

 **Digitech**

**GUITAR
SIGNAL
PROCESSOR**

GSP-21 PRO

OWNER'S MANUAL

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EXPLANATION OF GRAPHICAL SYMBOLS

IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owners manual.

These symbols warn that there are no user serviceable parts inside the unit, and that there are hazardous voltages present within the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel.

INTRODUCTION

DigiTech's versatile GSP-21 PRO is the last word in guitar signal processors. It's the only one with a choice of 23 different effects, and up to 10 of those effects can be played at the same time. Using the full-function foot controller provided with the GSP-21 PRO, it is possible to switch effects, patches and parameters while you play, without taking your hands off your instrument.

The GSP-21 PRO provides ten digitally-controlled analog effects:

- * Compression
- * Rock tube Distortion
- * Metal tube Distortion
- * Over-drive Distortion
- * Heavy Sustain Distortion
- * 7-band graphic Equalizer
- * Enhancer
- * Noise gate
- * Programmable Effects Loop
- * Speaker simulation

There are also fourteen digital effects and functions:

- * Stereo Chorus
- * Stereo Flanger
- * Stereo Delay
- * Ping-pong Delay
- * Slapback Delay
- * Multi-tap Delay
- * Large / Small Room Reverb
- * Hall Reverb
- * Gated Reverb
- * Reverse Reverb
- * Ultimate Reverb
- * Comb Filter
- * Digital Sub-mixer and Final Mixer
- * Stereo Imaging

DigiTech's own HISC 20-bit VLSI engine produces non-stop dynamic sound effects with maximum frequency response. It all adds up to the world's most advanced guitar signal processor—the GSP-21 PRO.



SAFETY PRECAUTIONS

Use only standard AC voltage. Unprotected dangerous voltages are present within the product enclosure. Opening the chassis for any reason will void the manufacturer's warranty.

QUICK-START

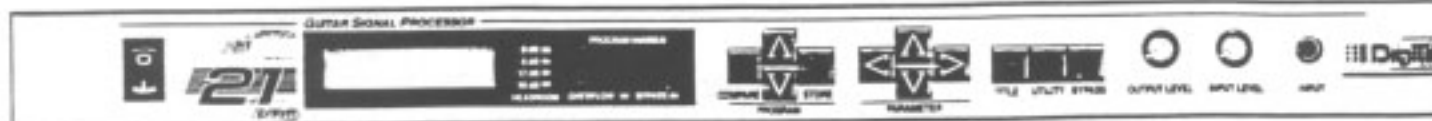
For best performance from the GSP-21 PRO, follow the instructions below. See "Making Connections" (page 7) and related section for detailed instructions.

- INSTALL** Mount the GSP-21 PRO in a rack with the provided screws. Rubber feet have also been affixed to the unit for free-standing use.
- APPLY POWER** Route the power cord away from audio lines to prevent interference.
- CONNECT CABLES** Connect audio input and output cables to the rear jacks. Either balanced (tip-ring-sleeve) or unbalanced (tip-sleeve) cables may be used. The rear-panel headphone jack permits using the GSP-21 PRO without an amplifier. See "Making Connections" (page 7).
- CONNECT FOOT CONTROLLER** Plug in the provided foot controller to the rear jack. See "Foot Controller" (page 31).
- ADJUST INPUT** Turn on the GSP-21 PRO. Set the instrument, amp, and/or mixer to loudest operation that will be used. Adjust the GSP-21 PRO input level until the red headroom LED comes on occasionally.
- ADJUST OUTPUT** Set the GSP-21 PRO output level to the desired volume.
- EFFECTS LOOPS** Connect any external effects devices to the GSP-21 PRO effects send and return jacks. NOTE: external devices must be unity gain such as the DigiTech IPS-33B Intelligent Harmony Machine. See "External Effects Loops" (Page 8, 34)
- CONNECT MIDI CONTROLLER** Plug in a MIDI controller, sequencer or synthesizer to the rear MIDI IN jack, if desired. See "Utility Menu" (page 21).
- SELECT PROGRAM** Start playing your guitar and choose any preset program or user-defined program by using the UP and DOWN PROGRAM buttons. Presets 1 - 64 have been programmed by a group of great rock guitar players. See the Factory Preset Program sheet on page 48 - 49 and check out some of their sounds.



Do not get the GSP-21 PRO wet. If liquid is spilled on the unit shut it off immediately and take it to a dealer for service. Use of a surge protector is recommended to decrease chances of equipment damage from voltage surges or spikes. The GSP-21 PRO may also be damaged during electrical storms if connected to an AC outlet. Disconnect the equipment during storms to prevent damage.

FRONT PANEL



POWER Turns the GSP-21 PRO on and off. When turned on, the unit returns to the same program as when it was shut off.

DISPLAY MODE OPTION Press the COMPARE button when turning on, and the GSP-21 PRO goes into display mode. It will stay in this mode until any button is pressed.



LCD 16-character, two-line liquid crystal display shows the current program title, configuration, or effect and utility parameters.



HEADROOM Four LEDs display the input signal level. The best signal level is when the green LEDs light and the red LED peaks occasionally. See "Making Connections" (page 7).



OVERFLOW Single LED indicates too much internal gain, overloading the HISC processor. Turn down the programmable mix and effects levels.



BYPASS LED Single LED shows effects are muted and a dry input signal is being sent directly to the output.



PROGRAM NUMBER LED Three-digit Light Emitting Diode displays the selected program number.



COMPARE Compares current program being edited to the original program.



PROGRAM Increments and decrements program numbers. Wraps around from 1 to 192.



STORE Saves new effect configurations to a selected program number, and is used to copy to another preset location. See "Store" (page 11).



PARAMETER LEFT and RIGHT buttons select the next effects parameter, pull up the next utility function, or move to next title letter.

UP and DOWN buttons change effect parameter values, utility parameters, or title letter. See "Programming" (page 9) and "Utility Menu" (page 19).



TITLE Allows the name of the current program to be edited. See "Title" (page 12).



UTILITY Displays the utility menu on the LCD. Includes MIDI channel select, continuous controller links, MIDI mapping, program transmitting, footswitch programming, and restoring factory presets. See "Utility Menu" (page 19).



BYPASS BUTTON Shuts off effects and sends a dry signal direct to the output.



OUTPUT LEVEL Adjusts the output signal to the desired level. See "Making Connections" (page 7).

Individual effect output levels can also be programmed internally. See "Effects and Their Parameters" (page 14).



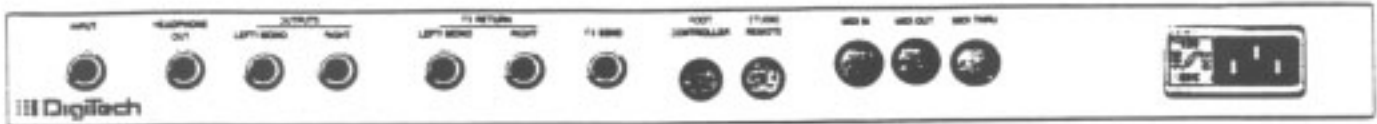
INPUT LEVEL Adjusts the strength of the received stereo or mono signal to an optimum level. See "Making Connections" (page 7).



INPUT JACK Standard 1/4-inch T-R-S jack for guitar or line-level signals. Rear INPUT is bypassed when front INPUT is used. See "Making Connections" (page 7).

INPUT

REAR PANEL



- INPUT JACK** Single $\frac{1}{4}$ -inch Tip-Ring-Sleeve (T-R-S) jack for balanced or unbalanced instrument or line signals. Mono input signal only.
- HEADPHONE JACK** $\frac{1}{4}$ -inch T-R-S jack for stereo headphones **ONLY**. Permits using the GSP-21 PRO without an amplifier. **WARNING: Plugging a mono plug into the headphone jack will damage the GSP-21 PRO.**
- EFFECTS SEND** $\frac{1}{4}$ -inch T-R-S jack to send signals from the GSP-21 PRO to external effects devices.
- Stereo EFFECTS RETURN** Two $\frac{1}{4}$ -inch T-R-S jacks to return signals from external effects devices to the GSP-21 PRO.
- OUTPUT JACKS** Two $\frac{1}{4}$ -inch T-R-S jacks for stereo output to amplifier or mixing console. Use the left (mono) jack for mono only, or a mix of both left and right for best mono sound.
- LEFT / MONO** **RIGHT**
- REMOTE JACK** Five-pin DIN jack to connect DigiTech's optional studio remote controller.
- FOOTSWITCH JACK** Six-pin DIN jack to connect the provided DigiTech foot controller. Pedal functions can be programmed. See "Utility Menu" (page 27).
- MIDI IN JACK** Five-pin DIN for standard MIDI cable. Receives MIDI control data. See "Utility Menu" (page 21).
- MIDI IN**
- MIDI OUT JACK** Five-pin DIN for standard MIDI cable. Sends MIDI control data. See "Utility Menu" (page 21).
- MIDI OUT**
- MIDI THRU JACK** Five-pin DIN for standard MIDI cable. Passes MIDI control data between devices. See "Utility Menu" (page 21).
- MIDI THRU**
- FUSE** Accessible from the rear panel. Use only the fuse value indicated on the rear panel.

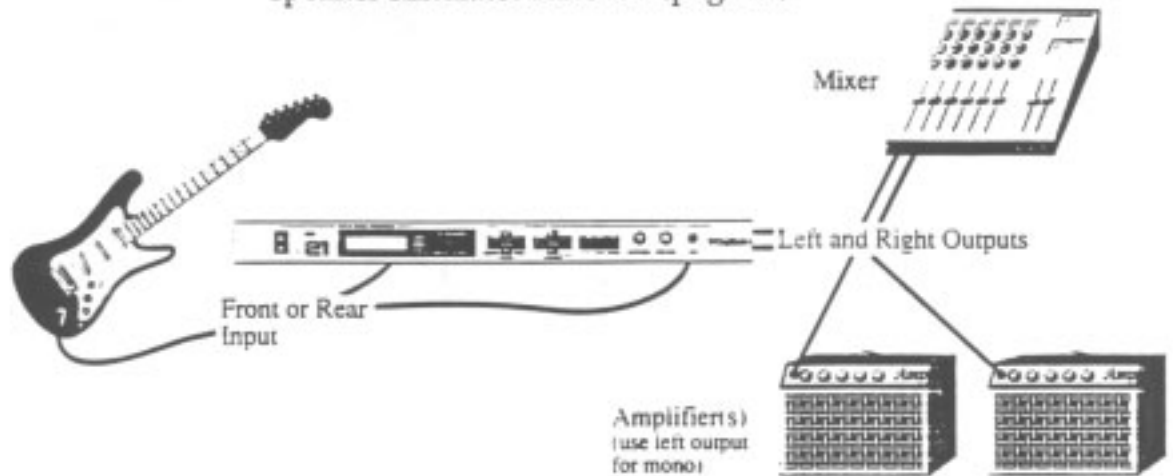


MAKING CONNECTIONS

The GSP-21 PRO creates the ultimate in stereo or mono sound effects from instruments or line signals.

DIRECT CONNECTIONS For direct connections, configure the instrument, GSP-21 PRO and amplifier as follows:

Mono In, Stereo Out Connect the instrument to the GSP-21 PRO front or rear input jack. Connect the left and right outputs to the amplifier or mixer inputs. To match the sound of any speaker or amplifier, use the speaker simulator function (page 20).

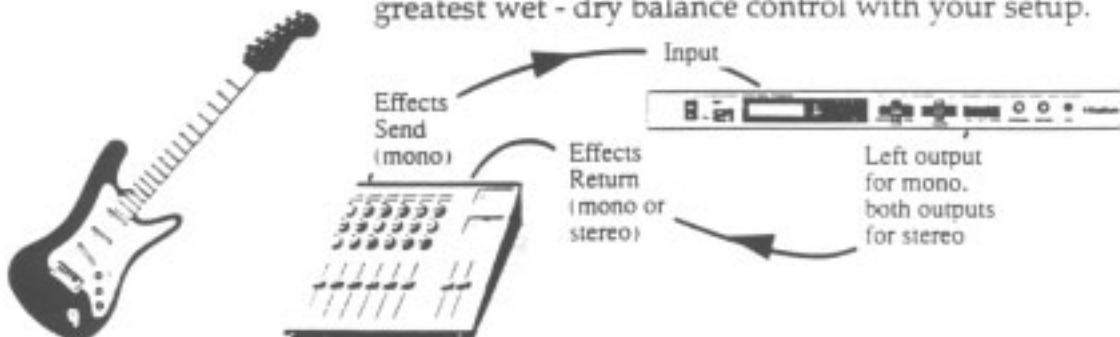


EXTERNAL EFFECTS LOOPS The GSP-21 PRO can be used in a loop-through with amplifiers, mixers, or consoles. Use the following configurations:

Using Mono Send & Return Connect the instrument to the mixer or amp input. Connect the mixer effects send to the GSP-21 PRO input, then from the GSP-21 PRO left output to the mixer effects return.

Using Auxiliary Output & Inputs (Mono to Stereo) Connect a mono mixer auxiliary output to the GSP-21 PRO input. Connect both GSP-21 PRO outputs to the mixer's input channels (auxiliary returns).

Numerous configurations can be made with multiple mixers and amps. Try experimenting with the connections to achieve the greatest wet - dry balance control with your setup.

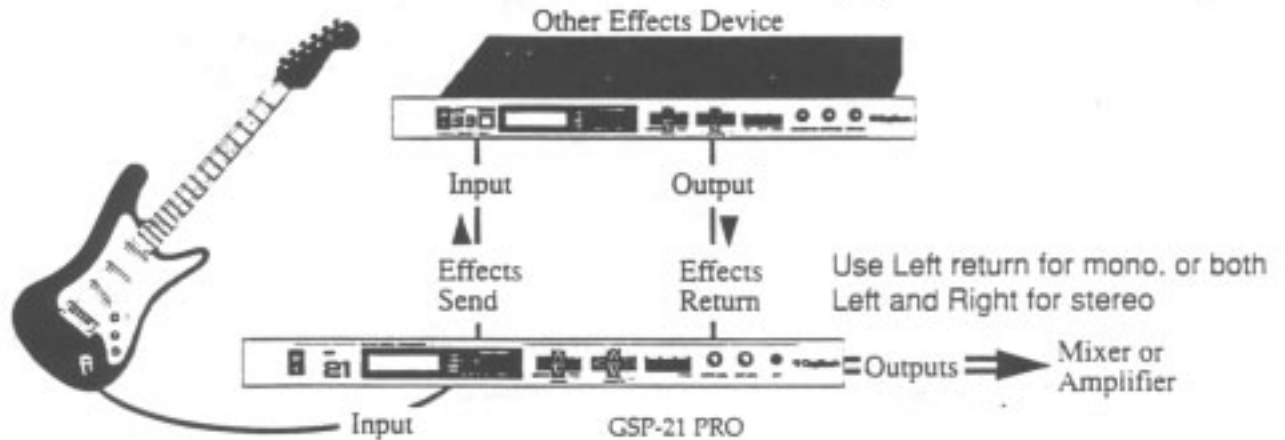


GSP-21 PRO EFFECTS LOOPS

With its own effects send and stereo return, the GSP-21 PRO can be set up to use other effects devices in a programmable effects loop.

Connect the instrument to the GSP-21 PRO input. Connect the GSP-21 PRO mono effects send to the external device, then back to the GSP-21 PRO mono or stereo effects return.

The effects send and return operate at line level only, so the external device must be set for unity gain at a line level output.



ADJUST INPUT AND OUTPUT



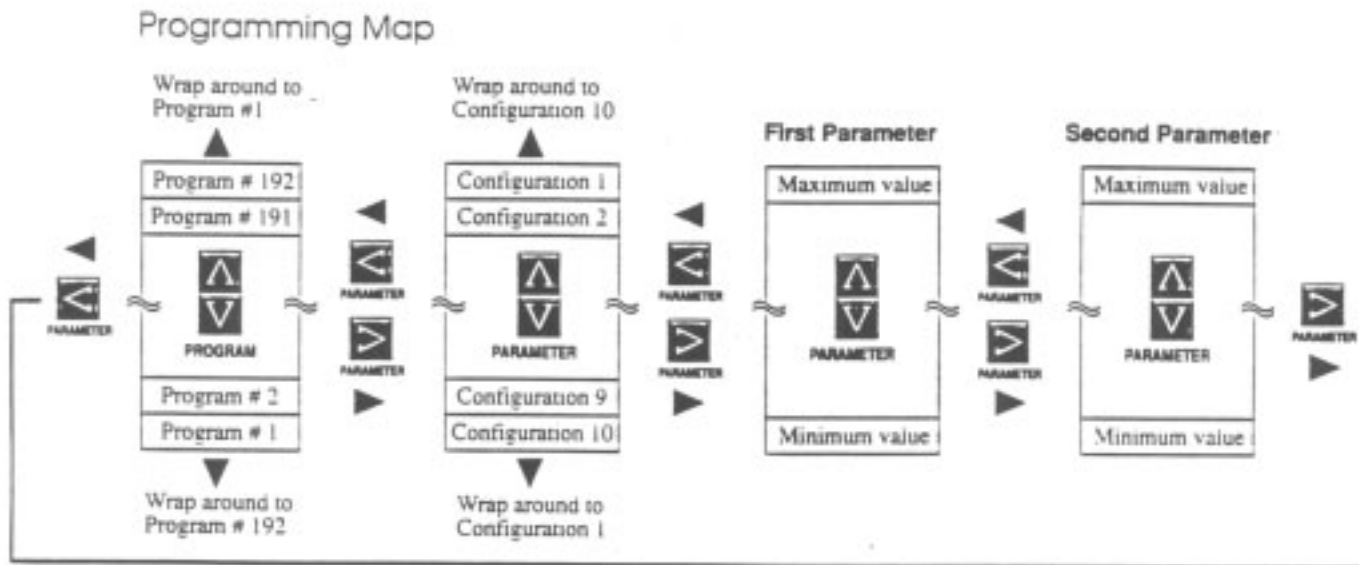
Input After connecting the GSP-21 PRO inputs and outputs, set the instrument, amp, and/or mixer to loudest operation that will be used. Adjust the GSP-21 PRO INPUT LEVEL so the red headroom LED only occasionally comes on. The red LED comes on just before the signal is clipped.



Output Turn up the OUTPUT LEVEL to the optimum level for the amplifier or mixer, being careful to avoid overload.

PROGRAMMING

SELECTING PROGRAMS While reading this section, you may refer to this Programming Map.



Press the up or down program buttons on the front panel to change programs. Program numbers will appear on the red program LED, and program names and configurations will appear on the LCD.

The program numbers will wrap around from program 1 to program 192 when using the PROGRAM DOWN button, and from 192 to 1 when using the PROGRAM UP button.

The first 64 slots (programs 1 through 64) can be user-programmed to create custom sounds or variations on the factory preset programs. When shipped from the factory, these slots contain copies of the preset programs.

DigiTech has provided 128 preset effects (programs 65 through 192) which represent a wide range of versatile configurations designed and named by a panel of rock stars, studio musicians and technicians.

CREATING PROGRAMS To customize a program, start by selecting one of the first 64 slots. Modify the preset as desired, change the name, then store it.

Metal Marshmello
Cmp Dst Ch 4TD

Notice the LCD display – the effects types that are available in this preset are shown, and those in capital letters are currently on, those with lower case letters are currently off.

Select a Preset Program Each program is unique with different effects and parameters. Choose any program and begin experimenting to create distinctive sounds.

Changing Parameters Press the LEFT or RIGHT PARAMETER buttons to select an effect parameter to be changed. The display will read:



Compresso. (example)
(On)

Parenthesis appear around the original effect parameters so they can be reset if a modified effect doesn't sound right. Each effect can also be bypassed. If bypassed, the effect's options will not be displayed.

Push the PARAMETER UP and DOWN buttons and the value of the selected parameter changes. Set the effect parameter to the desired value.

While adjusting the effect parameter value, play the instrument to hear what happens as the value is changed. The COMPARE button can also be used to see how the new parameters sound as compared to the original un-edited program. See "Compare" (page 12).

Changing Configurations A configuration consists of a pre-defined combination of effects. Changing the configuration can drastically change the sound.

Push the right button on the front panel and the display reads:

Cmp+ Dst+ EQ+ NG+ E+ (example)
L+ Ch+ 4TD+ Mx+ SS

The GSP-21 PRO is now in the editing mode, where new effects configurations can be selected and effect parameters changed. Use the up and down parameter buttons to choose a configuration.

See Appendix A: "Effect Configurations" (page 37).

Changing the Name After creating a new effect configuration, give it a name. Press the TITLE button and a cursor appears under the first character in the program title. Move the cursor through the title using the LEFT and RIGHT PARAMETER buttons. Change characters with the PARAMETER UP and DOWN buttons. Press the TITLE button again when finished. See "Title" (page 12).



Store After editing the effect parameters and changing the title, press STORE button to save the changes. The display will read:

Save Changes to
12

The current program number will be shown if a user slot (1-64) is being edited. The new program can be stored to a different number by pressing the PROGRAM UP or DOWN buttons.

If a preset slot (65 - 192) is being edited, the corresponding user slot number in the first bank (between 1 and 64) will be shown when the STORE button is pressed. This number can also be changed by pressing the PROGRAM UP or DOWN buttons.

Each user slot comes from the factory with a copy of the preset 1 slot higher. For example, user slot 12 is a copy of program 140.

To save to the displayed program number, press the STORE button again. The display will read:

.... Storing

Cancelling Store If the store button was accidentally pressed, do not press STORE again, but escape back to the editing mode by pressing the COMPARE button.

Aborting Changes If the program has been edited but not stored, the GSP-21 PRO will cancel the changes when the PROGRAM button is pushed. To prevent losing edited programs, the display will read:

To save changes
press (STORE)

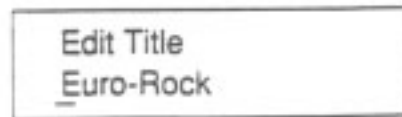
At this point there are three options:

1. Save the changes by pressing the STORE button.
2. Abort the changes by pressing the UP or DOWN PROGRAM buttons.
3. Escape from the warning display by pressing the COMPARE button. The display returns to the editing mode.

When new programs are stored, make photocopies of the "User Programs" chart (Appendix B) and write your programs down on the copies. This will help keep track of all the programs and sounds that are stored on the GSP-21 PRO.



Title Program titles can be changed by pressing the TITLE button. The display will read:



A cursor appears under the first character in the title. Move the cursor through the title using the LEFT and RIGHT PARAMETER buttons.

To change characters in the title name, press the UP or DOWN PARAMETER buttons. Up to 16 characters can be used in each name using the following letters and symbols:

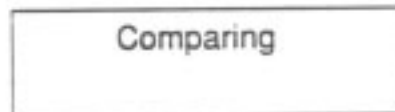
space ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789 ! " # \$ % & ' () * + , - . / :
left arrow, right arrow : < = > ? @ [] ^ _ ' { | }

After changing the title, press the TITLE button again. The GSP-21 PRO will return to the mode it was in before the title button was pressed. To save the title and the new program, press the STORE button.



Compare The COMPARE button is used while editing to contrast the new effect configuration against the original un-edited program.

While editing a program, push the COMPARE button. If nothing happens, no changes have been made to the program. If changes have been made, the display will read:



Play the instrument to hear the sound of the original program. Press the COMPARE button again and the display returns to the edited version to hear its sound and make changes.

Using the COMPARE button, toggle back and forth between the original program and the modified version, making changes until the sound is just right.

Press Compare to Escape The COMPARE button is also used as an escape button from the following modes:

1. When the STORE button is accidentally pushed, press COMPARE to escape back to editing mode.
2. When a wrong program number is pushed using the optional studio remote controller, press COMPARE to escape and start over.

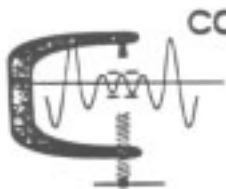
Bypass When the BYPASS button is pressed, all effects are shut off and a dry signal is relayed. This is great during performances, where effects can be turned on or off with the push of a button.



Press the BYPASS button again to toggle effects back on. See Foot Controller operation (page 31) for a description of the Footswitch Bypass action.

EFFECTS & THEIR PARAMETERS

The GSP-21 PRO is a highly-complex processor which converts analog signals (from your pickups) into digital code. Computer circuitry manipulates this digital code to create unlimited sound effects, then converts the output signal back to analog. Up to four digital effects can be used simultaneously.



COMPRESSION

Compression is an effect which adjusts the source's dynamic range (the difference between the loudest and quietest sounds). By compressing the range, notes can be sustained longer and the sound will be tighter.

Compression Bypass Enables and disables the compression

Compression Amount Varies the amount of compression. A low setting gives a full, natural-sounding dynamic range. A high setting provides a tight heavy metal sound.

Compression Level Varies the overall level from the compressor

DISTORTION EFFECTS

Rock Tube Emulates the warm, rich sound created by tube amplifiers.



Metal Tube Creates the heavy metal sound used by many popular groups.

Overdrive Similar to tube distortion with an added over-driven, high-gain punch.

Heavy Sustain The ultimate in crunchy sustain

DISTORTION PARAMETERS

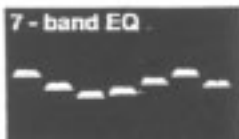
Distortion Bypass Enables and disables the distortion.

Distortion Type Selects between Rock Tube, Metal Tube, Overdrive and Heavy Sustain distortions.

Balls Controls the amount of gain (overdrive) of the distortion.

EQUALIZATION Equalization is used to compensate for frequency deficiencies and to control an instrument's tonal qualities.

EQ Bypass Enables and disables the equalizer.



The GSP-21 PRO provides a seven-band programmable equalizer. Each of the seven bands is adjustable in 1 dB steps from 12 dB of cut to 12 dB of boost.

MASTER VOLUME Controls the overall level of the GSP-21 PRO.



ENHANCER This effect enhances various parts of the signal so your playing can "cut through" better.

Enhancer amount Sets the amount of enhancing added to your signal.

NOISE GATE Gates, or shuts off, the output when the input signal falls below a certain level. Useful for eliminating random noises when you're not playing.

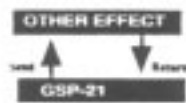
NOISE GATE PARAMETERS
Fixed/Adjustable

Sets the Noise Gate to either a fixed threshold setting or a variable type.



Gate Threshold

Sets the threshold (signal level) below which the noise gate "kicks in" and attenuates the signal. The lower the threshold is set, the longer a sustain will hold while fading out, but the more hum or finger noise from your guitar or other effects might get through while you're not playing.



EFFECTS LOOP

The GSP-21 PRO Effects loop allows you to add an external effect into the GSP-21 PRO effects chain. It operates in 4 different modes: Off, Inline, Summed, Inline + Summed. If nothing is plugged into the FX Send or Returns, the GSP-21 PRO ignores the FX loop. (Effects Loop, page 34)

MODULATION

Pitch is the vibration frequency of a tone. For example, a tone can be high- or low-pitched. The GSP-21 PRO has nine programmable pitch parameters. Pitch can be dynamically altered in two basic ways:



Chorus Simulates a chorus of instruments playing at different tones. Created by splitting the signal, detuning and using a long delay on one, then joining it with the original.



Flanging Classic sweeping "jet-airplane" effect originally produced by slowing tape reels by pressing against the flanges. The GSP-21 PRO creates flanging by splitting the signal, using feedback and small delay on one portion, then re-joining it with the original.

MODULATION PARAMETERS

Speed Low Frequency Oscillator (LFO) sweeping speed of the delay tap across the set delay time. Adjusts the amount of pitch shifting in both chorus and flange effects.

Depth Amount of LFO delay time travelled by the delay tap. Adjusts the depth of pitch alteration.

Chorus Level Relative internal level of the chorus effect, INPUT and OUTPUT.

LFO Waveform The LFO changes the delay time in a regular, repeating wave. Its waveform can be set to one of three shapes:

1. Sawtooth
2. Sine wave
3. Logarithmic

Flange Feedback Amount of flange effect fed back into the original signal. More feedback will give a sharper, more metallic flanging sound.

Flange Feedback Phase Feedback can be set to sum with positive or negative phase.

Flange DelayTime Time delay of the flange effect.

Flange Level Relative internal level of the flange effect.

An suggestion for a good flanging sound is
Delay = 10msec, Sweep Rate = .40 Hz, Depth 2.60 msec, Phase = Positive, Feedback = 70%, Flange Left and Right (in Mix section) both to 9, Dry Level to 9



DELAY Delay is the time between the original signal and an echo. There is an infinite repeat function, Repeat Hold, which can be activated by the Foot Controller. The GSP-21 PRO provides Delay and Multi-Tap Delay effects with five programmable delay parameters:

DELAY PARAMETERS

Delay Range Amount of delay time between echoes. Shortest delays provide a double or quick slap effect. Longer delays create an echo effect. There are three ranges:

- | | |
|----------------|-------------|
| 0 - 40 msec | 1 ms steps |
| 45 - 400 msec | 5 ms steps |
| 410 - 750 msec | 10 ms steps |

Delay Level Relative internal strength of the delay effect.

Feedback Amount of signal internally feedback in the delay. Feedback repeats the echo.



Repeat Hold Allows a button on the Foot Controller to hold and repeat an echo from when the button is pressed until it is pressed again.

Multi-Tap Delay Time Amount of time between multi-tap delay taps.

Multi-Tap Feedback Delay Delay time of the tap that is fed back in the multiple-delay effects.

Various effects can be produced within the following approximate delay time ranges:

Doubling	20 to 60 milliseconds of delay, with no modulation
Chorus	20 to 60 milliseconds of delay with modulation
Slapback	60 to 200 milliseconds of delay
Echo	200 milliseconds and longer
Comb Filter and Flange	A comb filter is simply a delay time of 2 to 15 milliseconds. The reason that it's called a comb filter is that as you change the delay time, certain frequencies are notched out by phase cancellation, and a graph of the frequency response looks like the teeth of a comb. This causes a metallic, resonant type sound. A flanger is simply a sweeping comb filter.



REVERB Reverberation is the repeated reflection of sound off surfaces in an enclosed space. The GSP-21 PRO provides 15 programmable reverb parameters. These parameters have been preset to create four sounds:

Reverb Effects Rev1 (Room)	Imitates the feel of being in a room, directly opposite the sound source. The reverb has a short decay time.
Rev2 (Hall)	Simulates the acoustic environment of a large room or hall. A large room has more diffusion and a longer decay time than smaller rooms because the sound travels farther.
Gated Reverb	Reverb effect that decays for a determined length of time, then cuts off abruptly; like an electronic gate that closes quickly when the signal falls below an adjustable level.
Reverse Reverb	Normal reverb is loud following the initial sound, then decays. With reverse reverb, the decay is heard after the initial sound, then reverb builds and cuts off.
Ultimate Reverb	Has 11 parameters that give you the ability to tailor any aspect of the reverberation — simulate any reverberant space.

REVERB PARAMETERS (note: Not all Reverbs contain all parameters)

Reverb Decay Time	Amount of time for the reverb effect to decay 60 dB (RT60).
Reverb Pre-Delay Time	Time between the original sound and the first delayed sound of the reverb effect.
Reverb Level	Relative internal level of the reverb effect.
Early Reflection Diffusion	Amount of diffusion of the early reverb, which dissipates and becomes subsequent reverb. This parameter affects the Subsequent Reverb Diffusion.

Early Reflection Delay	Amount of pre-delay for the early reverb. Generally set from 0-20 msec and always less than the Subsequent Reverb Delay for natural sound.
Early Reflection Level	Relative internal amplitude of the early reverb. Set two or three levels above the Subsequent Reverb Level to simulate being near the sound source. Set it lower to give the impression of being far from the sound source.
Subsequent Reverb Diffusion	Amount of diffusion in the subsequent reverb. Set high for longer decay times to smooth a grainy or fluttery sound. Set low for short decay times to avoid a metallic ringing.
Subsequent Reverb Delay	Amount of pre-delay for the subsequent reverb only. Generally a higher value than the Early Reflection Delay.
Subsequent Reverb Level	Relative internal level of the subsequent reverb. Use with the Early Reflection Level to give a near or far sound.
Envelopment	Width and depth of the stereo image. Set high for a wide, surrounding stereo image. Set low for a tight image that sounds like it's in front of the listener.
Damping	Amount of high frequency absorption in the subsequent reverb. As sound is diffused by reflection, the high frequencies are lost faster than the low ones. Set high to simulate soft absorptive surfaces, such as drapes and carpet. Set low to simulate hard reflective surfaces such as concrete or steel.
Accent Envelope	Places the end accent of the gated or reverse reverb effect before, at or after the end of the gated or reverse reverb decay.
Accent Amplitude	Strength of the delayed accent at the end of the gated or reverse reverb effect.
Normalized Reflectivity	Reflectivity of surfaces in the simulated listening environment. Set high for reflective surfaces; low for absorptive surfaces. Different from Damping because it controls reflection at all frequencies. Damping controls only high frequencies.
Normalized Room Volume	Volume of the simulated listening environment. Set low (0.1) for a bathroom sound; high (1.0) for a huge train station.

The reverb decay time (RT60) can be calculated by multiplying with the Normalized Reflectivity. For example, if Normalized Volume is set to 0.7 and Normalized Reflectivity is 3.4, then:

$$RT60 = 0.7 \times 3.4 = 2.38 \text{ secs.}$$

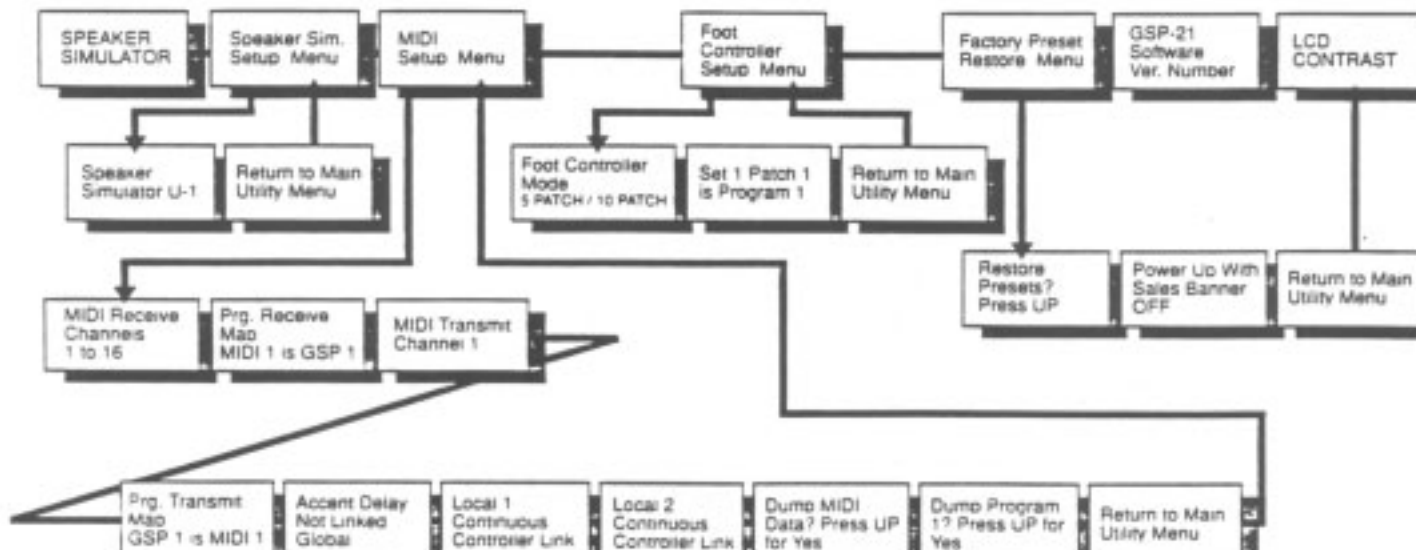
UTILITY MENU



Press the **UTILITY** button to access the Utility Menu:

1. Speaker Simulator selection
2. Speaker Simulator Setup Menu
 - A. Simulator User programmable settings U-1 — U-5
 - B. Return to Utility Menu
3. MIDI Setup Menu
 - A. Select MIDI Receive channel
 - B. Set Program Receive Map
 - C. Select MIDI Transmit Channel
 - D. Set MIDI Program Transmit Map
 - E. Change Global MIDI continuous controller (CC) links
 - F. Change first Local MIDI Continuous Controller link
 - G. Change second Local MIDI CC link
 - H. Dump MIDI Data (Send all GSP-21 PRO data to a MIDI computer, MIDI recorder or another GSP-21 PRO)
 - I. Dump Current Program (Send a single program)
 - J. Return to Utility Menu.
4. Foot Controller Setup Menu
 - A. Foot Controller Mode (Five Patch or Ten Patch)
 - B. Programming SETs and PATCHes
 - C. Return to Utility Menu
5. Factory Preset Restore Menu
 - A. Restore unit to factory preset condition
 - B. Return to Utility Menu
6. Show software version number
7. Change the LCD contrast

MAIN UTILITY MENU BLOCK DIAGRAM



After pressing the utility button, move through the utility functions by pressing the right or left parameter buttons. Exit the utility mode by pressing the UTILITY button again.

SPEAKER SIMULATOR



An important part of a good guitar sound is the way that both the amplifier and speaker "color" the sound going through them. The Speaker Simulator electronically emulates different types of speaker / amplifier combinations. This allows you to play the GSP-21 PRO directly into the mixer board or tape input, and retain the desirable miked-amplifier sound for recording.

When the UTILITY button is first pressed, the display will read:

Speaker _____	(example)
Simltr 1	

Use the PARAMETER UP and DOWN buttons to select among the 9 different Speaker Simulator presets and the 5 User Programmable Speaker Simulator presets. Press PARAMETER RIGHT to go to the next Utility item, or UTILITY to exit.

The 9 Speaker Simulator presets are configured as follows:

- | | | |
|---|-------------|--|
| 1 | - - - - - - | For general use |
| 2 | - - - - - _ | For metal distortion direct into mixer |
| 3 | - - - - - ^ | For power amps or amps that lack high end |
| 4 | ^ - - - - - | For small combo amps or amps that lack low end |
| 5 | ^ - - - - _ | For bright or midrange amps |
| 6 | - - ^ - - - | For amps that lack midrange |
| 7 | _ - ^ ^ ^ | For muddy amps |
| 8 | - ^ ^ ^ - - | To add more low mids or more chunk |
| 9 | _ - ^ ^ ^ | To add more highs and mid highs |

Speaker Simulator Setup Menu

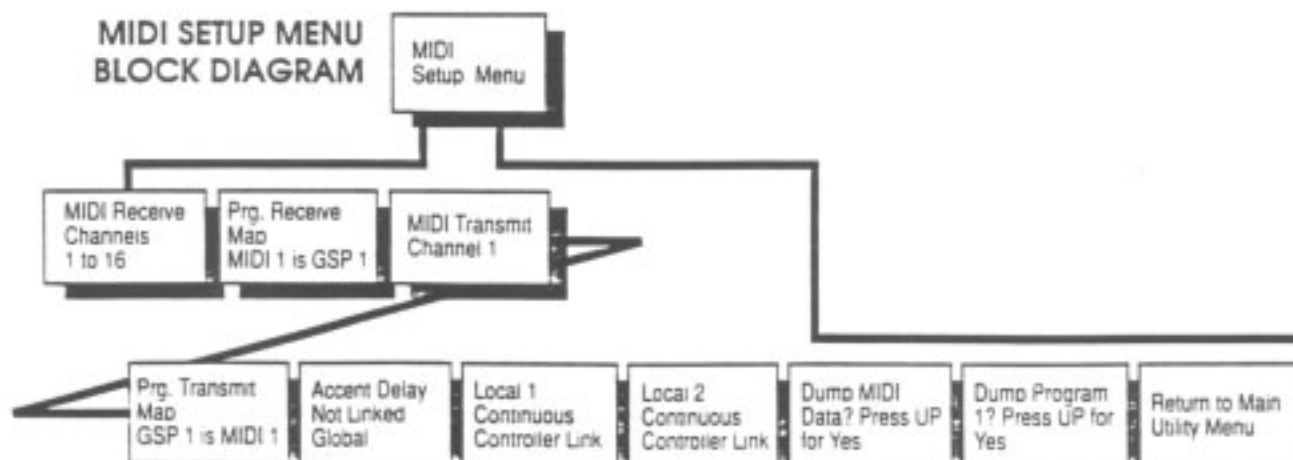
This utility allows you to program your own Speaker Simulator response curves, and store them in User Presets U-1 through U-5. To enter this menu, press PARAMETER DOWN. In the Speaker Simulator menu, the cursor will start under the User preset number. Press PARAMETER UP or DOWN to go to the desired preset number. Press PARAMETER RIGHT, and the cursor will be under the first Simulator Band. Pressing PARAMETER UP or DOWN will increase or decrease the band response, shaping the low response of the simulated speaker (this will make it sound like a larger speaker cabinet). Press PARAMETER RIGHT to go to each of the other Simulator Bands, which each adjust higher speaker response bands. Listen to the changes in the sound. These changes will affect all programs, not just the preset you are on. Press PARAMETER RIGHT after the last Band, and the display will read:

Return to Main
Utility Menu ↑

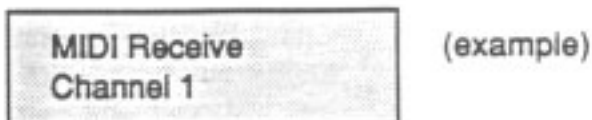
Press PARAMETER UP to return to the Utility Menu, or PARAMETER RIGHT to continue editing User Presets. The changes to the Speaker Simulator User Presets are saved automatically.

MIDI MIDI is used by music equipment manufacturers to allow different components to communicate with each other. For example, a synthesizer, MIDI controller or MIDI computer could be used to change the volume or program number of all components on the same MIDI channel, including the GSP-21 PRO

There are 128 MIDI functions, called continuous controllers, which can be used to externally control most functions of the GSP-21 PRO. See Appendix D, "Standard MIDI Continuous Controllers"



This sub-menu contains all of the functions for setting external communications for the GSP-21 PRO; Continuous control pedals, MIDI in and out, and Program parameter exporting. Press PARAMETER DOWN to enter the first sub-menu item:



Select MIDI Receive Channel

The GSP-21 PRO can receive data from 16 MIDI channels coming through the MIDI input jack from devices which send MIDI data.

Press the PARAMETER UP or DOWN button to select channel 1 through 16, or channels 1 to 16 simultaneously (omni), or "Disabled". MIDI data is received on the indicated channels at all times unless "Disabled" is selected.

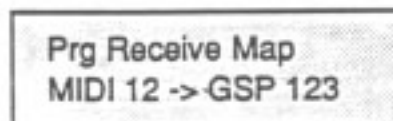
Press the RIGHT PARAMETER button to go to the next utility function, or LEFT PARAMETER button to go to the previous utility function.

MIDI Program Receive Map

The GSP-21 PRO can respond to Program Change instructions from keyboards, sequencers, or other MIDI controller. Programs on the GSP-21 PRO are changed at the same time program changes are made on the MIDI controller.

Use this utility to select which GSP-21 PRO program is called up when the MIDI program number is received.

For example, the keyboard may use program 12 for a trumpet sound, but the effects that go with this sound are on program 123 of the GSP-21 PRO. Set the MIDI link table to read:



Set this way, whenever the GSP-21 PRO receives a MIDI Program 12 on the selected MIDI receive channel, the GSP-21 PRO will change to program number 123.

When the cursor is under the number immediately following "MIDI" on the bottom line, the PARAMETER UP and DOWN buttons change the MIDI program numbers and look at the GSP-21 PRO program number that is linked to each one.

From the factory, all linkages are set so MIDI programs 1 through 192 are linked to GSP-21 PRO programs 1 through 192.

To change a linkage, push the PARAMETER RIGHT button. The cursor moves to the GSP-21 PRO program number on the bottom line. Change the program number using the PARAMETER UP and DOWN buttons.

After creating the desired linkages, press the RIGHT PARAMETER button to go to the next utility function, or UTILITY to exit.

Select MIDI Transmit Channel

The GSP-21 PRO can transmit MIDI data on one of the 16 MIDI channels through its MIDI Out port. Upon selecting this utility, the display will show "MIDI Transmit Channel 1". Press the PARAMETER UP or DOWN button to select channels 1 through 16, or "Disabled".

MIDI data will be transmitted on the selected channel whenever a program change is made from either the GSP-21 PRO Foot Controller or the optional Studio Remote controller, unless "Disabled" is selected.

Press the PARAMETER RIGHT or LEFT button to go to the next or previous Utility function, or press UTILITY to exit the Utility mode.

MIDI Program Transmit Map

Use this utility to select which MIDI Program is sent when a GSP-21 PRO program is selected from MIDI, the GSP-21 PRO Foot Controller, or the optional Studio Remote Controller. Data will be sent on the selected MIDI Transmit channel.

For example if the link is set as follows:

Prg Transmit Map GSP <u>134</u> -> MIDI 28

(example)

then whenever the GSP-21 PRO program 134 is selected with either of the available remote controllers, a MIDI Program Change 28 will be sent on the selected MIDI Transmit channel.

When this utility is selected, the cursor is under the number immediately following "GSP" on the bottom line of the display. Press PARAMETER UP or DOWN to select the program number of the GSP-21 PRO which you want to link to a MIDI Program number for transmitting. Then press PARAMETER RIGHT to move the cursor to the number next to "MIDI" on the display, and use PARAMETER UP or DOWN to select the MIDI Program number that will be sent when the GSP-21 PRO program is selected.

Press the PARAMETER RIGHT or LEFT button to go to the next or previous Utility function, or press UTILITY to exit the Utility mode.

Change Global MIDI CC
(Continuous Controller)
Links

This function links any one GSP-21 PRO effect parameter to a MIDI continuous controller (CC). For example, if the volume (normally CC 7) on the MIDI controller is increased, the GSP-21 PRO can be programmed to automatically increase the reverb level. Here, "Global" means that the link is valid in all programs.

When this utility is selected, the display reads:



This shows that the accent delay is not linked to any CC. With the cursor on the top line, under the A, press the UP or DOWN PARAMETER button to show other effect parameters and their links. The parameters are listed in alphabetic order. The GSP-21 PRO comes from the factory with no Global CC links; all links must be assigned by the user.

To link effect parameters to CC's, decide which effect should be linked to which CC. A list of standard MIDI CCs is in Appendix E.

Press the UP or DOWN PARAMETER button to select the desired effect parameter. Press the RIGHT button and the cursor moves to the bottom line, under "Not Linked". Press the UP or DOWN PARAMETER button to select a CC.

There are 128 CCs, plus channel pressure (ChP). Channel pressure is like a trumpet player or drummer playing harder or softer.

After creating the desired linkages, press the RIGHT PARAMETER button to go to the next utility function, or UTILITY to exit.

Change First and Second
Local MIDI CC Links

Two local CC links (First and Second) are possible per program. These are links which are only valid in a specific program.

Linking continuous controllers to certain parameters gives you the ability to control the sound without having to change programs. As an example, imagine that you are setting up for a live performance, and would like to control the overall volume on all programs, but also the distortion and chorus level on one certain program.

To do this, you would enter the Utility menu and link the Global CC to the Master Level. Exit the Utility menu, and go to the program you wish to link the distortion and the chorus level to. Enter the Utility menu again and link the Balls parameter to one local controller (Local 1 CC) and the Chorus Level to the other (Local 2 CC). Now, for all songs and all presets, you can control your overall volume — and for one particular song, you can use this preset and control the amount of distortion and level of chorus.

Setup of these Local links is similar to the Global Links described in the previous section. The following differences should be noted:

1. The linkable parameters are listed in the order in which they appear in the program selected. Depending on which program you were in when you entered the Utility mode, the parameters will be different for the local link.
2. After you set up the first local link, pressing PARAMETER RIGHT will move you to the second link setup menu.
3. Remember, these links are valid only for the program number shown at the bottom right of the display. For links valid for all programs, set up the Global CC Link as described in the previous section.

Press the PARAMETER RIGHT button at the end of the Second Local CC Link to go to the next or previous Utility function, or press UTILITY to exit the Utility mode.

The GSP-21 PRO comes from the factory with two parameters in each program linked to a Local CC number. These parameters and CC numbers are shown below:

LOCAL CC LINK TABLE	#	Program Name	Local Link 1	CC #	Local Link 2	CC#
	65	Rock Lead	Balls	1	Enhancement	2
	66	Rock It Man	Balls	1	Enhancement	2
	67	Comp Hall	Norm Reflect.	1	Enhancement	2
	68	Are You Blues	Balls	1	Enhancement	2
	69	Hot Rod Stack	Balls	1	EQ Level	2
	70	Mr. Clean	EQ Level	1	Enhancement	2
	71	Ambient Chorus	Balls	1	EQ Level	2
	72	Top 40 Solo	Balls	1	Enhancement	2
	73	Rhythm Crunch	Enhancement	1	EQ Level	2
	74	Metal Flanger	Delay Feed	1	Flange Level	2
	75	Rock Flanger	Enhancement	1	EQ Level	2
	76	Captain Crunch	Balls	1	EQ Level	2

#	Program Name	Local Link 1	CC #	Local Link 2	CC#
77	Comp Chorus	Balls	1	EQ Level	2
78	The Abyss	EQ Level	1	Enhancement	2
79	Metal Head	Norm Reflect.	1	EQ Level	2
80	Sweet Bluenotes	Balls	1	EQ Level	2
81	Fat Tube Solo	Enhancement	1	EQ Level	2
82	Crunchy Chorus	Balls	1	EQ Level	2
83	Tight Chorus	Balls	1	EQ Level	2
84	Blues Hall	Balls	1	EQ Level	2
85	Delay Madness	Delay Feed	1	Flange Level	2
86	Metal Marshmello	Balls	1	EQ Level	2
87	Classic Twin	Norm Reflect.	1	Enhancement	2
88	Balladeer Chorus	Balls	1	Enhancement	2
89	Fast Leslie	Balls	1	EQ Level	2
90	British Stack	Balls	1	Enhancement	2
91	Bright&LeftoRite	EQ Level	1	Enhancement	2
92	Turbo Flange	Delay Feed	1	Flange Level	2
93	Creamy Solo	Enhancement	1	EQ Level	2
94	Mars Hall	Norm Reflect.	1	Enhancement	2
95	Chorus It Wide	Balls	1	EQ Level	2
96	Poisonous	Balls	1	EQ Level	2
97	Euro-Rock	Balls	1	EQ Level	2
98	16th Sequencer	EQ Level	1	Enhancement	2
99	Chunky Rhythm	Balls	1	Reverse Time	2
100	Drivin'The Blues	Norm Reflect.	1	Enhancement	2
101	In ChorusCountry	Balls	1	EQ Level	2
102	Cool Crunchverb	Norm Reflect.	1	Enhancement	2
103	Daily Double	EQ Level	1	Enhancement	2
104	Ambient Lead	Balls	1	Enhancement	2
105	Lead Echo	Balls	1	EQ Level	2
106	Moshin Metalhead	Enhancement	1	EQ Level	2
107	Wet N Flangy	Enhancement	1	EQ Level	2
108	Rock Flange	Reverb Left	1	Reverb Right	2
109	Jazz Guitar	Norm Reflect.	1	Enhancement	2
110	Backmask Guitar	Balls	1	Reverse Time	2
111	Sweet Lil'Leslie	Balls	1	Enhancement	2
112	Like a Synth	EQ Level	1	Enhancement	2
113	Chorus Talkback	Balls	1	Enhancement	2
114	Raw Rock n' Roll	Balls	1	Enhancement	2
115	Digitalis Rock	Norm Reflect.	1	Enhancement	2
116	Wait a Sec & 1/2	EQ Level	1	Enhancement	2
117	Sweet JD Blues	Norm Reflect.	1	Enhancement	2
118	Rippin'Stadium	Balls	1	Enhancement	2
119	Clean Gate	Gate Envelope	1	Dist. Enable	2
120	Fat Smooth Solo	Balls	1	EQ Level	2
121	Rock Zipper	EQ Level	1	Enhancement	2
122	Feedback in 3rds	Balls	1	EQ Level	2
123	Tubular Overdriv	Delay Feed	1	Flange Level	2
124	Swimming Triplet	Balls	1	EQ Level	2
125	Southern Rock	Norm Reflect.	1	Enhancement	2
126	Metal Bandsaw	Balls	1	EQ Level	2
127	Rythmic Multitap	EQ Level	1	Enhancement	2
128	Blues Rock	Norm Reflect.	1	Enhancement	2

Dump MIDI Data (All Programs) This utility sends all the GSP-21 PRO programs to a MIDI computer, a MIDI recorder or to another GSP-21 PRO.

When selected, the display reads:

Dump MIDI Data?
Press ↑ for Yes

Make sure the receiving device is properly connected to the GSP-21 PRO MIDI Out jack and both devices are using the same MIDI channel, then press the PARAMETER UP button. The display will show the message "Transmitting".

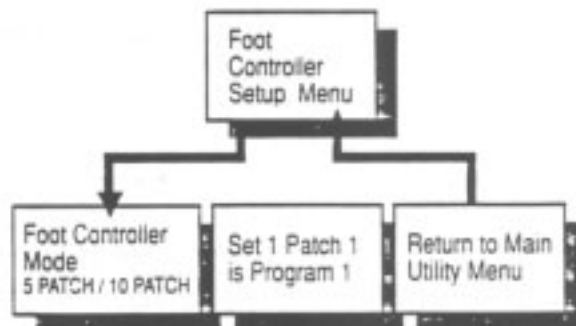
To skip this utility, press the RIGHT PARAMETER button.

Dump a Single Program This utility sends the current GSP-21 PRO program to a MIDI computer, a MIDI recorder or to another GSP-21 PRO. This is a great way to copy a user program off someone else's GSP-21 PRO.

When selected, the display will ask if it should dump MIDI data. Make sure the receiving device is properly connected to the GSP-21 PRO MIDI Out jack and both devices are using the same MIDI channel, then press the PARAMETER UP button. The display will show the message "Transmitting".

To skip or exit this utility, press the RIGHT PARAMETER button, then UP to return to the Utility Menu.

Foot Controller Menu The GSP-21 PRO can be used with both the foot controller and the optional Studio Remote controller. See "Optional Remote Controller" (page 33)



Setting FC Mode (Five Patch or Ten Patch)

Press PARAMETER DOWN at the Foot Controller Setup Menu to reach this utility, which sets the Foot Controller Modes between the Five Patch mode and the Ten Patch mode. When in Ten Patch Mode, the Effects Bypass Switches (6 through 0) will be used for patch selection, and not for effects bypass. Press PARAMETER UP or DOWN to change between the two modes, and press PARAMETER RIGHT.

Programming Sets and Patches

To set up the foot controller Sets and Patches, enter this utility and the display will show:

Set 1 Patch 1 is Program 1	(example)
-------------------------------	-----------

This means that when the Patch 1 numbered switch is pushed on the Foot Controller, if Set 1 is selected, the GSP-21 PRO will change to Program 1.

With the cursor under the "1" following "Set", press PARAMETER UP or DOWN to select one of the 10 Sets. Notice as you cycle through the Set numbers, the programs assigned to Patch 1 in that Set are shown on the bottom line of the display.

Once the Set is selected, press PARAMETER UP or DOWN to select one of the five or ten Patches. As the Patches are cycled through, notice that the Program number assigned to that Patch in the current Set is shown.

Once the Patch is selected, press PARAMETER RIGHT to move the cursor to the Program number. Now use PARAMETER UP or DOWN to choose a GSP-21 PRO Program number for the Patch. Since there are ten Sets of five to ten Patches each, up to one hundred Patches are available for one-button remote selection.

Instead of being assigned to a Program number, any one of the numbered switches can be programmed to activate the Repeat Hold (infinite echo) function, or to bypass the Effects Loop. Choose these Patch settings just like you would choose a Program number, but use the PARAMETER UP button to scroll past Program number 192. Repeat Hold, then Effects Loop Bypass will be the next two options, then the display will wrap around to Program number 1 again.

After setting the Foot Controller configuration, press the RIGHT and then UP PARAMETER buttons to go to the next Utility Menu function or UTILITY to exit.

Repeat Hold setup The Repeat Hold function will hold and repeat a delay (echo) from when the assigned Foot Controller switch is pressed until it is pressed again. To assign a switch on the Foot Controller the Repeat Hold function for a particular Set and Patch #:

Press the UTILITY Button
 Scroll across until you reach "Footcontroller Setup Menu", then press the PARAMETER DOWN button.
 Move the cursor across until it is under "Program #".
 Press the UP or DOWN PARAMETER button until "Program #" changes to "Repeat Hold".

The displayed Set # and Patch # now has the Repeat Hold function assigned to it. Remember that the Delay effect must be on in order to use the Repeat Hold.

**SETS AND PATCHES
 FACTORY SETTINGS TABLE**

5 Patch Mode

Switch	1	2	3	4	5
Set 1	1	2	3	4	5
Set 2	6	7	8	9	10
Set 3	11	12	13	14	15
Set 4	16	17	18	19	20
Set 5	21	22	23	24	25
Set 6	26	27	28	29	30
Set 7	31	32	33	34	35
Set 8	36	37	38	39	40
Set 9	41	42	43	44	45
Set 10	46	47	48	49	50

Program Numbers

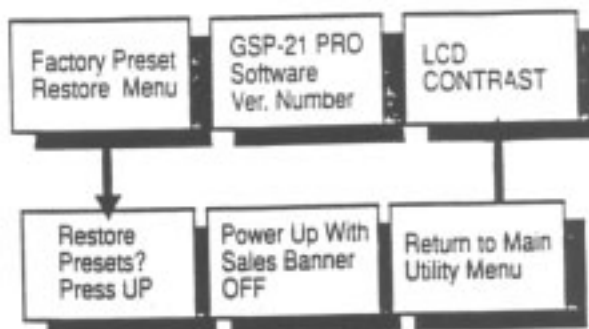
10 Patch Mode

Switch	1	2	3	4	5	6	7	8	9	10
Set 1	1	2	3	4	5	51	52	53	HLD	FXL
Set 2	6	7	8	9	10	54	55	56	HLD	FXL
Set 3	11	12	13	14	15	57	58	59	HLD	FXL
Set 4	16	17	18	19	20	60	61	62	HLD	FXL
Set 5	21	22	23	24	25	63	64	65	HLD	FXL
Set 6	26	27	28	29	30	66	67	68	HLD	FXL
Set 7	31	32	33	34	35	69	70	71	HLD	FXL
Set 8	36	37	38	39	40	72	73	74	HLD	FXL
Set 9	41	42	43	44	45	75	76	77	HLD	FXL
Set 10	46	47	48	49	50	78	79	80	HLD	FXL

Program Numbers

HLD = Repeat Hold (Must have Delay ON)
 FXL = FX Loop Bypass (When FX Loop is used)

Factory Preset Restore Menu This utility restores all factory MIDI linkages, deletes all user programs and clears out all footswitch patches.



When selected, the display reads:

Restore Presets?
Press ↑ for Yes

If the PARAMETER UP button is pressed, the display gives the following warning:

OK to destroy
all data?

Press PARAMETER UP to confirm, or press any other front panel button to cancel the restore command.

SOFTWARE VERSION This function displays the software version installed on the GSP-21 PRO. The display will read:

DigiTech GSP-21 PRO
Version 1.0

This is mostly for servicing information. DigiTech reserves the right to upgrade software at any time without incurring any obligation to install the same upgrades on products previously manufactured. See "Warranty".

Change LCD Contrast This utility changes the contrast on the liquid crystal display. When selected, the display reads:

LCD Contrast 1 (example)

Press the PARAMETER UP or DOWN buttons to change the contrast from 1 to 10. When finished, press the RIGHT PARAMETER button to go to the next utility function.

THE FOOT CONTROLLER



Display The 20 character vacuum fluorescent display is divided into two areas: the first three characters display the program number of the current patch, and the right-most sixteen characters display the title of the patch. The title mirrors the title that is stored in the main unit. In some modes, the display will issue prompts to the user rather than the program title.
(Due to incompatibilities of the display types, certain characters look different on the Foot Controller display than on the front panel of the GSP-21 PRO).

Bypass The right-most switch in the lower row bypasses the entire unit the same way as the front panel BYPASS switch. The BYPASS LED will light while the unit is bypassed.

OPERATING MODES

The GSP-21 PRO Foot Controller operates in two modes, Five Patch and Ten Patch modes. A Patch is the relationship between a Foot Controller button and a GSP-21 PRO Preset (page 28). The function of most of the pedal switches depends on the current mode of operation. Choosing the mode that you want to use is done through the Utility Menu (page 27).

Five Patch Mode
Numbered
Switches 1 — 5
(Patch 1 — Patch 5)

These switches access any of five pre-programmed Patches from the current SET. The LED above the selected switch will light to indicate the current Patch. If a PATCH switch is pressed when the corresponding Patch is already selected, the last Patch used will become the current Patch. In addition to choosing specific Program numbers, PATCH switches may be programmed to perform the repeat hold and effects loop bypass functions.

There are 10 SETS of Patches available. To change to a different SET number, press the PROGRAM #/ SET NUMBER switch twice, then select a SET number with one of the numbered switches 1 to 0 (zero is equivalent to #10)

Lower Row Switches
(Individual Effects Bypass)

When in Five Patch mode, the lower five numbered switches enable and disable the indicated effect if that effect is available in the current Patch. The LED above the EFFECT switch will light if the effect is active. If an effect is selected which is not available in the current Patch, the LED will flash to indicate that the effect is not available.

Ten Patch mode
Numbered Switches 1 - 0

In this mode, each of the ten numbered switches becomes a PATCH (the switch numbered 0 corresponds to the tenth Patch). The rest of the functioning is the same as described in the Patch 1 - Patch 5 section, except that the Effects Bypass function is not available on the lower switches.

Program Number
Random Access
Numbered Switches 1 - 0

To randomly access any program in the GSP-21 PRO, press the PROGRAM # / SET NUMBER switch **once**. The display will show:

Program number?

Enter the number of the program you wish to select.

For example, to choose program 36:

- Press PROGRAM # / SET NUMBER once
- Display reads "Program number?"
- Press numbered switches, in order, 0-3-6

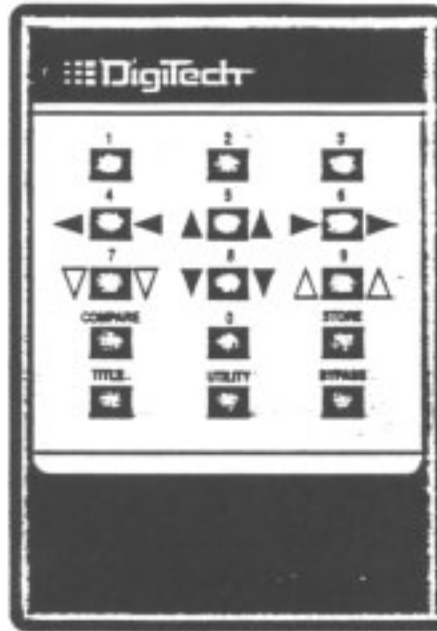
The GSP-21 PRO will go to program 36, then automatically return to the current Patch mode.

Examples: For program 128, press 1-2-8. For program 45, press 0-4-5 or 4-5. For programs starting with 0 or 1, such as 12, press 0-1-2 or 1-2 and wait two seconds, or 1-2-PROGRAM #/SET #.

Programming All programming for the GSP-21 PRO Foot Controller is done through the GSP-21 PRO front panel programming buttons in the Utility mode. The Foot Controller menu in the Utility Menu allows the user to assign any program, the repeat hold function, or effects loop bypass to any of the five or ten Patches in each of the ten Sets, giving a total of fifty or one hundred patches. See the Utility Menu section of the manual (page 19) for details of programming in the Utility mode.

Note: If you choose a SET with ten Patches, and then change to Five Patch Mode, Patches 6 through 0 (10) will still be there, but you won't be able to access them via the numbered switches until you change back to Ten Patch Mode.

THE REMOTE CONTROLLER (OPTIONAL)



The optional 15-button studio remote control has the same functions as the front panel controls, with an added feature: numerical program selection.



The buttons with solid arrows beside them are the same as the PARAMETER UP, DOWN, LEFT and RIGHT buttons.



Buttons with hollow arrows beside them are the same as the PROGRAM UP and DOWN buttons. See "Programming" (page 9).

In addition, there are COMPARE, STORE, TITLE, UTILITY and BYPASS buttons (see the sections for each button). These functions allow a console operator to change effects without disturbing a performance.

By pressing buttons 0 through 9, programs can be called up by program number. For program 128, press 1-2-8. For program 45, press 4-5. For program 12, press 0-1-2 or 1-2 and wait two seconds.

If only two digits starting with 0 or 1 (such as "12") are pressed, the GSP-21 PRO has a "smart" feature which will wait two seconds for a third digit to be pressed, then changes to program 12. For best results, however, always use three digits to punch up a program number.

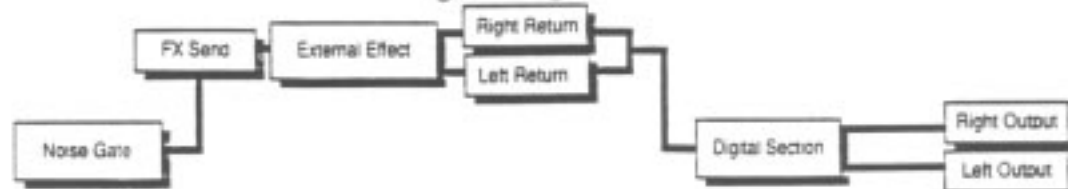
THE EFFECTS LOOP

The effects loop is located after the analog effects, and before the digital effects, that is, between the noise gate and the modulation effects. If nothing is plugged into the FX loop, the FX loop display will read:

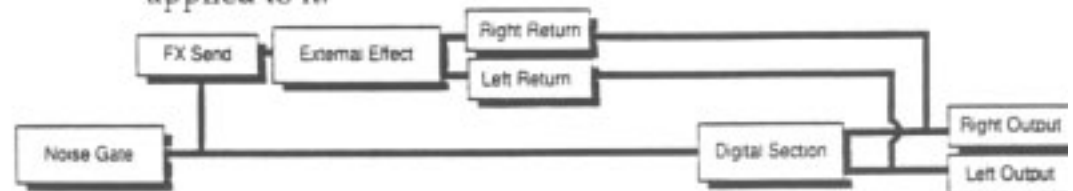
Effects Loop
Not Used

If an external effect is plugged into the Send and one or both of the Returns, then there are four options; OFF, INLINE, STEREO SUMMED, and INLINE + SUMMED.

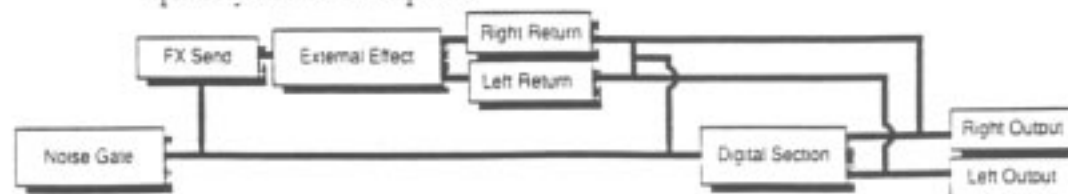
Inline When this option is chosen, the whole signal comes from the Noise Gate, flows through the external effect(s), and is returned to the digital section of the GSP-21 PRO. Note that if both the Right and Left Returns are used, the signal will be summed to mono before entering the digital effects section of the GSP-21 PRO.



Stereo Summed In this option, the signal is sent to the external effect(s), and both the Right and Left Returns are sent directly to the Right and Left Outputs, bypassing the digital effects section. This means that whatever is processed through the external effect(s) will not have the digital effects like chorus, flanging, reverb and delay applied to it.



Inline + Summed If this option is chosen, the signal goes out the Send to the external effect(s) and returns both before the digital section and goes to the Right and Left Output. This means that your external effects are mixed to mono and processed through the digital effects of the GSP-21 PRO and are also sent with their full stereo quality to the Outputs.



MAINTENANCE AND SERVICE

Keep the GSP-21 PRO clean by occasionally dusting the cover and wiping the front panel with a dry cloth. Periodically check the wires and connectors on the back of the unit to make sure they are not crimped or frayed.



There are no user-serviceable parts inside the GSP-21 PRO. Opening the chassis for any reason will void the warranty.

The GSP-21 PRO is equipped with a battery which keeps all user-defined programs in memory when the unit is unplugged and transported. This battery should last about six years. If the unit is turned on and the user programs are gone, take it to the dealer for battery replacement.

All service and repair must be performed by the factory for the warranty to remain in effect. Should a problem arise with the GSP-21 PRO, contact a DigiTech dealer for repair procedures.

Call or write DigiTech at:
5639 South Riley Lane, Salt Lake City, Utah 84107
(801) 268-8400 FAX (801) 262-4966
for the name of your nearest dealer.

ACRONYMS AND ABBREVIATIONS

A-D	Analog-to-Digital
CC	Continuous Controller
ChP	Channel Pressure
GSP	Guitar Signal Processor
EQ	Equalization
FCC	Federal Communications Commission
HISC	Happenin' Instruction Set Computer
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LFO	Low-Frequency Oscillator
MIDI	Musical Instrument Digital Interface
msec	milliseconds
rms	root mean square
RT60	Reverb Time 60 dB attenuation
SNR	Signal-to-Noise Ratio
THD	Total Harmonic Distortion
T-R-S	Tip-Ring-Sleeve
VLSI	Very-Large-Scale Integrated chip

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits of a Class B computing device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FC Dimensions 20.8" L x 6.4" D x 1.4" H

SPECIFICATIONS

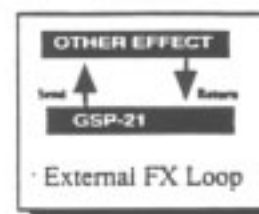
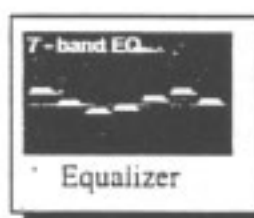
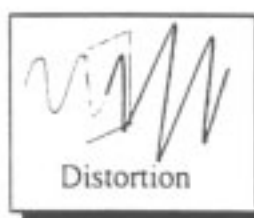
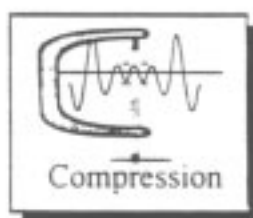
Maximum Input:	+18 dBv (ref 0.775vrms)
Maximum Output:	+18 dBv (ref 0.775vrms) 8V peak to peak 6V RMS
Input Control:	+12 dB from center, +4 to -20 dBv nominal level
Output Control:	+12 dB from center, +4 to -20 dBv nominal level
Input Impedance:	40k ohm stereo, 20k ohm mono 500K
Output Impedance:	51 ohm impedance bal.
THD:	Less than 0.08% at 1 kHz
Resolution:	16-bit linear PCM conversion
SNR:	88 dB nominal
Dry Freq. Resp:	20 Hz to 20 kHz +0.5 dB
Wet Freq. Resp:	20 Hz to 20 kHz +0, -3 dB
A-D Converter:	16-bit
Dimensions:	1.75" H x 19" W x 8.5" D (44mm x 483mm x 216mm)
Weight:	5.5 lbs (2.5 kg)

APPENDIX A

EFFECT CONFIGURATIONS

The GSP-21 PRO has ten programmable effects configurations, using different combinations of 23 unique effects. The effects configurations are graphically depicted in the illustrations above each. By altering the parameters of the configurations, 128 preset programs have been created (see Appendix B). The parameters can also be modified to create 64 additional user programs, which can be logged in Appendix C.

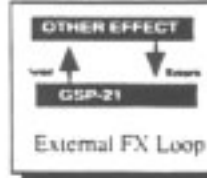
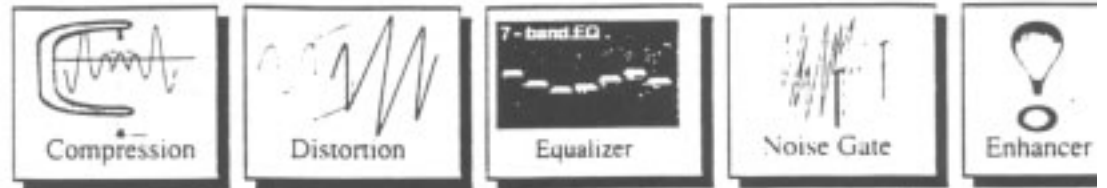
Cmp + Ds + Eq + NG + E + L + SS



Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED

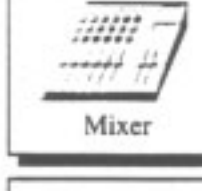
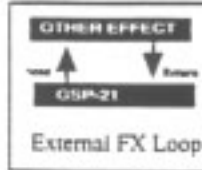
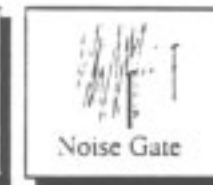
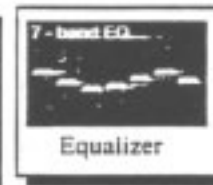
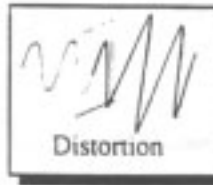


Cmp + Dst + Eq + NG + E + L + UltRv + SS



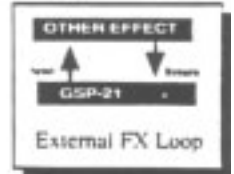
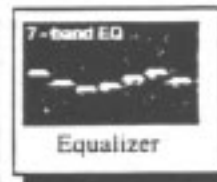
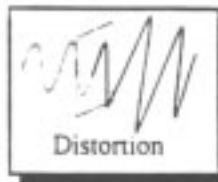
Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Reverb Enable	OFF or ON
Early Reflect Level	1 to 10
Subsequent Level	1 to 10
Normal Reflectivity	1.0 to 99 seconds
Normal Room Volume	0.1 to 1.0
Damping Factor	1 to 10
Envelopment	1 to 10
Subsequent Delay	0 to 80 milliseconds
Subsequent Diffusion	1 to 10
Early Delay Time	0 to 80 milliseconds
Early Diffusion	1 to 10
Dry Level	1 to 10

Cmp + Dst + Eq + NG + E + L + GtRv + Mx + SS



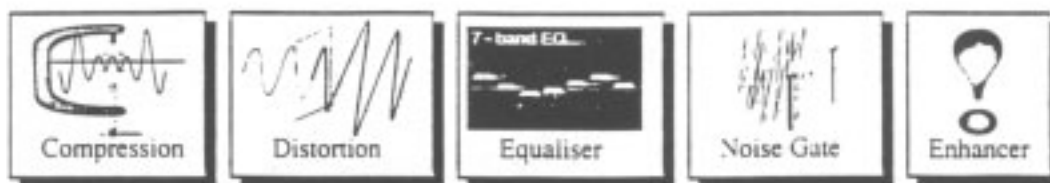
Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Reverb Pre-Delay	0 to 80 milliseconds
Gate Envelope	Flat or Decaying
Gate Decay Time	50 to 600 milliseconds
Accent Delay Time	-50 to +50 milliseconds
Mix: Dry Right	0 to 10
Mix: Dry Left	0 to 10
Mix: Accent Right	0 to 10
Mix: Accent Left	0 to 10
Mix: Gate Right	0 to 10
Mix: Gate Left	0 to 10

Cmp + Dst + Eq + NG + E + L + RvRv + Mx + SS

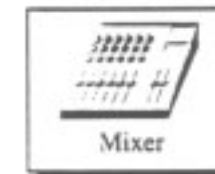
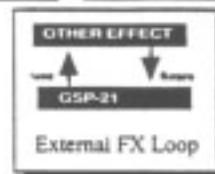


Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Reverb Pre-Delay	0 to 80 milliseconds
Reverse Time	50 to 600 milliseconds
Accent Delay Time	-50 to +50 milliseconds
Mix: Dry Right	0 to 10
Mix: Dry Left	0 to 10
Mix: Accent Right	0 to 10
Mix: Accent Left	0 to 10
Mix: Reverse R Level	0 to 10
Mix: Reverse L Level	0 to 10

Cmp + Dst + Eq + NG + E + L + Ch + D + Rv1 + Mx + S

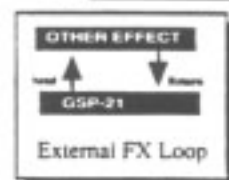
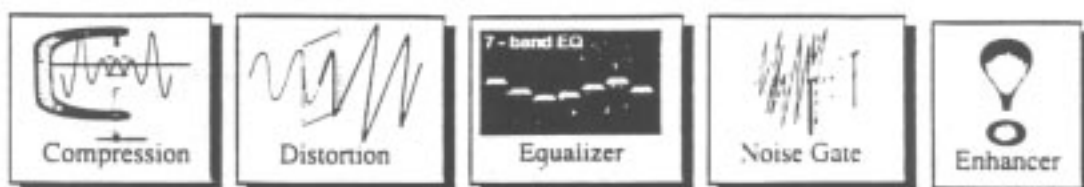


Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Chorus Delay	0 to 60 milliseconds
LFO Sweep Speed	0.0 to 5.00 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
LFO Waveform	Sine, Sawtooth, Logarithmic
Delay in: Dry	0 to 10
Delay in: Chorus	0 to 10
Delay Time	0 to .750 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In: Dry	0 to 10
Reverb In: Chorus	0 to 10
Reverb In: Delay	0 to 10
Reverb Pre-Delay	0 to 80 milliseconds
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 milliseconds



Mix: Dry Level	0 to 10
Mix: Chorus R Level	0 to 10
Mix: Chorus L Level	0 to 10
Mix: Delay R Level	0 to 10
Mix: Delay L Level	0 to 10
Mix: Reverb R Level	0 to 10
Mix: Reverb L Level	0 to 10

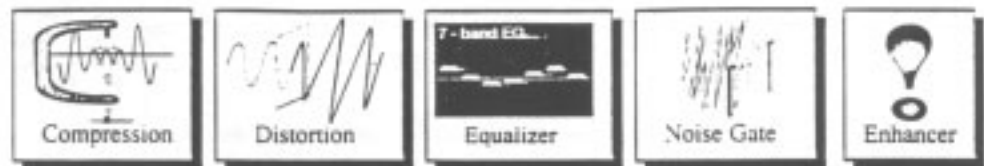
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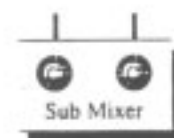
Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Flange Delay	0 to 10 milliseconds
LFO Sweep Speed	0.0 to 5.0 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
Flange Feedback Phase	Negative or Positive
Flange Feedback	0 to 99 %
Delay in: Dry	0 to 10
Delay in: Flange	0 to 10
Delay Time	0 to .75 seconds
Delay Feedback	0 to 99 % and Repeat Hold
Reverb In: Dry	0 to 10
Reverb In: Flange	0 to 10
Reverb In: Delay	0 to 10
Reverb Pre-Delay	0 to 80 milliseconds

Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 milliseconds
Mix: Dry Level	0 to 10
Mix: Flange R Level	0 to 10
Mix: Flange L Level	0 to 10
Mix: Delay R Level	0 to 10
Mix: Delay L Level	0 to 10
Mix: Reverb R Level	0 to 10
Mix: Reverb L Level	0 to 10

Cmp + Dst + Eq + NG + E + L + Ch + D + Rv2 + Mx + SS

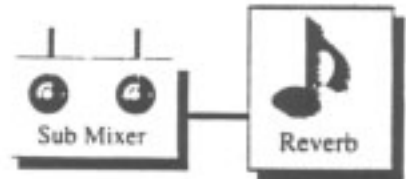
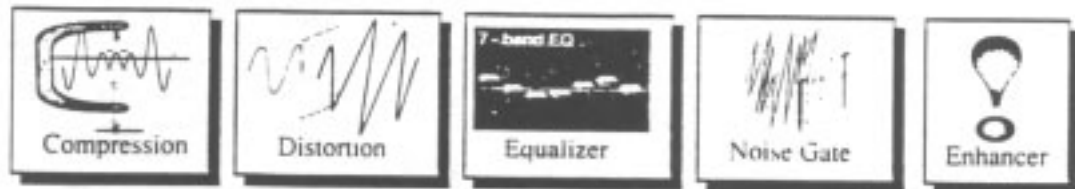


Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or -ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Chorus Delay	0 to 60 milliseconds
LFO Sweep Speed	0.0 to 5.0 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
LFO Waveform	Sine, Sawtooth, Logarithmic
Delay in: Dry	0 to 10
Delay in: Chorus	0 to 10
Delay Time	0 to .750 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In: Dry	0 to 10
Reverb In: Chorus	0 to 10
Reverb In: Delay	0 to 10
Reverb Pre-Delay	0 to 60 milliseconds
Reverb Filter	Bright, Soft or Warm
Reverb Decay	1 to 20 seconds
Mix: Dry Level	0 to 10



Mix: Chorus R Level	0 to 10
Mix: Chorus L Level	0 to 10
Mix: Delay R Level	0 to 10
Mix: Delay L Level	0 to 10
Mix: Reverb R Level	0 to 10
Mix: Reverb L Level	0 to 10

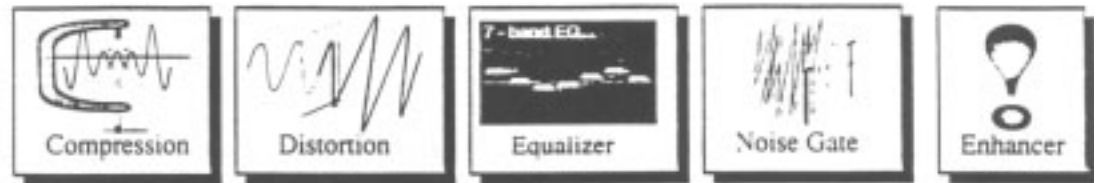
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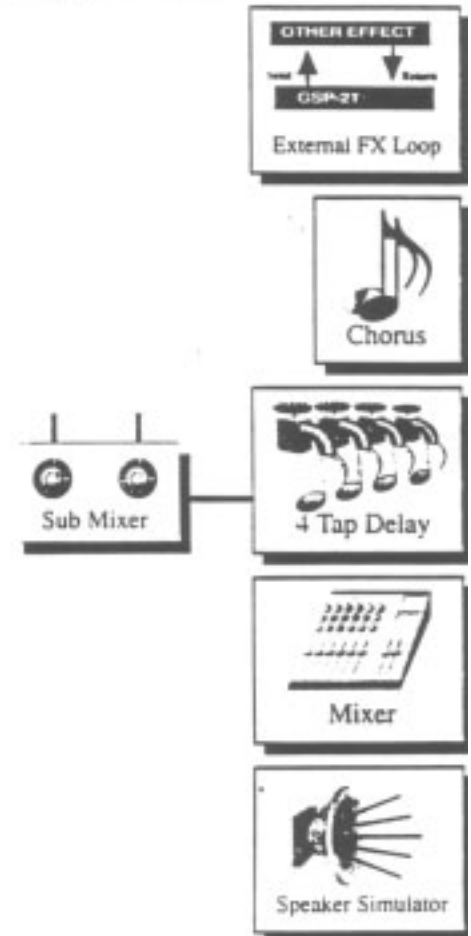
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Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Flange Delay	0 to 10 milliseconds
LFO Sweep Speed	0.0 to 5.00 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
Flange Feedback Phase	Negative or Positive
Flange Feedback	0 to 99 %
Delay in: Dry	0 to 10
Delay in: Flange	0 to 10
Delay Time	0 to .75 seconds
Delay Feedback	0 to 99 % and Repeat Hold
Reverb In: Dry	0 to 10
Reverb In: Flange	0 to 10
Reverb In: Delay	0 to 10
Reverb Pre-Delay	0 to 60 milliseconds
Reverb Filter	Bright, Soft or Warm
Reverb Decay	1 to 20 seconds

Mix: Dry Level	0 to 10
Mix: Flange R Level	0 to 10
Mix: Flange L Level	0 to 10
Mix: Delay R Level	0 to 10
Mix: Delay L Level	0 to 10
Mix: Reverb R Level	0 to 10
Mix: Reverb L Level	0 to 10

Cmp + Dst + Eq + NG + E + L + Ch + 4TD + Mx + SS

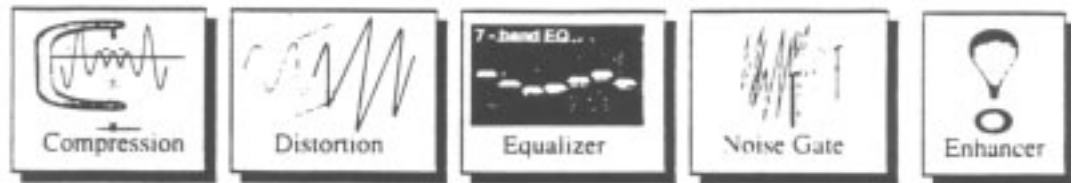


Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume Enhancement	± 12 dB in 1 dB steps
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Chorus Delay	0 to 60 milliseconds
LFO Sweep Speed	0.0 to 5.00 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
LFO Waveform	Sine, Sawtooth, Logarithmic
Delay in: Dry	0 to 10
Delay in: Chorus	0 to 10
Delay Time: Tap1	0 to 1.50 seconds
Delay Time: Tap2	0 to 1.50 seconds
Delay Time: Tap3	0 to 1.50 seconds
Delay Time: Tap4	0 to 1.50 seconds
Delay Time: Feed	0 to 1.50 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix: Dry Level	0 to 10
Mix: Chorus Level	0 to 10

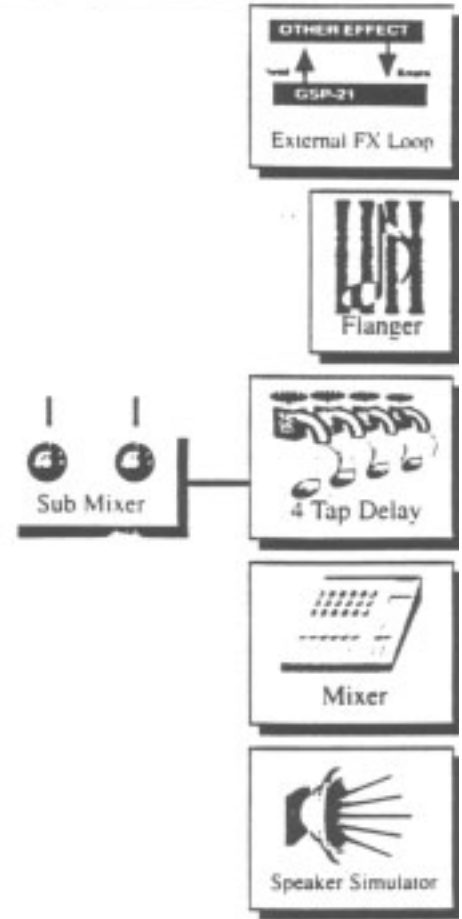


Mix: Tap1 L Level	0 to 10
Mix: Tap2 R Level	0 to 10
Mix: Tap2 L Level	0 to 10
Mix: Tap3 R Level	0 to 10
Mix: Tap3 L Level	0 to 10
Mix: Tap4 R Level	0 to 10

Cmp + Dst + Eq + NG + E + L + Fl + 4TD + Mx + SS



Effects Parameter	Parameter Range
Compression Enable	OFF or ON
Compression Amount	1 to 30
Compression Level	1 to 7
Distortion Enable	OFF or ON
Distortion Type	Rock Tube, Metal Tube, Overdrive or Heavy Sustain
Distortion Balls	0.6 to 11
Graphic EQ Enable	OFF or ON
63 Hz Band	± 12 dB in 1 dB steps
160 Hz Band	± 12 dB in 1 dB steps
400 Hz Band	± 12 dB in 1 dB steps
1 kHz Band	± 12 dB in 1 dB steps
2.5 kHz Band	± 12 dB in 1 dB steps
6.3 kHz Band	± 12 dB in 1 dB steps
16 kHz Band	± 12 dB in 1 dB steps
Master Volume	± 12 dB in 1 dB steps
Enhancement	OFF or 1 to 10
Noise Gate Enable	FIXED or ADJUSTABLE
Gate Threshold	1 to 10
External Effects Loop	NOT USED or BYPASSED / INLINE / SUMMED / INLINE + SUMMED
Flange Delay Time	0 to 10 milliseconds
LFO Sweep Speed	0.0 to 5.00 Hz
LFO Sweep Depth	0 to 6.35 milliseconds
Flange Feedback Phase	Negative or Positive
Flange Feedback	0 to 99 %
Delay in: Dry	0 to 10
Delay in: Flange	0 to 10
Delay Time: Tap1	0 to 1.50 seconds
Delay Time: Tap2	0 to 1.50 seconds
Delay Time: Tap3	0 to 1.50 seconds
Delay Time: Tap4	0 to 1.50 seconds
Delay Time: Feed	0 to 1.50 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix: Dry Level	0 to 10
Mix: Flange Level	0 to 10
Mix: Tap1 R Level	0 to 10



Mix: Tap1 L Level	0 to 10
Mix: Tap2 R Level	0 to 10
Mix: Tap2 L Level	0 to 10
Mix: Tap3 R Level	0 to 10
Mix: Tap3 L Level	0 to 10
Mix: Tap4 R Level	0 to 10
Mix: Tap4 L Level	0 to 10

APPENDIX C

FACTORY PRESET PROGRAMS

Presets 1 through 64 were specially programmed on the GSP-21 PRO by a stellar group of guitar professionals. Note: The presets in slots 1 through 64 are editable by the user. The Professional presets are repeated in preset slots 129 through 192 in their factory settings. Photocopy these pages and write in the titles of your edited presets on the copies.

#	User Title	#	Title (User Definable)	#	Title (Preset ROM)	#	Title (Preset ROM)
			Michael Angelo		Digitech Specialists		Michael Angelo
1	_____	1	Hey Punk	65	Rock Lead	129	Hey Punk
2	_____	2	Gettin' O.F.R.	66	Rock It Man	130	Gettin' O.F.R.
3	_____	3	G.C.W.S.S.	67	Comp Hall	131	G.C.W.S.S.
			Ted Nugent				Ted Nugent
4	_____	4	Ted Rhino Attack	68	Are You Blues	132	Ted Rhino Attack
5	_____	5	Ted	69	Hot Rod Stack	133	Ted
6	_____	6	More Rhino	70	Mr. Clean	134	More Rhino
			Tommy Shaw				Tommy Shaw
7	_____	7	Rhythm Split	71	Ambient Chorus	135	Rhythm Split
8	_____	8	Mellow Chorus	72	Top 40 Solo	136	Mellow Chorus
9	_____	9	High Enuff	73	Rhythm Crunch	137	High Enuff
			Steve Lukather				Steve Lukather
10	_____	10	Luke Lead	74	Metal Flanger	138	Luke Lead
11	_____	11	Luke Crunch	75	Rock Flanger	139	Luke Crunch
12	_____	12	Luke Clean	76	Captain Crunch	140	Luke Clean
			Michael Fath				Michael Fath
13	_____	13	Brazilian Blast!	77	Comp Chorus	141	Brazilian Blast!
14	_____	14	Transparency	78	The Abyss	142	Transparency
15	_____	15	Cream Sweep	79	Metal Head	143	Cream Sweep
			Glenn Tipton				Glenn Tipton
16	_____	16	GT1	80	Sweet Bluenotes	144	GT1
17	_____	17	GT2	81	Fat Tube Solo	145	GT2
18	_____	18	GT3	82	Crunchy Chorus	146	GT3
			K.K. Downing				K.K. Downing
19	_____	19	K.K. Deceiver	83	Tight Chorus	147	K.K. Deceiver
20	_____	20	K.K. Rip n' Grind	84	Blues Hall	148	K.K. Rip n' Grind
21	_____	21	K.K. Killer Lead	85	Delay Madness	149	K.K. Killer Lead
			Steve Vai				Steve Vai
22	_____	22	Crystal Echoes	86	Metal Marshmello	150	Crystal Echoes
23	_____	23	Unnatural	87	Classic Twin	151	Unnatural
24	_____	24	Follow	88	Balladeer Chorus	152	Follow
			Brad Gillis				Brad Gillis
25	_____	25	Brad Tube Solo	89	Fast Leslie	153	Brad Tube Solo
26	_____	26	Lead Gilrock	90	British Stack	154	Lead Gilrock
27	_____	27	Brad Chorus	91	Bright&LeftoRite	155	Brad Chorus
			Tim Kelly				Tim Kelly
28	_____	28	Angels	92	Turbo Flange	156	Angels
29	_____	29	Slaughter Lead	93	Creamy Solo	157	Slaughter Lead
30	_____	30	Rock the Nation	94	Mars Hall	158	Rock the Nation

#	User Title	#	Title (User Definable)	#	Title (Preset ROM)	#	Title (Preset ROM)
31	_____	31	Echosystem	95	Chorus It Wide	159	Echosystem
32	_____	32	Intimate Affair	96	Poisonous	160	Intimate Affair
33	_____	33	Crunch Chamber 1 Bruce Kulick	97	Euro-Rock	161	Crunch Chamber 1 Bruce Kulick
34	_____	34	NO NO NO Flange	98	16th Sequencer	162	NO NO NO Flange
35	_____	35	KISS KLEEN Pickn	99	Chunky Rhythm	163	KISS KLEEN Pickn
36	_____	36	Zeptune Lead Vito Bratta	100	Drivin' The Blues	164	Zeptune Lead Vito Bratta
37	_____	37	Vito Blues Lead	101	In ChorusCountry	165	Vito Blues Lead
38	_____	38	Fat Rhythm	102	Cool Crunchverb	166	Fat Rhythm
39	_____	39	Classic Clean Eric Peterson	103	Daily Double	167	Classic Clean Eric Peterson
40	_____	40	Riffarama	104	Ambient Lead	168	Riffarama
41	_____	41	FASD Rythm Crnch	105	Lead Echo	169	FASD Rythm Crnch
42	_____	42	Metal Cyloze Neal Schon	106	Moshin Metalhead	170	Metal Cyloze Neal Schon
43	_____	43	Beefy Widener	107	Wet N Flangy	171	Beefy Widener
44	_____	44	Safe FX	108	Rock Flange	172	Safe FX
45	_____	45	Schonacide Jennifer Batten	109	Jazz Guitar	173	Schonacide Jennifer Batten
46	_____	46	Ballad Slobber	110	Backmask Guitar	174	Ballad Slobber
47	_____	47	Cathedral Vibe	111	Sweet Lil' Leslie	175	Cathedral Vibe
48	_____	48	Clean Machine Bob Bradshaw	112	Like a Synth	176	Clean Machine Bob Bradshaw
49	_____	49	B.B. Lead	113	Chorus Talkback	177	B.B. Lead
50	_____	50	B.B. Crunch	114	Raw Rock n' Roll	178	B.B. Crunch
51	_____	51	B.B. Clean George Lynch	115	Digitalis Rock	179	B.B. Clean George Lynch
52	_____	52	Lynch Rhythm	116	Wait a Sec & 1/2	180	Lynch Rhythm
53	_____	53	Lynch Lead	117	Sweet JD Blues	181	Lynch Lead
54	_____	54	Lynch Clean Digitech Specialists	118	Rippin' Stadium	182	Lynch Clean Digitech Specialists
55	_____	55	Gimme Page	119	Clean Gate	183	Gimme Page
56	_____	56	Touch O'Flame	120	Fat Smooth Solo	184	Touch O'Flame
57	_____	57	Halls of Glass	121	Rock Zipper	185	Halls of Glass
58	_____	58	Taberncle Chorus	122	Feedback in 3rds	186	Taberncle Chorus
59	_____	59	Green Rain	123	Tubular Overdriv	187	Green Rain
60	_____	60	Shreded Meat	124	Swimming Triplet	188	Shreded Meat
61	_____	61	Metal Rhythm	125	Southern Rock	189	Metal Rhythm
62	_____	62	The Bosman	126	Metal Bandsaw	190	The Bosman
63	_____	63	Rick's Ripper	127	Rythmic Multitap	191	Rick's Ripper
64	_____	64	Rhythm Ace	128	Blues Rock	192	Rhythm Ace

APPENDIX D

STANDARD MIDI CONTINUOUS CONTROLLERS

CONTROLLER NUMBER	CONTROLLER FUNCTION
0	Undefined
1	Modulation wheel or lever
2	Breath controller
3	Undefined
4	Foot controller
5	Portamento time
6	Data entry MSB
7	Main volume
8	Balance
9	Undefined
10	Pan
11	Expression controller
12 through 15	Undefined
16 through 19	General purpose controllers 1 through 4
20 through 31	Undefined
32 through 63	LSB for values 0 through 31
64	Damper pedal (sustain)
65	Portamento
66	Sostenuto
67	Soft pedal
68	Undefined
69	Hold 2
70 through 79	Undefined
80 through 83	General purpose controllers 5 through 8
84 through 91	Undefined
92	Tremolo depth
93	Chorus depth
94	Celeste depth
95	Phaser depth
96	Data increment
97	Data decrement
98	Non-registered parameter number LSB
99	Non-registered parameter number MSB
100	Registered parameter number LSB
101	Registered parameter number MSB
102 through 121	Undefined
122 through 127	Channel mode messages