (PAGE 30).

🎵 NOTE Details about Amplitude Scaling are given later in the section "Amplitude Scaling Settings" below.

🎵 NOTE The Levels of the Elements themselves are set in the Level (PAGE 3) display (page 73).

```
LvlSclFlag
PAGE  PART/ELEM/KEY
  27          brk.p ▶
OCTAVE  —  |  +
```

❏ **Settings:** brk.p (applies the BP parameter settings in the following PAGES), table (applies the settings which are preset for each voice)

28-1. Lvl BP1 (Level Break Point 1)
28-2. Lvl BP2 (Level Break Point 2)
28-3. Lvl BP3 (Level Break Point 3)
28-4. Lvl BP4 (Level Break Point 4)

Set the Break Points for each Element. BP1 to BP4 will be automatically be arranged in ascending order across the keyboard.

```
Lvl BP1  ♦           Lvl BP2  ♦
PAGE  PART/ELEM/KEY          PAGE  PART/ELEM/KEY
  28          E  C0 ▶          28          E  G#0 ▶
OCTAVE  —  |  +              OCTAVE  —  |  +

Lvl BP3  ♦           Lvl BP4  ♦
PAGE  PART/ELEM/KEY          PAGE  PART/ELEM/KEY
  28          E  C6 ▶          28          E  C7 ▶
OCTAVE  —  |  +              OCTAVE  —  |  +
```

❏ **Settings:** Lvl BP1 ~ Lvl BP4: C-2 ~ G8

29-1. Lvl Ofs1 (Level Offset 1)
29-2. Lvl Ofs2 (Level Offset 2)
29-3. Lvl Ofs3 (Level Offset 3)
29-4. Lvl Ofs4 (Level Offset 4)

Set the Amplitude Scaling Offset Levels. These Offsets are used by the Break Points (BP1/BP2/BP3/BP4).

NOTE Details about Amplitude Scaling are given later in the section "Amplitude Scaling Settings" below.
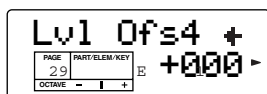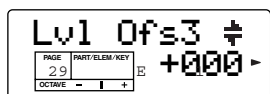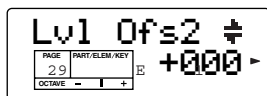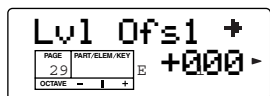
❏ **Settings:** Lvl Ofs1 ~ Lvl Ofs4:–128 ~ + 127

Amplitude Scaling Settings

By way of example, you could set the Levels (Offsets) and Break Points (BP1 to 4) as follows.

	1	2	3	4
BP	E1	B2	G4	A5
Ofs	–4	+10	+17	+4

Here, the current amplitude is 80. The Offsets are –4 at BP1 (set to note E1), + 10 at BP2 (set to note B2), + 17 at BP3 (set to note G4) and + 4 at BP4 (set to A5). That is, the amplitudes at each Break Point are 76, 90, 97 and 84, respectively. For other notes, the amplitudes will be on the straight line connecting the two adjacent Break Points.

NOTE The Break Point Levels are Offsets used to increase or decrease the current amplitude at the specified notes. Regardless of the size of these Offsets, the minimum and maximum amplitude limits (values of 0 and 127, respectively) cannot be exceeded.

NOTE A note set below the BP1 will become the BP1 Level. A note set above BP4 will become the BP4 Level.

---

30. LvlSclSens (Level Scale Sensitivity)

Determines the Time Scale (how fast the volume changes across the range of the keyboard) for each Element. The higher the value, the slower the change for lower notes and the faster the change for higher notes.
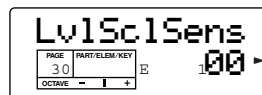
❏ **Settings:** 0 ~ 15

31. KeyonDelay

Determines the time (delay) between the moment you press a note on the keyboard and the point at which the sound is played. You can set different delay times for each Element.

❏ **Settings:** 0 ~ 15

32-1. LFO Wave
32-2. LFO Phase (LFO Phase Initialize)

There are various settings for the LFO. The LFO is used to generate low frequency signals and can be used to create vibrato, wah, tremolo and other effects when applied to pitch/filter/amplitude/etc. parameters. For example, it can be applied simultaneously to both pitch and filter, or to specific parameters of individual Elements.

■ **LFO Wave**

Determines the LFO Wave. Depending on the Wave selected, you can create different kinds of modulated sounds. The following three LFO waveforms are available.

❏ **Settings:** saw, tri, S&H

NOTE S&H = Adds random changes to the pitch. Tri (Triangle) waves will be applied for the LFO AMod and LFO FMod. Triangle wave is applied even if you select S&H for LFO PMod, when controlling the LFO PMod with the Modulation Wheel.

saw
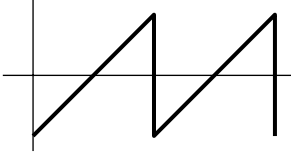
tri
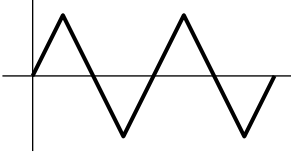
S&H
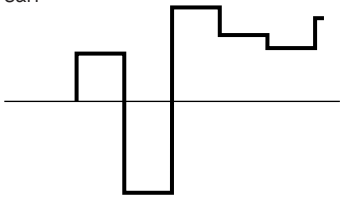
■ **LFO Phase**

Determines whether or not the LFO is reset each time a note is pressed.

❏ **Settings:** off, on

33. LFO Speed

Determines the speed of the LFO waveform. A larger setting produces a faster speed.


```
LFO Speed
PAGE  PART/ELEM/KEY
 33              E    31
OCTAVE  –    +
```

❏ **Settings:** 0 ~ 63

34-1. LFO PMod (LFO Pitch Modulation)

34-2. LFO FMod (LFO Filter Modulation)

34-3. LFO AMod (LFO Amplitude Modulation)

Determines the amount by which the LFO waveform controls the pitch/filter/amplitude.


```
LFO PMod  +
PAGE  PART/ELEM/KEY
 34              E    000
OCTAVE  –    +
```

```
LFO FMod  +
PAGE  PART/ELEM/KEY
 34              E    000
OCTAVE  –    +
```

```
LFO AMod  +
PAGE  PART/ELEM/KEY
 34              E    000
OCTAVE  –    +
```

❏ **Settings:** 0 ~ 127

■ **LFO PMod**

Determines the amount (depth) by which the LFO waveform varies (modulates) the pitch of the sound. The larger the setting, the greater the depth of control.

■ **LFO FMod**

Determines the amount (depth) by which the LFO waveform varies (modulates) the Filter Cutoff frequency. The larger the setting, the greater the depth of control.

■ **LFO AMod**

Determines the amount (depth) by which the LFO waveform varies (modulates) the amplitude of the sound. A larger setting means a larger modulation depth.

35-1. PLFODelay (Pitch LFO Delay)

35-2. PLFO Fade (Pitch LFO Fade Time)


```
PLFODelay+
PAGE  PART/ELEM/KEY
 34              E    000
OCTAVE  –    +
```

```
PLFO Fade+
PAGE  PART/ELEM/KEY
 35              E    000
OCTAVE  –    +
```

❏ **Settings:** 0 ~ 127

Voice Mode

Element LFO **83**
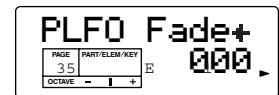
■ **PLFODelay**

Determines the delay time before the LFO comes into effect. A higher value produces a longer delay time.

Short Delay

Key on

Long Delay

Key on
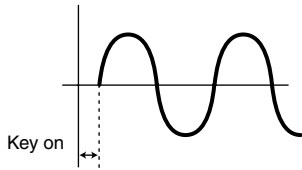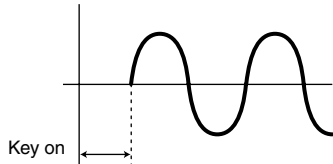
■ **PLFO Fade**

Determines the time it takes for the LFO effect to fade in (after the Delay time has elapsed). A higher value means a slower fade-in.

Low Fade time value

FadeIn
Max
Time
Key on
Delay

High Fade time value

FadeIn
Max
Time
Key on
Delay
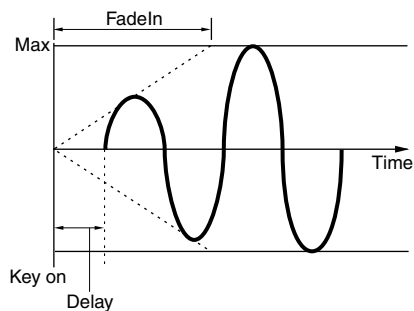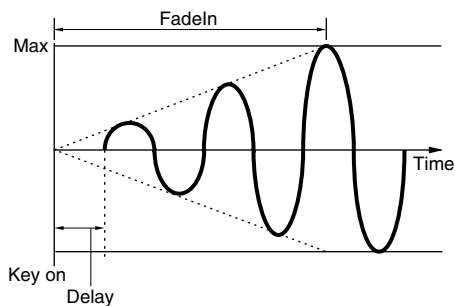
Drum Voices

With Drum Voices, different drum and percussion sounds are assigned to notes across the keyboard (from C0 to C6), forming an entire drum kit. For editing Drum Voices, there are five Common Edit screens (affecting all the Drum Voices together) and the five Drum Key screens.

When you select a Drum Voice and enter the Voice Edit mode, the Drum Voice Edit screen in which you were previously editing appears.

NOTE An overview of the Drum Voices is given on page 26.

Drum Common Edit and Drum Key Edit

Each Drum Voice consists of multiple Voices assigned to notes across the keyboard (C#–1 ~ G5) (page 26). You can use Drum Common Edit for settings that apply to all Drum Keys in the Drum Voice. For the settings of individual Voices, Drum Key Edit consists of Edit screens for each Wave. With Drum Voice Edit, you can use the [+]/[–] buttons to switch between the Drum Common Edit and Drum Key Edit screens.

Drum Common screens

Drum Key screens

PAGE	PART/ELEM/KEY
2	C
OCTAVE −	+

Drum Common indicator

PAGE	PART/ELEM/KEY
1	C 4
OCTAVE −	+
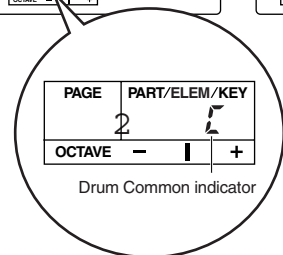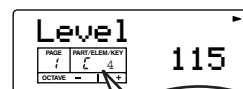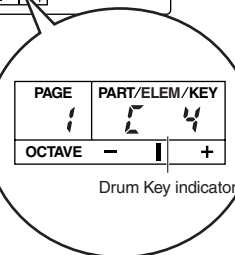
Drum Key indicator

---

84 Element LFO

Drum Common General (PAGES 1 to 2)

For Drum Voices, there are two Common General parameters, shown below.

1. Name

The parameters and settings are the same as for Normal Voices. Details are given on Page 71.

2. OrgKt (Original Kit)

This selects the Original Kit (the Wave set in which a different sound is assigned to each key).

❒ **NOTE** The sound-to-key assignments for the Kit are fixed and cannot be changed.

❒ **Settings:** See the separate Data List.

Drum Key Oscillator/Mix (PAGES 1 to 5)
Drum Key Pitch (PAGE 6)
Drum Key Filter (PAGE 7)
Drum Key Amplitude (PAGE 8)
Drum Key Effect (PAGES 9 to 10)

The following is an explanation of the Key Parameters used to edit each Drum Key. Each key can have its own independent settings. Select the desired Drum Key by pressing the appropriate key on the keyboard.

1. Level

This can be used to adjust the output of each Drum Key. Select the desired Drum Key by pressing the appropriate key on the keyboard.
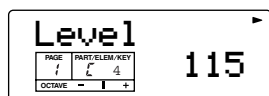
❒ **Settings:** 0 ~ 127

2. Pan

Set the Pan position for each sound in a Drum Voice (Drum Kit).
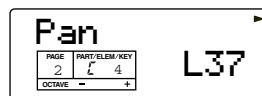
❒ **Settings:** Rnd (random; the pan position moves randomly each time a key is played), L63 (Left) ~ C (Center) ~ R63 (Right)

❒ **NOTE** The numeric keypad can also be used to enter the value, as shown below.
   0: Rnd
   1 ~ 63: L63 ~ L01
   64: C (Center)
   65 ~ 127: R01 ~ R63

3. Alt.Group (Alternate Group)

Determines the Alternate Group to which the Wave is assigned. In a real drum kit, some drum sounds cannot physically be played simultaneously, such as open and closed hi-hats. You can prevent different sounds from playing back simultaneously by assigning them to the same Alternate Group. Up to 127 Alternate Groups can be defined. You can also select "off" here if you wish to allow the simultaneous playback of sounds.

❒ **Settings:** off, 1 ~ 127

❒ **NOTE** To specify the "off" value, press the [0] button on the numeric keypad, then press the [ENTER] button.

4. Key Assign

Set Key Assign to "sngl" (single) to prevent the doubled playback of the same received notes. Select "multi" to consecutively assign each instance of the same received note to a separate channel.
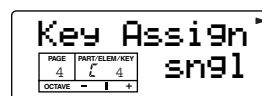
❒ **Settings:** sngl, multi

5-1. RxNoteOff (Receive Note Off)
5-2. RxNote On (Receive Note On)

```
RxNoteOff+         RxNote On+
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 5   ſ  4      on    5   ſ  4      on
OCTAVE  —  █  +      OCTAVE  —  █  +
```
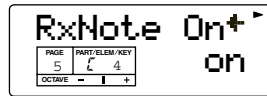
❏ **Settings:** off, on

■ **RxNoteOff**
   Select whether MIDI Note Off messages are received by each Drum Key.

■ **RxNote On**
   Select whether MIDI Note On messages are received by each Drum Key.

6-1. PitchCors (Pitch Coarse)
6-2. PitchFine

```
PitchCors+▸        PitchFine+▸
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 6   ſ  4     +00    6   ſ  4     +00
OCTAVE  —  █  +      OCTAVE  —  █  +
```

❏ **Settings:** –64 ~ +63

■ **PitchCors**
   Adjust the pitch of each Drum Key sound in semitones.

■ **PitchFine**
   Fine-tune the pitch of each Drum Key sound.

7-1. Cutoff
7-2. Resonance

These let you apply filter settings to each Drum Key.

```
Cutoff    +         Resonance+
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 7   ſ  4   064 ▸    7   ſ  4   064 ▸
OCTAVE  —  █  +      OCTAVE  —  █  +
```
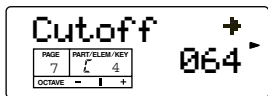
📝 NOTE The parameters are the same as for Normal Voices. Details are given on page 77.

📝 NOTE Unlike in the editing of a Normal Voice, the available Cutoff and Resonance settings are 0 to 127.

8-1. EG Attack (EG Attack Rate)
8-2. EG Decay1 (EG Decay1 Rate)
8-3. EG Decay2 (EG Decay2 Rate)

The Amplitude Envelope Generator controls the change in amplitude from the moment a note in pressed on the keyboard to the moment it is released. These settings let you determine how fast the sound reaches its peak amplitude and how fast it fades out. Parameters can be set for each Drum Key.

```
EG Attack+         EG Decay1⇌
PAGE PART/ELEM/KEY        PAGE PART/ELEM/KEY
 8   ſ  4   064 ▸    8   ſ  4   064 ▸
OCTAVE  —  █  +      OCTAVE  —  █  +

EG Decay2+
PAGE PART/ELEM/KEY
 8   ſ  4   064 ▸
OCTAVE  —  █  +
```
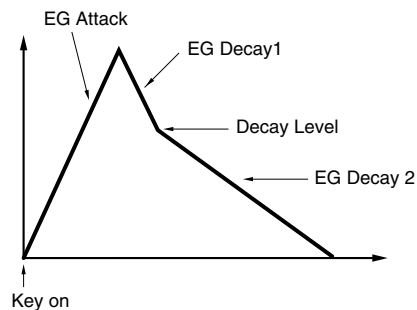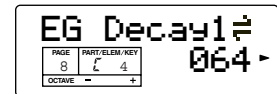

❏ **Settings:** 0 ~ 127

■ **EG Attack**
   This determines the Attack Rate (speed) of the EG (Envelope Generator), or how long it takes for the sound of the selected drum sound to reach full volume when a note is played. Depending on the sound and the Attack Rate set, some sounds may decay before the EG has a chance to bring the sound up. In other words, setting this value too high (slow attack) may result in an unnatural sound or no sound at all. Higher values result in a shorter Attack Time.

■ **EG Decay 1**
   This determines the Decay 1 Rate (speed) the EG, or how rapidly the sound dies down to the next Decay level. Higher values result in a shorter Decay time.

■ **EG Decay 2**
   This determines the Decay 2 Rate (speed) of the EG, or how rapidly the sound dies out completely. Higher values result in a shorter Decay time.

9. ReverbSend

Determines the send level of the Reverb Effect.

```
ReverbSend
PAGE  PART/ELEM/KEY   127
 9     ᶜ   4
OCTAVE  −  │  +           ▸
```

❏ **Settings:** 0 ~ 127

10. ChorusSend

Determines the send level of the Chorus Effect.

```
ChorusSend
PAGE  PART/ELEM/KEY   127
 10    ᶜ   4
OCTAVE  −  │  +           ▸
```
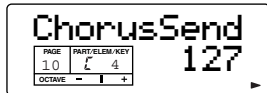
❏ **Settings:** 0 ~ 127

Voice Job

You can perform various operations (Jobs) in the Voice Job mode. For example, you can initialize Voices to their original settings (including those currently being edited) or copy Elements.

🎵 **NOTE** Before entering Voice Job mode and using the Initialize or Copy function, you must select the Voice for which you wish to use the operations (page 33).

🎵 **NOTE** For details about how to enter the Voice Job mode, see page 28.

Performing a Job

❶ In the Voice Play mode, select the Voice Number for which you wish to perform the Job.

❷ Press the [JOB] button to enter the Voice Job mode.

❸ Use the [▼][▲] buttons and switch to the screen showing the Job you wish to perform.

```
Job:Init
PAGE  PART/ELEM/KEY  voice
 1
OCTAVE  −  │  +
```

❹ Use the [DEC/NO] and [INC/YES] buttons to select the parameter for which you wish to perform the Job.

🎵 **NOTE** This step is not applicable for the Bulk Dump Job.

🎵 **NOTE** Use the [+]/[−] buttons to set the destination Element or Drum Key when using Copy Element (CpyElm) or Copy Drum Key (CpyKey).

❺ When you press the [ENTER] button, you will be prompted for confirmation.

```
Job:Init
PAGE  PART/ELEM/KEY  Sure?
 1
OCTAVE  −  │  +
```

❻ Press the [INC/YES] button to confirm. A "Completed" message appears when the Job has been completed, and operation returns to the original screen.

Press the [DEC/NO] button to cancel the Job.

🎵 **NOTE** For Jobs that take longer to process, you will see the message "Excuting.." during processing. If you switch off the power to your synthesizer while this message is displayed, you risk corrupting your data.

❼ Press the [VOICE] button to exit the Voice Job mode and return to the Voice Play mode.

1. Init (Initialize)

You can reset (initialize) all parameters of a Voice to their default settings. You can also selectively initialize certain parameters, such as Common settings, settings for each Element/Drum Key, and so on. Note that this does not return the Voice to its original state prior to editing. Instead, it is useful when building a completely new Voice from scratch.
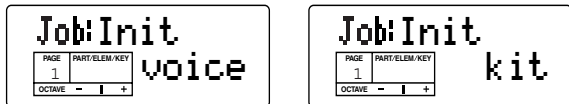
```
Job:Init          Job:Init
PAGE  PART/ELEM/KEY    PAGE  PART/ELEM/KEY
  1        voice     1          kit
OCTAVE  −   |   +   OCTAVE  −   |   +
```

■ **Select Parameter Type to be Initialized**
Use the [DEC/NO] and [INC/YES] buttons to select the parameter to be initialized. The parameters available for initialization will vary depending on the type of Voice currently selected (Normal/Drum).

❏ **Settings:**
Normal Voice:
voice (Current Voice), cmmn (Current Common), elmnt (Current Element 1 ~ 4)

🎵 **NOTE** When this is set to "elmnt," use the [+]/[−] buttons to select the desired Element (1 - 4).

Drum Voice:
kit (all Current Drum Voice), cmmn (data common to all Drum Keys), key (Drum Key C#-1 ~ G5)

🎵 **NOTE** When this is set to "key," you can select the desired Drum Key by pressing the appropriate key on the keyboard (from C#-1 to G5).

2. CpyElm (Copy Element)/ CpyKey (Copy Drum Key)

This lets you copy Element/Drum Key parameter settings of the Voice being edited to another Element/Drum Key in the same Voice.

```
Job:CpyElm          Job:CpyKey
PAGE  PART/ELEM/KEY    PAGE  PART/ELEM/KEY
  2     _   1 ⇐elm1    2   C 4 ⇐D-1
OCTAVE  −   |   +   OCTAVE  −   |   +
    (2)    (1)          (2)   (1)
```
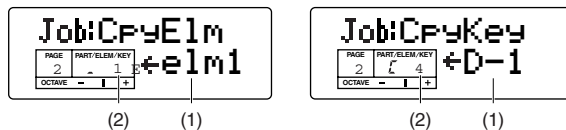
■ **(1) Source Element/Drum Key**
Select the source Element/Drum Key (the data to be copied) of the Voice.

❏ **Settings:**
Normal Voice:
elm1 ~ elm4
Drum Voice:
C#-1 ~ G5 (Drum Key C#-1 ~ G5)

■ **(2) Destination Element/Drum Key**
Set the Element/Drum Key of the Voice that is to be the destination for the copy.

❏ **Settings:**
Normal Voice:
E1 ~ E4
Drum Voice:
C#-1 ~ G5 (Drum Key C#-1 ~ G5)

3. BlkDmp (Bulk Dump)

You can send all the parameter settings for the current Voice or all user Voices to your computer or some other external MIDI device using Bulk Dump.

```
Job:BlkDmp
PAGE  PART/ELEM/KEY
  3        Curnt
OCTAVE  −   |   +
```

❏ **Settings:** Curnt (Current Voice), AllUs (all user voices), Systm (All Utility and MIDI data)

🎵 **NOTE** To send Multi data, refer to the corresponding Bulk Dump function in the Multi Jobs (page 68).

🎵 **NOTE** For an application example showing how to use the Bulk Dump function, see page 42.

🎵 **NOTE** In order to perform a Bulk Dump, the appropriate MIDI Device Number must be set. For details, see page 93.

Voice Store

You can store (save) your original parameter settings for up to 128 Normal Voices and 2 Drum Voices to User Memory. The procedure is as follows.

♪NOTE When you perform this, the settings for the destination Voice will be overwritten. Important data should always be backed up to computer, Yamaha MIDI Data Filer MDF3 or some other storage device.

❶ Press the [STORE] button after editing a Voice. The Voice Store screen appears.

```
Store
PAGE  PART/ELEM/KEY  US001
OCTAVE  −  |  +
```

❷ Use [DEC/NO] and [INC/YES] buttons to select the destination Voice Number

❸ When you press the [ENTER] button, you will be prompted for confirmation.

```
Store
PAGE  PART/ELEM/KEY  Sure?
OCTAVE  −  |  +
```

❹ Press the [INC/YES] button to confirm. The message "Excuting.." will be displayed while the Job is being processed. When it has been completed, a "Completed" message appears, and operation returns to the Voice Play mode.

♪NOTE You can press the [DEC/NO] button to cancel the Job. This will return you to the original screen.

Utility Mode

The Utility mode contains eight parameter pages, including global settings for the entire S03 system, as well as certain controller settings.

♪ NOTE For instructions on how to enter the Utility mode, see page 28.

♪ NOTE MIDI settings are made from the MIDI mode (page 93).

♪ NOTE Refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

Tone Generator (PAGE 1)
••••••••••••••••••••••••••••••••••••••
Keyboard (PAGES 2 to 3)
••••••••••••••••••••••••••••••••••••••
Controller (PAGES 4 to 7)
••••••••••••••••••••••••••••••••••••••
Effect (PAGE 8)
••••••••••••••••••••••••••••••••••••••

1. Master Tune

Adjust the keyboard tuning (in 0.1 cent steps).

❑ **Settings:** –1024 ~ +1023

♪ NOTE A value of 100 cents is equal to one semitone.

2. Kbd Trans (Keyboard Transpose)

Transpose the pitch of the keyboard up or down (in semitones). This affects information transmitted via MIDI.

❑ **Settings:** –11 ~ +11

3-1. Vel Curve (Velocity Curve)
3-2. Fixed Vel (Fixed Velocity)

■ **Vel Curve**
Set the Velocity Curve determining how the strength of the notes played will affect the sound output. The Vel Curve parameter is only available if Fixed Velocity below is set to "off.")

❑ **Settings:**

norm (Normal)
The velocity is in proportion to playing strength (how hard you play the keyboard).
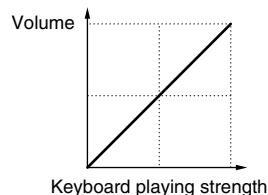
soft1
A softer playing style increases the volume level. This is suitable for people with a soft key touch.
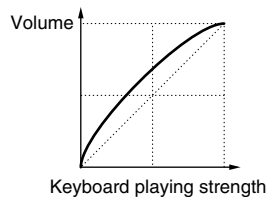
soft2
A softer playing style increases the volume level; the response is between Soft1 and Normal.

Utility Mode
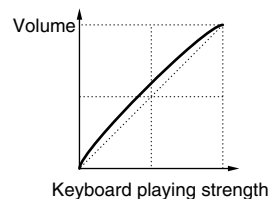
easy

This curve is also designed to increase the volume level with a softer playing style. However, the volume level is stable in all registers since the velocity curve in the mid range is close to Normal.
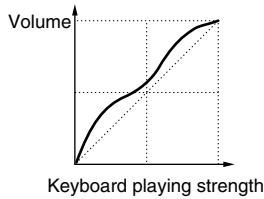
wide

A softer playing style lowers the volume level and a stronger playing style increases the volume level. This results in a wider apparent dynamic range.
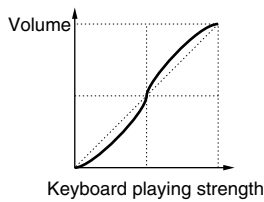
hard

A stronger playing style increases the volume level. This is suitable for people with a strong key touch.
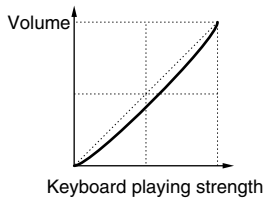
■ **Fixed Vel**

The velocity is fixed at this setting. The sound output is always the same, regardless of how strongly or softly you play the keyboard.

❏ **Settings:** off, 1 ~ 127
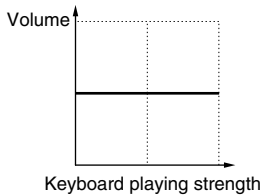
4-1. MWTxCtlNo (MW Transmit Control Number)

4-2. FCTxCtlNo (Foot Controller Transmit Control Number)

This determines the MIDI Control Change numbers assigned to the Modulation Wheel and Foot Controller.

❏ **Settings:** 0 ~ 95 (0/32 = off), AT (After Touch)

📝 **NOTE** For details about Control Numbers and Control Change messages, see the separate Data List.

5. FSTxCtlNo (Footswitch Transmit Control Number)

This determines the MIDI Control Change numbers assigned to the Footswitch.

❏ **Settings:** 0 ~ 95 (0/32 = off), 96 (PCInc: Program Change INC), 97 (PCDec: Program Change DEC)

📝 **NOTE** For details about Control Numbers and Control Change messages, see the separate Data List.

📝 **NOTE** The default factory setting for this is to control sustain (64).

6. Ctl Reset (Controller Reset)

Select whether or not the controller (Modulation Wheel, Foot Controller) state/position is maintained ("hold") or reset when you switch between Voices.
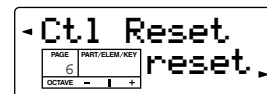
❏ **Settings:** hold, reset
If you select "reset," the controllers will be reset to the following states/positions:

Pitch Bend	Center
Modulation Wheel	Minimum
Foot Controller	Maximum
Foot Switch	Off

7. AC1 CC No
(AC1 Control Change Number)

In the Voice mode, this determines which Control Change number is assigned to the AC1 (Assignable Controller 1).

```
◄ AC1 CC No
PAGE  PART/ELEM/KEY
  7              00 ►
OCTAVE  –  ▮  +
```
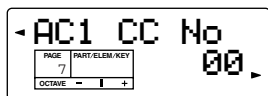
❏ **Settings:** 0 ~ 95

🔲 **NOTE** For details about Assignable Controller 1, see page 66.

🔲 **NOTE** The AC1 CC No parameter in the Multi mode is set in the Multi Part Edit mode (page 66).

8. V EfBypass (Voice Effect Bypass)

This determines whether or not effects in the Voice Mode can be bypassed. Only System effects can be bypassed.

```
◄ V EfBypass
PAGE  PART/ELEM/KEY
  8             off ►
OCTAVE  –  ▮  +
```

❏ **Settings:** off (not bypassed), on

Utility Job

In the Utility Job mode, you can restore your synthesizer's factory default settings of the S03 (Factory Set).

Factory Set (Restore Factory Defaults)

This lets you restore the synthesizer's default Internal Voices (User Memory) and Multis, as well as its System and other settings.

Once you edit any settings, the corresponding factory defaults will be overwritten and lost.

Use the procedure below to restore the factory default settings.

⚠️ When you restore the factory default settings, all the current settings for the all the Multis and User Voices will be overwritten with the factory defaults. Make sure you are not overwriting any important data. You should back up any important data to your computer or to some external device beforehand.

❶ Press the [JOB] button in Utility Mode. The Factory Set display appears.
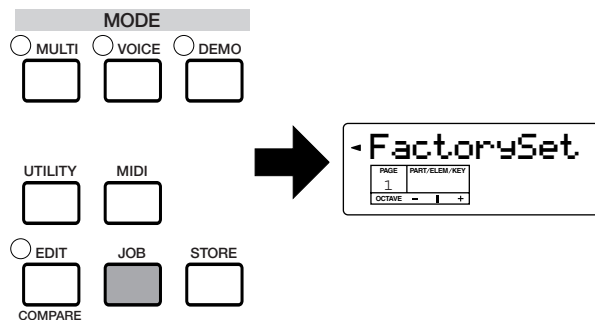
❷ Press the [ENTER] button. A confirmation message appears.

❸ Press the [INC/YES] button to execute the Factory Set job. After the job has been completed, a "Completed!" message appears. To cancel a job while it is being executed, press the [DEC/NO] button.

❹ Press the [EXIT] button to return to the Utility mode.

MIDI Mode

The MIDI mode contains seven parameter pages, including global settings for the entire S03 system, as well as certain controller settings.

♪ **NOTE** For instructions on how to enter the MIDI mode, see page 28.

♪ **NOTE** Refer to the Function Tree chart (page 20) or the Parameter Table (page 22).

MIDI Channel (PAGES 1 to 4)
MIDI Filter (PAGES 5 to 7)

1. Device No (Device Number)

This determines the MIDI Device Number. This number must match the Device Number of the external MIDI device when transmitting/receiving bulk data, parameter changes or other system exclusive messages to/from it.

❏ **Settings:** 1 ~ 16, all, off

2. Local Sw (Local On/Off Switch)

If you set Local to "off," the keyboard and controllers are internally disconnected from the synthesizer's tone generator section so that no sound is output when you play the keyboard or use the controllers. However, the data will be transmitted through the MIDI OUT. Also, the tone generator section will respond to messages received at the MIDI IN.
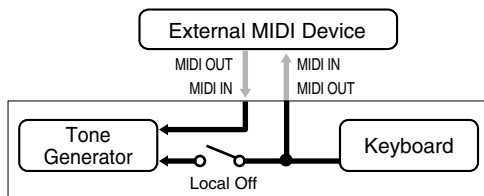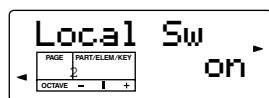
❏ **Settings:** off, on

Local On/Off — When Connected to a Computer

When connecting the S03 to a computer, the keyboard performance data is generally sent to the computer, and then returned from the computer to play the tone generator or sound source. If the Local Switch is set to "on," a "double" sound may result, since the tone generator is receiving performance data from both the keyboard directly and the computer. Use the setting suggestions below as a guideline; specific instructions may differ depending on your computer and the software used.

When MIDI "Echo" is enabled on the software/ computer, set the S03 Local Switch to "off."

S03 Local Sw=off
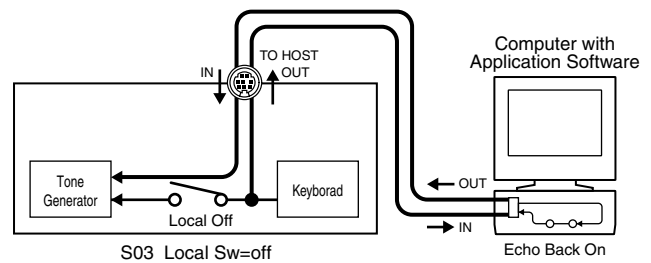
♪ **NOTE** When transmitting or receiving System Exclusive data (such as with the Bulk Dump function, pages 68 and 88), use the setting example below, making sure that MIDI "Echo" on the computer software is set to "off."

When MIDI "Echo" is disabled on the software/ computer, set the S03 Local Switch to "on."

S03 Local Sw=on
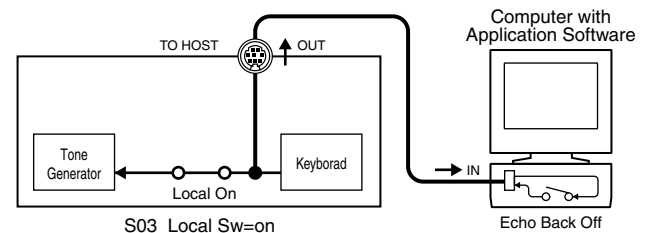
♪ **NOTE** Although not indicated in the illustration above, the S03 actually receives and responds to MIDI data from the computer application (sequencer), regardless of the Local Sw setting on the S03.

* MIDI "Echo" is a function on sequencers that takes any data received via the MIDI IN and "echoes" it (or sends it as is) through the MIDI OUT. In some software, this function is also called "MIDI Thru."

♪ **NOTE** Refer to the owner's manual of your particular software for specific instructions.

3. Rcv Ch
(Voice Mode MIDI Receive Channel)

Set the MIDI Receive channel for using the S03 (in the Voice mode) with an external sequencer, computer and so on, and for using it as a MIDI tone generator.

```
Rcv Ch
          omni
PAGE  PART/ELEM/KEY
  3
OCTAVE  -  |  +
```
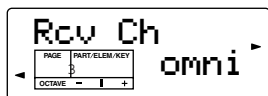
❏ **Settings:** 1 ~ 16, omni (all channels)

📘 **NOTE** For information on setting the MIDI Receive channel for each Part in the Multi mode, see page 61.

4. Trans Ch (MIDI Transmit Channel)

Set the MIDI Transmit channel for transmitting MIDI from the keyboard, controllers and so on.

```
Trans Ch
              01
PAGE  PART/ELEM/KEY
OCTAVE  -  |  +
```

❏ **Settings:** 1 ~ 16

5-1. RxPgmChng
(Receive Program Change On/Off)
5-2. RxBankSel
(Receive Bank Select On/Off)

Set to enable or disable reception of Program Change/ Bank Select messages between the S03 and an external MIDI device.

```
RxPgmChng+          RxBankSel+
      off                 on
PAGE  PART/ELEM/KEY      PAGE  PART/ELEM/KEY
  5                        5
OCTAVE  -  |  +          OCTAVE  -  |  +
```
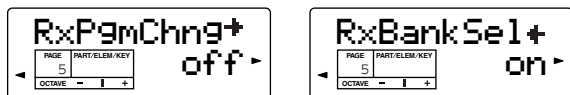
❏ **Settings:** off (disable), on (enable)

6-1. TxPgmChng
(Transmit Program Change On/Off)
6-2. TxBankSel
(Transmit Bank Select On/Off)

Determines whether Program Change/Bank Select messages executed from the S03's panel are transmitted via MIDI or not. Set this to "on" when you want to change programs on a connected MIDI device.

```
TxPgmChng+          TxBankSel+
      on                  on
PAGE  PART/ELEM/KEY      PAGE  PART/ELEM/KEY
  6                        6
OCTAVE  -  |  +          OCTAVE  -  |  +
```
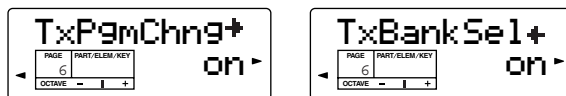
❏ **Settings:** off (disable), on (enable)

7. Thru Port

You can connect the S03 to a computer via a dedicated serial cable on the TO HOST connector. In this situation, MIDI messages received via the TO HOST connector can be passed through the MIDI OUT connector of the S03 to other connected devices. Set the port number here.

```
Thru Port
              1
PAGE  PART/ELEM/KEY
  7
OCTAVE  -  |  +
```

❏ **Settings:** 1 ~ 8

Appendix

About MIDI

MIDI is an acronym that stands for Musical Instrument Digital Interface, which allows electronic musical instruments to communicate with each other, by sending and receiving compatible Note, Control Change, Program Change and various other types of MIDI data, or messages.

The S03 can control a MIDI device by transmitting note related data and various types of controller data. The S03 can be controlled by the incoming MIDI messages which automatically determine tone generator mode, select MIDI channels, voices and effects, change parameter values, and of course play the voices specified for the various Parts.

Many MIDI messages are expressed in hexadecimal or binary numbers. Hexadecimal numbers may include the letter "H" as a suffix. The letter "n" indicates a certain whole number.

The chart below lists the corresponding decimal number for each hexadecimal/binary number.

Decimal	Hexadecimal	Binary	Decimal	Hexadecimal	Binary
0	00	0000 0000	64	40	0100 0000
1	01	0000 0001	65	41	0100 0001
2	02	0000 0010	66	42	0100 0010
3	03	0000 0011	67	43	0100 0011
4	04	0000 0100	68	44	0100 0100
5	05	0000 0101	69	45	0100 0101
6	06	0000 0110	70	46	0100 0110
7	07	0000 0111	71	47	0100 0111
8	08	0000 1000	72	48	0100 1000
9	09	0000 1001	73	49	0100 1001
10	0A	0000 1010	74	4A	0100 1010
11	0B	0000 1011	75	4B	0100 1011
12	0C	0000 1100	76	4C	0100 1100
13	0D	0000 1101	77	4D	0100 1101
14	0E	0000 1110	78	4E	0100 1110
15	0F	0000 1111	79	4F	0100 1111
16	10	0001 0000	80	50	0101 0000
17	11	0001 0001	81	51	0101 0001
18	12	0001 0010	82	52	0101 0010
19	13	0001 0011	83	53	0101 0011
20	14	0001 0100	84	54	0101 0100
21	15	0001 0101	85	55	0101 0101
22	16	0001 0110	86	56	0101 0110
23	17	0001 0111	87	57	0101 0111
24	18	0001 1000	88	58	0101 1000
25	19	0001 1001	89	59	0101 1001
26	1A	0001 1010	90	5A	0101 1010
27	1B	0001 1011	91	5B	0101 1011
28	1C	0001 1100	92	5C	0101 1100
29	1D	0001 1101	93	5D	0101 1101
30	1E	0001 1110	94	5E	0101 1110
31	1F	0001 1111	95	5F	0101 1111
32	20	0010 0000	96	60	0110 0000
33	21	0010 0001	97	61	0110 0001
34	22	0010 0010	98	62	0110 0010
35	23	0010 0011	99	63	0110 0011
36	24	0010 0100	100	64	0110 0100
37	25	0010 0101	101	65	0110 0101
38	26	0010 0110	102	66	0110 0110
39	27	0010 0111	103	67	0110 0111
40	28	0010 1000	104	68	0110 1000
41	29	0010 1001	105	69	0110 1001
42	2A	0010 1010	106	6A	0110 1010
43	2B	0010 1011	107	6B	0110 1011
44	2C	0010 1100	108	6C	0110 1100
45	2D	0010 1101	109	6D	0110 1101
46	2E	0010 1110	110	6E	0110 1110
47	2F	0010 1111	111	6F	0110 1111
48	30	0011 0000	112	70	0111 0000
49	31	0011 0001	113	71	0111 0001
50	32	0011 0010	114	72	0111 0010
51	33	0011 0011	115	73	0111 0011
52	34	0011 0100	116	74	0111 0100
53	35	0011 0101	117	75	0111 0101
54	36	0011 0110	118	76	0111 0110
55	37	0011 0111	119	77	0111 0111
56	38	0011 1000	120	78	0111 1000
57	39	0011 1001	121	79	0111 1001
58	3A	0011 1010	122	7A	0111 1010
59	3B	0011 1011	123	7B	0111 1011
60	3C	0011 1100	124	7C	0111 1100
61	3D	0011 1101	125	7D	0111 1101
62	3E	0011 1110	126	7E	0111 1110
63	3F	0011 1111	127	7F	0111 1111

MIDI channels

MIDI performance data is assigned to one of sixteen MIDI channels. Using these channels, 1 - 16, the performance data for sixteen different instrument parts can be simultaneously sent over one MIDI cable.

Think of the MIDI channels as TV channels. Each TV station transmits its broadcasts over a specific channel. Your home TV set receives many different programs simultaneously from several TV stations and you select the appropriate channel to watch the desired program.
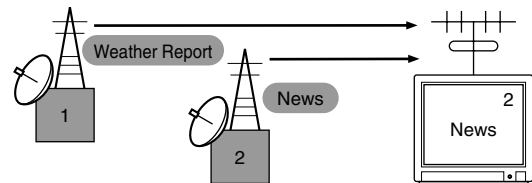
MIDI operates on the same basic principle. The transmitting instrument sends MIDI data on a specific MIDI channel (MIDI Transmit Channel) via a single MIDI cable to the receiving instrument. If the receiving instrument's MIDI channel (MIDI Receive Channel) matches the Transmit Channel, the receiving instrument will sound according to the data sent by the transmitting instrument.

MIDI Transmit channel 2   MIDI Receive channel 2
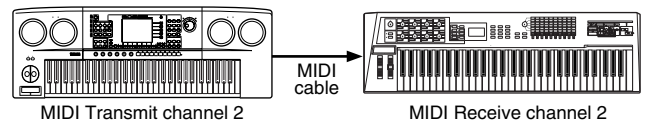
The S03 is a fully multi-timbral tone generator, allowing you to sound several different instrument parts simultaneously — from just the S03 — by assigning a different MIDI channel to each part.

MIDI Messages Transmitted/ Received by the S03

MIDI messages can be divided into two groups: Channel messages and System messages. Below is an explanation of the various types of MIDI messages which the S03 can receive/transmit.

CHANNEL MESSAGES

Channel messages are the data related to the performance on the keyboard for the specific channel.

■ Note On/Note Off (Key On/Key Off)

Messages which are generated when the keyboard is played.
Reception note range = C-2 (0) - G8 (127), C3 = 60
Velocity range = 1 - 127 (Only the Note On velocity is received)
Note On: Generated when a key is pressed.
Note Off: Generated when a key is released.
Each message includes a specific note number which corresponds to the key which is pressed, plus a velocity value based on how hard the key is struck.

■ Control Change

Control Change messages let you select a voice bank, control volume, panning, modulation, portamento time, brightness and various other controller parameters, through specific Control Change numbers which correspond to each of the various parameters.

Bank Select MSB (Control #000)
Bank Select LSB (Control #032)

Messages which select variation voice bank numbers by combining and sending the MSB and LSB from an external device.
MSB and LSB functions differently depending on the tone generator mode.
MSB numbers select voice type (Normal Voice or Drum Voice), and LSB numbers select voice banks.
(For more information about Banks and Programs, see Voice List in the "Data List" book.)
A new bank selection will not become effective until the next Program Change message is received.

Modulation (Control #001)

Messages which control vibrato depth using the Modulation Wheel.
Setting the value to 127 produces maximum vibrato and 0 results in vibrato off.

Portamento Time (Control #005)

Messages which control the duration of portamento, or a continuous pitch glide between successively played notes. When the parameter Portamento Switch (page 96) is set to on, the value set here can adjust the speed of pitch change.
Setting the value to 127 produces maximum portamento time and 0 results in minimum portamento time.

Data Entry MSB (Control #006)
Data Entry LSB (Control #038)

Messages which set the value for the parameter specified by 1.2.23RPN MSB/LSB and 1.2.22 NRPN MSB/LSB. Parameter value is determined by combining MSB and LSB.

Main Volume (Control #007)

Messages which control the volume of each Part.
Setting the value to 127 produces maximum volume and 0 results in volume off.

Pan (Control #010)

Messages which control the stereo panning position of each Part (for stereo output).
Setting the value to 127 positions the sound to the far right and 0 positions the sound to the far left.

Expression (Control #011)

Messages which control intonation expression of each Part during performance.
Setting the value to 127 produces maximum volume and 0 results in volume off.

Hold1 (Control #064)

Messages which control sustain on/off.
Setting the value between 64 - 127 turns the sustain on, between 0 - 63 turns the sustain off.

Portamento Switch (Control #065)

Messages which control portamento on/off.
Setting the value between 64 -127 turns the portamento on, between 0 - 63 turns the portamento off.

Sostenuto (Control #066)

Messages which control sostenuto on/off.
Holding specific notes and then pressing and holding the sostenuto pedal will sustain those notes as you play subsequent notes, until the pedal is released.
Setting the value between 64 -127 turns the sostenuto on, between 0 - 63 turns the sostenuto off.

Soft Pedal (Control #067)

Messages which control soft pedal on/off.
Notes played while holding the soft pedal will be dampened.
Setting the value between 64 -127 turns the soft pedal on, between 0 - 63 turns the soft pedal off.

Harmonic Content (Control #071)

Messages which adjust the filter resonance set for each voice.

The value set here is an offset value which will be added to or subtracted from the voice data.

Higher values will result in a more characteristic, resonant sound.

Depending on the voice, the effective range may be narrower than the range available for adjustment.

Release Time (Control #072)

Messages which adjust the EG release time set for each voice.

The value set here is an offset value which will be added to or subtracted from the voice data.

Attack Time (Control #073)

Messages which adjust the EG attack time set for each voice.

The value set here is an offset value which will be added to or subtracted from the voice data.

Brightness (Control #074)

Messages which adjust the filter cutoff frequency set for each voice.

The value set here is an offset value which will be added to or subtracted from the voice data.

Lower values will result in a softer sound.

Depending on the voice, the effective range may be narrower than the range available for adjustment.

Portamento Control (Control #084)

Messages which apply a portamento between the currently-sounding note and the subsequent note.

Portamento Control is transmitted specifying the note-on key of the currently-sounding note.

Specify a Portamento Source Key number between 0 - 127.

When a Portamento Control message is received, the currently sounding pitch will change with a Portamento Time of 0 to the next note-on key on the same channel.

For example, the following settings would apply a portamento from note C3 to C4.

90H 3CH 7FH .... C3 Note on
B0H 54H 3CH .... Source key number set to C3
90H 48H 7FH .... C4 Note on (When C4 is on, C3 is raised by a portamento to C4.)

Effect1 Depth (Reverb Send Level) (Control #091)

Messages which adjust the send level for the Reverb effect.

Effect3 Depth (Chorus Send Level) (Control #093)

Messages which adjust the send level for the Chorus effect.

Effect4 Depth (Variation Effect Send Level) (Control #094)

Messages which adjust the send level for the Variation effect.

If Variation effect uses System effect, this message sets the send level for the Variation effect. If it uses Insertion effect, this setting is invalid.

Data Increment (Control #096) Decrement (Control #097) for RPN

Messages which increase or decrease the MSB value of pitch bend sensitivity, fine tune, or coarse tune in steps of 1. You are required to assign one of those parameters using the RPN in the external device in advance.

The data byte is ignored.

When the maximum value or minimum value is reached, the value will not be incremented or decremented further. (Incrementing the fine tune will not cause the coarse tune to be incremented.)

NRPN (Non-Registered Parameter Number) LSB (Control #098)
NRPN (Non-Registered Parameter Number) MSB (Control #099)

Messages which adjust a voice's vibrato, filter, EG, drum setup or other parameter settings.

First send the NRPN MSB and NRPN LSB to specify the parameter which is to be controlled. Then use Data Entry (page 96) to set the value of the specified parameter.

Note that once the NRPN has been set for a channel, subsequent data entry will be recognized as the same NRPN's value change. Therefore, after you use the NRPN, you should set a Null (7FH, 7FH) value to avoid an unexpected result.

The following NRPN numbers can be received.

NRPN MSB	NRPN LSB	PARAMETER
01	08	Vibrato Rate
01	09	Vibrato Depth
01	0A	Vibrato Delay
01	20	Filter Cutoff Frequency
01	21	Filter Resonance
01	63	EG Attack Time
01	64	EG Decay Time
01	66	EG Release Time
14	rr	Drum Filter Cutoff Frequency
15	rr	Drum Filter Resonance
16	rr	Drum EG Attack Rate
17	rr	Drum EG Decay Rate
18	rr	Drum Instrument Pitch Coarse
19	rr	Drum Instrument Pitch Fine
1A	rr	Drum Instrument Level
1C	rr	Drum Instrument Panpot
1D	rr	Drum Instrument Reverb Send Level
1E	rr	Drum Instrument Chorus Send Level
1F	rr	Drum Instrument Variation Send Level

*rr=Note number for each drum voice instrument.

RPN (Registered Parameter Number)LSB (Control #100)
RPN (Registered Parameter Number)MSB (Control #101)

Messages which offset, or add or subtract values from a Part's pitch bend sensitivity, tuning, or other parameter settings.

First send the RPN MSB and RPN LSB to specify the parameter which is to be controlled. Then use Data Increment/Decrement (page 97) to set the value of the specified parameter.

Note that once the RPN has been set for a channel, subsequent data entry will be recognized as the same RPN's value change. Therefore after you use the RPN, you should set a Null (7FH, 7FH) value to avoid an unexpected result.

The following RPN numbers can be received.

RPN MSB	RPN LSB	PARAMETER
00	00	Pitch Bend Sensitivity
00	01	Fine Tune
00	02	Coarse Tune
7F	7F	Null

■ Channel Mode Messages

The following Channel Mode Messages can be received.

2nd BYTE	3rd BYTE	MESSAGE
120	0	All Sounds Off
121	0	Reset All Controllers
123	0	All Notes Off
126	0 ~ 16	Mono
127	0	Poly

All Sounds Off (Control #120)
Clears all sounds currently sounding on the specified channel. However, the status of channel messages such as Note On and Hold On is maintained.

Reset All Controllers (Control #121)
The values of the following controllers will be reset to the defaults.

CONTROLLER	VALUE
Pitch Bend Change	0 (center)
Aftertouch	0 (off)
Polyphonic Aftertouch	0 (off)
Modulation	0 (off)
Expression	127 (max)
Hold1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft Pedal	0 (off)
Portamento Control	Cancels the Portamento source key number
RPN	Number not specified; internal data will not change
NRPN	Number not specified; internal data will not change

All Notes Off (Control #123)
Clears all notes currently on for the specified channel. However, if Hold1 or Sostenuto is on, notes will continue sounding until these are turned off.

Mono (Control #126)
Performs the same function as when an All Sounds Off message is received, and if the 3rd byte (mono number) is in the range of 0 - 16, sets the corresponding channel to Mono Mode (Mode 4 : m = 1).

Poly (Control #127)
Performs the same function as when an All Sounds Off message is received, and sets the corresponding channel to Poly Mode.

■ Program Change

Messages which determine which voice to select for each Part.

With a combination of Bank Select, you can select not only basic voice numbers, but also variation voice bank numbers.

■ Channel Aftertouch

Messages which let you control the sounds by the pressure you apply to the keys after the initial striking of the keys, over the entire channel.

The S03 does not transmit this data from the keyboard; however, the S03 does properly respond to this data when received from an external device.

■ Polyphonic Aftertouch

Messages which let you control the sounds by the pressure you apply to the keys after the initial striking of the keys, for each individual key.

The S03 does not transmit this data from the keyboard; however, the S03 does properly respond to this data when received from an external device.

■ Pitch Bend

Pitch Bend messages are continuous controller messages that allow the pitch of designated notes to be raised or lowered by a specified amount over a specified duration.

SYSTEM MESSAGES

System messages are the data related to the overall system of the device.

■ System Exclusive Messages

System Exclusive messages control various functions of the S03, including master volume and master tuning, tone generator mode, effect type and various other parameters.

General MIDI Mode On

When General MIDI mode on is received, the tone generator mode will be changed to XG mode.
When this happens, the S03 will receive the MIDI messages which are compatible with GM System Level 1, and consequently will not receive NRPN and Bank Select messages.
Since approximately 50ms is required to execute this message, be sure to leave an appropriate interval before the subsequent message. The S03 responds to this message only when it is set to the Multi mode.

F0 7E 7F 09 01 F7 (Hexadecimal)

Master Volume

When received, the Volume MSB will be effective for the System Parameter.

F0 7F 7F 04 01 ll mm F7 (Hexadecimal)

* mm(MSB) = appropriate volume value, ll(LSB) = ignored

XG System On

When this data is received, the S03 will switch to XG mode and all the parameters will be initialized accordingly, and XG-compatible messages such as NRPN and Bank Select messages can be received.
Since approximately 50ms is required to execute this message, be sure to leave an appropriate interval before the subsequent message. The S03 responds to this message only when it is set to the Multi mode.

F0 43 1n 4C 00 00 7E 00 F7 (Hexadecimal)

*n = device number (normally set to "0")

Multi Mode On
F0 43 1n 6C 0A 00 00 01 F7 (Hexadecimal)

*n = device number (normally set to "0")

🎵 NOTE There are some operating conditions in which the S03 does not respond to MIDI data, such as when using the Compare function or when in the Demo mode.

■ Active Sensing (Receive only)

Once FE (Active Sensing) has been received, if no MIDI data is subsequently received for longer than an interval of approximately 300msec, the S03 will perform the same function as when All Sounds Off, All Notes Off, and Reset All Controllers messages are received, and will then return to a status in which FE is not monitored.
Refer to the MIDI Data Format in the "Data List" book for more information on the various messages.

Display Messages

Message	Meaning
Bulk Tx...	MIDI Bulk data being transmitted.
Bulk Rx...	MIDI Bulk data being received.
Excuting..	Operation is being executed.
Completed!	Operation has been completed.
!Buff Full	Failed to process the MIDI data because too much data was received at once.
!MIDI Data	Error occurred when receiving MIDI data.
!Checksum	Error occurred when receiving bulk data.
!DeviceNum	Bulk data cannot be transmitted/received because the device number does not match or is set to "off."
Sure?	Final confirmation.
Host:MIDI	HOST SELECT switch has been set to "MIDI."
Host:PC2	HOST SELECT switch has been set to "PC2."
Host:Mac	HOST SELECT switch has been set to "Mac."
Host:off	HOST SELECT switch has been set to "off."
!BatteryLo	The memory-backup battery is low; memory cannot be backed up. Store the necessary data to a MIDI data storage device such as Yamaha MIDI Data Filer MDF3, and have the battery changed by your local Yamaha dealer or any other authorized Yamaha service personnel.

Troubleshooting

The following table provides troubleshooting hints and page references for some common problems. Most problems may be simply the result of incorrect settings. Before calling for professional service, refer to the troubleshooting advice below to see if you can find and correct the cause of the problem.

In particular, when you have trouble getting sound out of the S03, check the points below as you try to pinpoint the cause of the trouble.

❶ Connect a set of headphones to check whether the S03 is properly producing sound. If you can hear the sound in the headphones but not from your connected audio system, you can assume that the problem is in the cable connections to the audio system.

❷ If no sound can be heard through the headphones, try selecting different Voices or Multis to see whether the problem persists or not. If selecting another Voice or Multi clears up the problem, you can assume that the settings of the original Voice or Multi were at fault.

⌁ NOTE When song data settings, such as volume or expression (page 96) cause a decrease in volume, selecting a different Voice or Multi will restore the volume.

❸ If the problem still persists even after changing the Voice or Multi, check the master volume setting of the S03. Increase the volume with the VOLUME slider and, if a foot controller is connected, press it down to the maximum.

❹ If still no sound is output after step 3 above, the problem may be in the global settings of the S03 (UTILITY/MIDI), the settings of any connected MIDI device, and/or the connecting MIDI cable.

No sound.
. . . .

Relevant Volume Settings
● Is the volume set appropriately? (Pages 8 and 15)
● With the S03, if a Foot Controller has been connected to the FOOT CONTROLLER jack and set up for volume/expression control, has it been fully depressed? (Page 14)

Relevant Voice and Multi Settings
● Have the Volume or Level parameters below been set appropriately?
  Voice Element Edit "Level" (Page 73)
  Voice Key Edit "Level" (Page 85)
  Voice Common Edit "Total Vol" (Page 71)
  Voice Common Edit "Total Lvl" (Page 71)
  Multi Part Edit "Volume" (Page 60)
  Multi Common Edit "Total Vol" (Page 56)
● Are any of the Parts or Elements muted? (Pages 48 and 55)
● Has the "Element Sw" been set to off? (Page 73)
● Have the filters been set so that almost all the sound is muted? (Pages 63, 77, 86)
● Have the effects parameters been set appropriately? (Pages 56, 67, 72)
● Has the effect type been set to something other than "No Effect"? (Pages 56 and 57)
● Have the Velocity Sensitivity parameters been set appropriately? (Pages 62 and 72)
● Have the Note Limit (Part/Voice) and Velocity Limit parameters been set appropriately? (Pages 60 and 73)
  If Note/Velocity Limit Low is set to a value above Note/Velocity Limit High, no sound is output.

Relevant Global Settings of the S03 (UTILITY or MIDI)
- Have the MIDI receive channels been set correctly? (Pages 61 and 94)
- Has the Local switch been set to off? (Page 93)
- Has the HOST SELECT switch (page 10) been set appropriately? (Pages 12 to 14)
- Is either the Demo mode (page 16) or the Compare function (pages 55 and 70) active? When either of these are active, incoming MIDI data is ignored.

Relevant Settings in the Song Data and on Connected MIDI Devices
- When playing Multis using an external MIDI sequencer, have the transmit channels for each sequencer track and the receive channels for each Part in the Multi been set correctly? (Page 61)
- Has the computer's "MIDI Echo" or "MIDI Thru" been set appropriately? (Page 93)
- When playing back a song using an external MIDI sequencer, have the volume and expression (page 96) parameters been set appropriately?

Cable and Connection Problems
- Has the audio equipment been connected correctly? (Page 11)
- Is the MIDI cable intact and connected properly?

The sound is distorted.
- Have the effects been set appropriately? (Pages 56 and 72)
- Has the volume been set too high? (Pages 8 and 15)

The sound is too soft.
- Has MIDI volume or MIDI expression (page 96) been set too low?
- Has the filter cutoff frequency been set too low? (Pages 63, 77, 86)

The pitch is wrong.
- Has the Master Tune parameter in Utility Mode been set correctly? (Page 90)
- Has the KbdTrans parameter in Utility Mode been set correctly? (Page 90)
- Is the Octave Up/Down setting appropriate? (Page 36)
- Have the pitch related parameters in PITCH menu been set appropriately? (Page 74)
- Has the Pitch Modulation Depth in the LFO screen (Voice Edit Mode) been set too high? (Page 83)
- For Parts or Voices, has the Note Shift parameter been set to a value other than 0? (Pages 61 and 74)
- Has the Detune parameter for each Part or Voice been set to a value other than 0? (Pages 61 and 74)

Appendix

Sound is choppy and intermittent.

● Has the maximum polyphony been exceeded? (Page 18)

Only one note sounds at a time.

● Has the Mono/Poly parameter been set to "mono"? (Pages 61 and 71)

No effects are applied.

● Has the V EfBypass (Voice Effect Bypass) been set to off? (Page 92)
● In the case of a Multi, has Var Send in Part Edit been set to off or a value too close to 0? (Page 67)
● Has the effect type been set to something other than "Thru" or "No Effect" ? (Pages 56 and 57)
● In the case of a Multi, have the Insertion Effect Parts been specified? (Page 67)

Edits related to Scale Sensitivity, Velocity Sensitivity and Scale (of Pan setting parameter) made to the Voice have no effect.

● Depending on the selected Voice or the settings of related parameters, changes to these parameters may have little or no audible effect.

Cannot find the Drum Voice.

● Drum Voices are selected differently than Normal Voices. (Page 34)

Edits made to the Drum Voice have no effect.

● Has the Part Mode parameter been set correctly? (Page 61)

Editing can't be done.

● Has the Category Search function been turned on? If Category Search is active, the Edit Mode can't be enabled. (Page 35)
● Have you selected a Wave (001 - 029) whose parameter settings are fixed? (Page 73)
● Is the Utility mode or MIDI mode active?
● For the Voice mode, are you attempting to edit? Remember that Chorus and Reverb effect settings are fixed for the Voices and cannot be changed. (Page 54)

Cannot receive bulk data.

● When using the S03 Voice Editor, have you set a sufficient Dump Interval? The Dump Interval in the Voice Editor Setup dialog must be set to 10ms or greater.

● Has the Device Number parameter been set correctly? When receiving data with the S03's Bulk Dump function, you must set the S03 to the same device number as that specified on the transmitting device. (Page 93)

● Has the HOST SELECT switch (page 10) been set appropriately? (Pages 12 to 14)

Cannot properly receive or respond to data from the connected device.

● Has the HOST SELECT switch (page 10) been set appropriately? (Pages 12 to 14)

● Is either the Demo mode (page 16) or the Compare function (pages 55 and 70) active? When either of these are active, incoming MIDI data is ignored.

● Is the MIDI cable intact and connected properly?

Checking the MIDI Cable

Here's a quick way to check a MIDI cable, to make sure it's properly conducting signals.

🎵 **NOTE** Before starting this, set the S03 to Voice mode and make sure that the S03 is properly outputting sound when you play the keyboard.

❶ Disable keyboard control over the tone generator by setting Local Sw (PAGE 2 in the MIDI mode) to "off." In this condition, playing the keyboard does not produce any sound. (Page 93)

❷ Directly connect the MIDI cable in question — one end to the MIDI IN terminal of the S03, the other to the MIDI OUT. This sets up an external MIDI "loop," routing the keyboard of the S03 to its tone generator, by way of the MIDI cable (and not by Local Switch).

❸ Set the HOST SELECT switch on the rear panel to "MIDI." (Page 10)

❹ Set the Receive Channel parameter (PAGE 3 in the MIDI mode) to "omni" (all channels). This allows the Voice to respond to the incoming MIDI data, regardless of the MIDI Transmit Channel setting for the keyboard.

❺ Play the keyboard. If you've made all the above settings correctly and you hear the Voice, the MIDI cable is intact.

🎵 **NOTE** Keep in mind that the cable or connections could still be faulty, even if you hear sound — especially if the sound is intermittent or cuts in and out.

🎵 **NOTE** After conducting this check, make sure to reset the Local Sw (PAGE 2 in the MIDI mode) to "on," if necessary. If you leave this set to "off," the S03 keyboard will not control its own sounds.

Appendix

Specifications

KEYBOARD	61 keys with Initial Touch		
TONE GENERATOR	AWM2		
POLYPHONY	64 notes		
MULTI TIMBRE	16		
VOICE	Normal Voice	Preset User XG	128 128 480
	Drum Voice	User XG	2 20 (including 8 Original Voices)
MULTI		User	32
EFFECT	Reverb Chorus Variation		11 11 42
CONTROLS	STANDBY/ON, HOST SELECT, VOLUME, Pitch Bend, Modulation, MULTI, VOICE, DEMO, UTILITY, MIDI, EDIT/COMPARE, JOB, STORE, EXIT, ◀ / ▶ , ▲ / ▼, PART (ELEMENT/KEY) –/ + , MUTE, OCTOVE UP/DOWN, INC/YES, DEC/NO, PRESET, USER, XG/GM, CATEGORY SEARCH, Numeric Keypad, ENTER		
CONNECTORS & TERMINALS	PHONES (Stereo Phone), OUTPUT (Phone): L (MONO)/R, DC IN, FOOT CONTROLLER, FOOT SWITCH, TO HOST, MIDI IN/OUT/THRU		
DISPLAY	LCD (Back Lit)		
POWER SUPPLY	Yamaha AC adaptor PA-3B (included)* * May not be included in your area. Please check with your Yamaha dealer.		
POWER CONSUMPTION	7W (120V), 7.5W (230V)		
MAXIMUM OUTPUT LEVEL	OUTPUT: + 9 ± 2dbm (10k ohms), PHONES: + 0 ± 2dbm (33 ohms)		
DIMENSIONS	976 (W) x 285 (D) x 87 (H) mm		
WEIGHT	6kg		

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.

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