

**ADVANCED SOUND PROCESSOR  
OPERATION MANUAL**

**ZEDDEN**  
**9010**

Congratulations and thank you for purchasing the ZOOM 9010 Advanced Sound Processor.

The 9010 is one of the most advanced effect devices available today, providing four independent effect channels, sophisticated and flexible routing configurations, user - assignable send/return connections, real-time parameter control, and simultaneous use of up to seven separate effects.

Starting with the sections QUICK SETUP AND OPERATION and THE 9010 SYSTEM, we suggest that you read this manual carefully in order to obtain optimum performance and help assure long term reliability.

## Power Supply

The voltage requirement for your 9010 has been set specifically for the main supply voltage in your area. If you have any doubts about voltage suitability, consult your local ZOOM dealer. If you intend to use your 9010 in an area with a different voltage, be sure to use the appropriate voltage convertor. Protect the 9010 from power surges, such as caused by lightning, by disconnecting the AC cord or by using a high quality surge suppressor or line filter.

## Environment

Avoid using your 9010 in environments where it will be exposed to:

- Direct sunlight
- Temperature extremes
- High humidity or moisture
- Dust or sand
- Excessive vibration

## Cleaning

Use a soft, dry cloth to clean the 9010. If necessary, a slightly damp cloth and a neutral cleanser can also be used. Do not use any abrasive cleansers, waxes, or solvents (such as paint thinner or alcohol), since these may dull the finish or damage the surface. Also, never use aerosol sprays near the 9010 as they can get into the circuitry and prevent accurate transmission of data.

## Handling

Handle with care. Avoid applying excessive force to the controls. Always plug and unplug all cables—including the AC cord—by gripping the connector, not the cable.

## Electrical Interference

The 9010 uses digital circuitry that may cause interference and noise if placed too close to other electrical equipment, such as TV sets, radios and stereo systems. If such problems occur, move the 9010 further away from the affected equipment.

## Service

Your 9010 contains no user serviceable parts. Opening or tampering with the unit can lead to electrical shock as well as damage, and will void the product warranty. Consult your local ZOOM dealer if the 9010 does not operate properly.

## Backup Battery

The 9010 contains a long-life lithium battery which maintains the contents of the internal memory even when the unit is turned off. With normal use, the battery should last for approximately five years. To avoid possible data loss, contact your local ZOOM dealer five years from the date of purchase and have the battery replaced by a qualified technician. Do not attempt to replace the battery yourself.

## Initialization Procedure

Should any out-of-the-ordinary problems occur with the operation or functions, the 9010 has an initialization routine that resets the entire system. To initialize, hold down the EXECUTE key and turn on the power. Since initializing the system automatically erases all data in User memory, be sure to use this function only if it is absolutely necessary.

KEEP THIS MANUAL FOR FUTURE REFERENCE

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## Professional-level Specifications

The 9010 boasts 16-bit quantization and a 44.1 kHz sampling frequency throughout the A/D and D/A conversion, and a dynamic range of over 90 dB.

## Four Inputs and Four Outputs

The 9010 is the first effect device in its class to have four independent effect channels (4 in/4 out), packing more than double the performance power of similarly priced products.

## Built-in Multiple Routing Function

Conventional multi-effect units allow the user to change only the types and order of the effects. The 9010 on the other hand features a multi-routing function that can change even the internal connections and architecture of the device.

This unique function makes possible an extremely wide range of applications. For example, the 9010 can be used as four independent effect units, or can be used as a multi-effect device with an effect loop, especially for use with a guitar.

## System Expansion

The built-in card slot makes it possible to load new effect programs and routings from ROM cards to the 9010, as well as to save user-created patches to RAM cards.

## Front Panel Input

The 9010 features a high impedance input jack on the front panel, making the unit particularly convenient for guitar players. This front panel input is mixed with the rear panel input 1.

## Real-time External Control

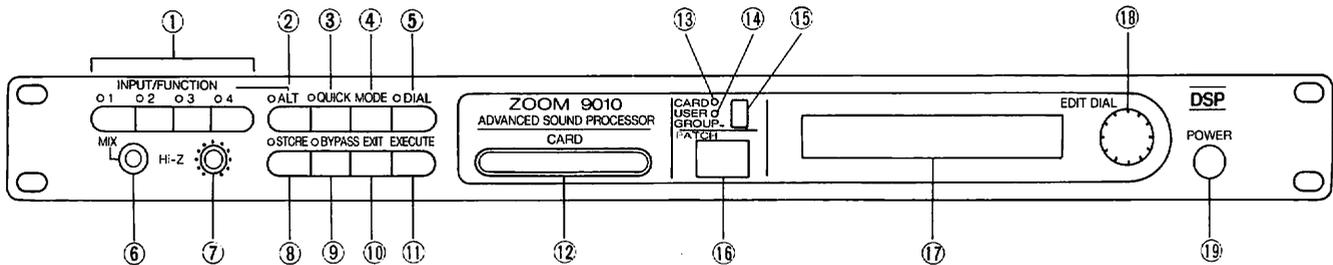
The 9010 is also equipped with powerful real-time control functions. Pedals and footswitches connected to the two independent pedal/footswitch terminals allow you to control effect parameters in real time.

The 9010 can also be conveniently operated from an optional wired remote control unit.

## Comprehensive MIDI Functions

MIDI control functions over the 9010 include not only the ability to switch between patches by program change messages, but also the capacity for real-time control of effect parameters by control change messages. This allows you, for example, to speed up the modulation of a chorus effect by moving a MIDI synthesizer's modulation wheel, or control the amount of reverb by how hard you strike a note on a MIDI keyboard. Transfer of data via system exclusive messages is also possible.

## FRONT PANEL



### (1) INPUT/FUNCTION Keys 1 ~ 4, Indicator LEDs

These keys have two different functions, depending on the menu or operation selected:

1) In Alternate Functions—for selection of functions on the menu.

2) In menus other than Alternate Functions—for checking the input and output level, and setting the input attenuator.

The LEDs of the keys light up in green when an input signal of nominal level is detected. A continuously red LED indicates a signal overload that could result in distortion.

### (2) ALT Key, Indicator LED

For displaying the Alternate Functions menu on the LCD. Indicator LED lights up in red when the key is pressed.

### (3) QUICK Key, Indicator LED

For selecting the Quick Edit mode. Indicator LED lights up in red when the key is pressed.

### (4) MODE Key

For selecting the following operation modes, in the order given:

PATCH SELECT Mode  
 EDIT Mode  
 NAMING Mode  
 MIDI Mode  
 SYSTEM Mode  
 GROUP CHANGE Mode

**Note:** The Patch Select mode is the default mode of the 9010; pressing the EXIT key in any mode returns operation to the Patch Select mode.

### (5) DIAL Key, Indicator LED

Pressing this key alternates between two states: When LED is green – EDIT DIAL is used to select menus.

When LED is red—EDIT DIAL is used to set parameters.

### (6) Hi-Z (High Impedance) Input Jack

For direct front panel input of instruments such as electric guitars, keyboards, etc. This input signal is mixed with the rear panel channel 1 input signal.

### (7) Hi-Z Input Level Control

For adjusting the Hi-Z input level.

### (8) STORE Key, Indicator LED

For selecting the Store menu. Indicator LED lights up in red when the key is pressed.

### (9) BYPASS Key, Indicator LED

For bypassing the effect circuitry so that only the original, unprocessed (dry) signal is output. Indicator LED lights up in red when the bypass function is active. The BYPASS key is effective in all modes.

### (10) EXIT Key

This key has two functions, depending on the mode or operation selected:

- 1) Exiting from the currently selected mode and returning to the Patch Select mode.
- 2) Aborting the current operation.

# Panel Controls and Connections

## (11) EXECUTE Key

For both starting and confirming execution of an operation.

## (12) Card Slot

For insertion of optional RAM cards and ROM cards.

## (13) Card Indicator LED

Lights when card operation is selected.

## (14) User Indicator LED

Lights when internal user Patches are selected. When internal preset Patches are selected, both card and user indicator LEDs are unlit.

## (15) Group Display LED

Indicates the currently selected Routing.

## (16) Patch Display LED

Indicates the currently selected Patch number.

## (17) LCD

Displays various information, such as the name of the selected Patch, parameter values and messages.

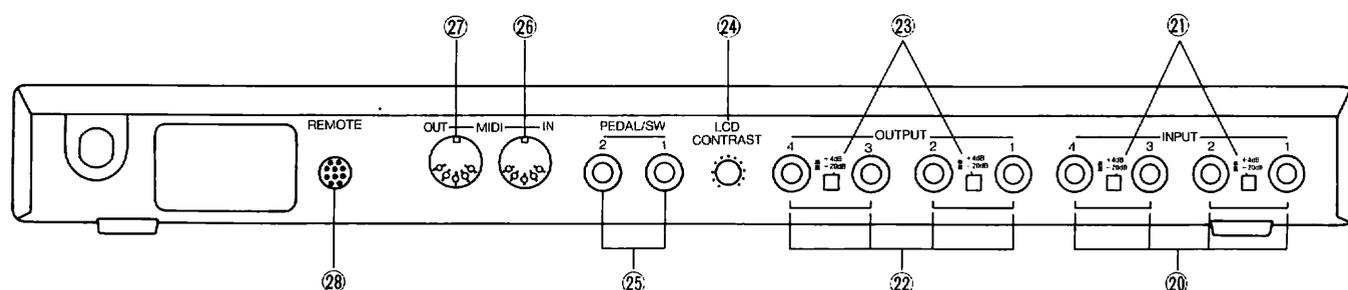
## (18) EDIT DIAL

For selecting menus and changing parameters. The EDIT DIAL has two different operating modes, depending on how it is rotated:

- 1) Normal Operation—The conventional way of rotating the dial slowly, so that items are scrolled through or selected one by one.
- 2) Rapid Operation—Automatically switched to when the dial is spun around quickly. This mode allows you to jump between effect or parameter groups, rather than scrolling through them one by one.

## (19) POWER Switch

## REAR PANEL

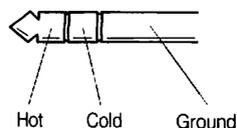


## (20) INPUT Terminals 1 ~ 4

For input of the signal to be processed. Only the channel 1 input is mixed with the Hi-Z input on the front panel.

**Note:** The 9010 input terminals can be used with either balanced or unbalanced signals. The type of input is determined by the type of plug used; input from mono plugs is automatically unbalanced, while properly wired stereo plugs make the input balanced. The plug arrangement is shown in the illustration below:

Stereo phone jack



## (21) INPUT 1/2, 3/4 Input Level Switches

For selecting the input levels of the input pairs. When the switch is pressed down, input level is +4 dBm. When the switch is in its upright position, the input level is -20 dBm. Select the level according to the type of equipment or musical instrument connected.

## **(22) OUTPUT Terminals 1 ~ 4**

For connection to amplifiers mixers, etc. The relationship between the INPUT and OUTPUT changes depending on the selected Routing.

## **(23) OUTPUT 1/2, 3/4 Output Level Switches**

For selecting the output level of the output pairs. When the switch is pressed down, output level is +4 dBm. When the switch is in its upright position, the output level is -20 dBm. Select the level according to the input level set on the connected amplifier or mixer.

## **(24) LCD Contrast Control**

For adjusting the contrast of the LCD.

## **(25) Pedal/Footswitch Terminals 1, 2**

For connection of an assignable controller. Can be used to switch Patch numbers up and down by footswitch, turn selected effects on and off, and control effect parameters in real time by the use of foot pedals.

## **(26) MIDI IN Terminal**

For receiving MIDI data from external MIDI instruments.

## **(27) MIDI OUT Terminal**

For transmitting internal MIDI data to external MIDI instruments. The terminal can be set to function as a MIDI THRU terminal by setting MIDI OUT/THRU switch in the MIDI mode.

## **(28) Remote Terminal**

For connection of optional remote controller.

This section shows you how to get your 9010 up and running in minutes, without having to study the detailed instructions and information in the rest of this manual. All the information you need to start using the 9010 is in this section; however, if you come across terms that you don't understand or wish to know more about, refer to the **PANEL CONTROLS AND CONNECTIONS** and **THE 9010 SYSTEM** sections.

## SETTING UP THE 9010 AND SELECTING EFFECT PROGRAMS

### 1. Plug in the power cord.

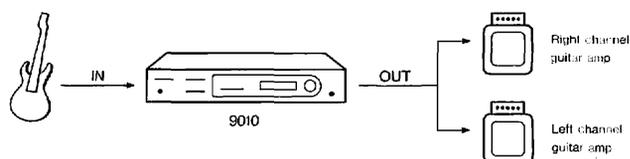
Plug the power cord into a convenient AC outlet, but do NOT turn on the power yet. Remember the first rule of audio instrument use: Make ALL audio and MIDI connections BEFORE turning on any equipment. This prevents damage to your speakers (and ears!) as well as MIDI malfunctions.

### 2. Make the necessary input/output connections.

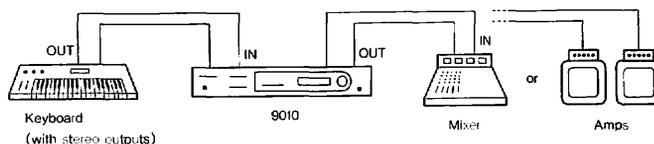
Look at the following connection examples and choose the one that is closest to your own application. Refer to the **PANEL CONTROLS AND CONNECTIONS** section if necessary.

**Note:** For this introductory setup guide, use only INPUT 1 (or the front panel input) and OUTPUT 1. To take maximum advantage of the sophisticated capabilities of the 9010, connect cables to all of the inputs and outputs. Other sections in the manual will explain the more complicated input/output configurations.

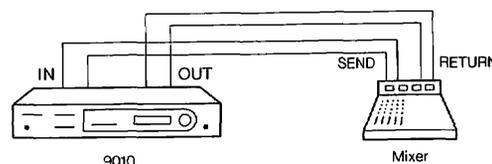
For Guitar:



For Keyboards, Tone Generators:

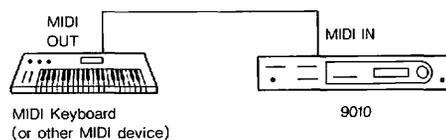


For PA, Recording Systems:



If you have a lot of equipment to connect with the 9010, we recommend using a patch bay. With a properly installed patch bay, you can make quick changes among your inputs and outputs without having to disconnect or re-connect cords from the rear panel.

3. Connect a MIDI cable from the MIDI OUT terminal of your MIDI device to the MIDI IN terminal on the 9010.



This step is optional; MIDI operations are beyond the scope of this introductory section and are not essential for the operation of the 9010. If you have a MIDI instrument and intend to use the MIDI control features of the 9010, make the necessary MIDI connections for now and read through the subsequent sections of the manual dealing with MIDI operations later.

**4. Turn on the power to all equipment in this order: 1) the 9010, 2) connected instruments (keyboards, tone generators, etc.), and 3) mixer/amplification system.**

This order is important to prevent speaker damage and MIDI malfunctions.

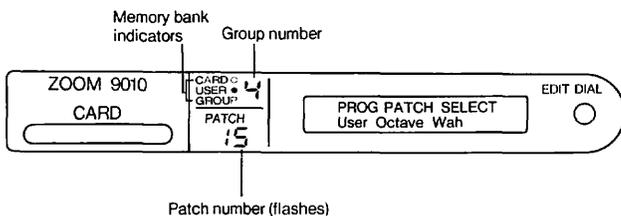
When the power is turned on, the 9010 automatically sets operation to the Patch Select mode.

PROG PATCH SELECT  
 User Delux Reverb

**5. Select a Patch program and press the EXECUTE key to call up the program.**

When switched on, the 9010 automatically calls up the program that was last loaded when the power was turned off.

Turn the EDIT DIAL to select the desired Patch program.



The Patch number will flash to indicate that it has been selected but not yet called up. To call up the Patch for operation, press the EXECUTE key. The Patch number will stop flashing, and you can now use the Patch program.

Keep in mind that only those Patch programs that use the currently selected Group will be displayed. The Group number is indicated by the green 7-segment LED to the left of the LCD. (Instructions on how to select different Groups and information on each Group's function are given in the following section, THE 9010 SYSTEM.)

The red memory bank indicators to the left of the LCD indicate the memory status. Preset memory is indicated when both LEDs are off.

The memory bank from which the current Patch was selected is also indicated in the lower left of the LCD. "Prset" in the LCD indicates internal preset memory, "User" indicates internal user memory, "Card" indicates ROM card memory and "Card1," "Card2" and "Card3" indicate RAM card memory.

a) Internal preset memory

PROG PATCH SELECT  
 Prset Space Echo

b) Internal user memory

PROG PATCH SELECT  
 User Delux Reverb

c) Card memory

PROG PATCH SELECT  
 Card 1 Jet Flanger

Select one of the preset memory Patches for now. User memory has been reserved for your own original Patch creations, and Card memory can only be used when a ROM or RAM card has been inserted into the CARD slot.

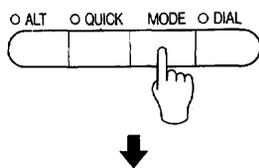
## EDITING EFFECT PROGRAMS

This section assumes that you have some experience using effect devices. It shows you how, in the simplest possible manner, how to use the controls of the 9010 to edit effect programs. Once you are familiar with the basic editing procedure, go on to read through the QUICK OPERATION AND EDITING SHORTCUTS section for helpful operating hints.

### 1. Select the program you wish to edit.

Follow the steps outlined in the above section in selecting a program.

### 2. Press the MODE key until the Edit mode display is shown.



From the Patch Select mode, only one press of the MODE key is needed to select the Edit mode.

Quick operation hint: Since pressing the EXIT key automatically returns operation to the Patch Select mode, you can jump quickly to the Edit mode from any operation simply by pressing the EXIT key and then the MODE key.

### 3. Turn the EDIT DIAL to select the effect module you wish to edit.



When the LED above the DIAL key is green, an arrow is at the left of the LCD, indicating that you can scroll through the various effect modules and effect parameters of the currently selected effects.

### 4. Press the DIAL key to turn the LED to red and move the arrow to the effect name.



### 5. Turn the EDIT DIAL to select a different effect program.



### 6. Press the DIAL key again to turn the LED back to green, and allow you to scroll through the parameters of the newly selected effect program.



### 7. Turn the EDIT DIAL to select the parameter you wish to edit.

The LED above the DIAL key should be lit in green. This indicates that you can select parameters for editing. The arrow at the left side of the LCD indicates the same.



8. Press the DIAL key to change the LED to red and move the arrow in the LCD to the parameter value.

EDIT	<input type="checkbox"/>	E 1 REVERB A
P01		Rev Time=▶0.3[s]

9. Turn the EDIT DIAL to adjust the parameter value.

To select another parameter for editing, simply press the DIAL key again and turn the EDIT DIAL to step through the parameters.

Now that you've tried out some of the effect programs and learned the basic editing operation of the 9010, go on to read the rest of the manual in detail, in order to get a full understanding of this unit's powerful and versatile functions.

The 9010 is a sophisticated multi-effect unit that not only allows you to use more than one effect at a time, it also lets you completely reconfigure the signal path, internally and even externally. In other words, the 9010 is actually several multi-effect devices in one. You determine what kind of multi-effect device the 9010 configures itself as according to your signal processing requirements.

Despite its advanced operation features and sophisticated functions, the 9010 is extremely easy to use. Since the amount of signal processing possibilities it provides may be overwhelming, however, we suggest you keep in mind a simple formula for using it:

- 1) Decide which Routing (effect routing configuration) and Effect Modules (input/output configuration) you need.
- 2) Make the appropriate input and output connections.
- 3) Select the effect or effects you want.
- 4) Edit the parameters of each effect, if necessary.

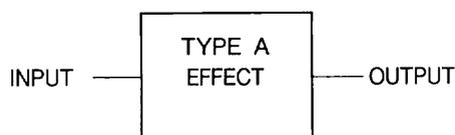
## EFFECT MODULES

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The four Effect Module types (A, B, C and D) provide different input/output configurations. Each Effect Module type also has its own set of effect programs.

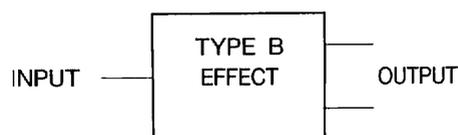
**Note:** Effect Module types cannot be directly selected. The Effect Module type or types used is determined by the Routing you select.

**Type A**



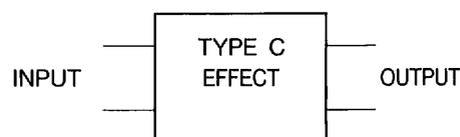
Mono in, mono out input/output configuration.

**Type B**



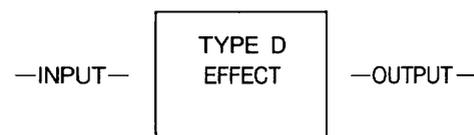
Mono in, stereo out input/output configuration.

**Type C**



Stereo in, stereo out input/output configuration.

**Type D**



The input/output configuration of Type D differs depending on the type of effect selected.

This type features the highest level of signal processing in which all the sophisticated functions and advanced operation of this instrument are packed into one effect.

## Effect Module Types and Effect Programs

NO.	Type A	Type B	Type C	Type D
1	REVERB A **	REVERB1 B **	REVERB1 C **	REVERB D **
2	E/REFLECTION A	REVERB2 B	REVERB2 C	MULTI CHORUS **
3	ECHO A	E/REFLECTION1 B	E/REFLECTION1 C	
4	CHORUS A **	E/REFLECTION2 B	E/REFLECTION2 C	
5	FLANGER A	GATE REVERB	ECHO C	
6	PHASER A	ECHO B	CHORUS C **	
7	PITCH SHIFTER A **	CHORUS B **	FLANGER C	
8	AUTO WAH	BEND CHORUS	PHASER C	
9	EQUALIZER A	FLANGER B	PITCH SHIFTER C **	
10	ENHANCER	PHASER B	EQUALIZER C	
11	NOISE GATE	PITCH SHIFTER B **	THRU **	
12	DISTORTION	TREMOLO		
13	AMP. SIMULATOR	EQUALIZER B		
14	COMPRESSOR	THRU **		
15	LIMITER			
16	THRU **			

**Note:** The double asterisk (\*\* ) following certain effect names indicates either the THRU (bypass) settings or the first effect of each general effect group, such as reverb/delay, modulation, etc. These indicated settings are the "pivot points" for the EDIT DIAL's rapid operation function.

**Note:** Both Type D programs, Reverb D and Multi Chorus use Inputs 1 and 2, and Outputs 1 and 2.

## ROUTINGS (GROUPS)

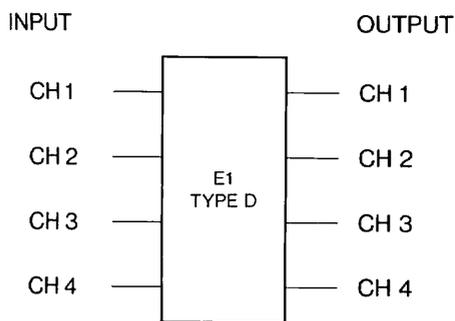
Routings (or Groups) are the main signal processing configurations of the 9010. Each Routing employs different signal routings, different Effect Module types, and different patterns of effect placement. The four Routings effectively provide four different total effect systems, to meet the most demanding signal processing requirements.

Groups 1 through 4 are Routings which are stored as internal presets. Additional Routings can be quickly loaded to the 9010 from optionally available ROM cards.

For details on editing the Routing parameters, refer to the ROUTING PARAMETERS section.

### Routing 1

This Routing consists of one Type D effect, allowing you to use the 9010's full signal processing capability as a single effect unit.

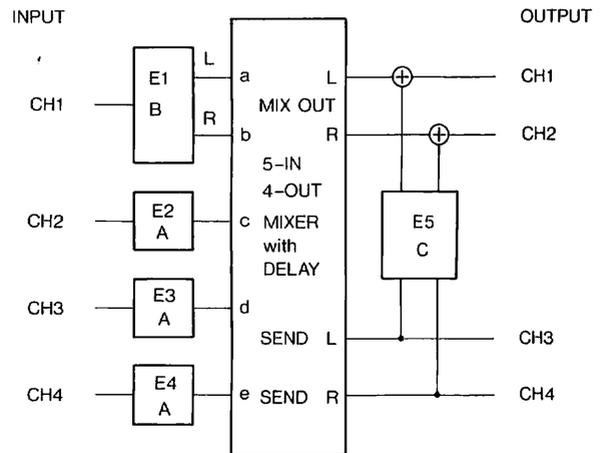


**Note:** The input/output configuration differs depending on the effect selected.

### Routing 2

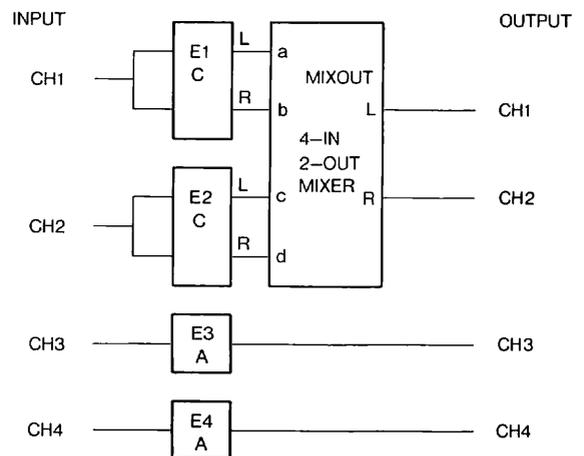
This Routing consists of three Type A (mono/mono) effects and one Type B (mono/stereo) effect. The signals are output through an internal 5-in/4-out mixer, with built-in stereo delay. The resulting stereo

signal can be routed to a Type C (stereo/stereo) effect via a send/return connection.



### Routing 3

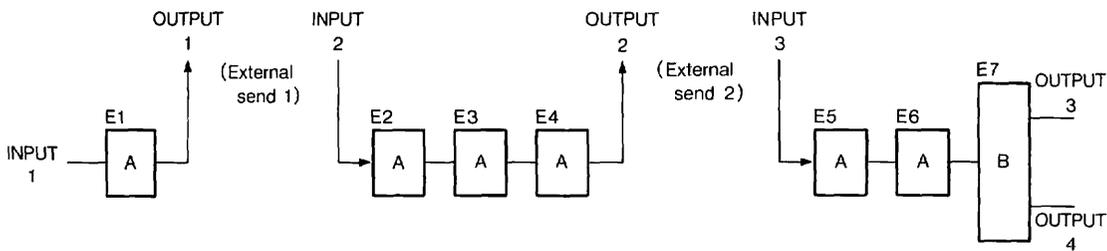
This Routing consists of two Type A effects and two Type C effects. Signals from the Type A effects are sent directly to the outputs without further processing, while those of the Type C effects are output through a separate 4-in/2-out mixer.



## Routing 4

In this Routing, six Type A effects and one Type B effect are connected in series. This Routing is designed for processing a single instrument, such as a guitar, through multiple effects.

Routing 4 also includes two external send/return connection points that allow you to integrate additional external effects with the 9010. These send/return points can be set anywhere in the signal chain.



# The Main Modes and Menus

This easy-to-understand chart introduces you to the main operation modes and menus of the 9010. Virtually all of the operations and functions of the unit

can be classified into the modes listed here. Grasping the flow of this chart will help greatly in understanding the 9010 and effectively using its functions.

Key	Mode Name	Description of Functions
MODE key	PATCH SELECT mode	Selection of effect programs
	EDIT mode	Editing of effect program and Routing parameters
	NAMING mode	Naming of effect programs
	MIDI mode	Setting of all MIDI functions
	SYSTEM mode	Miscellaneous functions: pedal assignment, beep sound, peak sensitivity
	GROUP CHANGE mode	Selection of Routings
STORE key	PATCH STORE mode	Storing of edited effect programs to user and RAM card memory
	LOAD mode	Loading of effect program and system data from RAM cards
	SAVE mode	Saving effect program and system data to RAM cards
	VERI mode	Confirmation of proper data storage
	MIDI DUMP mode	Transmitting bulk data via MIDI
INPUT/FUNCTION key	LEVEL mode	Setting of input attenuation and display of signal levels
QUICK key	QUICK EDITING mode	Quick editing functions

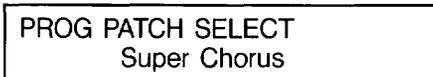
## PATCH SELECT MODE

### OVERVIEW

In the Patch Select mode you can:  
 Select effect programs (Patch programs) for the currently selected Routing.

### Entering the Patch Select Mode

To enter this mode, press the MODE key as many times as necessary to call up the "PROG PATCH SELECT" display:

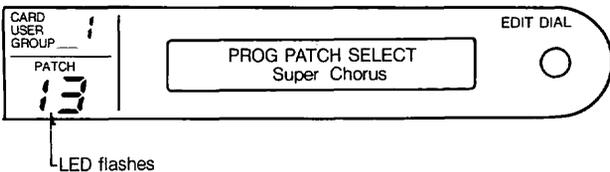


To exit this mode, select a different mode by pressing the MODE key again.

### THE FUNCTIONS

Selecting Patch programs:

Select the Patch program in the current Group (Routing) by rotating the EDIT DIAL. A display similar to that shown below will appear and the Patch number LED will flash.



Press the EXECUTE key to load the Patch program you have selected here, or press the EXIT key to cancel it and return to the originally selected program.

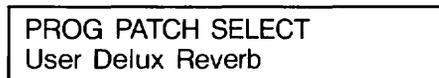
**Note:** This is the default mode of the 9010. The unit automatically switches to the Patch Select mode when the power is turned on. Also, pressing the EXIT key in any mode returns operation to the Patch Select mode.

The memory bank from which the current Patch was selected is displayed in the lower left of the LCD. "Prset" indicates internal preset memory. "User" indicates internal user memory. "Card" indicates ROM card and Card 1 through 3 indicate RAM cards.

a) Internal preset memory



b) Internal user memory



c) Card memory



The USER LED (next to the 7-segment Patch number LED) lights when user memory is selected.

The CARD LED (just above the USER LED) lights when a card has been inserted in the slot and card memory has been selected. Be careful NOT to take the card out of the slot while this LED is lit.

**Note:** Operation of the effect circuitry may be interrupted and data may be lost if the card is removed while the LED is lit.

## EDIT MODE

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### OVERVIEW

In the Edit mode you can change the parameters of the effect programs.

### Entering the EDIT Mode

To enter this mode, press the MODE key as many times as necessary to call up the "EDIT" display:

```
EDIT          DEFAULT PATCH
▶  E1 = CHORUS
```

To exit this mode, select a different mode by pressing the MODE key again, or press the EXIT key to return to the Patch Select mode.

### Using the EDIT Mode

The Edit mode lets you edit the effects of the Patch program you have selected. The types of effects that are available depend on the Group or Routing selected. Routing 1 has only one type of effect: Type D. Routing 2 has Types A, B and C; Routing 3 has Types A and C; and Routing 4 has Types A and B. The effect types are also indicated in the display, both by the appropriate letter in the effect program name (i.e., "CHORUS A") and by a small symbol preceding the effect number showing the input/output scheme of the effect type. (Type D effect programs are not represented by a symbol since they are always used alone.)

```
EDIT          DEFAULT PATCH
▶  E1 = CHORUS
```

"E" in this display stands for Effect.

```
EDIT  E1 CHORUS
▶ P01 Mod.Depth = 50
```

"P" in this display stands for Parameter.

```
EDIT Routing Parameter
▶ R01 Mix1 Lv1 = 100 [%]
```

"R" in this display stands for Routing and indicates the mixer related parameters.

When the arrow is on the left side of the display (just in front of "E," "P" or "R") the various parameters can be selected. This condition is also indicated by the green LED above the DIAL key. Pressing the DIAL key turns this LED to red and moves the arrow to the parameter value. The parameter can now be edited. Press the DIAL key again to select other parameters.

The effects and their parameters are given in the order dictated by the Routing. When editing effect parameters, you should always have the Routing charts handy for reference.

Refer also to the QUICK OPERATION AND EDITING SHORTCUTS section for more information on using the editing features of the 9010.

## EFFECT PROGRAMS AND PARAMETERS

This section lists and explains all of the effect programs and effect parameters of the 9010. For brevity, however, repeated listing of the same parameters that occur in different effects has been kept to a minimum. (For example, the Reverb Time parameter in REVERB A and REVERB 1 B is the same for both programs and is only mentioned in the REVERB A description.)

The following two parameters, Effect and Direct, are common to most effects. Together, these parameters determine the balance between the direct and effect signals of each effect program.

Effect: 0 ~ 100%

Determines the level of the effect sound.

Direct: 0 ~ 100%

Determines the level of the direct sound.

In addition, many of the effect programs (including most of the reverb programs, early reflection, echo and flanger) have an Input parameter (range: 0 - 100%) that allows you to control the level of the input signal. This parameter is used in conjunction with the Effect and Direct parameters.

**Note:** The Input parameter must be set to a value greater than 0% for the effect to function. If it is set to 0%, no sound will be output.

Included as the first program in the Type A, B and C groups of effects is a THRU setting which simply passes the signal unprocessed through the selected effect module. Each THRU setting includes an Output parameter (or parameters, in stereo effect types) for setting the level of the signal.

## TYPE A PROGRAMS

### 1—REVERB A

Multi-tap reverb effect with a bright sound.

Rev Time (Reverb Time): 0.3 ~ 10.0 sec.

Determines the time it takes for the reverberation sound to die out. Increasing this value creates a larger apparent room size.

Pre Dly (Pre-delay Time): 0 ~ 125 ms

Determines the time that elapses between the direct sound and the first of the reflections that make up the reverb sound.

Attack: 0 ~ 100

Determines the level of the early reflection components of the reverb sound.

Hi Cut (High Frequency Cut): 0 ~ 10

Determines the brightness of the overall sound. Increasing this value decreases the brightness.

Input: 0 ~ 100%

Determines the level of the input signal.

### 2—E/REFLECTION A (Early Reflection A)

Early reflection program capable of creating a wide range of ambience types, from hall to reverse.

Tap Width: 0 ~ 100

Determines the apparent size of the simulated room or hall.

Tap Angle: -10 ~ 0 ~ +10

Determines the shape of the reflection envelope. Positive values toward the maximum produce a conventional reverb envelope, while values around 0 create an abrupt gate. Negative values toward -10 create a reversed reverb envelope.

Pre Dly (Pre-delay Time): 0 ~ 125 ms

Determines the time that elapses between the direct sound and the first of the reflections that make up the reverb sound.

Input: 0 ~ 100%

Determines the level of the input signal.

### 3—ECHO A

A natural sounding echo can be produced with the help of the Hi Damp parameter.

Delay: 1 ~ 490 ms

Determines the time that elapses between the direct sound and the first delayed repeat, as well as between each successive repeat.

Feedback: 0 ~ 99%

Determines the number of delayed repeats of the sound. Higher values create a greater number of delayed repeats.

Hi Damp (High Frequency Damping): 0 ~ 10

Determines the degree of high frequencies in the delayed repeats or feedback sound. Higher values make the high frequencies decay faster, producing a softer delayed sound.

Input: 0 ~ 100%

Determines the level of the input signal.

### 4—CHORUS A

An easy-to-operate chorus program using complex waveforms for modulation.

Mod Depth (Modulation Depth): 0 ~ 100%

Determines the intensity of the effect. Increasing this value produces stronger modulation.

### 5—FLANGER A

Basic flanger program with a wide frequency range.

Mod Frq (Modulation Frequency): 0.05 ~ 15 Hz

Determines the speed of the modulation effect. Higher values produce a faster wavering in the sound.

Mod Depth (Modulation Depth): 0 ~ 100%

Determines the intensity of the effect. Increasing this value produces stronger modulation.

Mod Dly (Modulation Delay): 0.05 ~ 99.0 ms

Determines the time that elapses between the direct sound and the onset of the modulation.

Feedback: -99 ~ 0 ~ +99

Determines the amount of modulation signal that is fed back to the effect. Lower values produce a subtle chorus effect, while higher values create a pronounced flanger sound.

Input: 0 ~ 100%

Determines the level of the input signal.

### 6—PHASER A

Analog-like warmth in a basic phaser effect.

Mod Frq (Modulation Frequency): 0.05 ~ 15 Hz

Determines the speed of the modulation effect. Higher values produce a faster wavering in the sound.

Mod Depth (Modulation Depth): 0 ~ 100%

Determines the intensity of the effect. Increasing this value produces stronger modulation.

### 7—PITCH SHIFTER A

Pitch can be changed over a two octave range in half-steps.

Pitch:  $-12 \sim 0 \sim +12$

Determines the number of half-steps by which the input signal's pitch is altered. The range is from one octave below ( $-12$ ) to one octave above ( $+12$ ) the input pitch.

Fine:  $-50 \sim 0 \sim +50$

Allows fine tuning of the pitch-shifted note.

## 8—AUTO WAH

The central frequency of this wah effect program changes depending on the level of the input sound.

Sense:  $0 \sim 100$

Determines the degree or intensity of the wah effect.

Range:  $0 \sim 100$

Determines the maximum frequency width which changes according to the input level.

Manual:  $0 \sim 100$

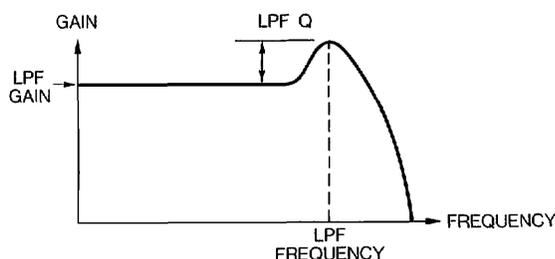
Determines the minimum frequency of the frequency width.

Note: When the Sense parameter is set to 0 (and when the pedal or MIDI modulation for this parameter has been enabled) the wah effect can be controlled manually.

## 9—EQUALIZER A

A basic EQ program featuring low pass and band pass controls.

LPF (Low Pass Filter) Parameters



LPF F (Low Pass Filter Frequency):  $16 \sim 1000$  Hz

Determines the frequency cutoff point. Frequencies above this value will be cut or boosted (by the LPF Gain parameter).

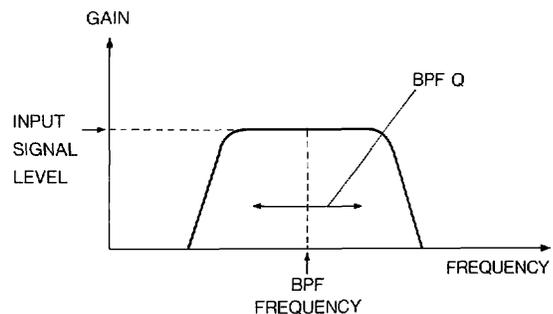
LPF Q (Low Pass Filter Bandwidth):  $0.5 \sim 2$

Determines the amount of emphasis given to the LPF frequency, like the resonance control on an analog synthesizer.

LPF G (Low Pass Filter Gain):  $-12 \sim 0 \sim +12$  dB

Determines the amount by which the low frequency signal is boosted or cut.

BPF (Band Pass Filter) Parameters



BPF F (Band Pass Filter Frequency):

$1000 \sim 8000$  Hz

Determines the central frequency. Frequencies on either side of this frequency will be cut or boosted (by the BPF G parameter, described below).

BPF Q (Band Pass Filter Bandwidth):  $0.5 \sim 2$

Determines the width of the frequency band that will be cut or boosted. A minimum setting produces the narrowest bandwidth (sharpest response), and the maximum produces the widest bandwidth (broadest response).

**BPF G (Band Pass Filter Gain):**

-12 ~ 0 ~ +12 dB

Determines the amount by which the frequency band is boosted or cut.

**Output:** 0 ~ 200%

Determines the total output level of the processed signal.

## 10—ENHANCER

Phase exciter type enhancer program.

**Depth:** -10 ~ 0 ~ +10

Determines the depth or the intensity of the effect.

**Character:** 1 ~ 10

Determines the amount of resonance in the middle frequency range of the signal. Lower values produce a more even or flat response.

**Output:** 0 ~ 200%

Determines the total output level of the processed signal.

## 11—NOISE GATE

Basic noise gate program. Delaying the attack results in a soft, violin-like sound.

**Sense:** 0 ~ 100

Determines the level of the input signal required to trigger the "opening" of the gate. At 100, only very high-level signals will trigger the gate, while at 0 nearly all level signals will be gated.

**Gate Width:** 0 ~ 100

Determines the length of time the gate remains open.

**Attack:** 0 ~ 100

Determines the time it takes for the gate to fully open from when it begins to open.

**Release:** 0 ~ 100

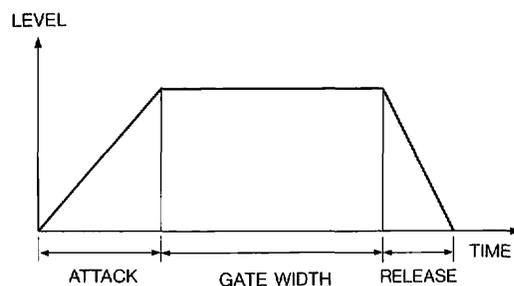
Determines how sharply the gate closes after the Gate Width time is elapsed.

**Depth:** 0 ~ 100%

Determines the depth or intensity of the gate effect. The effect is cancelled when set to 0.

**Output:** 0 ~ 200%

Determines the total output level of the processed signal.



## 12—DISTORTION

Distortion effect for guitars and lead instruments.

**Gain:** 0 ~ 100

Determines the amount of distortion applied.

**Pre LPF:** 0 ~ 10

Determines the amount of high frequency sound that is filtered out before distortion is applied. When set to a high value, predominantly the bass frequencies are given distortion.

**Tone Hi:** 0 ~ 100

Adjusts the high frequencies in the distortion signal.

**Tone Lo:** 0 ~ 100

Adjusts the low frequencies in the distortion signal.

**Output:** 0 ~ 200%

Determines the total output of the processed signal.

## 13—AMP SIMULATOR

This program simulates the sound of a guitar amplifier, and features three different enclosure selections. Especially when combined with the distortion effect, this program reproduces the sound of an amplifier recorded through a microphone.

**BPF F (Band Pass Filter Frequency):**  
16 ~ 8000 Hz

Determines the central frequency. Frequencies on either side of this frequency will be cut or boosted (by the BPF G parameter, described below).

**BPF Q (Band Pass Filter Bandwidth):** 0.5 ~ 2  
Determines the width of the frequency band that will be cut or boosted. A minimum setting produces the narrowest bandwidth (sharpest response), and the maximum produces the widest bandwidth (broadest response).

**BPF G (Band Pass Filter Gain):**  
-12 ~ 0 ~ +12 dB  
Determines the amount by which the frequency band is boosted or cut.

**Enclosure:** Compact, Combo, Stack  
Determines the overall sound quality and simulates three different amplifier/speaker types.

**Resonance:** 0 ~ 100  
Determines the intensity or degree of the Enclosure parameter above.

**Output:** 0 ~ 200%  
Determines the total output of the processed signal.

## 14—COMPRESSOR

Basic compressor with a hard attack. Good for guitar and single-note lines.

**Sense:** 0 ~ 100  
Determines the amount of the effect.

**Attack:** 0 ~ 10  
Determines the attack rate.

**Attack Clip:** 0 ~ 100  
Determines the sound quality of the attack portion. Higher values produce a more "clipped" sound.

**Output:** 0 ~ 200%  
Determines the total output of the processed signal.

## 15—LIMITER

Peak limiter with smooth operation; ideal for guitar and bass.

**Threshold:** 0 ~ 100  
Determines the signal level at which the limiter effect will switch in.

**Release:** 0 ~ 100  
Determines the release time.

**Output:** 0 ~ 200%  
Determines the total output of the processed signal.

## 16—THRU

This is a bypass setting. It sends the input signal unprocessed to the next stage. The volume of the signal can be adjusted.

**Output:** 0 ~ 200%  
Determines the total output level of the processed signal.

## TYPE B PROGRAMS

### 1—REVERB 1 B

E/Ref Lvl (Early Reflection Level): 0 ~ 100%  
Determines the level of the first discrete sound reflections before the dense reflections of the reverb sound begin. Higher values give the sound greater brilliance and impact, and increase the size and acoustic liveness of the apparent room.

All other parameters are the same as REVERB A above.

### 2—REVERB 2 B

Parameters are the same as REVERB 1 B above.

### 3—E/REFLECTION 1 B

Plate-type early reflection program with high density.

Pre Dly (Pre-delay Time): 0 ~ 200 ms  
Determines the time that elapses between the direct sound and the first of the reflections that make up the reverb sound.

Hi Cut (High Frequency Cut): 0 ~ 10  
Determines the brightness of the overall sound. Increasing this value decreases the brightness.

Density: 0 ~ 10  
Determines the density of the reflections.

Input: 0 ~ 100%  
Determines the level of the input signal.

### 4—E/REFLECTION 2 B

Strong early reflection program, especially suited to rhythm instruments. Parameters are the same as E/REFLECTION 1 B above.

### 5—GATE REVERB

Conventional gate reverb program featuring both reverb and gate parameters.

Sense: 0 ~ 100  
Determines the level of the input signal required to trigger the "opening" of the gate. At 100, only very high-level signals will trigger the gate, while at 0 nearly all level signals will be gated.

Gate Width: 0 ~ 100  
Determines the length of time the gate remains open.

Attack: 0 ~ 100  
Determines the time it takes for the gate to fully open from when it begins to open. This parameter is also used to put a sharper attack on the gate when a relatively large Smoothing value (see next parameter) has been set.

Smoothing: 0 ~ 100  
Determines how gradual or abrupt the gate actions are. It effectively extends both the attack and release times of the gate.

Rev Time (Reverb Time): 0.3 ~ 30.0 sec.  
Determines the time it takes for the reverberation sound to die out. Increasing this value creates a larger apparent room size.

Pre Dly (Pre-delay Time): 0 ~ 300 ms  
Determines the time that elapses between the direct sound and the first of the reflections that make up the reverb sound.

Hi Damp (High Frequency Damping): 0 ~ 10  
Determines the degree of high frequencies in the reverb sound. Higher values make the high frequencies decay faster, producing a softer delayed sound.

Input: 0 ~ 100%  
Determines the level of the input signal.

## 6—ECHO B

Features separate left and right delay times based on one long delay circuit.

Delay: 1 ~ 990 ms

Determines the time that elapses between the direct sound and the first delayed repeat, as well as between each successive repeat, for both the left and right channels.

L-Tap (Left Tap): 0 ~ 200%

Used in conjunction with the Delay parameter above, this determines the actual delay time of the left channel signal. (Expressed as a ratio to the Delay value.)

R-Tap (Right Tap): 0 ~ 200%

Used in conjunction with the Delay parameter above, this determines the actual delay time of the right channel signal. (Expressed as a ratio to the Delay value.)

All other parameters are the same as ECHO A above.

## 7—CHORUS B

Complex chorus effect combining a 4-layer chorus with pitch modulation. Parameters are the same as CHORUS A above.

## 8—BEND CHORUS

In this program, the amount of pitch variation, or detuning, varies according to the level of the input signal.

Bend: -100 ~ 0 ~ +100

Determines the depth of the pitch variation.

Smoothing: 0 ~ 100

Determines the attack time of the chorus sound, or the time it takes for the chorus sound to reach its maximum level.

Sense: 0 ~ 100

Determines how sensitive pitch variation is to the level of the input signal. Setting this parameter to a high value produces a more pronounced chorus for loud signals.

Trig Mask (Trigger Mask): 0 ~ 100

The Bend Chorus program responds to high input signals ("triggers") and varies the pitch of the signal accordingly. When multiple triggers are received, the program can be set to respond to the first trigger but ignore (or "mask") the ones that immediately follow, giving all the subsequent notes the same pitch variation as the first. This parameter determines how many triggers following the first are ignored.

## 9—FLANGER B

Flanger program that features two separate flanger circuits. The two signals can be put in sync or adjusted as to the phase, making possible a wide range of unusual effects.

L-Mod Frq, R-Mod Frq (Modulation Frequency, Left and Right): 0.05 ~ 15 Hz

Determines the speed of the modulation effect. Higher values produce a faster wavering in the sound.

L-Mod Depth, R-Mod Depth (Modulation Depth, Left and Right): 0 ~ 100%

Determines the intensity of the effect. Increasing this value produces stronger modulation.

L-Mod Dly, R-Mod Dly (Modulation Delay, Left and Right): 0.05 ~ 99.0 ms

Determines the time that elapses between the direct sound and the onset of the modulation.

L-Feedback, R-Feedback (Feedback, Left and Right): -99 ~ 0 ~ +99%

Determines the amount of modulation signal that is fed back to the effect, independently set for the

left and right channels. Lower values produce a subtle chorus effect, while higher values create a pronounced flanger sound.

Sync: OFF,  $0^\circ \sim 345^\circ$

Determines the phase relationship between the left and right modulation signals by changing the phase degree of the left signal. At any of the degree settings between  $0^\circ$  and  $345^\circ$ , the left and right signals are kept in sync. When this parameter is set to OFF, synchronization is cancelled. (When the wave frequencies of the signals are the same, an OFF setting automatically synchronizes the signals at  $180^\circ$  phase difference.)

All other parameters are the same as FLANGER A above.

## 10—PHASER B

This phaser program moves the sound through the stereo channels along with the waveform. Parameters are the same as PHASER A above.

## 11—PITCH SHIFTER B

This stereo pitch shifter program allows you to set different pitches for each channel, making it ideal for stereo chorus effects as well as other special applications.

L (Left) Pitch, R (Right) Pitch:  $-12 \sim 0 \sim +12$

Determines the number of half-steps by which each channel's input signal's pitch is altered. The range is from one octave below ( $-12$ ) to one octave above ( $+12$ ) the input pitch.

L (Left) Fine, R (Right) Fine:  $-50 \sim 0 \sim +50$

Allows fine tuning of each channel's pitch-shifted note.

L (Left) Effect, R (Right) Effect:  $0 \sim 100\%$

Determines the level of the pitch-shifted sound for each channel.

## 12—TREMOLO

A stereo tremolo featuring panning capability. A particularly animated sound can be created by adjusting the frequency parameters.

L-Frq, R-Frq (Left, Right Frequency):  $0.05 \sim 15$  Hz

Determines the speed of the modulation effect. Higher values produce a faster wavering in the sound.

Sync: OFF,  $0^\circ \sim 345^\circ$

Determines the phase relationship between the left and right modulation signals by changing the phase degree of the left signal. At any of the degree settings between  $0^\circ$  and  $345^\circ$ , the left and right signals are kept in sync. When this parameter is set to OFF, synchronization is cancelled. (When the wave frequencies of the signals are the same, an OFF setting automatically synchronizes the signals at  $180^\circ$  phase difference.)

## 13—EQUALIZER B

EQ program with independent left and right channel controls.

L-LPF F, R-LPF F (Low Pass Filter Frequency, Left and Right):  $16 \sim 1000$  Hz

Determines the frequency cutoff point for each channel. Frequencies above this value will be cut or boosted (by the LPF Gain parameter).

L-LPF Q, R-LPF Q (Low Pass Filter Bandwidth, Left and Right):  $0.5 \sim 2$

Determines the amount of emphasis given to the LPF frequency of each channel, like the resonance control on an analog synthesizer.

L-LPF G, R-LPF G (Low Pass Filter Gain, Left and Right):  $-12 \sim 0 \sim +12$  dB

Determines the amount by which the low frequency signal is boosted or cut for each channel.

L-BPF F, R-BPF F (Band Pass Filter Frequency, Left and Right): 1000 ~ 8000 Hz

Determines the central frequency for each channel. Frequencies on either side of this frequency will be cut or boosted (by the BPF G parameter, described below).

L-BPF Q, R-BPF Q (Band Pass Filter Bandwidth, Left and Right): 0.5 ~ 2

Determines the width of the frequency band that will be cut or boosted for each channel. A minimum setting produces the narrowest bandwidth (sharpest response), and the maximum produces the widest bandwidth (broadest response).

L-BPF G, R-BPF G (Band Pass Filter Gain, Left and Right): -12 ~ 0 ~ +12 dB

Determines the amount by which the frequency band is boosted or cut for each channel.

L-Output (Left), R-Output (Right): 0 ~ 200%

Determines the total output level of the processed signal for each channel.

Link: off, on

Determines whether the equalizer effect will function as linked stereo or dual mono. When set to OFF, each channel is set independently. When set to ON, the left channel settings affect both signals, making it easy to make common settings for normal stereo equalization.

## 14—THRU

This is a bypass setting. It sends the input signal unprocessed to the next stage. The volume of the signal can be adjusted.

L-Output, R-Output: 0 ~ 200%

Determines the total output level of the processed signal for each channel.

## TYPE C PROGRAMS

### 1—REVERB 1 C

Hall-type reverb program.

Hi Cut: 0 ~ 10

Determines the brightness of the overall sound. Increasing this value decreases the brightness.

Density: 0 ~ 10

Determines the density of the reverberations.

Input: 0 ~ 100%

Determines the level of the input signal.

### 2—REVERB 2 C

Plate-type reverb program. Parameters are the same as REVERB 1 C above.

### 3—E/REFLECTION 1 C

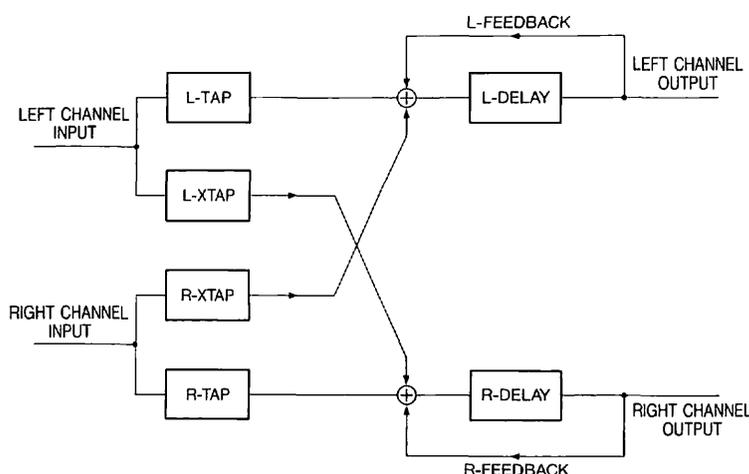
A subtle and detailed early reflection program with a bright sound. Parameters are the same as E/REFLECTION 1 B above.

### 4—E/REFLECTION 2 C

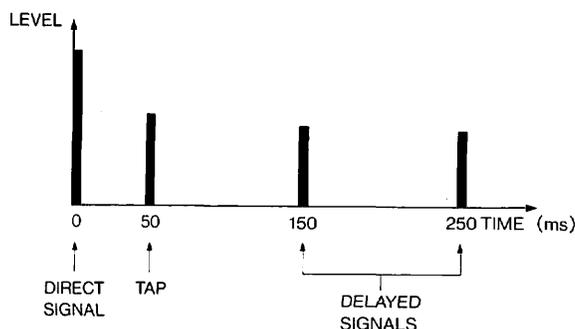
A slightly "wild" and unconventional early reflection program. Parameters are the same as E/REFLECTION 1 B above.

## 5 - ECHO C

This program features a complex stereo delay routing system, especially suited for creation of rhythmic stereo delay effects. Each channel, left and right, has an initial delay (Tap) which is split, given independent delays and then fed to the left and right delay circuits. Feedback is also provided for the delay signals of both channels. This illustration shows the signal path:



The relationship between the Tap and the Delay parameters can be made clearer by the following graph. In this example, the Tap parameter is set to 50 ms and the Delay to 100 ms.



The Tap parameter is the first delay time, and the Delay parameter determines the interval of the delayed repeats of the Tap.

**L-Delay (Left Delay):** 1 ~ 700 ms

Determines the time between the initial delay of the left channel and the first repeat, as well as the time between successive repeats.

**L-FB (Left Feedback):** 0 ~ 99%

Determines the amount of feedback of the left channel delay signal.

**R-Delay (Right Delay):** 1 ~ 700 ms

Determines the time between the initial delay of the right channel and the first repeat, as well as the time between successive repeats.

**R-FB (Right Feedback):** 0 ~ 99%

Determines the amount of feedback of the right channel delay signal.

**L-Tap (Left Tap):** 1 ~ 200%

Determines amount the left signal is initially delayed before being sent to the left delay circuit.

**L-XTap (Left Cross-tap):** off, 1 ~ 200%

Determines amount the left signal is initially delayed before being sent to the right delay circuit. (The delay sound is not output when this parameter is set to OFF.)

**R-Tap (Right Tap):** 1 ~ 200%

Determines amount the right signal is initially delayed before being sent to the left delay circuit.

**R-XTap (Right Cross-tap):** off, 1 ~ 200%  
Determines amount the right signal is initially delayed before being sent to the left delay circuit. (The delay sound is not output when this parameter is set to OFF.)

**Input:** 0 ~ 100%  
Determines the level of the input signal.

## 6—CHORUS C

This stereo chorus program features excellent separation and definition. Parameters are the same as CHORUS B above.

## 7—FLANGER C

This comprehensive 2-in/2-out stereo flanger program allows the two modulation signals to be set in sync with each other. Parameters are the same as FLANGER B above.

## 8—PHASER C

Parameters are the same as PHASER B above.

## 9—PITCH SHIFTER C

This complex program combines a stereo pitch shifter with delay and feedback circuits, making possible special effects like ascending and descending delay-generated arpeggios.

**L (Left) Delay:** 1 ~ 600 ms  
Determines the delay time for the pitch-shifted signal of the left channel.

**R (Right) Delay:** 1 ~ 600 ms  
Determines the delay time for the pitch-shifted signal of the right channel.

**L (Left) Feedback:** 0 ~ 90%  
Determines how much of the left channel's pitch-shifted and delayed signal is fed back to the effect. Increasing this value produces more delayed repeats, each being pitch-shifted up or down from the previous repeat according to the Pitch and Fine parameter settings.

**R (Right) Feedback:** 0 ~ 90%  
Determines how much of the right channel's pitch-shifted and delayed signal is fed back to the effect. Increasing this value produces more delayed repeats, each being pitch-shifted up or down from the previous repeat according to the Pitch and Fine parameter settings.

**Hi Damp:** 0 ~ 10  
Determines the degree of high frequencies in the delayed repeats or feedback sound of both channels. Higher values make the high frequencies decay faster, producing a softer delayed sound.

**XTaps (Cross-taps):** off, 1 ~ 200%  
Used in conjunction with the Left and Right Delay parameters above, this determines the time each signal is delayed before being crossed over to the opposite output. The value is expressed as a ratio to the Delay value. (This delay sound is not output when set to OFF.)

**Input:** 0 ~ 100%  
Determines the level of the input signal.

## 10—EQUALIZER C

EQ program with 2-in/2-out dual channel operation. Parameters are the same as EQUALIZER B above.

## 11—THRU

This is a bypass setting. It sends the input signal unprocessed to the next stage. The volume of the signal can be adjusted.

L-Output, R-Output: 0 ~ 200%

Determines the total output level of the processed signal for each channel.

## TYPE D PROGRAMS

**Note:** Both Type D programs, Reverb D and Multi Chorus use Inputs 1 and 2, and Outputs 1 and 2.

## REVERB D

This reverb program takes full advantage of the 9010's sophisticated signal processing capabilities. Reverb time can be set independently for the low- and high-frequency bands, making possible a wide range of reverb effects.

Rev T Hi (High Frequency Reverb Tap):  
0.3 ~ 30.0 sec.

Determines the time it takes for the high frequency components in the reverberation sound to die out. Increasing this value creates a brighter reverb sound.

Rev T Lo (Low Frequency Reverb Tap):  
0.3 ~ 30.0 sec.

Determines the time it takes for the low frequency components in the reverberation sound to die out. Increasing this value creates a warmer reverb sound.

Pre Dly (Pre-delay Time): 0.1 ~ 700 ms

Determines the time that elapses between the direct sound and the first of the reflections that make up the reverb sound.

E/Ref Lvl (Early Reflection Level): 0 ~ 100%

Determines the level of the first discrete sound reflections before the dense reflections of the reverb sound begin. Higher values give the sound greater brilliance and impact, and increase the size and acoustic liveness of the apparent room.

E/Ref Dly (Early Reflection Delay): 0.1 ~ 700 ms

Determines the time that elapses before the onset of the early reflections. Increasing this value increases the apparent room size.

E/Ref Lo (Low Frequency Early Reflections):  
0 ~ 4

Determines the amount of low frequency early reflections in the early reflection sound. Increasing this value creates a warmer sound.

Hi Damp: 0 ~ 10

Determines the degree of high frequencies in the reverb sound. Higher values make the high frequencies decay faster, producing a softer sound.

Lo Damp: 0 ~ 10

Determines the degree of low frequencies in the reverb sound. Higher values make the low frequencies decay faster, producing a brighter, more acoustically "live" sound.

Hi Cut: 0 ~ 10

Determines the brightness of the overall sound. Increasing this value decreases the brightness.

Density: 0 ~ 4

Determines the density of the reverberations.

Separation: 0 ~ 4

Determines the perceived distance or degree of stereo separation between the left and right sound components.

Spread: 0 ~ 4

This parameter adds an increasing amount of stereo separation (or a gradually expanding "spread" in the sound) as the reverb decays. (This parameter has little effect when the Separation parameter above is set to a large value.)

Character: 1 ~ 10

Determines the amount of resonance in the middle frequency range of the signal. Lower values produce a more even or flat response.

Input Mode: Mono, Stereo

Determines the input/output configuration of the effect. When Mono is selected, the signal from Input 1 is split into a stereo signal and output from Outputs 1 and 2. When Stereo is selected, Inputs 1 and 2 are independently processed and output separately (in true stereo) through Outputs 1 and 2.

## MULTI CHORUS

This program creates an extremely smooth and natural chorus effect with the use of up to a maximum of 36 separate modulations of the original signal.

Mod (Modulation) Depth: 0 ~ 100

Determines the intensity of the effect. Increasing this value produces stronger modulation.

Mod (Modulation) Voices: 4 ~ 36

Determines the number of separate signals into which the original signal is split up and modulated.

Input Mode: Mono, Stereo

Determines the input/output configuration of the effect. When Mono is selected, the signal from Input 1 is split into a stereo signal and output from Outputs 1 and 2. When Stereo is selected, Inputs 1 and 2 are signal from Input 1 is split into a stereo signal and output from Outputs 1 and 2. When Stereo is selected, Inputs 1 and 2 are independently processed and output separately (in true stereo) through outputs 1 and 2.

## NAMING MODE

---

### OVERVIEW

In the Naming mode you can enter names to individual Patch programs.

### Entering the Naming Mode

To enter this mode, press the MODE key as many times as necessary to call up the "NAME" (Naming mode) display:

```
NAME PATCH Naming
[ * * * PATCH_NAME * * ]
```

The green LED of the DIAL key lights when this mode is selected. To exit this mode, select a different mode by pressing the MODE key again, or press the EXIT key.

### THE FUNCTION

The Naming mode has one function, which is selected when the mode itself is selected.

## Entering Patch Program Names

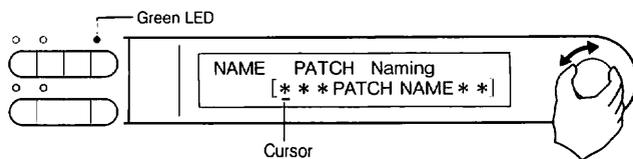
The LCD for the Patch naming function shows the name of the Patch in brackets.

```
NAME PATCH Naming
[***PATCH_NAME**]
```

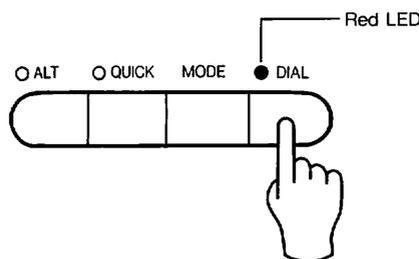
Names consisting of up to 16 characters can be input between the brackets.

To enter a Patch name:

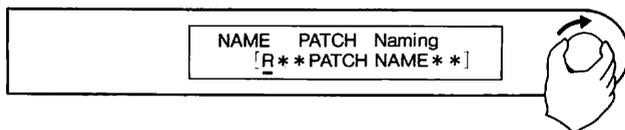
1. Turn the EDIT DIAL (when the DIAL key's LED is green) to move the cursor on the display.



2. Press the DIAL key to turn the LED to red and switch to the character entry function.

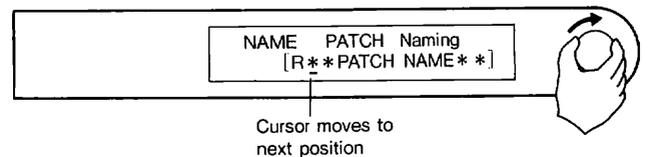
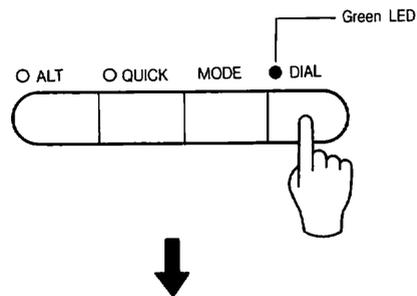


3. Turn the EDIT DIAL to select the character for entering at the cursor position.



There are 96 characters (including a blank) that are available for use in naming Patches. These include all numbers, letters in the alphabet (both capital and small) and various punctuation characters and special marks. (Refer to the chart of available characters on the next page for the complete list.)

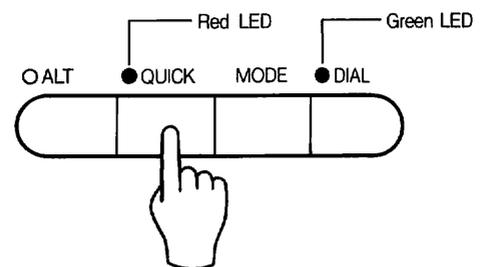
4. Press the DIAL key again and move the cursor to the next position.



Doing this keeps the character you have just entered and puts the cursor in position for the next character.

## Inserting and Deleting Characters

Characters can also be inserted and deleted with the backspace, delete and insert functions. You can select these functions individually by pressing the QUICK key (when the DIAL key's LED is green).



The functions are selected in the following order, with each press of the QUICK key. To perform the selected function at the cursor position, press the EXECUTE key.

### Backspace (BS)

```
NAME PATCH Naming
BS [***PATC_ NAME**]
```

Pressing EXECUTE deletes the character just before the cursor position. All characters at and following the cursor move to the left.

Delete (DEL)

```
NAME PATCH Naming
DEL [***PATCH_NAME**]
```

Pressing EXECUTE deletes the character at the cursor. All characters following the cursor move to the left.

Insert (INS)

```
NAME PATCH Naming
INS [***PATCH_NAME**]
```

Pressing EXECUTE inserts a space at the cursor. All characters following the cursor will move to the right.

Any of these functions can be repeated by pressing the EXECUTE key again. Pressing the QUICK key once again (after INS) returns the display to normal character entry.

### Available Characters

- [1] 0 1 2 3 4 5 6 7 8 9 " "
- [2] 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 "
- [3] 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 "
- [4] @ ! " # \$ % & ' ( ) \* + , - . / : ; < > ? = [ ] ^ \_ ` { | } ~ ← → "

**Note:** The double quotation marks in this chart (" ") indicate a space or blank.

### Quick Function—Jumping to a Character Group

By spinning the EDIT DIAL quickly (rapid operation), you can jump to the beginning of each character group. The four character groups—numbers, capital letters, lowercase letters, and punctuation/special characters—are shown above in the Available Characters chart.

## MIDI MODE

### OVERVIEW

In the MIDI mode you can:

- Set the MIDI send and receive channels.
- Determine whether the 9010 will send and respond to MIDI program change messages and system exclusive messages.
- Determine whether the 9010 will send bank number indications.
- Set the 9010 to respond to NRPN control change data and MIDI modulation and control changes.
- Switch between the OUT and THRU settings of the rear panel MIDI OUT/THRU terminal.
- Assign effect program numbers to MIDI program change numbers.

### Entering the MIDI Mode

To enter this mode, press the MODE key as many times as necessary to call up the "MIDI" display:

```
MIDI MIDI Setup
▶ BASIC Channel 01
```

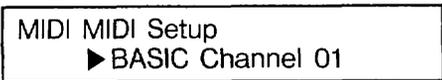
To exit this mode, select a different mode by pressing the MODE key again.

### THE FUNCTIONS

The functions below are given in the order they appear on the display. Select the function with the EDIT DIAL, press the DIAL key (turning LED to red), then turn the EDIT DIAL again to change the parameter.

## Setting the Basic Channel

This function's display is the first to appear when you select the MIDI mode. In this function, both the MIDI send and MIDI receive channels are set to the value of the basic channel.

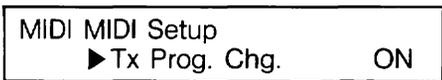


MIDI MIDI Setup  
▶ BASIC Channel 01

Range: 1 ~ 16

## Program Change Transmission

This function allows you to determine whether selection of an internal Patch program on the 9010 will also send a corresponding program change message via MIDI to an external device or not.



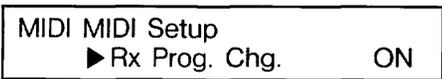
MIDI MIDI Setup  
▶ Tx Prog. Chg. ON

ON: Transmits program change message.  
OFF: Does not transmit program change message.

An ON setting would be useful if you have other effect units connected by MIDI to the 9010. This would allow you to change programs on those devices as well, changing your entire effect system with the selection of one program.

## Program Change Reception

This function allows you to determine whether the 9010 will respond to incoming program change messages for selection of internal Patch programs.



MIDI MIDI Setup  
▶ Rx Prog. Chg. ON

ON: Responds to program change messages.  
OFF: Does not respond to program change messages.

Turning on program change reception allows you to select a program change number on another MIDI device (for example, a synthesizer) and call up the same numbered Patch program on the 9010.

**Note:** The Patch program numbers of the 9010 start with 1, whereas the starting program change number of the MIDI standard is 0. This means that a MIDI program change number will correspond to the next highest Patch program number on the 9010. In other words, if you select MIDI program change number 3, the 9010 will change to Patch program number 4.

You can also assign Patch numbers to MIDI program change numbers; for example, having program change #3 call up Patch program #15. Refer to the Program Number Assignment sections below for details.

## MIDI Bank Select Transmission (Reception)

This menu allows you to determine whether or not the bank number indication is transmitted or received along with the Patch program number when internal Patch numbers are selected.



MIDI MIDI Setup  
▶ Tx BANK Sel. ON

ON: Bank number is transmitted received.  
OFF: Bank number is not transmitted received.

**Note:** This function should be set to OFF if the connected MIDI devices do not have multiple memory banks.

## MIDI Real-time Modulation

MIDI control messages, such as those sent by pitch bend wheels or foot controllers of a synthesizer, can be used to control effect parameters in real time. Setting this function to BASIC or MULTI allows selected effect parameters to respond to MIDI control message data. For more details about this function and how to select the parameters that will be affected, refer to the section, REAL-TIME EFFECT MODULATION.

MIDI MIDI Setup ▶ Modulation	ON
---------------------------------	----

OFF: Cancels MIDI real-time modulation.

BASIC: Turns MIDI real-time modulation on. All effect modules are controlled over the basic MIDI channel (set in the Basic Channel function above).

MULTI: Turns MIDI real-time modulation on. With this setting, each effect module (E1 ~ E7) is automatically assigned a different MIDI channel. The channel assignments depend on the basic channel setting; for example, when the basic channel is set to 2, E1 is automatically set to the MIDI channel 2 and the remaining modules are set to the following MIDI channels, as shown below.

When the basic channel is 2,  
E1 is set to be controlled over channel 2,  
E2 is set to 3,  
E3 is set to 4,  
E4 is set to 5, etc.

## MIDI Edit Reception

This menu allows you to determine whether or not incoming external NRPN control change data can be used to edit corresponding internal parameters.

MIDI MIDI Setup ▶ Rx MIDI EDIT	ON
-----------------------------------	----

ON: Responds to NRPN data.

OFF: Does not respond to NRPN data.

## System Exclusive Transmission

This function allows you to determine whether system exclusive data is transmitted or not. You should set this to ON when you send 9010 data to another MIDI device, such as another 9010 or a data storage unit.

MIDI MIDI Setup ▶ Tx SysEX	ON
-------------------------------	----

ON: Enables transmission of system exclusive data.

OFF: Disables transmission of system exclusive data.

**Note:** Setting this function to ON does not actually transmit the data. To send data to another MIDI device, use the MIDI Dump mode (MDMP) in the Store operations (see p.42).

## System Exclusive Reception

This function allows you to determine whether system exclusive data can be received or not. You should set this to ON when you load data from another MIDI device to the 9010.

MIDI MIDI Setup ▶ Rx SysEX	ON
-------------------------------	----

ON: Enables reception of system exclusive data.

OFF: Disables reception of system exclusive data.

## MIDI OUT/THRU Switch

This allows you to switch the MIDI OUT terminal on the rear panel to MIDI THRU. When set to MIDI OUT (OFF setting), MIDI data is output from the terminal, and when set to MIDI THRU (ON setting), the MIDI data received via the MIDI IN terminal is simply retransmitted through the MIDI OUT terminal.

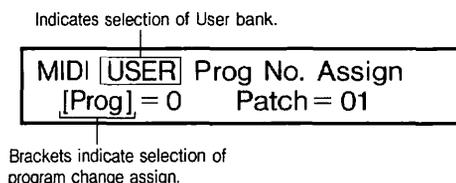


ON: MIDI THRU  
 OFF: MIDI OUT

**Note:** When the terminal is set to MIDI THRU, the 9010 does not transmit any of its own MIDI messages to the connected MIDI device. For example, Patch program changes made on the 9010 will not select programs on the connected device.

## Program Number Assignment—Program Change Number

This function and the one following (Effect Program Number) are used together to assign specific MIDI program change numbers to specific 9010 Patch numbers. Using these two functions, for example, you can select program #3 on a connected synthesizer and call up Patch program #15 on the 9010. Brackets around "Prog" in the display indicate that the program change number can be assigned.

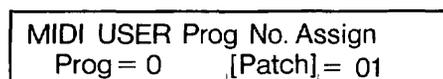


Range: 0 ~ 127

Program numbers can be assigned to change programs in any of the various banks of the 9010: Preset, User, and the three RAM Card banks. The program numbers for the various banks are selected by turning the EDIT DIAL when the arrow in the LCD is at the program number value and the DIAL key's LED is red. The banks are selected in the following order: User, RAM Card 1, RAM Card 2 and RAM Card 3. The bank name appears in capital letters at the top of the LCD.

## Program Number Assignment—Effect Program Number

This function is used with the one above (Program Change Number) to assign specific MIDI program change numbers to specific 9010 Patch numbers. Brackets around "Patch" in the display indicate that the Patch program number can be assigned.



Brackets indicate selection of Patch program assign.

Range: 01 ~ 60

## More on Patch Program/Program Change Assignment

The user memory space to which Patch programs are stored is from 1 to 60, and programs can be stored to any memory location regardless of the Routing (Group) that is selected.

1.	RTG 1 PATCH PROGRAM
2.	RTG 3 PATCH PROGRAM
3.	RTG 3 PATCH PROGRAM
4.	RTG 1 PATCH PROGRAM
5.	RTG 4 PATCH PROGRAM
6.	RTG 2 PATCH PROGRAM
7.	RTG 2 PATCH PROGRAM
8.	RTG 4 PATCH PROGRAM

When Patch programs are stored in user memory as shown above:

1. The directory of the Patch store mode displays 1 ~ 8 in order.
2. Incoming MIDI program change messages will be ignored by the Patches of other Groups and empty memory locations.

For example:

When Group 1 is selected, 1 and 4 are selected by

program change number 00 and 03.

When Group 2 is selected, 6 and 7 are selected by program change number 05 and 06.

When Group 3 is selected, 2 and 3 are selected by program change number 01 and 02.

When Group 4 is selected, 5 and 8 are selected by program change number 04 and 07.

In this example, the Patches will not be changed by any other numbers.

Having Patch programs of a Group scattered over the memory locations like in the example above makes selection particularly difficult. However, by setting specific MIDI program change numbers to select specific Patch numbers in this menu, you can assign them in any convenient order.

**Note:** For the technically minded, the correspondence between the bank number and the 14-bit bank select MIDI messages is shown below:

	MSB	LSB
User memory	00 H	00 H
CARD 1 memory	00 H	01 H
CARD 2 memory	00 H	02 H
CARD 3 memory	00 H	03 H
Preset memory	7 FH	7 FH

## SYSTEM MODE

### OVERVIEW

In the System mode you can:

- Set the conditions for the beep sound.
- Assign the functions performed by the connected footswitches or pedals.
- Set the input peak sensitivity.

### Entering the System Mode

To enter this mode, press the MODE key as many times as necessary to call up the "SYS" (System mode) display:

SYS System Setup  
▶ BEEP All On

To exit this mode, select a different mode by pressing the MODE key again, or press the EXIT key.

### THE FUNCTIONS

The functions below are given in the order they appear on the display. Select the function with the EDIT DIAL, press the DIAL key (turning LED to red), then turn the EDIT DIAL again to change the parameter.

#### Beep Sound

The 9010 normally plays a warning "beep" from a small internal speaker when a key has been pressed or when an operation error occurs. This function allows you to determine the conditions under which the beep will sound. The beep sound can also be turned off here.

SYS System Setup  
▶ BEEP All On

- All On: Sounds when front panel keys are pressed and when operation errors occur.
- All Off: Cancels the beep sound.
- Key On: Sounds only when front panel keys are pressed.
- Sys On: Sounds only to indicate operation errors.

## Pedal 1 Assignment

This function allows you to determine which function will be controlled by the footswitch or pedal connected to the PEDAL/SW 1 terminal on the rear panel.

```
SYS System Setup
▶ PEDAL1 BYPASS
```

Four settings are provided:

**BYPASS:** This has the same function as that of BYPASS key on the front panel. Each press of the footswitch *turns on or off* the bypass function, which cancels all effects and outputs only the unprocessed signal.

**PATCH UP:** Each press of the footswitch selects Patch programs, in their ascending numerical order.

**PATCH DOWN:** Each press of the footswitch selects Patch programs, in their descending numerical order.

**MODULATION:** (For pedal only) Operation of a pedal continuously changes effect parameters in real time. Refer to the section, REAL-TIME EFFECT MODULATION.

The correct polarity of the footswitch is automatically sensed and set when the power is turned on.

**Note:** The Bypass, Patch Up and Patch Down settings are designed for use with an on/off footswitch. The Modulation setting is for use with a volume pedal type foot controller.

## Pedal 2 Assignment

This function allows you to determine which function will be controlled by the footswitch or pedal connected to the PEDAL/SW 2 terminal on the rear panel.

```
SYS System Setup
▶ PEDAL2 BYPASS
```

The settings and operation for Pedal 2 are the same as that of the Pedal 1 Assignment function above.

## Input Peak Sensitivity

This function determines the input signal level at which the peak indicator will light.

```
SYS System Setup
▶ Peak = + 0 dB
```

Three input sensitivity settings are provided:

- + 0 dB
- + 6 dB
- + 12 dB

**Note:** This function does not actually change the input sensitivity or the amount of headroom. It is meant as a convenience for those who customarily use "hot" signals that would ordinarily trigger the peak warning.

## GROUP CHANGE MODE

---

### OVERVIEW

In the Group Change mode you can the Routing (Group) of the 9010. Each Routing uses a different signal routing configuration and employs different effect modules. For more information on Routings, refer to ROUTINGS, p.14, in the section THE 9010 SYSTEM.

### Entering the Group Change Mode

To enter this mode, press the MODE key as many times as necessary to call up the "GRP" (Group Change mode) display:

```
GRP Group Change
Group ▶ 1 < RTG 1 >
```

## THE FUNCTIONS

The Group Change mode has one function, which is selected when the mode itself is selected.

### Selecting Groups

Select the desired Group with the EDIT DIAL, then press the EXECUTE key. Press the EXECUTE key a second time to actually load the selection, or press the EXIT key to cancel.

## STORE OPERATIONS

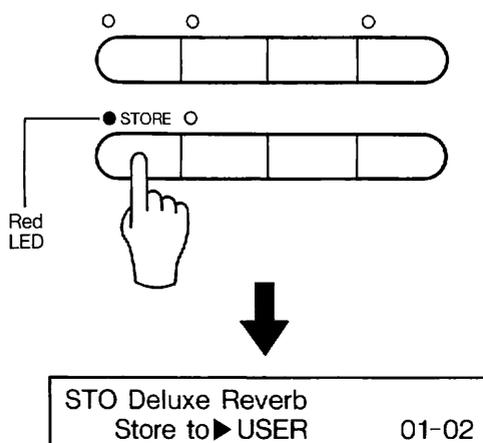
### OVERVIEW

Store operations allow you to:

- Store individual Patch programs to user or card memory.
- Transfer banks of data between RAM card and internal memory.
- Verify transfer of data from user to card memory.
- Transmit bulk data via MIDI.

### SELECTING STORE OPERATIONS

Press the STORE key to call up the following modes: Patch Store mode, Load mode, Save mode, Verify mode and MIDI Dump mode.



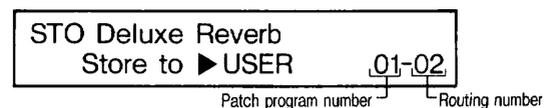
Each press of the STORE key steps through the single-function modes in the order listed here. To exit the Store operations, press the EXIT key, or select a different mode by pressing the MODE key.

**Note:** As long as the power is on, the last Store operation mode selected becomes the default mode and is returned to each time the STORE key is pressed. The Patch Store mode, however, is the normal default mode when power to the unit is turned on.

## THE MODES

### PATCH STORE Mode

This mode allows you to store individual edited Patch programs to user and RAM card memory. Once you have edited a Patch program in the Edit mode and named it in the Naming mode, you should directly enter the Patch Store mode and store the program to user or card memory. You can also enter this mode directly from the Patch Select mode to copy individual Patch programs between user and card memory.



In the example LCD above, the Patch program "Deluxe Reverb" will be stored to user program 01, indicated by the number on the left. The number on the right (02 in this example) indicates the Routing number of the Patch.

Select the type of memory you wish to store to, user or RAM card by using the EDIT DIAL. The three memory banks of the RAM card are also selected here.

**Note:** If no card has been inserted, RAM card memory cannot be selected. In this condition, the EDIT DIAL has only one function, the selection of program numbers.

User Memory:

```
STO Deluxe Reverb
Store to ► USER      01-02
```

RAM Card Memory (when the card has data):

```
STO Deluxe Reverb
Store to ► CARD 1    01-02
```

Bank number of card (1 ~ 3)

RAM Card Memory (when the card is formatted and empty):

```
STO Deluxe Reverb
Store to ► CARD 1    01- e
```

The " [e] " in the display appears when a formatted RAM card has no data in that memory space. If a RAM card has not been formatted, you must format it first in the SAVE mode (see below).

Press the EXECUTE key to start the Store operation. The message shown below prompts you to confirm whether you want to store the program or not.

**Note:** Make sure that all essential Patch programs have been saved to other memory locations when storing Patch programs. Storing a Patch program irretrievably erases the previous Patch program at that memory location.

```
STO ** Store OK? **
Store to USER      01-02
```

Press the EXECUTE key again to store the program, or press the EXIT key to cancel.

**Note:** The 9010 does not have a memory clear function to erase all data, with the exception of the initialization function for RAM cards.

## LOAD Mode

In this mode, the 60 Patch programs and the parameters of the MIDI and System modes of a single bank can be loaded at once from RAM card.

Select the desired bank by turning the EDIT DIAL, then press the EXECUTE key.

```
LOAD LOAD whole SYSTEM
BANK 1 [SYSTEM1]
```

The message below prompts for confirmation.

```
LOAD ** SURE? **
BANK 1 [SYSTEM1]
```

Press the EXECUTE key again to load or press the EXIT key to cancel. The message below is displayed after loading has been completed, and the LCD returns to the initial LOAD screen after two seconds.

```
LOAD LOAD whole SYSTEM
Loaded
```

The message below appears when a card has not been inserted.

```
LOAD LOAD whole SYSTEM
No Card
```

## SAVE Mode

In this mode, the 60 Patch programs in internal user memory, and the parameters set in the MIDI and System modes can be saved to a single bank of a RAM card.

Select the bank by turning the EDIT DIAL.

You can also enter a name for the bank you are saving. Move the cursor to the bank number while the DIAL key LED is green. Then press the EDIT key, checking that the LED is now red, and turn the EDIT DIAL.

Enter a bank name of up to 8 characters, then press the EXECUTE key. The method for entering bank names is the same as that for entering Patch names.

```
SAVE SAVE whole SYSTEM
      BANK 1 [SYSTEM 1]
```

The message below prompts for confirmation.

```
SAVE ** SURE? **
      BANK 1 [SYSTEM 1]
```

Press the EXECUTE key again to store or press the EXIT key to cancel.

Note: Even if you do not enter a bank name, you can still press the EXECUTE key when you select the bank. The same message shown above is displayed and you can store the bank.

The message shown below is displayed when the save operation is completed and the LCD returns to the initial SAVE screen after two seconds.

```
SAVE SAVE whole SYSTEM
      Saved
```

The message below is displayed when a card has not been inserted.

```
SAVE SAVE whole SYSTEM
      No Card
```

The message shown below appears when the save operation is attempted for a RAM card that is not compatible with the 9010. A new card must be formatted before it can be used.

```
SAVE SAVE whole SYSTEM
      CARD Mismatch. Format?
```

Press the EXECUTE key to format, or press the EXIT key to cancel.

The message shown below is displayed while the card is being formatted.

```
SAVE SAVE whole SYSTEM
      Formatting.....
```

The LCD returns to the initial SAVE screen after the format operation has been completed, and the Save operation can be performed.

```
SAVE SAVE whole SYSTEM
      BANK 1 [SYSTEM 1]
```

## VERI Mode (Verify Mode)

This mode is used, after the operation in the SAVE mode above, to confirm that the data in user memory has been properly stored to card.

```
VERI VERIFY CARD & USER
      BANK 1 [SYSTEM 1]
```

Select the card bank by turning the EDIT DIAL, then press the EXECUTE key.

```
VERI ** SURE? **
      BANK 1 [SYSTEM 1]
```

Press the EXECUTE key again to verify, or press the EXIT key to cancel. The message shown below is displayed when verification has been completed. The LCD returns to the initial VERI screen after two seconds.

```
VERI VERIFY CARD & USER
      Verified
```

If an data error has been found in the Verify process, the following error message appears.

```
VERI VERIFY CARD & USER
Data Verify Error
```

If this message appears, try saving the data to the card again.

## Other RAM Card Messages

Invalid Card:

```
LOAD LOAD whole SYSTEM
Invalid CARD
```

```
SAVE SAVE whole SYSTEM
Invalid CARD
```

The above messages appear when the save operation is attempted for either a card that has no data or one that is not compatible with the 9010. The messages also appear when attempting to write to ROM card.

Write Protected:

```
SAVE SAVE whole SYSTEM
Write Protected
```

The above message appears when you attempt to write data to a card whose write protect switch is on.

## MDMP Mode (MIDI Dump Mode)

This mode is used to transmit bulk data for 60 Patch programs in internal memory via the MIDI OUT termi-

nal on the rear panel. Before using this operation, make sure that the Tx SysEX function (in the MIDI mode) has been set to ON (see p.35).

```
MDMP TRANSFER with MIDI
EXECUTE to start. CH=01
```

Press EXECUTE to start the operation.

```
MDMP ** SURE? **
EXECUTE to start. CH=01
```

Press the EXECUTE key again to transmit the data, or press the EXIT key to cancel.

When transmission is in progress, this message appears:

```
MDMP TRANSFER with MIDI
Now transmitting. CH=01
```

When transmission has been completed, this message appears:

```
MDMP TRANSFER with MIDI
Data Transferred.
```

To receive a bulk dump of data via MIDI, make sure that Rx SysEX in the MIDI mode is ON and that the MIDI channels of the devices match. The data is received via MIDI IN and stored to internal user memory.

The message shown below is displayed when the Tx SysEX function in the MIDI Mode has been set to OFF.

```
MDMP TRANSFER with MIDI
SysEX can't be sent.
```

## LEVEL OPERATIONS

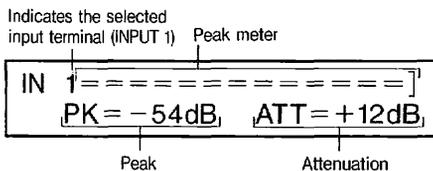
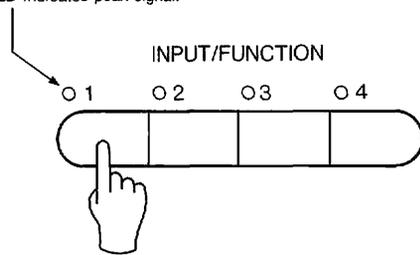
### OVERVIEW

Level operations allow you to set the input and output signal levels and monitor the levels on the LCD.

### SELECTING THE LEVEL OPERATIONS

Pressing any of the INPUT/FUNCTION keys selects the Level menu for the corresponding input and output terminal.

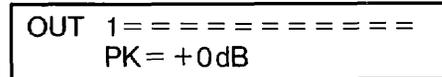
Green LED indicates nominal signal; red LED indicates peak signal.



Use the EDIT DIAL to adjust the degree of attenuation. The signal level is indicated in the LCD both by a graphic bar display and a numeric peak level value (PK). The display has a temporary peak hold feature which continues to display the peak level value for approximately one second before the next peak is displayed. Attenuation range is from  $-66$  dB to  $+12$  dB.

You should be careful to set the input level so that the lowest level signal turns on the green LED and moves the bar in the display, and that the highest level signal does not cause the red LED to light continuously.

Pressing the same INPUT/FUNCTION key again calls up the output level display.



**Note:** Input level settings are also determined by the rear panel input level switches. These should be set to the proper level before using the Level menu controls.

To exit from this mode, press either the MODE key or the EXIT key.

## QUICK OPERATION AND EDITING SHORTCUTS

### QUICK Key

In addition to its function of deleting and inserting characters in the Naming mode, the QUICK key is also used in the Edit mode as an editing aid. Pressing the QUICK key while in the Edit mode lights the corresponding red LED and confines parameter selection to the currently selected effect module (or the Routing parameters). For example, if you are editing a parameter in effect module 1 and do not wish to edit parameters in any other module, pressing the QUICK key will let you select only the parameters of effect module 1. Pressing the QUICK key again releases the function and lets you select from all of the Patch program's parameters. This editing method provides greater efficiency and allows you to

operate the 9010 more effectively when editing the parameters of a single effect module.

**Note:** Even though several effects can be active simultaneously in normal operation, pressing the QUICK key here temporarily disables all effects other than the one currently selected.

The EDIT DIAL can also be used within this QUICK key function to jump quickly between two selected parameters in a single effect module by Rapid operation.

1. Press the QUICK key to turn its LED to red.
2. Select one parameter and change its value.
3. Turn the EDIT DIAL and select the second parameter. Change this parameter value as well.
4. Spin the EDIT DIAL quickly to instantly jump back to the first parameter.
5. Spinning the EDIT DIAL quickly jumps back to the second parameter, whether or not you changed the value of the first parameter again.

You can jump between the two parameters as often as you like by using the EDIT DIAL and the QUICK key in this way. This function is convenient when repeatedly editing two parameters.

## Other Editing Shortcuts

Reading this section is not absolutely necessary to understanding the basic operation of the 9010. However, once you get accustomed to using the instrument, reading through this section will help you use it more effectively.

1) Parameter values can be changed by turning the EDIT DIAL with your right hand while pressing the DIAL key with your left hand, after selecting the parameter to be edited. Take your hand from the DIAL key when you reach the desired value, then select the next parameter.

2) The selection of the effect module and the selection of the parameters within the module are performed in sequence in the Edit mode. When using the EDIT DIAL to select the desired effect module, but are slowed down by the dial stepping through items one by one, you can use the EDIT DIAL's rapid operation mode to skip the display of parameters within the effect module and jump directly to the selection of effect modules.

3) As in suggestion #2 above, when selecting the effect module, you can jump to the first effect of each group, or the THRU setting of the reverb/delay group, modulation group, and other effect groups by using the EDIT DIAL in the rapid operation mode. For a list of the effects in each group, refer to the Effect Module Types and Effect Programs chart on p.13 in the section, THE 9010 SYSTEM.

4) Also as in #2 above, when you change parameter values using the EDIT DIAL in the rapid operation mode, the display stops at selected intermediate points.

## Editing Routing Parameters

1. Select the Edit mode, make sure that the green DIAL LED is lit, then use the EDIT DIAL to scroll to the Routing parameters.

```
EDIT Routing Parameter
▶R01 Mix1 Lv1=100[%]
```

The Routing parameters are indicated by an "R" in the display just in front of the parameter number.

**Note:** Since the first Routing parameter is a pivot point in rapid operation, you can quickly jump to the Routing parameters by spinning the EDIT DIAL several times until you see the "R" in the LCD.

2. Select the Routing Parameter you wish to edit, press the DIAL key (the red LED will light), then turn the EDIT DIAL to set the value.

```
EDIT Routing Parameter
R01 Mix1 Lv1=▶100[%]
```

The arrow (▶) will move to the parameter value.

## Routing Parameters

### ROUTING 1

There are no Routing parameters in Routing 1.

### ROUTING 2

Routing 2 employs a built-in mixer for routing of the signals. The following mixer settings make up the Routing parameters of Routing 2.

#### Mixer

Output control over the input signals in Type A and Type B effects is handled through four parameters: Mix Lvl, Mix Pan, Send Lvl and Send Pan.

The mixer has a built-in delay system that allows you to delay the input signals by up to 99 msec. This built-in delay gives the 9010 even more versatility than is possible with just a send level control. For example, panning and delay can be used on a mono signal to create "fake" stereo with the Haas effect (phase reversal panning), or independent pre-delays can be applied to each input channel when using reverb with the Type C effect.

### Mixer Parameter Table

	A Type EFFECT	B Type EFFECT
Mix Lvl	0 - 100 (%)	(same as A)
Mix Pan	L100 - C - R100	"
Send Lvl	0 - 100 (%)	"
Send Pan	L100 - C - R100	"
DELAY		
Mix Dly	0 - 99ms	"
MdlyLR	L + 99 - 0 - R + 99	"
Send Dly	0 - 99ms	"
SdlyLR	L + 99 - 0 - R + 99	"

**Note:** The Type B Routing parameter values are the same as those for Type A.

#### Mix1 Lvl ~ Mix4 Lvl (Mix Level)

Determines the mixer output level for each of the four output channels.

#### Mix1 Pan ~ Mix4 Pan

Determines the stereo position of each signal in the mixer's Mix outputs.

#### Mix1 Dly ~ Mix4 Dly (Mix Delay)

Determines the delay time applied to each of the mix out signals.

#### MdlyLR1 ~ MdlyLR4 (Mix Delay L/R)

Determines how much each mix output signal will be given an additional delay. The delay is applied relative to the stereo position of the signal.

At a value of 0, the delay time for both the left and right signals is the same as that set in the Mix Dly parameter. When left signal values (with the L prefix) are set, the total delay time of the left channel output equals the Mix Delay value plus the value set here. The right channel delay remains at the Mix Delay setting.

When right signal values (with the R prefix) are set, the total delay time of the right channel output equals the Mix Delay value plus the value set here. The left channel delay remains at the Mix Delay setting.

**Note:** By applying a slight delay to either the left or right signal, an effect known as the Haas Effect can be reproduced. This slight delay is not perceived by the ears as an echo; instead it enhances the overall stereo separation and gives each channel greater stability. In effect, it simulates the delay that occurs when a sound source coming to one's ears from an angle (for example, 60° to the left): the sound reaches the right ear slightly after reaching the left.

**Send1 Lvl ~ Send4 Lvl (Send Level)**  
Determines the send output level of each signal.

**Send1 Pan ~ Send4 Pan**  
Determines the left/right position of each signal in the send stereo output.

**Send1 Dly ~ Send4 Dly (Send Delay)**  
Determines the delay time applied to the send out signals.

**SdlyLR1 ~ SdlyLR4 (Send Delay L/R)**  
Determines how much each send output signal will be given an additional delay. The delay is applied relative to the stereo position of the signal.

At a value of 0, the delay time for both the left and right signals is the same as that set in the Send Dly parameter. When left signal values (with the L prefix) are set, the total delay time of the left channel output equals the Send Delay value plus the value set here. The right channel delay remains at the Send Delay setting.

When right signal values (with the R prefix) are set, the total delay time of the right channel output equals the Send Delay value plus the the value set here. The left channel delay remains at the Send Delay setting.

## ROUTING 3

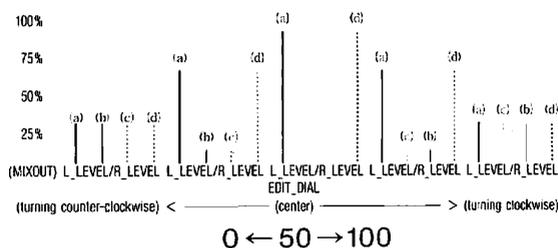
The following mixer settings make up the Routing parameters of Routing 3.

### Mixer

The left and right input signals of the Type C effect can be assigned freely to the mixer outputs.

### Setting the Mixer Output Level

The individual mix out L/R signal levels can be adjusted as shown in the chart below by using the EDIT DIAL as a panpot control in the parameter setting mode.



EDIT Routing Parameter  
▶ R01 Out Assign = 50

EDIT Routing Parameter  
R01 Out Assign =▶ 100

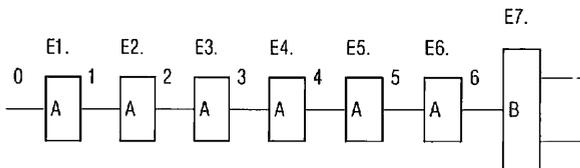
This sets the assignment of the left (CH 1) and right (CH 2) outputs of the built-in mixer.

In this situation, the EDIT DIAL effectively functions as a panpot control.

Normally, this parameter should be set to 100%. If the same effect program is used for both E1 and E2, the two effect modules can be used as a single stereo in/stereo out effect by setting this parameter to 50%. Setting the parameter to 0% in the above situation causes E1 and E2 to function as independent mono effects, with the signals output separately from the left and right channels.

## ROUTING 4

This Routing has special external in/out routing systems for connection of an external effect device.



Any of the positions indicated by 0~6 in the above chart can be selected as insert points for the external routing. If both EXT 1 and EXT 2 are set to the same position, EXT 1 automatically precedes EXT 2 in the signal path.

Setting the insert point for the external effect:

EDIT Routing Parameter  
 ▶ R01 Ex Efx1=E1>>E2

The following Routing parameters are used to select the external routing:

- R01 Ex Efx1: This selects EXT 1.
- R02 Ex Efx2: This selects EXT 2.

Press the DIAL key, check that the LED changes from green to red, then set the parameter value by using the EDIT DIAL.

EDIT Routing Parameter  
 R01 Ex Efx1=▶E1>>E2

The following parameter values can be selected:

- OFF: External effect routing is cancelled.
- IN >> E1: Between the input and effect module E1.
- E1 >> E2: Between effect modules E1 and E2.
- E2 >> E3: Between effect modules E2 and E3.
- E4 >> E5: Between effect modules E4 and E5.
- E5 >> E6: Between effect modules E5 and E6.
- E6 >> E7: Between effect modules E6 and E7.

**Note:** When any insert point setting (except OFF) has been selected, the signal path is interrupted at that point. Because of this, no sound will be output from the 9010 unless an effect device is connected (or the EXT IN and OUT points are directly connected). Also, if this parameter is set to OFF, the signal to an external effect device will be cut off even when the device is connected. When using this Routing and its external effect function, be sure to: 1) connect effect devices to the routings, and 2) set the parameter to some value besides OFF.

## Real-time Modulation of Effect Parameters

The 9010 lets you control effect parameters in real time by connected pedals and MIDI controllers.

Some of the applications include using a pedal to increase or decrease the modulation depth of a chorus effect, or sweeping the low pass frequency of an equalizer program by moving a pitch bend wheel on a synthesizer, or making the reverb time become progressively longer when you play higher notes on a MIDI keyboard.

## Pedal Real-time Modulation

To use the pedal for effect modulation:

1. Select the effect parameter you wish to control in the Edit mode.

```
EDIT E1 CHORUS
▶ P01 Mod. Depth = 50
```

Here, for example, the Modulation Depth parameter of the Chorus program has been selected.

2. Hold down the ALT key and press either INPUT/FUNCTION key 1 or 2 to select the modulation source (Pedal 1 or 2).

```
Alternate Functions
[MOD1] [MOD2] [ ] [ ]
```

Up to two modulation sources can be set to control one parameter. In Pedal Real-time Modulation, selecting MOD 1 assigns Pedal 1 to the parameter and MOD 2 assigns Pedal 2.

If Pedal 1 has been selected, the following display will appear:

```
MOD1 Real time Mod.
▶ PEDAL 1 = 0%
```

This display indicates the modulation sensitivity of the source.

3. Press the DIAL key (the red LED will light) to move the arrow to the parameter value. Use the EDIT DIAL to change the value.

```
MOD1 Real time Mod.
PEDAL 1 = ▶ 0%
```

The range of modulation sensitivity is from -100% to +100%. Positive values allow you to increase the effect's parameter value by depressing the pedal; negative values decrease the parameter value when the pedal is depressed. Pedal Real-time Modulation is cancelled at 0%.

The following example demonstrates the relationship of the sensitivity parameter to effect control. When the delay time of a program is set to 100 ms and the modulation sensitivity is set to 100%, depressing the pedal all the way will increase the delay time by 100%, or to 200 ms. If the modulation sensitivity is set to 50%, the maximum pedal setting will increase the delay time by 50%, or to 150 ms. Negative values decrease the effect parameter value by the same amount, provided there is allowance in the parameter for such a decrease.

Pedal Real-time Modulation of the effect only affects the parameter temporarily; the original parameter settings remain and are recalled when the effect program is selected again.

Press the EXIT key to return operation to the Effect Parameter mode. The parameters which have been set for Real-time Modulation (either Pedal or MIDI) will be indicated with an M1 or M2 in the lower left corner of the LCD, just in front of the parameter number.

```
EDIT E1 CHORUS
M▶ P01 Mod. Depth = 50
```

**Note:** A maximum of two parameters of a single effect can be set for real time modulation; one by pedal, the other by MIDI.

**Note:** Most commercially available volume pedals for guitars (of over 100 k-ohms) can be used to control the Pedal Real-time Modulation functions of the 9010.

## MIDI Real-time Modulation

Generally, the method for assigning MIDI controls to Real-time Modulation is the same as that for pedals:

1. Select the effect parameter you wish to control in the Edit mode.
2. Hold down the ALT key and press either INPUT/FUNCTION key 1 or 2 to select the modulation source. (Up to two different MIDI control sources can be assigned to a single parameter.)

In MIDI, however, after the modulation source has been selected, the following LCD will appear:

MOD1 Real time Mod. ▶ Ctrl Chage 01 = 0%
---

Select the MIDI controller that you wish to use by turning the EDIT DIAL. Available controllers are listed below. Refer to the owner's manual of your specific MIDI instrument for more information about MIDI controllers.

- 1) Bender (pitch bend)
- 2) After touch
- 3) Control change numbers 1~5, 7~31, and 64~95.

3. Press the DIAL key (the red LED will light) to move the arrow to the sensitivity parameter value. Use the EDIT DIAL to change the value. The parameter range is from -100% to +100% (Refer to the Pedal Real-time Modulation section above for information about the sensitivity parameter.)

MIDI modulation of the effect only affects the parameter temporarily; the original parameter settings remain and are recalled when the effect program is selected again.

Press the EXIT key to return operation to the Effect Parameter mode. As with Pedal Real-time Modulation, the parameters which have been set for MIDI Real-time Modulation are indicated with an M1 or M2 in the lower left corner of the LCD, just in front of the parameter number.

EDIT E1 CHORUS M▶ P01 Mod. Depth = 50
--

**Note:** A maximum of two parameters of a single effect can be set for real time modulation; one by pedal, the other by MIDI.

# Specifications

<b>Electrical Characteristics</b>	<b>Frequency Response</b>	16 Hz ~ 20 kHz		
	<b>Dynamic Range</b>	over 90 dB		
	<b>Input</b>	<b>Number of Channels</b>	<b>Front</b>	1 unbalanced (Hi-Z input)
			<b>Rear</b>	4 balanced (CH 1 can be mixed with front panel input)
	<b>Hi-Z Input Level</b>	-10 dBm ~ -40 dBm, adjustable		
	<b>Input Impedance</b>	<b>Front</b>	470 k $\Omega$ (Hi-Z input)	
		<b>Rear</b>	+4 dBm, 10 k $\Omega$ / -20 dBm, 10 k $\Omega$	
	<b>Connectors</b>	Standard 1/4" phone jacks		
	<b>Output</b>	<b>Number of Channels</b>	4 unbalanced	
		<b>Output Impedance</b>	+4 dBm, 300 $\Omega$ / -20 dBm, 300 $\Omega$	
<b>Connectors</b>		Standard 1/4" phone jacks		
<b>AD/DA Conversion</b>	<b>A/D Conversion</b>	16-bit linear		
	<b>D/A Conversion</b>	16-bit linear (with 4 times over-sampling filter)		
	<b>Sampling Frequency</b>	44.1 kHz		
<b>Memory</b>	<b>Preset Programs</b>	60		
	<b>User Programs</b>	60 (can be increased by RAM card)		
	<b>Routings</b>	4 (can be increased by ROM card)		
<b>Effects</b>	<b>A Type (15 programs)</b>	Reverb A, E/R A, Echo A, Chorus A, Flanger A, Phaser A, Pitch Shifter A, Auto Wah, Equalizer A, Enhancer, Noise Gate, Distortion, Amp Simulator, Compressor, Limiter		
	<b>B Type (13 programs)</b>	Reverb 1 B, Reverb 2 B, E/R 1 B, E/R 2 B, Gate Reverb, Echo B, Chorus B, Bend Chorus, Flanger B, Phaser B, Pitch Shifter B, Tremolo, Equalizer B		
	<b>C Type (10 programs)</b>	Chorus C, Flanger C, Phaser C, Pitch Shifter C, Equalizer C, Echo C, Reverb 1 C, Reverb 2 C, E/R 1 C, E/R 2 C		
	<b>D Type (2 programs)</b>	Reverb D, Multi Chorus		
<b>FRONT PANEL</b>	<b>Switch</b>	POWER		
	<b>Keys</b>	INPUT/FUNCTION (1, 2, 3, 4), ALT, QUICK, MODE, DIAL, STORE, BYPASS, EXIT, EXECUTE		
	<b>Dials</b>	EDIT DIAL, Hi-Z INPUT LEVEL		
	<b>LEDs</b>	Patch number (7 segments $\times$ 2)		
		Group number (7 segments $\times$ 1)		
	<b>LCD</b>	24 characters $\times$ 2 rows (backlit)		
	<b>Indicator LEDs</b>	PEAK $\times$ 4, ALT, QUICK, DIAL, STORE, BYPASS, CARD, USER		
<b>Terminals</b>	Hi-Z input, CARD slot			
<b>REAR PANEL</b>	<b>Switches</b>	Input level switch $\times$ 2, Output level switch $\times$ 2		
	<b>Dial</b>	LCD contrast		
	<b>Terminals</b>	INPUT (1, 2, 3, 4), OUTPUT (1, 2, 3, 4), MIDI IN, MIDI OUT, PEDAL/SW (1, 2), REMOTE		
	<b>Power Supply</b>	AC 50/60 Hz		
<b>OTHERS</b>	<b>Power Consumption</b>	25 W		
	<b>Dimensions</b>	482 (W) $\times$ 340.5 (D) $\times$ 44 (H) mm (19" $\times$ 13-3/8" $\times$ 1-3/4")		
		EIA 19-inch 1 RACK UNIT		
<b>Weight</b>	4.5 kg (9 lbs., 14 oz.)			

※Functions and specifications are subject to change without notice.

## 1. TRANSMITTED DATA

These messages are transmitted only while MIDI Thru function is turned off by panel.

## 1) CHANNEL VOICE MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION
1011 nnnn	0000 0000	0hhh hhhh	CONTROL CHANGE MSB of Bank Select hhh hhhh : MSB of Bank No. (See Note 1)
	0010 0000	0111 1111	LSB of Bank Select 111 1111 : LSB of Bank No. (See Note 1)
1100 nnnn	0ppp pppp	---- ----	PROGRAM CHANGE ppp pppp : Program Number (See Note 2)

NOTE: nnnn = MIDI Channel Number ( 0000 - 1111 )

## 1. Assignment of Bank No. ;

- 0000H - Internal Memory
- 0001H - Card System 1
- 0002H - Card System 2
- 0003H - Card System 3
- 3FFFH - Preset Patches

## 2. Transmitted Program No. is as same as Patch No. appeared on panel LED (actually, appeared No. - 1).

## 2. RECOGNIZED DATA

These messages are recognized even MIDI Thru function is turned on.

## 1) CHANNEL VOICE MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION
1011 nnnn	0ccc cccc	0vvv vvvv	CONTROL CHANGE ccc cccc : Control No. (0-5, 7-31, 64-95) vvv vvvv : Effect Parameter Control Value (See NOTE 1)

	0000 0111	0vvv vvvv	Fader Level
	0000 1010	0vvv vvvv	PanPot
			vvv vvvv : Fader/PanPot Value (See NOTE 3)
	0101 1011	0vvv vvvv	Bypass
			vvv vvvv : Bypass ON/OFF (See NOTE 5)
	0000 0000	0hhh hhhh	MSB of Bank Select
			hhh hhhh : MSB of Bank No. (See Note 4)
	0010 0000	0111 1111	LSB of Bank Select
			111 1111 : LSB of Bank No. (See Note 4)
1100 nnnn	0ppp pppp	---- ----	PROGRAM CHANGE
			ppp pppp : Program Number (See NOTE 2)
1101 nnnn	0vvv vvvv	---- ----	CHANNEL PRESSURE/AFTER TOUCH
			vvv vvvv : Effect Paramter Control Value (See NOTE 1)
1110 nnnn	0vvv vvvv	0xxx xxxx	PITCH BENDER CHANGE
			vvv vvvv : Effect Parameter Control Value xxx xxxx will be ignored (See NOTE 1)

NOTE: nnnn = MIDI Channel Number ( 0000 - 1111 )

1. CONTROL CHANGE or CHANNEL PRESSURE or PITCH BENDER message is recognized only when the control number is matched with Control numbers selected by panel.  
Assignment of Channels can be set to respond to BASIC channel or incremental; Channel 1 is assigned for Effect Modules 1, 2 is for 2, 3 is for 3, ....
2. Relationship between MIDI Program No. and Patch No. is programable.  
Recognized program number is ignored if the program number is not assigned any Patches. Also see Note 4.

3. Number of parameters depends on the effect (also Routing). Parameter No. 0 is used to select the Effect. Therefore the Effect Parameter No. is started from 1. Patch Name and Routing Parameters are started from 0.  
 When the incoming number is out of range, it will be ignored.

NRPN		Effect Module	Parameter
MSB	LSB		
0	0	0	Effect Select
	1		Effect Parameter P01
	2		Effect Parameter P02
-----			
1	0	1	Effect Select
	1		Effect Parameter P01
-----			
7E	0	Patch Name	Patch Name 1st character
	1		Patch Name 2nd character
	:		:
	0F		Patch Name 16th character
-----			
7F	0	Routing Parameter	Routing Parameter R01
	1		Routing Parameter R02

2) NRPN

STATUS	SECOND	THIRD	DESCRIPTION
1011 nnnn	0000 0110	0hhh hhhh	MSB of DATA ENTRY hhh hhhh : Parameter value of MSB (See Note 1)
1011 nnnn	0010 0110	0111 1111	LSB of DATA ENTRY 111 1111 : Parameter Value of LSB (See Note 1)
1011 nnnn	0110 0000	0xxx xxxx	DATA INCREMENT xxx xxxx will be ignored
1011 nnnn	0110 0001	0xxx xxxx	DATA DECREMENT xxx xxxx will be ignored
1011 nnnn	0110 0010	0ppp pppp	LSB of NRPN ppp pppp : Parameter No. (See Note 3)
1011 nnnn	0110 0011	0mmm mmmm	MSB of NRPN mmm mmmm : Effect Module No. (See Note 2)

NOTE: Recognized while Rx MIDI EDIT is turned on.

1. Field definition of parameter value depends on the parameter of the effect. Some parameters have signed value, and others have unsigned value. Also range of the value depends on the parameter of the effect. When the incoming value is out of range, it will be clipped.

example)                    hhhhhhhlllllll = 3fff(Hex)  
                              signed value   -> -8192  
                              unsigned value -> +16383

2. Number of modules is defined by Routing. And specific number[7e(Hex)] is defined for Patch Name, and the number[7f(Hex)] is defined for Routing parameters. When the incoming number is out of range, it will be ignored.
3. If the Routing 2 is selected, these Messages are recognized to control Routing Parameters.

Faders and PanPots are assigned to each effect modules( E1 - E4 ) by MIDI Channels.

The MIDI Channel Settings are following;

Fader/PanPot	to
channel 1	E1 Mix Level / Pan
channel 2	E2 Mix Level / Pan
channel 3	E3 Mix Level / Pan
channel 4	E4 Mix Level / Pan
channel 5	E1 Send Level / Pan
channel 6	E2 Send Level / Pan
channel 7	E3 Send Level / Pan
channel 8	E4 Send Level / Pan

Value vvvvvvv for Fader is 0:min, 127:max.

Value vvvvvvv for PanPot is ;

Left <-	Center	-> Right
0	64	127

4. Assignment of Bank No. ;  
0000H - Internal Memory  
0001H - Card System 1  
0002H - Card System 2  
0003H - Card System 3  
3FFFH - Preset Patches

Program Changes will be done in current Bank which is selected by last Bank Select Message from MIDI.

5. Bypass function is always recognized in BASIC Channel.  
Value vvvvvvv is 0, Bypass is turned off.  
Value vvvvvvv is 127, Bypass is turned on.

## 3. SYSTEM EXCLUSIVE MESSAGE

Transmissible Exclusive messages are also transmitted only while MIDI Thru function is turned off.

Those following messages are recognized if RxSysEx is turned on by panel, and also transmitted if TxSysEx is turned on by panel.

## 1) Identity Request

BYTE	DESCRIPTION
1111 0000	Exclusive Status
0111 1110	Universal System Exclusive Non-Real Time Header
0nnn nnnn	Channel            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0000 0110	General Information (Sub-ID #1)
0000 0001	Identity Request    (Sub-ID #2)
1111 0111	EOX

NOTE: Recognized only.

1. When this message is received with channel No. 7fh, it should be recognized with any channel. Then, Identity Reply Message is transmitted with Basic Channel. (rule of Universal System Exclusive Message Communication)

## 2) Identity Reply

BYTE	DESCRIPTION
1111 0000	Exclusive Status
0111 1110	Universal System Exclusive Non-Real Time Header
0nnn nnnn	Channel            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0000 0110	General Information (Sub-ID #1)
0000 0010	Identity Reply      (Sub-ID #2)
0101 0010	ZOOM ID    52H

```

0000 0001  DEVICE ID  01H (ZOOM 9010)

0000 0000  Reserved of MSB of device code

0000 0000  Reserved of MSB of device code

0000 0000  Reserved of MSB of device code

0011 ssss  1st digit of Software Revision No.   '0' - '9'

0011 ssss  10th digit of Software Revision No.  '0' - "9'

0011 ssss  100th digit of Software Revision No. '0' - '9'

0011 ssss  1000th digit of Software Revision No. '0' - '9'

1111 0111  EOX

```

NOTE: Transmitted when Identity Request Message is recognized.  
 Software revision No. is 4-digits ASCII characters.

### 3)Patch Dump

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID            ddd dddd : device No. 01H (ZOOM 9010)
0010 0001	FUNCTION ID        21H : Patch Dump
0vvv vvvv	Patch Data in Edit Buffer (147 bytes)
0vvv vvvv	
1111 0111	EOX

NOTE: 7-8 Conversion technique is used while Patch Data is transmitted.

1. When this message is received with channel No. 7fh, it should be recognized with any channel.

## 4) Patch Dump Request

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID           ddd dddd : device No. 01H (ZOOM 9010)
0001 0001	FUNCTION ID        11H : Patch Dump Request
1111 0111	EOX

NOTE: Recognized only.

When this message is recognized, Patch Dump Message will be transmitted.

1. When this message is received with channel No. 7fh, it should be recognized with any channel. Then, Patch Dump Message is transmitted with Basic Channel.

## 5) Write Request

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID           ddd dddd : device No. 01H (ZOOM 9010)
0001 0010	FUNCTION ID        12H : Write Request
0ppp pppp	PATCH No.           ppp pppp : 0 - 59
1111 0111	EOX

NOTE: Recognized only.

When this message is recognized, 9010 stores the Patch in current Edit Buffer into Patch memory #<PATCH No.> in internal bank memory.

1. When this message is received with channel No. 7fh, it should be recognized with any channel.

## 6)Write Completed

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID          ddd dddd : device No. 01H (ZOOM 9010)
0001 0100	FUNCTION ID        14H : Write Completed
1111 0111	EOX

NOTE: When Write operation is completed from Write Request Message, this message is transmitted.

## 7)All Patches Dump

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID          ddd dddd : device No. 01H (ZOOM 9010)
0010 0010	FUNCTION ID        22H : All Patches Dump
0vvv vvvv : 0vvv vvvv	whole of Patch Data in internal Bank Memory
1111 0111	EOX

NOTE: 7-8 Conversion technique is used while Patch Data is transmitted.

1. When this message is received with channel No. 7fh, it should be recognized with any channel.

## 8) All Patch Dump Request

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID           ddd dddd : device No. 01H (ZOOM 9010)
0001 0011	FUNCTION ID        13H : All Patch Dump Request
1111 0111	EOX

NOTE: Recognized only.

When this message is recognized, All Patch Dump Message will be Transmitted.

1. When this message is received with channel No. 7fh, it should be recognized with any channel. Then, All Patch Dump Message is transmitted with Basic Channel.

## 9) Dump Processed

BYTE	DESCRIPTION
1111 0000	EXCLUSIVE STATUS
0101 0010	ZOOM ID            52H
0nnn nnnn	CHANNEL            nnn nnnn : channel 00H-0FH or 7FH (See NOTE 1)
0ddd dddd	DEVICE ID           ddd dddd : device No. 01H (ZOOM 9010)
0001 0101	FUNCTION ID        15H : Dump Processed
1111 0111	EOX

NOTE: When transmitted Patch Dump or All Patch Dump is processed successfully, this message is transmitted.

## \* 8-7 Conversion

To transmit 8bit-byte data in MIDI SysEx, any data byte should be 7bit-byte data.

First, strip out bit7(MSB) from source 7 bytes of datas, and built 1 byte data attaching MSB=0. Then, send this byte first, and send 1st - 7th data without MSB. These 8 bytes are combined to 1 block.

If stream of data is less than 7 bytes, stream bytes + 1 will be a size of the block.

AAAAaaaa BBBBbbbb CCCcCCC DDDDDddd EEEEEeee FFFFffff GGGGgggg

↓

0GFEDCBA 0AAAAaaa 0BBBBbbb 0CCCcccc 0DDDDddd 0EEEEeee 0FFFffff 0GGGgggg

AAAAaaaa BBBBbbbb CCCcCCC

↓

00000CBA 0AAAAaaa 0BBBBbbb 0CCCcccc

[ Multi Effector ]  
 Model 9010 MIDI Implimentation Chart

Date : 26.NOV.1990  
 Version : 1.00

Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode Default Messages Altered	3 x *****	3 x x	
Note Number   True voice	x *****	0 - 127	
Velocity Note ON Note OFF	x x	x x	
After Key's Touch Ch's	x x	x o	*1
Pitch Bender	x	o	*1
Control Change	o  0, 32	o 1-5, 7-31, 64-90 92-95  6, 38, 96-99 91 0, 32	Parameter Control *1  NRPN Bypass Bank Select
Prog Change   True #	o 0 - 127 *****	o 0 - 127	
System Exclusive	o	o	
System   Song Pos   Song Sel Common   Tune	x x x	x x x	
System   Clock Real Time   Commands	x x	x x	
Aux   Local ON/OFF   All Notes OFF Mes-   Active Sense sages   Reset	x x x x	x x x x	
Notes	*1 Message(s) which controls Effect Parameter can be selected.		

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

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

o : Yes  
 x : No



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