9001

ADVANCED MULTI-EFFECTS PROCESSOR

ZOOM

High-Tech Tools for Artistic Expression

OPERATION MANUAL

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ZOOM 9001Advanced Multi-Effects Processor

Thank you for selecting the ZOOM 9001 Advanced Multi- Effects Processor (hereafter called "9001").

The 9001 is a sophisticated multi-effect device with the following features and functions:

• *Many innovative, high-quality effects*

The 9001 offers versatile reverb effects on a par with much more expensive equipment, plus many other kinds of unique and useful sound effects. There are a total of 20 different effects with various parameters, and up to 40 programs using these effects can be stored in the memory of the unit.

• *Wide range of uses from recording to mix-down*

The 9001 is ideal for users who want to set up their own home recording studio. Its effects are perfect for many sounds and instruments, such as synthesizers, drums, bass, guitar or vocals. But the usefulness of the 9001 is not limited to the actual recording process. It comes in equally handy when doing mix-downs on a multi-track recorder and in many other home-recording applications.

• *Easy operation*

The number of adjustable parameters has been purposely limited to truly essential and useful points. Many effect settings and values are displayed by intuitive graphical representations or bar graphs, making the unit a snap to use even for beginners.

• *Remote operation with foot controller*

By using the optional Foot Controller FC01, program selection and effect on/off switching can be controlled by foot.

Please take the time to read this manual carefully, in order to get the most out of your 9001 and to ensure optimum performance and reliability.

WARNING!
Danger of explosion at incorrect battery change.
Use same type of battery or of equivalent type recommended by manufacturer.
Always discard the battery acording to the manufacturer's instructions.

Safety Precautions

Please observe the following safety tips and precautions to ensure hazard-free use of the 9001.

• Power requirements

The 9001 can be powered by six IEC R6 (size AA) batteries or the optional AC adapter AD-0001. Do not use any other kind of AC adapter to prevent malfunction and safety hazards.

When wishing to use the 9001 on AC power in an area with a different line voltage, please consult your local ZOOM distributor about acquiring a proper AC adapter.

• Environment

Avoid using your 9001 in environments where it will be exposed to:

- **Temperature extremes**
- **High humidity or moisture**
- **Excessive dust or sand**
- **Excessive vibration or shock**

• Handling

Since the 9001 is a precision electronic device, avoid applying excessive force to the switches and buttons. Also take care not to drop the unit, and do not subject it to shock or excessive pressure.

• Alterations

Never open the case of the 9001 or attempt to modify the product in any way since this can result in damage.

• Connecting cables and input and output jacks

You should always turn off the power to the 9001 and all other equipment before connecting or disconnecting any cables. Also make sure to disconnect all cables and the AC power cord before moving the 9001.

Notes on Internal Battery for Memory Back Up

Caution!

The 9001 contains a long-life lithium battery (this battery is different from the batteries of power supply) which maintains the effect programs stored in the internal memory intact even when the unit is turned off. With normal use, the battery should last for approximately 3 years. When the battery has run down , " INIT " will be displayed and the contents of the memory will be set automatically back to the factory- set status. When the battery is replaced, the program in the memory will be lost. Before replacing the battery, record the program data, and then restore the program data after the battery has been replaced. To avoid possible data loss, contact your local ZOOM dealer and have the battery replaced by a qualified technician. Do not attempt to replace the battery by yourself, since installing an improper battery could result in an explosion.

Precautions

• Electrical interference

The 9001 uses digital circuitry that may cause interference and noise if placed too close to other electrical equipment, such as TV sets and radio receivers. If such problems occur, move the 9001 further away from the affected equipment. Also, when fluorescent lights or devices with built-in motors are in close proximity to the unit, the 9001 may not function properly.

• Cleaning

Use a soft, dry cloth to clean the 9001. If necessary, slightly moisten the cloth. Do not use any abrasive cleansers, waxes, or solvents (such as paint thinner or cleaning alcohol), since these may dull the finish or damage the surface.

• In case of malfunction

If a problem arises during operation, turn the 9001 off and disconnect all cables. Then contact your local ZOOM distributor with the following information: model name, serial number, symptom, your name, address and phone number.

Keep this manual in a convenient place for future reference.

Introduction

In this section, you will find a general explanation of the functions and operation of the 9001, as well as an explanation of special terms and the organization of this manual. If you are already familiar with multi-effect processors, you may quickly scan this section.

What Is the 9001?

The 9001 is called a multi-effect processor because it lets you change sound in many ways, by applying electronically produced effects. Using a source signal for example from a tape recorder or a musical instrument, you can add reverberation or chorus effects to produce a more natural sound, or you can drastically alter the original sound in many creative ways to achieve a desired result.

- ***Effects and categories***

The 9001 incorporates 20 different effects. According to the intended sound source and application, these effects are grouped into 8 categories. The table below lists the 8 categories with their respective effects. Note that the category and effect designations often use the names of musical instruments, but this does not mean that their use is restricted to these instruments. For example, even when processing the sound of a piano, it is not mandatory that you use the effect category PIANO. This category is of course suitable for piano sounds, but another category may produce the result that you want. The effect STRINGS in the category KEYBOARD, for example, works very well to create a clear backing sound from an electric guitar. Feel free to experiment, according to your very own preferences and musical tastes.

Category			Effect
I		STUDIO	1 REVERB 2 ECHO 3 CHORUS
II		DRUMS	1 GATE 2 AMBIENCE
III		KEYBOARD	1 STRINGS 2 ORGAN 3 SOLO
IV		PIANO	1 ACOUSTIC PIANO 2 ELECTRIC PIANO
V		ACOUSTIC GUITAR	1 STEEL GUITAR 2 GUT GUITAR
VI		BASS	1 BASS 2 SLAP BASS
VII		VOCAL	1 VOCAL 1 2 VOCAL 2 3 HARMONY 4 ROBOT
VIII		SOUND	1 WAVE 2 TEST TONE OSCILLATOR

Categories and Effects

- ***Parameters***

Each effect is made up of several elements called parameters. Most of these parameters can be edited, in order to make the effect do exactly what you want. The 9001 stores an effect as the sum of its parameter settings.

- ***Program***

After you have edited the various parameters of an effect, and adjusted the desired output level, you can store the result as a program. The 9001 also comes with 40 predefined programs already stored in its memory. During a performance or a recording, you can use the 9001 by calling up the desired programs in the sequence you want. The preset programs stored in memory can be changed by the user.

- ***Bank number and program number***

The programs in the 9001 are specified by a two-digit number. The first digit indicates the bank number and the second digit the program number. There are ten banks from 0 to 9, and four program numbers from 1 to 4.

- **Mode**

The 9001 has three different operation modes, as described below.

Play mode

This is the basic operation mode in which you use the effects of the 9001. After power-on, this mode is automatically activated.

Edit mode

In this mode, you choose the effect to be used in a program and you can edit the various effect parameters.

Utility mode

In this mode, you can perform various system functions such as adjusting the sensitivity for certain sound sources or restoring the 9001 to the factory settings.

- ***Conventions used in this manual***

This manual uses the following icons to indicate special sections.

[Hint]

Practical hints or suggestions for optimum usage.

[Note]

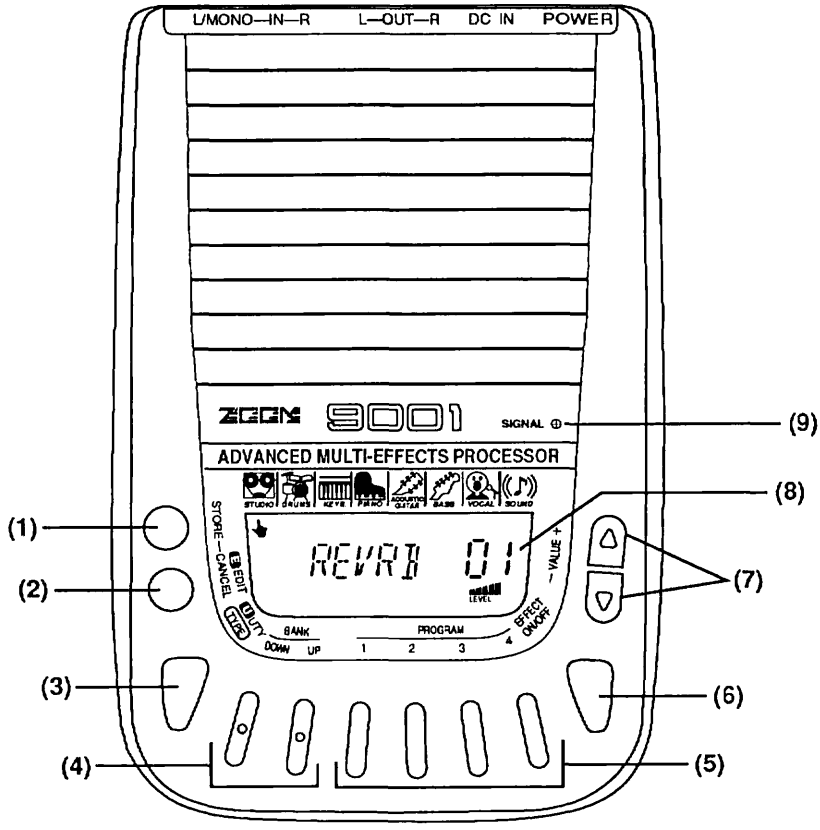
Warnings or advice, especially about points that may be of importance to users who are new to effect processors.

[One-point advice]

Basic information on specific topics which will be useful in working with the 9001.

Names and Functions of Controls and Connectors

Front Panel



(1) STORE key
This key serves to store an edited program in memory.

(2) EDIT/CANCEL key
This key serves to put the 9001 in the Edit mode. Pressing the key also lets you cancel an operation such as store.

(3) UTILITY (TYPE) key
This key serves to put the 9001 in the Utility mode. In Edit mode, the key is used to select effects.

(4) BANK UP/DOWN key

- **In Play mode,** these keys serve to select the desired bank from banks 0 to 9. A program is selected by using these keys in combination with the PROGRAM keys.
- **In Edit mode,** these keys serve to select the parameter to be edited.

(5) PROGRAM 1 - 4 keys

- **In Play mode,** these keys serve to select the desired program in the currently selected bank.
- **In Edit mode,** these keys serve to select the parameter to be edited.

(6) EFFECT ON/OFF key

- **In Play mode,** this key serves to temporarily turn off the effect. Pressing the key once more turns the effect on again.
- **In Edit mode,** the key serves to the compare the sound of the original program (before editing) with the current sound effect settings.

(7) VALUE +/- keys

- **In Play mode,** these keys serve to adjust the output level of the program.
- **In Edit mode,** these keys serve to edit a parameter.
- **In Utility mode,** these keys serve to set the input sensitivity level for various sound sources.

(8) Display

Shows information such as the currently selected program and effect, bank number, program number, etc.

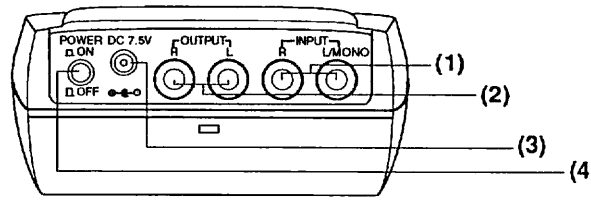
(9) SIGNAL indicator

Indicates the level of the signal currently input to the 9001.

- **When the indicator is out, no signal is being input.**
- **When the indicator is lit in green, a low-level signal is being input.**
- **When the indicator is lit in yellow, a signal is being input at optimum level.**
- **When the indicator is lit in red, the level of the input signal is too high, causing distortion in the input circuitry of the 9001.**

If the battery voltage is low, the SIGNAL indicator will start to flash in red. When this happens, replace the batteries as soon as possible. The unit can be operated continuously for about 3 hours on a set of fresh manganese batteries and for about 6 hours on a set of fresh alkaline batteries. When closing the battery compartment cover, first insert the protruding lip into the corresponding slot and then firmly lock the rear of the cover.

Rear Panel



(1) INPUT jacks (R, L/MONO)

The source signal from a musical instrument, tape recorder, CD player or other equipment is connected here. If the signal is in mono, use the jack marked L/MONO. For stereo signals, use both jacks. If the signal output cable uses RCA-type phono jacks, an adapter for conversion to 1/4" phone plugs is required.

(2) OUTPUT jacks (L/R)

The output signal from the 9001 is supplied at these jacks, which can be connected to a set of speakers with built-in amplifier or to other audio equipment.

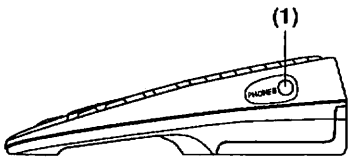
(3) DC 7.5 V jack

When the optional AC adapter AD-0001 is used to power the 9001, the cable from the adapter is connected here.

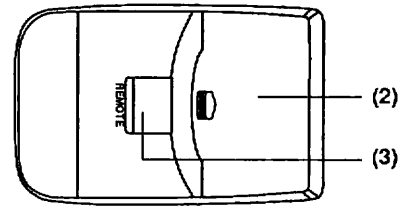
(4) POWER switch

Serves to turn the unit on and off.

Right Side Panel /Bottom Panel



Right Side Panel



Bottom Panel

(1) PHONES jack

A pair of stereo headphones can be connected here.

(2) Battery compartment

Six IEC R6 (size AA) batteries are inserted here.

(3) REMOTE jack

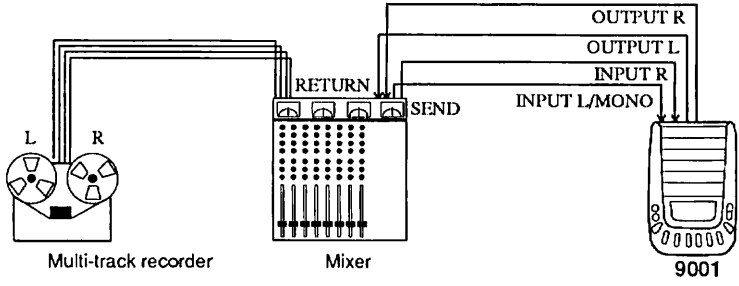
The optional Foot Controller FC01 can be connected here.

Connections

The 9001 can be connected in many ways, depending on the sound source and the intended application. A few representative examples are described below.

Connection to a mixer (Example 1)

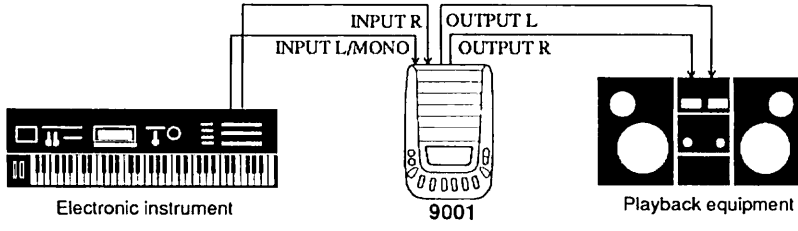
When wishing to apply effects to several instruments or to various tracks of a multi-track recorder, use the SEND/RETURN jacks of a mixer to connect the 9001. For a stereo setup, connect the SEND jacks to the L and R INPUT jacks of the 9001, and connect the L and R OUTPUT jacks of the 9001 to the RETURN jacks of the mixer. For a mono setup, use the L INPUT and L OUTPUT jacks of the 9001.



When using the 9001 as described above in the SEND/RETURN loop of a mixer, it is advisable to use only effects in the categories STUDIO and DRUMS and to set the DIR parameter (direct sound mix on/off) to OFF. Since effects in other categories do not have the option of turning the direct sound off, their use in this type of application is not recommended. For details on parameters, please refer to page 22.

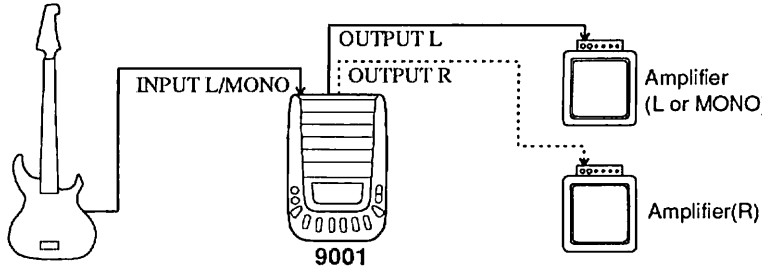
Connection to a synthesizer or rhythm machine (Example 2)

When using the 9001 with an electronic instrument that has stereo output, such as a synthesizer or a rhythm machine, connect the output from the instrument to the L and R INPUT jacks of the 9001, and connect the L and R OUTPUT jacks of the 9001 to the inputs of the audio component or other playback equipment.



Connection to a guitar or bass guitar (Example 3)

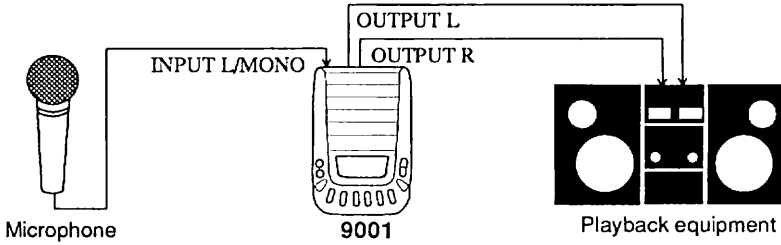
When using the 9001 with an instrument that has mono output, such as an electric guitar, an acoustic guitar with pickup, or a bass guitar, connect the output from the instrument to the L/MONO INPUT jack of the 9001, and connect the L OUTPUT jack of the 9001 to the amplifier. In this case, stereo effects such as reverb will be in mono. When wishing to use the stereo capabilities of the 9001, connect the L and R OUTPUT jacks to two amplifiers.



Connection to a microphone (Example 4)

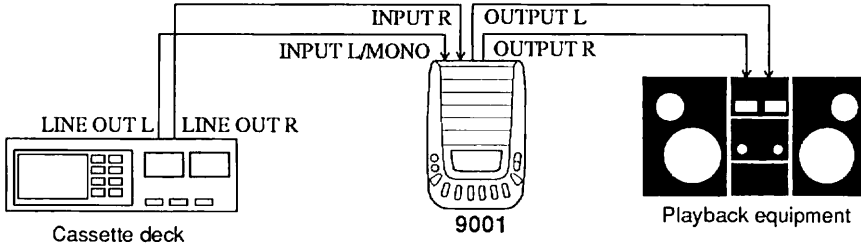
To use the 9001 with a microphone, connect the output from the microphone to the L/MONO INPUT jack of the 9001, and connect the L OUTPUT jack of the 9001 to the amplifier. In this case, stereo effects such as reverb will be in mono. When wishing to use the stereo capabilities of the 9001, connect the L and R OUTPUT jacks to two amplifiers.

Conventional dynamic microphones can be connected directly to the 9001, but capacitor microphones are not supported. Since the output level from microphone varies considerably depending on the model, be sure to adjust the input sensitivity of the 9001 to match the microphone in use.



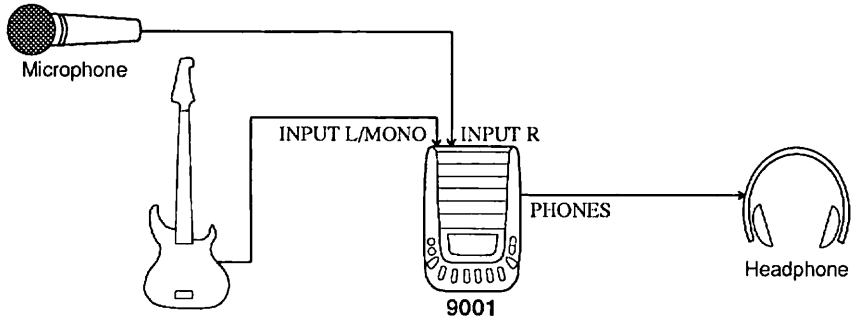
Connection to a CD player or cassette deck (Example 5)

Connect the line output jacks of the CD player or cassette deck to the L and R INPUT jacks of the 9001, and connect the L and R OUTPUT jacks of the 9001 to the AUX inputs of the audio component or other playback equipment. This is useful for example to create your own tapes by adding reverb or other effects to conventional music sources.



Private Practice setup (Example 6)

This is the "private practice" setup, to connect a mic into one input and an instrument (like a guitar or keyboard) into the other, with headphones connected directly. It is an ideal way to set up the 9001 for your private practice. Singing and playing simultaneously through the 9001, especially through headphones, is a big pleasure!



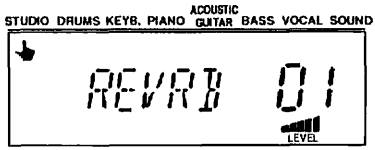
Input Level Adjustment

Before starting to use the 9001, you should adjust the input sensitivity to match the level of the sound source. This will ensure optimum sound quality with a minimum of noise.

- **When the 9001 has been properly connected to the sound source and the playback equipment, turn on the power in the following order: → Sound source → 9001 → playback equipment**

If the above sequence is not observed, turn-on thumps may damage the speakers. To turn the equipment off, reverse the above sequence.

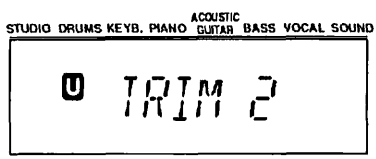
The Play mode display appears.



The display shown above is only an example. In actual use, the display will be different depending on the status of the 9001 before it was last turned off. In other modes, an "E" or "U" is shown in the left section of the display. If this indication is not shown, the unit is in the Play mode.

- **Press the UTILITY (TYPE) key.**

This activates the Utility mode. A "U" appears in the left section of the display.



- **Use the VALUE +/- keys to adjust the input sensitivity of the 9001.**

Set the output level of the sound source to the normal value. Then adjust the input sensitivity of the 9001 with the VALUE +/- keys so that the SIGNAL indicator lights up in yellow during input signal peaks. The input sensitivity can be set in five steps, from 1 to 5.

- **When the adjustment is completed, press the UTILITY key several times until the unit reverts to the initial display (no "U" shown).**

The 9001 is now again in Play mode.

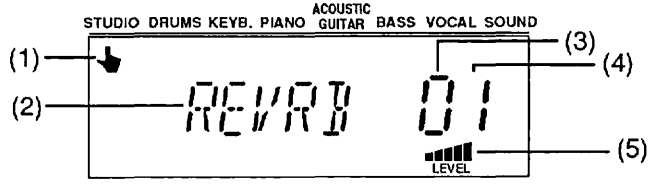
Using a Program (Play Mode)

The Play mode is the basic operation mode of the 9001. In this mode, you can perform the following functions:

- **Selecting a program**
- **Turning the effect on or off**
- **Temporarily adjusting the output level**

Reading the Display in Play Mode

The following information appears on the display in Play mode:



(1) Category

The category to which the effect belongs is indicated at the " " mark by an easy-to-understand icon. This lets you see at a glance for which kind of application the effect is suitable.

(2) Effect

The name of the effect used by the currently selected program.

(3) Bank number

The number of the currently selected bank.

(4) Program number

The number of the currently selected program.

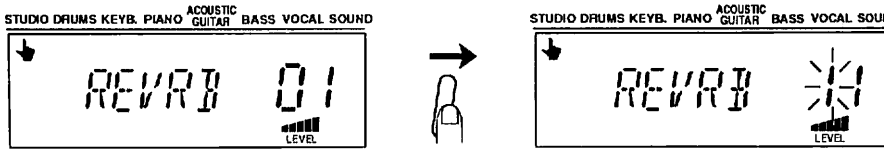
(5) Bar graph

Graphic representation of the output level of the currently selected program.

Selecting a Program

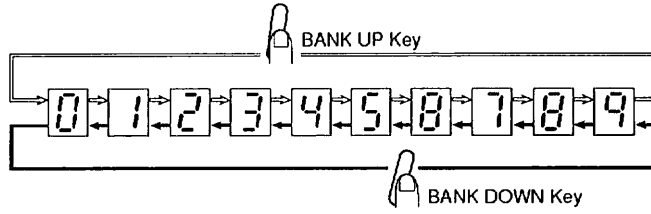
- **Use the BANK UP/DOWN keys to select the bank number.**

The programs of the 9001 are grouped into ten banks numbered from 0 to 9. Each bank contains four programs. When the BANK UP/DOWN keys are used to select a bank number, the number flashes.



Press BANK UP Key

When wishing to change bank numbers quickly, keep the BANK UP or DOWN key depressed.

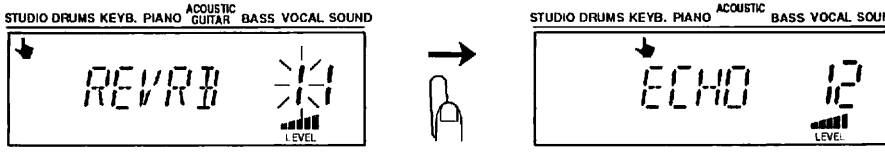


Selecting Bank Numbers With BANK UP/DOWN Keys

Simply pressing the BANK UP/DOWN keys does not suffice to change the program. The program is only selected after you have pressed one of the PROGRAM 1 - 4 keys.

- **Use the PROGRAM 1 - 4 keys to select the program.**

The bank number stops flashing and the newly selected program number is shown on the display. The name of the effect used by the program, its category, and the output level are also shown.



Press PROGRAM 2 Key

When changing programs within the same bank, there is no need to press the BANK UP/DOWN keys. To change from program 11 to program 14, for example, just press the PROGRAM 4 key.

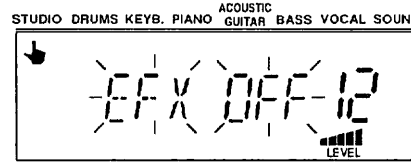
Now that you have learned how to select programs, we recommend that you try out the programs stored in the 9001, to hear the various effects. For a detailed explanation of each program, please refer to the program list starting on page 44.

Temporarily Cancelling an Effect

In the Play mode, you can easily turn an effect on and off. This is helpful for example to quickly check the sound of an effect, or to tune an instrument.

- **Press the EFFECT ON/OFF key in the Play mode.**

The effect is turned off and the direct sound of the source is heard. The indication "EFX OFF" flashes on the display. For effects in the categories STUDIO and DRUMS, the direct sound is not output if the parameter DIR is set to OFF.



- **Press the EFFECT ON/OFF key again.**

The previous Play mode condition is restored.

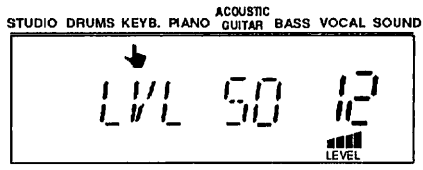
Changing the Output Level

The output level is one of the parameters stored separately for each program. You can temporarily change the setting in Play mode.

For effects in the categories STUDIO and DRUMS, the output level setting has a different meaning than for effects in other categories. In the categories STUDIO and DRUMS, only the level of the effect itself is adjusted. In other categories, the level of the mixed signal consisting of original sound and effect is adjusted.

- **Press one of the VALUE +/- keys in Play mode.**

The display changes as follows:



The number to the right of "LVL" ("50" in the above example) is the currently selected output level.

- **Adjust the level with the VALUE +/- keys.**

You can either tap the key repeatedly or keep it depressed. By keeping a key depressed and at the same pressing the other direction key, the level changes more rapidly. The setting range is 0 (no sound) to 99 (maximum level).

- **When the VALUE +/- keys are released, the unit reverts to the previous condition.**

When wishing to only check the output level setting, just tap one of the VALUE +/- keys once. The level is displayed for some time, and then the unit reverts to the previous condition.

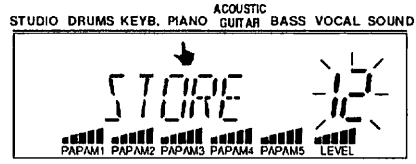
The output level setting as described above is only temporary. When a different program is selected, the preset level of that program will be active. When wishing to store the output level setting, perform the following steps.

Storing a Program in the Same Bank and Program Number

You can make the level adjustment permanent by storing the program again under the same number.

- **Press the STORE key in Play mode.**

The unit is set to the Store mode, and the bank number and program number indication flashes.



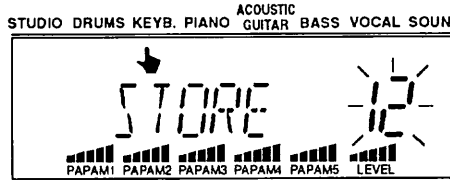
- **Press the STORE key once more. The program is stored with the new setting, and the unit reverts to the Play mode.**

Storing a Program in a Different Bank and Program Number

When wishing to use the 9001 as an effecter for example for guitar, bass or synthesizer, you can store the programs you want to use in a performance in the same bank and then switch between them simply by pressing PROGRAM 1 - 4 keys. Proceed as follows to store a program in a different location.

•• Press the STORE key in Play mode.

The unit is set to the Store mode, and the bank number and program number indication flashes.



• Use the BANK UP/DOWN keys and PROGRAM 1 - 4 keys to select the bank and program number into which you want to store the program. As opposed to the Play mode, the program changes also if you only press the BANK UP/DOWN keys.

When a program is stored in a new location, the program that was previously stored in that number is overwritten (erased). Take care not to erase a program that you want to keep. When wishing to restore the factory preset programs, please refer to the explanation on page 39.

• Press the STORE key once more. The program is stored in the new number, and the unit reverts to the Play mode.

If you wish to cancel the operation without storing the program, press the EDIT/CANCEL key before pressing the STORE key the second time. The unit reverts to the previous condition (Play mode in the above example).

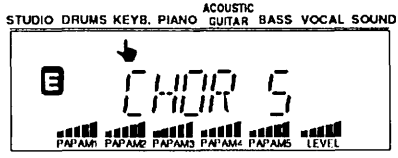
Edit Mode

Each effect in the 9001 consists of up to six parameters (parameter 1 through 5 and output level setting). Changing these parameters is called editing the program. To do this, the 9001 must be in the Edit mode.

Activating the Edit Mode

- **In the Play mode, select the program you want to edit and then press the EDIT/CANCEL key.**

The 9001 is now in the Edit mode, and an "E" appears in the left section of the display.



When wishing to return to the Play mode, press the EDIT/CANCEL key once more.

Reading the Display in Edit Mode

The following information appears on the display in Edit mode:

(1) Category

The category to which the effect belongs is indicated at the "☝" mark by an easy-to-understand icon.

(2) Parameter

The name of the parameter (parameter 1 - 5 or output level setting) that is currently selected for editing.

(3) Parameter value

The value of the parameter that is currently selected for editing.

(4) Bar graph

Graphic representation of the value of the various parameters. The number of the parameter currently selected for editing flashes. (Immediately after activating the Edit mode, this is the parameter 1.)

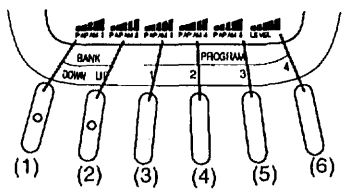
Changing a Parameter Value

To edit a program on the 9001, you perform two basic steps:

- **Select the parameter to be edited.**
- **Change the parameter value.**

- **Use the BANK UP/DOWN keys and PROGRAM 1 – 4 keys to select the parameter to be edited.**

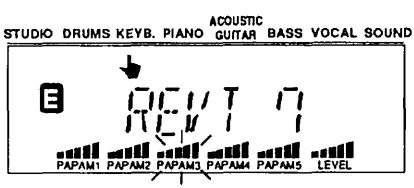
In this mode, the keys function as follows:



(1) BANK DOWN key: ····Parameter 1
(2) BANK UP key: ·····Parameter 2
(3) PROGRAM 1 key: ·····Parameter 3
(4) PROGRAM 2 key: ·····Parameter 4
(5) PROGRAM 3 key: ·····Parameter 5
(6) PROGRAM 4 key: ·····Output level

The actual meaning of the parameter depends on the effect. For an explanation, please refer to the program list starting on page 22. The "output level" parameter is the same as the output level setting in Play mode.

The name and value of the selected parameter appear on the display, and the number of the parameter flashes.



- **Use the VALUE +/- keys to change the value.**

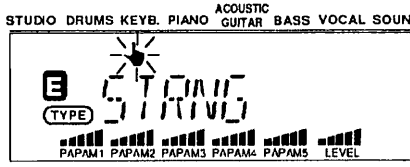
To change the value continuously, keep the VALUE + or - key depressed. By keeping a key depressed and at the same pressing the other key, the value changes more rapidly.

Switching to Another Effect

In the Edit mode, you can select a different effect to be used by a program. This is useful for example when creating new programs from scratch.

- **Press the UTILITY (TYPE) key.**

The name of the currently selected effect is displayed (the indication "TYPE" flashes in the lower left of the display), and you can select a new effect.



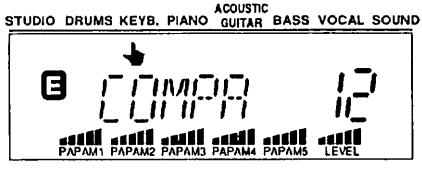
- **Use the VALUE +/- keys to select an effect.**

When a new effect is selected, all currently established parameter settings are cleared, and the initial settings of the new effect are active.

Comparing an Edited Program to the Original Program

While editing a program, you can use the EFFECT ON/OFF key to compare the original program to the current settings.

When the EFFECT ON/OFF key is pressed, the display changes as follows, and the unit reverts to the program before editing.



Pressing the EFFECT ON/OFF key again returns you to the Edit mode.

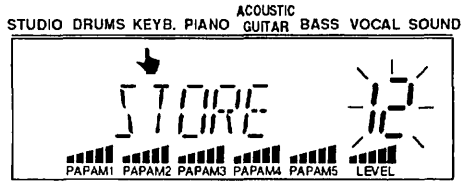
This function makes it easy to evaluate the influence a certain parameter has on the sound of an effect.

Storing an Edited Program

Unless you store the edited program, the effects of any changes made in the Edit mode will be only temporary, i.e. they will disappear when you select another program. In order not to lose the results of your editing work, you should get into the habit of storing an edited program whenever you feel that you have made an improvement.

- **When you have set the parameters to the desired values, press the STORE key.**

The unit is set to the Store mode, and the bank number and program number indication flashes.



- **Use the BANK UP/DOWN keys and PROGRAM 1 - 4 keys to select the bank and program number into which you want to store the program.**

If you don't make a selection, the edited program will be stored in the same location as the original (which will be overwritten).

- **Press the STORE key once more.**

The program is stored, and the unit reverts to the Play mode. If you press the EDIT/CANCEL key instead of the STORE key, the operation is aborted and the unit reverts to the previous display condition without storing the program.

Even if you have pressed the EDIT/CANCEL key, the edited program is still active until you select another program.

Parameter List

In this section, all effects of the 9001 are listed with their parameters. Parameters that are the same for several effects are explained in detail only the first time they appear.

Category I STUDIO

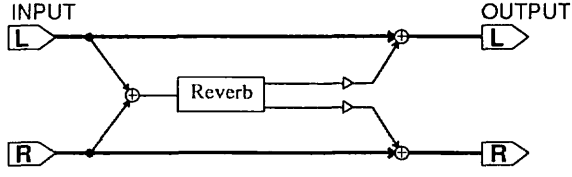
1. REVERB [REVRB]

This is an all-purpose reverberation effect that lends a natural quality to the sound.

	Parameter	Display	Range	Explanation
1	Reverb Time	REVT	1-10	Determines the duration of the reverberation.
2	Pre Delay Time	PR_D	0-100	Determines the delay until the onset of the reverberation (unit: ms).
3	Tone	TONE	0-10	Determines the tonal quality of the reverberation. The smaller the value, the stronger the high-frequency cut.
4	Early Reflection	E/R	0-10	Determines the level of the early reflections.
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal.
L	Effect Level	LVL	0-99	Determines the output level of the reverberation effect.

REVT	1	2	3	4	5	6	7	8	9	10
sec	0.4	0.7	0.9	1.2	1.5	1.8	2.1	2.5	3	4

REVT and sec



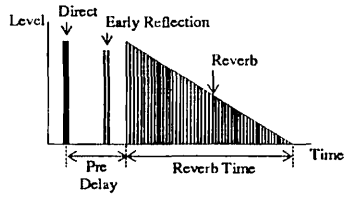
POINT

Reverberation adds the impression of spatial depth to the sound. When music is heard for example in a hall, the sound will be reflected at hard surfaces such as walls etc. The delay between arrival of the direct sound and arrival of the first reflection (called early reflection) is called the pre-delay time. The higher the level of the early reflection and the shorter the pre-delay time, the smaller the perceived space becomes.

After the first reflection at walls, the sound is further reflected, with later reflections gradually decaying in intensity. The level of these reflections is called the reverb level, and the time until the reflections cease completely is called the reverb time.

The softer the reflecting surfaces are, the greater is the high frequency attenuation in the reflected

sound, and the shorter is the reverb time. This is the case for example in a room with sound-absorbing treatment. Reversely, the harder the reflecting surfaces, the higher is the high- frequency content of the reflections and the longer the reverb time, such as for example in a large hall.



Reverberation Parameters

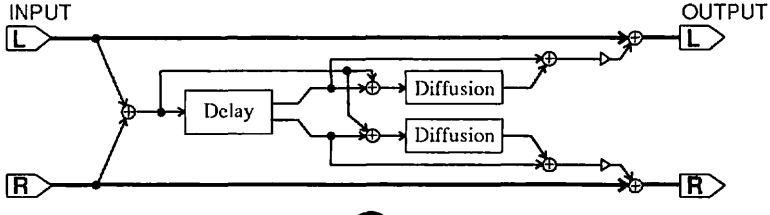
The effects in the categories STUDIO and DRUMS differ from effects in other categories in three regards:

1) **Stereo input/output is possible by using a stereo input signal and mixing it before applying the effect.**
2) **The LVL parameter affects only the effect level, not the direct sound level.**
3) **The DIR parameter permits turning direct sound mixing on or off. When the 9001 is connected between the sound source and the playback equipment, the parameter should be set to ON. When the 9001 is used in the SEND/RETURN loop of a mixer, the parameter should be set to OFF.**

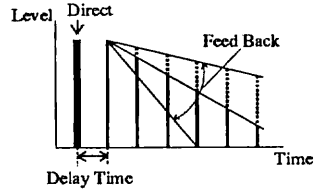
2. ECHO [ECHO]

This a versatile delay effect offering various options ranging from single delay to multi-feedback delay.

	Parameter	Display	Range	Explanation
1	Delay Time	DLYT	1-128	Determines the delay time in 10-ms units (example: 128 = 1280 ms).
2	FeedBack	FB	0-10	Determines the amount of feedback.
3	MODE	MODE	1,2,3	Selects the echo type. **1: Single delay 2: Ping-pong delay 3: Multi feedback delay**
4	Diffusion	DIFF	0-10	Determines the amount of diffusion in the echo.
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal. If ON is selected, diffusion is also applied to the direct sound.
L	Effect Level	LVL	0-99	Determines the output level of the echo effect.



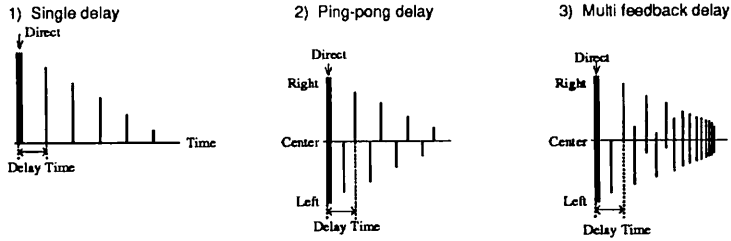
POINT Although similar in concept, the reflection density of the echo effect is more coarse than that of the reverberation effect. The intervals between the single echo sounds are determined by the delay time, and the number of repetitions by the feedback parameter. If the diffusion parameter is increased, the echo effect becomes more similar to the reverberation effect.



Echo Parameters

The echo effect allows choosing between three different types of echo:

1) Single delay
   Conventional echo with fixed intervals.
2) Ping-pong delay
   Echo alternates between the left and right channels.
   In a monaural setup where only the left output is used, the left and right echo components are mixed, so that the echo is heard at a cycle of 1/2 the delay time.
3) Multi feedback delay
   The interval and left/right position of the echo changes in various ways.



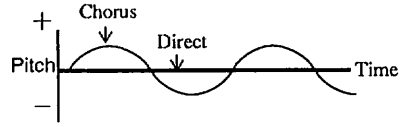
Echo Types

3. CHORUS [CHORUS]

This is a chorus effect that can be used with a wide variety of sound sources, from guitars to synthesizers.

	Parameter	Display	Range	Explanation
1	Depth	DEPT	0-50	Determines the intensity of the chorus effect.
2	Color	COLOR	0-10	Determines the sound character of the chorus effect. The higher the value, the stronger the low-frequency cut, resulting in a more transparent sound.
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal.
L	Effect Level	LVL	0-99	Determines the output level of the chorus effect.

POINT The peculiar soft sound character of the chorus effect is achieved by varying the pitch of the original sound at a certain regular cycle and adding the resulting signal to the direct sound. The amount of variation is determined by the depth parameter, and the color parameter determines the sound quality.



Principle of Chorus Effect

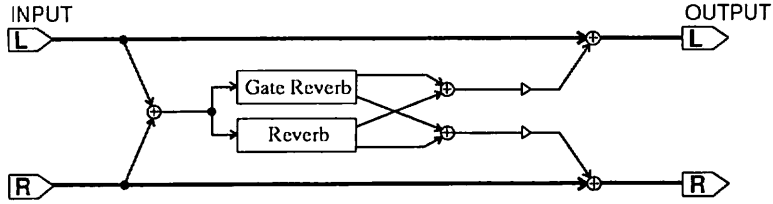
Category II DRUMS

1. GATE [GATE]

Gate reverberation effect which results in a dramatic percussive sound.

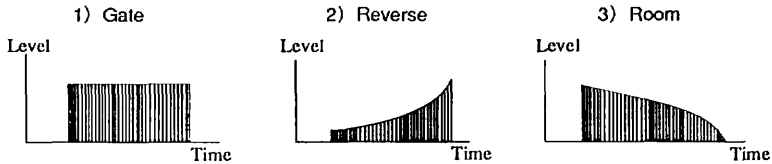
	Parameter	Display	Range	Explanation
1	Gate Time	TIME	1-100	Determines the gate reverberation time.
2	Gate Shape	SHAPE	1,2,3	Determines the attenuation pattern of the gate. **1: Gate 2: Reverse 3: Room**
3	Reverb Time	REVT	1-10	* Determines the reverberation time.
4	REV/GATE Balance	BAL	0-10	Determines the level balance between reverberation sound and gate reverberation sound. **1: Only reverberation 10: Only gate reverberation.**
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal.
L	Effect Level	LVL	0-99	Determines the output level of the gate reverberation + reverberation effect.

* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22.



POINT The gate reverberation effect is produced by controlling the attenuation of the reverberation sound. This artificial-sounding effect is well known for its use in cutting the reverberation of bass or snare drums. The following three attenuation patterns are available.

1) Gate Reverberation is cut off abruptly, resulting in a particular sound effect.
2) Reverse Reverberation increases, following a curve that is the reverse of the normal pattern.
3) Room This reverberation gives the sonic effect of a very small room.



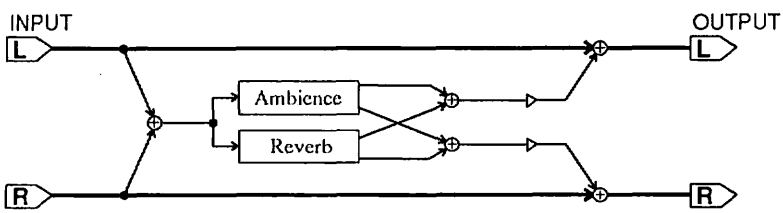
Gate Reverberation Patterns

2. AMBIENCE [AMB]

This effect simulates room ambience with reflecting surfaces.

	Parameter	Display	Range	Explanation
1	Room Size	SIZE	1-100	Determines the apparent size of the room.
2	Room Mode	MODE	1,2,3	Selects the type of room. 1: Small 2: Large 3: Tight
3	Reverb Time	REVT	1-10	* Determines the reverberation time.
4	REV/AMB Balance	BAL	0-10	Determines the level balance between reverberation sound and ambience sound. 1: Only reverberation 10: Only ambience
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal.
L	Effect Level	LVL	0-99	Determines the output level of the ambience + reverberation effect.

* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22.



POINT The room mode parameter determines the type of reverberation, and the room size parameter the perceived size of the room. The room mode parameter has three choices:

1) Small Small room with little reverberation.
2) Large Large room with comparatively high reverberation.
3) Tight Extremely small room with almost no reverberation.

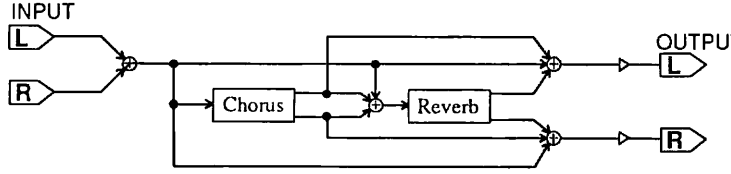
Category III KEYBOARD

1. STRINGS [STRNG]

This effect lends suppleness and body for example to the sound of a string ensemble. It is a combination of chorus and reverberation type effects.

	Parameter	Display	Range	Explanation
1	Chorus Depth	CHOR	0-10	Determines the chorus modulation intensity.
2	Chorus Mix	CMIX	0-10	Determines the mixing level of the chorus effect.
3	Reverb Time	REVT	1-10	* Determines the reverberation time.
4	Pre Delay Time	PR_D	0-100	Determines the pre delay time.
5	Reverb Mix	RMIX	0-10	Determines the amount of reverberation mix.
L	Program Level	LVL	0-99	Determines the output level.

* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22 .



2. ORGAN [ORGAN]

This effect simulates a rotating organ speaker.

	Parameter	Display	Range	Explanation
1	Lo Freq Rate	LRAT	1-50	Determines the simulated rotation rate of the low- frequency speaker.
2	Hi Freq Rate	HRAT	1-50	Determines the simulated rotation rate of the high- frequency speaker.
3	Stereo Width	WIDTH	1-10	Determines the left/right stereo separation.
4	Tone	TONE	0-10	Determines the tonal quality of the effect. The smaller the value, the stronger the high-frequency cut.
L	Program Level	LVL	0-99	Determines the output level.

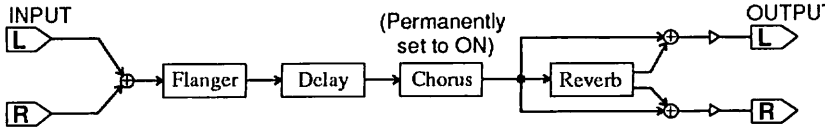
POINT A rotating speaker is a special type of speaker for organs, where a separate high-frequency driver and low- frequency driver are mounted in rotating enclosures. The ORGAN effect simulates the unique sound character that is obtained from such a speaker.

When switching between two programs that both use the ORGAN effect, the simulated speaker rotation rate changes gradually, not abruptly. This allows you to prepare two programs, one with high and one with low rotation rate, and switch between the two for a convincing illusion of a real rotating speaker.

3. SOLO [SOLO]

This effect is especially suited to emphasize a prominent solo for example from a guitar or synthesizer. It is a combination of flanger, echo, reverb, and chorus effects.

	Parameter	Display	Range	Explanation
1	Flanger Depth	FLG	0-10	Determines the intensity of the flanger effect.
2	Flanger Rate	RATE	1-50	Determines the modulation rate of the flanger effect.
3	Delay Time	DLYT	1-100	Determines the delay time in 10-ms units (example: 100 = 1000 ms).
4	Delay Mix	DMIX	0-10	Determines the mixing level of the delayed sound.
5	Reverb Mix	REV	0-10	Determines the mixing level of the reverb sound.
L	Program Level	LVL	0-99	Determines the output level.



POINT The flanger uses a slightly delayed signal to modulate the original sound. Affected frequencies are periodically altered to achieve a strong undulating effect.

The chorus component of this effect is permanently set to ON.

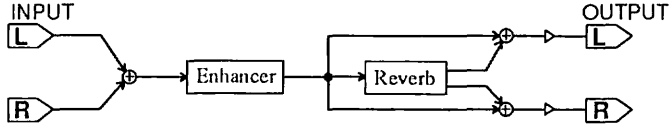
Category IV PIANO

1. ACOUSTIC PIANO [PIANO]

This effect provides sonic depth and brilliance that is best suited to the sound of an acoustic piano. It is a combination of enhancer and reverb effects.

	Parameter	Display	Range	Explanation
1	Enhancer Depth	ENH	0-10	Determines the intensity of the enhancer effect.
2	Reverb Time	REVT	1-10	* Determines the reverberation time.
3	Pre Delay Time	PR_D	0-100	Determines the pre-delay time (unit: ms).
4	Reverb Tone	TONE	0-10	Determines the tonal quality of the reverb effect. Smaller values cause a high-frequency cut, and higher values a low-frequency cut.
5	Reverb Mix	RMIX	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.

* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22.

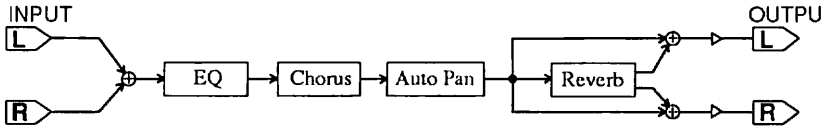


POINT The enhancer is an effect that serves to increase sonic clarity. It removes certain frequencies that tend to blur the sound and emphasizes the high-frequency range.
The enhancer in the 9001 stresses different frequency areas, depending on the effect in which it is used. For ACOUSTIC PIANO, it is set to stress the hammer attack sound.

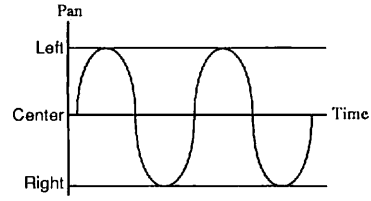
2. ELECTRIC PIANO [ELPNO]

This effect is a combination of chorus, equalizer, and auto-pan that has proven very effective for electric piano.

	Parameter	Display	Range	Explanation
1	EQ Lo Gain	LO_G	-12 - 0 - +12	Determines the gain of the low-frequency equalizer.
2	EQ Hi Gain	HI_G	-12 - 0 - +12	Determines the gain of the high-frequency equalizer.
3	Chorus Depth	CHOR	0-10	Determines the intensity of the chorus effect.
4	Panning Rate	PAN	0-50	Determines the speed of the panning effect. At "0", the panning effect is disabled.
5	Reverb Mix	REV	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.



POINT The auto-panning effect simulates the sound of an electric piano that was popular in the seventies and eighties. During stereo playback, the sound alternates between the left and right channel.



Auto-Panning

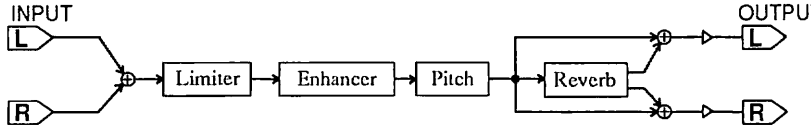
HINT **During mono playback using only the L OUTPUT jack, panning has no effect except for a change in modulation.**

Category V ACOUSTIC GUITAR

1. STEEL GUITAR [STEEL]

This effect makes the sound of acoustic guitar more pronounced and clear-cut.

	Parameter	Display	Range	Explanation
1	Limiter Intensity	LIM	0-10	Determines the intensity of the limiter.
2	Enhancer Depth	ENH	0-10	Determines the intensity of the enhancer effect which makes the sound of wound strings stand out and lends brilliance to the sound of single-strand strings.
3	Pitch Shift Mode	PMODE	1-7	Determines the amount of pitch shift. 1: -1oct 2: -5semi 3: detune- 4:detune+ 5: +5semi 6: +7semi 7: +1oct
4	Pitch Shift Mix	PMIX	0-10	Determines the pitch shift mixing level.
5	Reverb Mix	REV	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.



POINT The limiter compresses the sound so that it does not exceed a certain level. It clears up the sound and prolongs sustain.

The pitch shifter has a range of one octave up or down. It creates a special harmonizing chorus effect. The following pitch shift settings can be chosen.

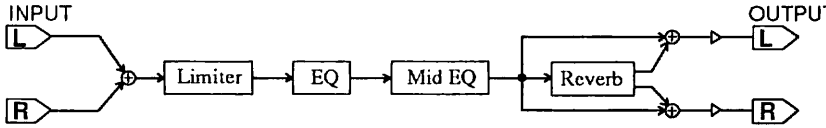
1: -1 octave
2: 5 semitones
3: detune (-)
4: detune (+)
5: +5 semitones
6: +7 semitones
7: +1 octave

HINT **When switching between effects of the category ACOUSTIC GUITAR or BASS, the sound is not muted when a new program is selected.**

2. GUT GUITAR [GUT]

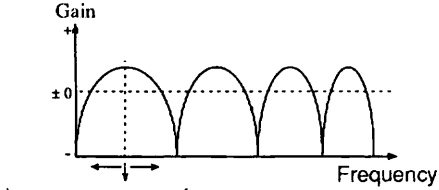
This effect creates a soft, mellow gut guitar sound.

	Parameter	Display	Range	Explanation
1	**Limiter Intensity**	**LIM**	**0-10**	Determines the intensity of the limiter.
2	**EQ Lo Gain**	**LO_G**	**-12 - 0 - +12**	Determines the gain of the low-frequency equalizer.
3	**EQ Hi Gain**	**HI_G**	**-12 - 0 - +12**	Determines the gain of the high-frequency equalizer.
4	**Comb Frequency**	**COMB**	**0-50**	Determines the resonance frequency of the comb filter. **0: Flat 1: 120 Hz 50: 2.5 kHz**
5	**Reverb Mix**	**REV**	**0-10**	Determines the reverberation mixing level.
L	**Program Level**	**LVL**	**0-99**	Determines the output level.



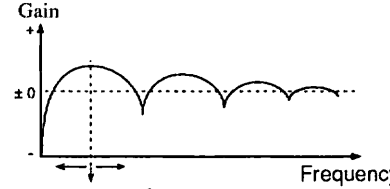
POINT The comb filter causes a special effect where frequency peaks alternate with frequency dips, around a certain reference frequency. By stressing the lowest peak and dip (lowest resonance frequency) and smoothing other areas, mid-range sounds are accented in a way that resembles the body resonances of a gut guitar.

1) Conventional comb filter



Lowest resonance frequency

2) GUT comb filter



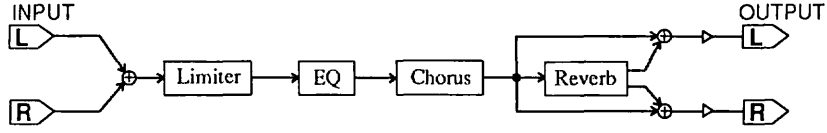
Lowest resonance frequency

Category VI BASS

1. BASS [BASS]

This is a combination of limiter, chorus, and reverberation effects, resulting in a rich bass sound.

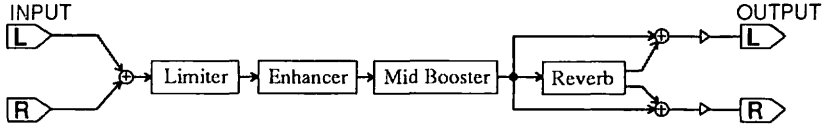
	Parameter	Display	Range	Explanation
1	Limiter Intensity	LIM	0-10	Determines the intensity of the limiter.
2	EQ Lo Gain	LO_G	-12 - 0 - +12	Determines the gain of the low-frequency equalizer.
3	EQ Hi Gain	HI_G	-12 - 0 - +12	Determines the gain of the high-frequency equalizer.
4	Chorus Depth	CHOR	0-10	Determines the intensity of the chorus effect.
5	Reverb Mix	REV	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.



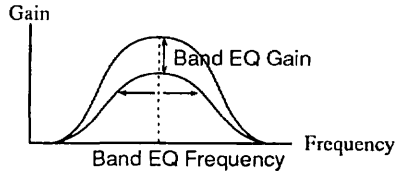
2. SLAP BASS [SLAP]

This effect emphasizes the low and high frequency range. It is most suitable for chopper type play.

	Parameter	Display	Range	Explanation
1	Limiter Intensity	LIM	0-10	Determines the intensity of the limiter.
2	Enhancer Depth	ENH	0-10	Determines the intensity of the enhancer effect.
3	Band EQ Frequency	FRQ	0-50	Determines the center frequency of the band equalizer. 0: 60 Hz 50: 7 kHz
4	Band EQ Gain	GAIN	0-10	Determines the boost amount of the band equalizer. 0: 0 dB 10: +12 dB
5	Reverb Mix	REV	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.



POINT The band equalizer allows shifting of the center frequency to match the sound source.



Band Equalizer

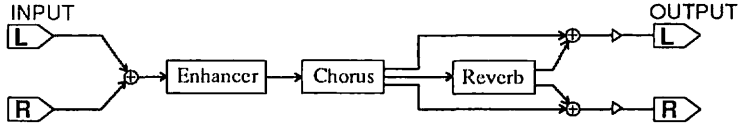
Category VII VOCAL

1. VOCAL 1 [VOCAL1]

This effect lends depth for example to a large vocal or strings ensemble without changing the character of the sound.

	Parameter	Display	Range	Explanation
1	Enhancer Depth	ENH	0-10	Determines the intensity of the enhancer effect that heightens vocal clarity.
2	Chorus Depth	CHOR	0-10	Determines the intensity of the chorus effect.
3	Chorus Mode	MODE	1,2	Determines the chorus mode. 1: Mono 2: Stereo
4	Reverb Time	REVT	1-10	* Determines the reverberation time.
5	Reverb Mix	RMIX	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.

* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22.

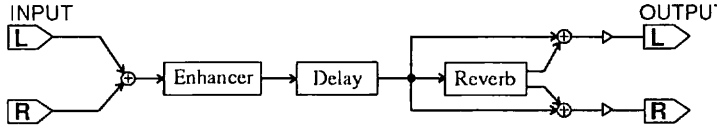


2. VOCAL 2 [VOCAL2]

This is a combination of effects intended mainly for solo vocals.

	Parameter	Display	Range	Explanation
1	Enhancer Depth	ENH	0-10	Determines the intensity of the enhancer effect that heightens vocal clarity.
2	Delay Time	DLYT	1-100	Determines the delay time (unit: 10 ms).
3	Delay Mix	DMIX	0-10	Determines the mixing level of the delayed sound.
4	Reverb Time	REVT	1-10	* Determines the reverberation time.
5	Reverb Mix	RMIX	0-10	Determines the reverberation mixing level.
L	Program Level	LVL	0-99	Determines the output level.

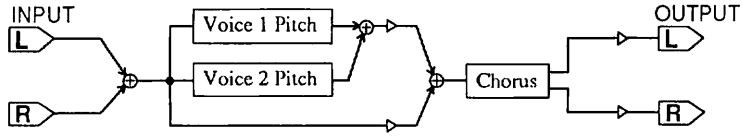
* For information on the relationship between the reverb time value and the actual reverberation time, please refer to the table on page 22.



3. HARMONY [HARMONY]

This effect turns a solo vocal performance into a three- part harmony. With a synthesizer, the effect can be used as sound effect.

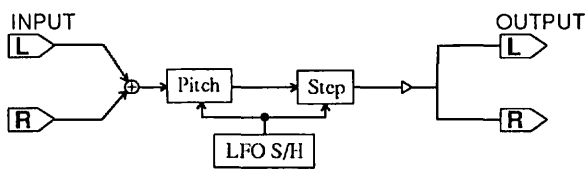
	Parameter	Display	Range	Explanation
1	Voice 1 Pitch	PT1	-12 - 0 - +12	Determines the pitch shift for the first voice.
2	Voice 2 Pitch	PT2	-12 - 0 - +12	Determines the pitch shift for the second voice.
3	Pitch/Dir Balance	BAL	0-10	Determines the level balance between pitch-shifted sound and direct sound. **0: Direct sound only 10: Shifted sound only**
4	Chorus Depth	CHOR	0-10	Determines the intensity of the chorus effect.
5	Chorus Mode	CMODE	1,2	Determines the chorus mode. **1: Mono 2: Stereo**
L	Program Level	LVL	0-99	Determines the output level.



4. ROBOT [ROBOT]

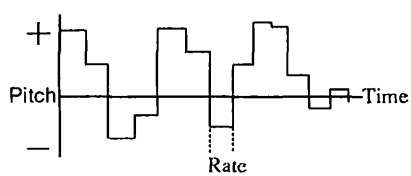
This unusual effect creates a "robot voice" such as used in science fiction movies.

	Parameter	Display	Range	Explanation
1	Random Pitch Mode	PMODE	1,2,3	Determines the operation of the random pitch shifter. 1: Narrow 2: Deep 3: Hysteric
2	Pitch Depth	PITCH	1-10	Determines the pitch modulation depth.
3	Step Depth	STEP	1-10	Determines the step modulation depth.
4	Pitch & Step Rate	RATE	0-50	Determines the change rate of pitch and step. 0: Hold
L	Program Level	LVL	0-99	Determines the output level.



When RATE is set to a value between 1 and 50, a sample- and-hold effect is created with random pitch step changes. Setting the Random Pitch Mode to "Hysteric" and using a vocal signal results in a sound like a crazed singing robot. When RATE is set to 0, the pitch does not change, but the sound has a special metallic ring that differs depending on when the RATE 0 setting was chosen.

When a program was stored with the RATE 0 setting, the sound differs depending on when the program is called up.



ROBOT Sample-and-Hold Effect

Category VIII SOUND

1. WAVE [WAVE]

Even without a sound source, this effect creates the powerful sound of waves.

	Parameter	Display	Range	Explanation
1	Mode	MODE	1,2,3	Determines the type of wave sound. 1: Sand Beach 2: Rock Beach 3: Storm
5	Direct Mix	DIR	OF,On	Determines whether the direct sound (original signal) is mixed to the effect signal.
L	Program Level	LVL	0-99	Determines the output level.

2. TEST TONE OSCILLATOR [OSC]

This test tone can be used to tune instruments or to test other equipment.
Explanation

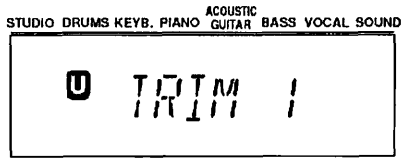
	Parameter	Display	Range	Explanation
1	Frequency	FRQ	250, 438-442, 500, 1000, 2000, 5000	Determines the oscillator frequency (unit: Hz)
5	Balance	BAL	0-10	Determines the balance between direct sound and oscillator tone.
L	Program Level	LVL	0-99	Determines the output level.

Other Functions (Utility Mode)

This section explains the use of the Utility mode which serves for general system functions.

Activating the Utility Mode

Press the UTILITY (TYPE) key in the Play mode. This activates the Utility mode, and a "U" appears in the left section of the display.



The Utility mode has the following three functions. With each push of the UTILITY (TYPE) key, the unit switches to the next function and the display changes accordingly. The last push of the UTILITY (TYPE) key returns the unit to the Play mode.

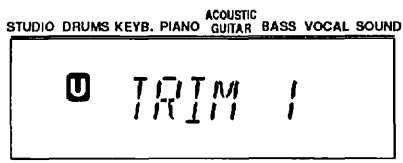
- **Adjusting the input level**
- **Calling up factory preset programs**
- **Resetting the entire 9001 to the initial condition**

Adjusting the Input Level (Trim Adjustment)

This function, as described on page 12, serves to match the input sensitivity of the 9001 to the sound source.

- **Press the UTILITY (TYPE) key to activate the Utility mode.**

The indication "TRIM" appears on the display.



- **Use the VALUE +/- keys to adjust the input sensitivity of the 9001.**

Set the output level of the sound source to the normal value. Then adjust the input sensitivity of the 9001 with the VALUE +/- keys so that the SIGNAL indicator lights up in yellow during input signal peaks. The input sensitivity can be set in five steps, from 1 to 5. The lower the figure, the lower the input gain.

The following settings can serve as a general guideline. Actual requirements may differ.

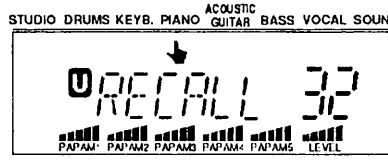
1 **Line level (keyboard, drum machine, mixer)**
2 **High-output bass, low-output keyboard**
3 **Low-output bass, acoustic guitar with pickup**
4 **Electric guitar**
5 **Low-output electric guitar, voice microphone**

Calling Up Factory Preset Programs (Preset Recall)

The 9001 contains a ROM (read-only memory) in which all factory preset programs are permanently stored, using the same numbers as the user-configurable program memory. Even if you have edited a program and stored it in a certain number, the original factory preset program for that number can be recalled at any time.

- **Press the UTILITY (TYPE) key to activate the Utility mode.**
- **Press the UTILITY (TYPE) key once more, so that the indication "RECALL" appears on the display.**

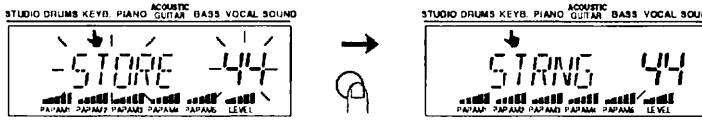
The display example shown below means that the unit is set to recall the program in bank number 1, program number 2.



- **Use the BANK UP/DOWN keys and the PROGRAM 1 - 4 keys to select the program you want to recall. The sound you hear is that of the recalled program.**

- **To store a program called up from ROM in a program memory**

Press the STORE key. The unit is now set to the Store mode, and the bank number and program number indication flashes. Choose the number into which you want to store the program and press the STORE key again. (By pressing the EDIT/CANCEL key you can cancel the store operation and return the Preset Recall mode.) The program from ROM is stored in the selected number, and the unit reverts to the Play mode. (The stored program is now selected and its sound is heard.)



Press STORE Key

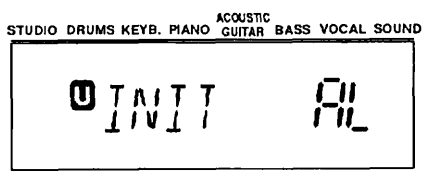
• To edit a program called up from ROM
Press the EDIT/CANCEL key. The 9001 reverts to the Play mode, but the program called up from ROM is still active. Press the EDIT/CANCEL key again to edit this program. If desired, you can later store it in the user-configurable memory.

• To cancel preset recall
Press the UTILITY (TYPE) key twice. The unit reverts to the Play mode. In this case, the program called up from ROM is abandoned and the program that was selected previously becomes active again. If you were in the process of editing that program, your changes are still preserved.

Resetting the Entire 9001 to the Initial Condition (Initialize)

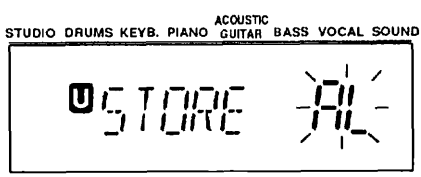
This function resets all programs and input level settings to the original shipping condition. Use this option with care, because all programs that you may have edited or stored will be lost.

- **Press the UTILITY (TYPE) key to activate the Utility mode.**
- **Press the UTILITY (TYPE) key two more times, so that the indication "INIT" appears on the display.**



- **Press the STORE key in this condition.**

The display changes as follows.



• When wishing to go ahead with the initialize function
Press the STORE key once more. The indication "STORE AL" flashes on the display and the entire unit is reset. Then the unit reverts to the Play mode.

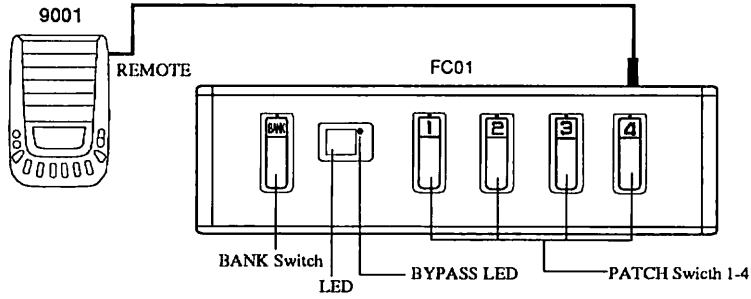
• When wishing to cancel the initialize function
Press the EDIT/CANCEL key. The unit reverts to the first display of the Initialize mode.

Remote Control of the 9001

With the optional Foot Controller FC01, functions such as program selection and effect on/off switching can be carried out by foot.

Connections

Use the cable supplied with the FC01 to connect the REMOTE jack on the 9001 with the foot controller.



Connecting the FC01 and 9001

Because the FC01 is powered from the 9001, there is no need for a separate power supply for the foot controller. Be sure to turn the 9001 off before making any connections.

Selecting a Program

- **Use the BANK switch on the FC01 to select a bank number from 0 to 9.**

The LED indicator on the FC01 cycles through the following indications.

0 → 1 → 2 → 3 → 4 → P → 5 → 6 → 7 → 8 → 9 → P → 0

The 0 - 9 indication corresponds to the bank number on the 9001. "P" indicates the effect off (bypass) condition. If the effect is already off, "P" is skipped and the indication proceeds directly to "0" or "5".

- **Use the PROGRAM 1 - 4 switches on the FC01 to select the program number.**

NOTE **As when using the switches on the 9001, selecting the bank number does not suffice to switch the program. The program is only switched when you press one of the PROGRAM 1 - 4 switches.**

Bypassing the Effect

- **Press the BANK switch on the FC01 several times, until the LED displays "P". The LED starts flashing.**

- **Press one of the PROGRAM 1 - 4 switches on the FC01. The flashing stops and the indicator shows the previously selected bank number.**

The BYPASS LED lights up.

To cancel the bypass condition, press any PROGRAM switch on the FC01 to select a program. (This can be carried out also at the 9001.)

The 9001 can only be remote controlled by the FC01 when in the Play mode. When the 9001 is in another mode, the LED indicator of the FC01 flashes, and program selection or effect on/off switching cannot be carried out.

SPECIFICATIONS

Program Memory	40 (4 x 10 banks, Factory Preset recallable)
Effect Category	Studio, Drums, Keyboard, Piano, Acoustic Guitar, Bass, Vocal, Sound
Input	2 channels, 1/4", -30 to -10dBm
Output	2 channels, 1/4", -10dBm Headphones, 1/8"
Control	Remote In for optional FC01
Power	AA-3 batteries x 6 (Accessory), or optional AC Adaptor (AD-0001)
Dimensions	106.4(W) x 162(D) x 47(H)mm
Weight	250 g (without batteries)

PRESET PROGRAMS

B/P	Program Name	Effect Type	Comments
01	Large Hall	REVRB	Simulates a large concert hall with gradual buildup of reverberation and medium damping effect. To reduce the clarity of the early reflection, set the E/R to 0.
02	Clear Plate	REVRB	Enhances source material with long, bright reverb. Good for vocals and solo instruments. Play with the predelay setting and reverb time to use on a complete mix.
03	Warm Chamber	REVRB	Creates a natural ambience without obvious reverb tail. Good for enhancing brittle sampled instruments and for small acoustic ensembles.
04	Rehearsal Room	REVRB	Simulates the bounce and 'live' feel of a large, undesigned rehearsal space. Lowering tone and reverb time while increasing effect level produces many useful variations.
11	Stereo Echo	ECHO	Long stereo echo which diffuses into smaller delays as the effects fades away. Ideal for unaccompanied solo voice or instrument, or for jamming with lots of percussion - adjust delay time to fit tempo.
12	Stereo Slapback	ECHO	A short delay setting which echoes once off to the side of the audio image. Gives a double track sound to any part. Increase the diffusion on sustained sources, such as voice, for more reverb effect.
13	Bright Chorus	CHORUS	Eight-voice chorus which adds high end luster to ensemble sounds. Great for reclaiming favorite patches from older synths with limited oscillators or bandwidth or both. Time to bring 'em out of the closet!
14	Dark Detune	CHORUS	Deeply modulated chorus with dark color for ensemble sounds. Especially useful for processing harsh, 'digital' sampled strings, etc. without having to roll of high frequencies.
21	Ballad Drums	GATE	Combines gate effect which beefs up the drums, with medium reverb wash. Ideal for printing drum machine tracks. Adjust gate time to tempo and raise balance parameter for more gate effect.
22	Snare Gate	GATE	Major gate effect adjust specially for enlarging snare sounds. Adjust balance for more natural snare sound.

PRESET PROGRAMS

B/P	Program Name	Effect Type	Comments
23	Garage Drums	GATE	Subtle effect for placing completely dry acoustic drums in a natural sounding space. Raise level for more effect and select ambient 'modes' (room shape) to suit drums.
24	Club Drums	AMB	Places drum mix in a very natural simulated room without sounding like digital reverb processing. Increasing size while decreasing effect level produces useful variations.
31	Stadium	AMB	Simulates a very large environment for rock drums, especially useful for pumping sampled killerdrums up to '11' on the epic metal index.
32	Rich Strings	STRNG	Lush chorus reverb for ensemble sounds like choir and strings, and for filling out electric guitar arpeggios. For synth orchestra applications, try reducing the chorus and increasing the predelay of the reverb.
33	Slow Organ	ORGAN	Fills out sampled/synth organs with simulated motor motion and dark tonal setting. Separate rate settings for low and high frequencies.
34	Fast Organ	ORGAN	Faster rates and higher tonal coloring than #33. Changing between programs #33 and #34 result in slow crossfades between the 'motor' rates, simulating actual spin up and down realistically.
41	Deep Flange	SOLO	Heavy flange effect with reverb fills out clean electric guitar tones and raise reverb and effect level to add body.
42	Spacious Lead	SOLO	Combination of delay and reverb creates a round single echo perfect for sampled solo sounds. Raising effect level and delay time increases space. Increasing delay mix increases echo feedback amount.
43	Piano Recital	PIANO	Simulates a medium size recital hall with dark, damped tone. The effect level is programmed low for a realistic mix with the dry signal.
44	Rock Piano	PIANO	Bright tone and enhance parameters and low reverb mix for cutting through pop mixes or live rock piano playing. Excellent practice setting for voice and electronic piano.

PRESET PROGRAMS

B/P	Program Name	Effect Type	Comments
51	Electric Piano	ELPNO	Combination of EQ gain, chorus, slow panning and reverb fills out even the tiniest electric piano waveform. Adjust EQ to piano timbre. Try changing the panning from 2 to 0 at musical section changes.
52	Warm Acoustic	STEEL	Low enhance setting and heavy detuning with a touch of reverb. Good for dark rich acoustic guitar picking. Turn up limiter for even rhythmic strumming. Good practice setting for guitar and voice.
53	Bright Lead	STEEL	High enhancer setting adds exciting highs to the guitar tone, with light detuning and lots of reverb. Good for all acoustic guitar playing, especially solos. Excellent practice setting for voice and guitar.
54	12-String Guitar	STEEL	Pitch mode 7 adds an octave above for a twelve string simulation, which sounds best in lower playing positions. Adjust the pitch mix and limiter for each musical situation.
61	Deep Nylon	GUT	Low EQ gain and low comb filter setting simulate a large body nylon string guitar. For adding depth to classical guitar or mellowing the timbre of steel strings. Reverb is set for solo playing.
62	Bright Classic	GUT	High EQ gain and high comb filter setting simulate a small, bright classical guitar. Limiter is set low for solo melodic playing.
63	Clean Rock	BASS	High EQ gain and low chorus and reverb add clarity and edge to electric bass guitar. Adjust EQ settings to customize for pickup orientation, and try reducing reverb to 0 for rock mixes.
64	Rich Fretless	BASS	Low frequencies are boosted and chorus and reverb are turned up for processing fretless electric bass.
71	Synth Bass	BASS	Low and high EQ gain and chorus add body to wimpy, single oscillator synthesizer bass sounds. Adjust EQ for the mix.
72	Snappy Snap	SLAP	Enhancer adds presence to slap and pop electric bass playing styles. Experiment with the parametric EQ frequency to get the right tonal setting for the bass and the music.

PRESET PROGRAMS

B/P	Program Name	Effect Type	Comments
73	Rock Singer	VOCAL1	Enhancer gives the voice a cutting presence, low chorus amount adds body, and short reverb setting mixes well with other instruments. Great for band rehearsal, and a good practical setting for voice and guitar.
74	Solo Voice	VOCAL1	Rich chorus and lots of reverb make this program perfect for unaccompanied solo voice processing. Add enhancer to customize for voice type. Good practice setting for voice and synth pad.
81	Double Track	VOCAL2	A short slapback delay and lots of reverb make this program useful in many lead vocal situations, as well as sax solos. Adjust the delay time and mix to the music.
82	Vocal Echo	VOCAL2	A very general purpose solo voice setting with high enhancer and echo fed into the reverb. Also works with many instrumental sources.
83	Soul Chord	HARM	Pitch harmony shifts one voice down a major sixth below source, and the other down a perfect fourth creating a 1st inversion minor chord for an all blues mood. Adjust pitch 1 and 2 for different chord.
84	Double Octave	HARM	Pitch harmony shifts one voice down an octave and the other up an octave. Both voices are then heavily chorused. Filles out sampled synth choir sounds especially well.
91	Stereo Doubler	HARM	Pitch harmony settings at zero delay each electronic voice slightly so that there is in effect, the sound of three voices across the stereo image. Good for backup parts. Adjust pitch harmony balance to the music.
92	Sample & Hold	ROBOT	This sound effect processing is set at medium levels of pitch mode, pitch and number of sample/hold steps. Turns any speaker into jibber-jabbering robot, and same sampled FX into crazy ones. Experiment!
93	Zero Mode	ROBOT	The rate setting of 1 allows the user to listen to the tonality of each step of the sample and hold circuit slowly. To freeze the processor at a particular timbre, change the rate setting to 0.
94	Rocky Waves	WAVE	The sound of endless and aperiodic waves crashing on the shore can be useful in theater works or cinema... or in the privacy of your own home. For your sleeping pleasure, adjust the mode accordingly.

Extra Programs

Name: Predelay Plate

Effect Type: Reverb	REVT	PR_D	TONE	E/R	DIR	LVL
Value	8	55	4	1	On	50

Name: Big Bright Verb

Effect Type: Reverb	REVT	PR_D	TONE	E/R	DIR	LVL
Value	10	32	2	2	On	50

Name: Public Address

Effect Type: Echo	DLYT	FB	MODE	DIFF	DIR	LVL
Value	20	0	2	8	On	48

Name: Echo Reverb

Effect Type: Echo	DLYT	FB	MODE	DIFF	DIR	LVL
Value	36	5	1	10	On	40

Name: Stereoizer

Effect Type: Echo	DLYT	FB	MODE	DIFF	DIR	LVL
Value	2	1	3	0	On	99

Name: Heavy Chorus

Effect Type: Chorus	DEPT	COLOR	—	—	DIR	LVL
Value	18	8	—	—	On	92

Name: Hip Hop Verb

Effect Type: Gate	TIME	SHAPE	REVT	BAL	DIR	LVL
Value	48	1	3	4	On	60

Name: Signal Exciter

Effect Type: Steel	LIM	ENH	PMODE	PMIX	REV	LVL
Value	0	10	4	0	1	99

Extra Programs

Name: Tight Gate Drums

Effect Type: Gate	TIME	SHAPE	REVT	BAL	DIR	LVL
Value	4	1	3	2	On	60

Name: Power Ambience

Effect Type: Ambience	SIZE	MODE	REVT	BAL	DIR	LVL
Value	20	3	2	3	On	99

Name: Small Drum Room

Effect Type: Ambience	SIZE	MODE	REVT	BAL	DIR	LVL
Value	100	3	1	10	On	50

Name: Medium Drum Room

Effect Type: Ambience	SIZE	MODE	REVT	BAL	DIR	LVL
Value	32	1	1	6	On	36

Name: Drum FX 1

Effect Type: Organ	LRAT	HRAT	WIDTH	TONE	—	LVL
Value	15	42	7	8	—	52

Name: Drum FX 2

Effect Type: Organ	LRAT	HRAT	WIDTH	TONE	—	LVL
Value	35	8	10	10	—	52

Name: Drum Flange 1

Effect Type: Solo	FLG	RATE	DLYT	DMIX	REV	LVL
Value	6	1	24	3	10	72

Name: Drum Flange 2

Effect Type: Solo	FLG	RATE	DLYT	DMIX	REV	LVL
Value	7	9	7	6	0	74

Extra Programs

Name: Strings Quartet

Effect Type: Strings	CHOR	CMIX	REVT	PR_D	RMIX	LVL
Value	3	5	5	40	3	40

Name: Midium Organ

Effect Type: Organ	LRAT	HRAT	WIDTH	TONE	—	LVL
Value	20	28	4	6	—	99

Name: Symphonic Piano

Effect Type: Acoustic Piano	ENH	REVT	PR_D	TONE	RMIX	LVL
Value	3	8	78	4	7	42

Name: Synth Enhancer

Effect Type: Acoustic Piano	ENH	REVT	PR_D	TONE	RMIX	LVL
Value	5	3	11	4	2	99

Name: Panning Piano

Effect Type: Electric Piano	LO_G	HI_G	CHOR	PAN	REV	LVL
Value	+2	-2	2	17	3	75

Name: High Strings

Effect Type: Electric Piano	LO_G	HI_G	CHOR	PAN	REV	LVL
Value	-4	+5	1	10	4	65

Name: R&B Brass Chamber

Effect Type: VOCAL 1	ENH	CHOR	MODE	REVT	RMIX	LVL
Value	6	2	2	2	8	67

Name: Funky Clav

Effect Type: VOCAL 2	ENH	DLYT	DMIX	REVT	RMIX	LVL
Value	8	12	8	4	10	90

Extra Programs

Name: Dark Chorus

Effect Type: Steel	LIM	ENH	PMODE	PMIX	REV	LVL
Value	5	1	4	5	7	70

Name: Clean Electric Gtr

Effect Type: Steel	LIM	ENH	PMODE	PMIX	REV	LVL
Value	4	2	4	6	4	99

Name: Gut Feeling

Effect Type: Gut	LIM	LO_G	HI_G	COMB	REV	LVL
Value	8	+5	-2	18	5	99

Name: Shimmer Guitar

Effect Type: Bass	LIM	LO_G	HI_G	CHOR	REV	LVL
Value	0	-12	+12	5	6	32

Name: Bass Flanger

Effect Type: Solo	FLG	RATE	DLYT	DMIX	REV	LVL
Value	6	5	7	4	1	70

Name: Warm Pizz Bass

Effect Type: Solo	FLG	RATE	DLYT	DMIX	REV	LVL
Value	1	5	4	3	3	62

Name: Power Bass

Effect Type: Bass	LIM	LO_G	HI_G	CHOR	REV	LVL
Value	9	+6	+2	3	1	99

Name: Popping Low

Effect Type: Slap	LIM	ENH	FRQ	GAIN	REV	LVL
Value	9	6	12	7	1	99

Extra Programs

Name: Rich Vocal

Effect Type: Echo	DLYT	FB	MODE	DIFF	DIR	LVL
Value	8	0	3	8	On	44

Name: Vocal Chorus

Effect Type: Strings	CHOR	CMIX	REVT	PR_D	RMIX	LVL
Value	8	10	5	24	6	64

Name: Voice Doubler

Effect Type: VOCAL 1	ENH	CHOR	MODE	REVT	RMIX	LVL
Value	7	9	1	1	8	99

Name: Big Industrial SFX

Effect Type: Harmony	PT1	PT2	BAL	CHOR	CMODE	-LVL
Value	2	+2	3	1	2	99

Name: Upbeat Vocal

Effect Type: VOCAL 1	ENH	CHOR	MODE	REVT	RMIX	LVL
Value	5	1	1	3	5	99

Name: Vocal Verb 1

Effect Type: VOCAL 1	ENH	CHOR	MODE	REVT	RMIX	LVL
Value	3	3	2	7	8	50

Name: Vocal Verb 2

Effect Type: VOCAL 2	ENH	DLYT	DMIX	REVT	RMIX	LVL
Value	3	3	2	7	8	50

Name: Falsetto Scat

Effect Type: Harmony	PT1	PT2	BAL	CHOR	CMODE	-LVL
Value	+12	+12	9	10	2	99

Blank Program Chart

Name:

Effect Type:						
Value						

Name:

Effect Type:						
Value						

Name:

Effect Type:						
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Value						

High-Tech Tools for Artistic Expression

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Printed in Japan 9001-5301