DigiTech

DSP-256XL

Multi-Effects Processor

English Version

Owner's Manual

H A Harman International Company

The DSP-256XL

DigiTech's second-generation digital signal processor stores 256 unique stereo effect combinations. There's reverb effects, chorusing, flanging, multi-tap delays, filtering and both graphic and parametric equalization. All effects can be fully adjusted and programmed.

For added MIDI control, connect it to a synthesizer, MIDI sequencer, or a DigiTech PDS 3500 MIDI controller. In the studio, the DSP-256XL provides unequaled sound effects, while its flexibility makes it indispensible for the stage.

Standard features include:

- 128 fixed presets and 128 programmable slots
- Up to four simultaneous effects
- 28 effect configurations
- Liquid crystal display with effect configuration titles
- Separate program and parameter buttons
- Title editing and utility functions
- Full MIDI input/output capability
- Bypass, store and compare buttons

DigiTech's own HISC 20-bit VLSI engine create smooth, dynamic sound effects with maximum frequency response.

Contents

Safety Precautions

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 arrow point in a 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 owner's manual.

THESE SYMBOLS ARE A WARNING THAT THERE ARE NO USER SERVICEABLE PARTS INSIDE THIS EQUIPMENT, AND THAT THERE ARE HAZARDOUS VOLTAGES PRESENT WITHIN THIS EQUIPMENT. DO NOT OPEN THIS EQUIPMENT. DO NOT ATTEMPT TO SERVICE THIS EQUIPMENT YOURSELF. REFER ALL SERVICING TO QUALIFIED PERSONNEL. DO NOT MAKE ANY INTERNAL ADJUSTMENTS OR ADDITIONS TO THIS EQUIPMENT AT ANY TIME. DO NOT TAMPER WITH THE INTERNAL ELECTRONIC COMPONENTS AT ANY TIME. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID WARRANTY SERVICE TO THIS EQUIPMENT, AS WELL AS CAUSE A SHOCK HAZARD.

This equipment should be operated only at the voltage indicated on the rear panel. Replace fuse only with same type and rating as indicated on rear panel. Do not attempt to defeat the safety ground by using a ground lift adapter or by physically removing the ground prong from the plug.

This equipment should be situated so that its location or position does not interfere with proper ventilation. This equipment should be kept away from heat sources (such as amplifiers).
This equipment should not be used near water--for example, near a bathtub, laundry tub, in a wet basement, near a swimming pool, etc.

The power cord to this equipment should be routed so that it is not likely to be walked on or pinched by items placed upon or against it. Care should be taken as to not overload any one AC power outlet with too many appliances. The power cord should be unplugged from the outlet when the equipment is left unused for a long period of time.

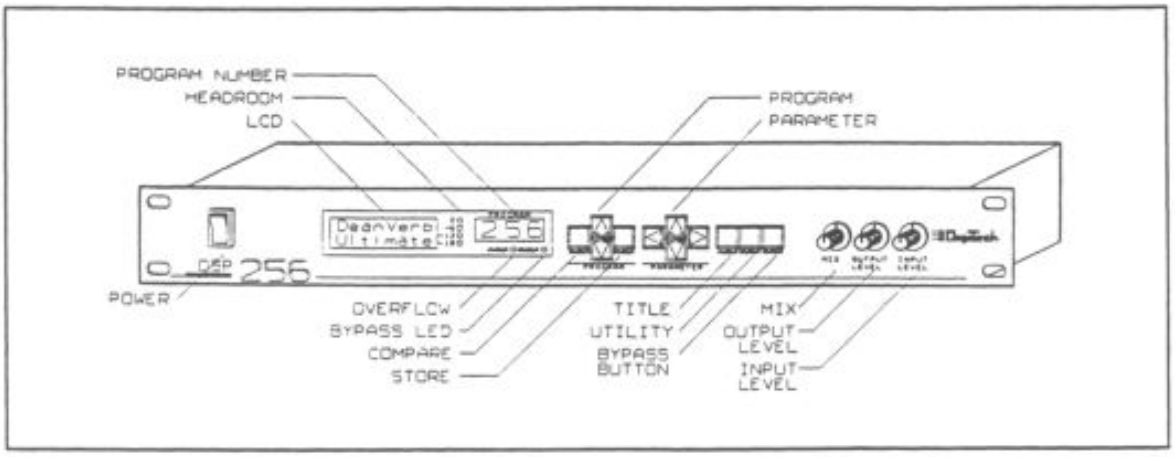
Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through any openings.

Quick-Start

For best performance from the DSP-256XL, follow the instructions below. See "Making Connections" (page 5) and related sections for detailed instructions.

INSTALL	Mount the DSP-256XL 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 balance (tip-ring-sleeve) or unbalanced (tip-sleeve) cables may be used. Mono or stereo connections can be made by using one or two cables. See "Making Connections" (page 5).
CONNECT FOOTSWITCHES	Two rear footswitch jacks can be used for remote selection of effects programs, if desired. See "Utility Menu" (page 11).
ADJUST INPUT	Turn on the DSP-256XL. Set the instrument, amp, and/or mixer to loudest level that will be used. Adjust the DSP-256XL input level until the red headroom LED comes on occasionally.
ADJUST OUTPUT	Set the DSP-256XL output level to the desired volume.
ADJUST MIX	Adjust the front panel mix control to achieve the desired dry or wet output. Use full wet output if the mix is to be programmed internally.
CONNECT MIDI CONTROLLER	Plug in a MIDI controller, sequencer or synthesizer to the rear MIDI IN jack, if desired. See "Utility Menu" (page 9).
SELECT PROGRAM	Choose any preset program or user-defined program using the up and down program buttons.

Front Panel Controls



POWER	Turns the DSP-256XL on and off. When turned on, the unit returns to the same program as when it was shut off. Press the COMPARE button when turning on, and the DSP-256XL goes into display mode. It will stay in this mode until the unit is turned off and back on again.
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 6).
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	Three-digit LED displays the selected program number.
COMPARE	Compares current program being edited to the original program.
PROGRAM	Changes and selects program numbers. Wraps around from 1 to 256.
STORE	Saves new effect configurations to a selected program number. See "Store" (page 8).
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 selected effect parameter values, utility parameters, or title letter. See "Programming" (page 7) and "Utility Menu" (page 9).

Front Panel Controls (continued)

TITLE — Allows the name of the current program to be edited. See "Title" (page 8).

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 9).

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

MIX — Adjusts the output signal ratio from dry (no effects, counter-clockwise) to wet (maximum effects, clockwise). See "Making Connections" (page 6).

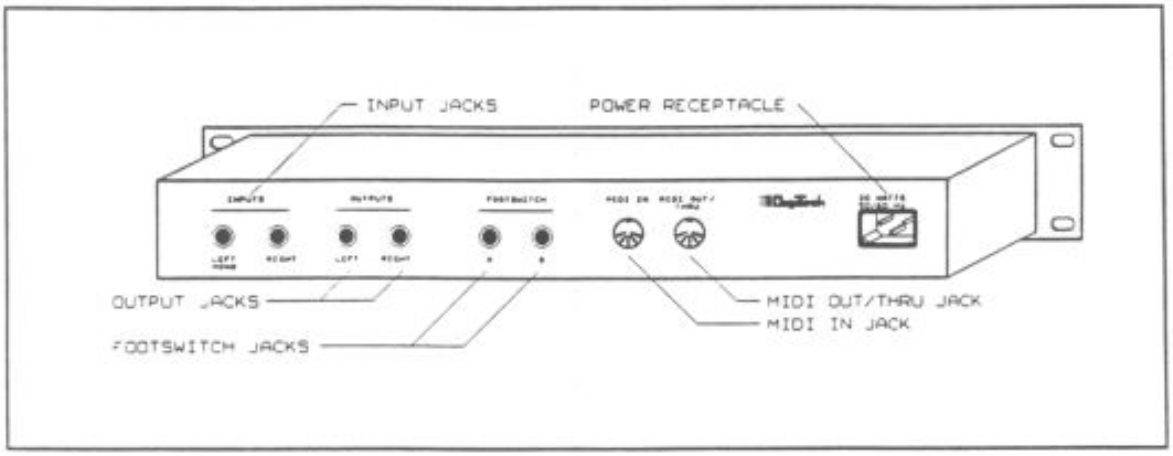
Individual effect mixes can also be programmed internally. See "Effect Parameters" (page 14).

OUTPUT LEVEL — Adjusts the output signal to the desired level. See "Making Connections" (page 6).

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

INPUT LEVEL — Adjusts the strength of the received stereo or mono signal to an optimum level. See "Making Connections (page 6).

Rear Panel



INPUT JACKS — Two T-R-S 1/4-inch jacks for balanced or unbalanced instrument or line signals. Use the left (mono) jack for mono input.

OUTPUT JACKS — Two T-R-S 1/4-inch jacks for stereo output to amplifier, mixing console, or effects loop. Use the left (mono) jack for mono only, or a mix of both left and right for best mono sound.

FOOTSWITCH JACKS — Two 1/4-inch stereo tip-ring-sleeve jacks for use with a three-button DigiTech FS-300 pedal or standard single-button tip-to-ground footswitch. Pedal functions can be programmed. See "Utility Menu" (page 11).

MIDI IN JACK — Five-pin DIN for standard MIDI cable. Receives MIDI control data. See "Utility Menu" (page 9).

MIDI OUT/ THRU JACK — Five-pin DIN for standard MIDI cable. See "Utility Menu" (page 9).

Making Connections

The DSP-256XL creates the ultimate in stereo or mono sound effects from instruments or line signals.

DIRECT CONNECTIONS

For direct connections, configure the instrument, DSP-256XL and amplifier as follows:

Mono In, Mono Out — Connect the instrument to the DSP-256XL left input. Connect the left output to the amp input. For best sound, combine both DSP-256XL outputs to the amp input.

Making Connections (continued)

Mono In, Stereo Out — Connect the instrument to the DSP-256XL left input. Connect the left and right outputs to the amplifier or mixer inputs.

Stereo In, Stereo Out — Connect the instrument to both DSP-256XL inputs. Connect the left and right outputs to the amp inputs.

Stereo In, Mono Out — Connect the instrument to both DSP-256XL inputs. Connect the left output to the amp input. For best sound, combine both DSP-256XL outputs to the amp input.

EFFECTS LOOPS

The DSP-256XL can also act as 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 effects send to the DSP-256XL left input, then from the DSP-256XL left output to the effects return.

Using Stereo Outputs & Inputs — Connect the instrument to the mixer or amp input. Connect right and left effects sends to the DSP-256XL inputs. Then connect the DSP-256XL outputs to the right and left effects return.

Using Auxiliary Output & Inputs (Mono to Stereo) — Connect a mono mixer auxiliary output to the DSP-256XL left input. Connect both DSP-256XL outputs to the mixer's input channels or auxiliary returns.

In-line Stereo Outputs & Inputs — Plug the instrument into the mixer or amp. Connect the mixer's left and right main outputs to the DSP-256XL inputs. Then connect the DSP-256XL outputs to the mixer or amp main inputs.

Numerous combinations of the above can be used with multiple mixers and amps. Experiment with stereo or mono outputs going to stereo or mono inputs to achieve the desired instrument dry-to-wet signal mix.

ADJUST INPUT, OUTPUT AND MIX

Input — After connecting the DSP-256XL inputs and outputs, set the instrument, amp, and/or mixer to loudest operation that will be used. Adjust the DSP-256XL input level so the red headroom LED only occasionally comes on. The red LED comes on just before the signal is clipped.

Mix — Set the output mix to the desired ratio of wet (digitally processed stereo effects) to dry (original stereo or mono sound) signal. For a wet signal, turn the mix clockwise. For a dry signal, turn the mix counter-clockwise. The center position provides a 50-50 mix.

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

Programming

SELECTING PROGRAMS

Press the up or down program buttons on either 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 256.

The first 128 slots (programs 1 through 128) 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 129 through 256) which represent a wide range of versatile configurations designed and named by a panel of studio musicians and technicians.

CREATING PROGRAMS

To customize a program, start by selecting one of the first 128 slots. Modify the preset as desired, change the name, then store it.

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

Changing Configurations. Push the right button on the front panel and the display reads:

```
Configuration
Cho+Dly+Room+Mix
```

The DSP-256XL is now in the editing mode, where new effects configurations can be selected and effect parameters changed. See Appendix A "Effect Configurations" (page 19).

A configuration consists of a pre-defined combination of effects. Use the up and down parameter buttons to choose a configuration.

Changing Parameters. Press the left or right parameter buttons to select an effect parameter to be changed. The display will read:

```
Low Pass Filter
(800 Hz)
```

Parenthesis appear around the original effect parameters so they can be reset if a modified effect doesn't sound right.

Push the parameter up and down buttons and the value of the selected parameter changes. Set the effect parameter to the desired level, then push the parameter left or right buttons for the next effect parameter.

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 unedited program. See "Compare" (page 9).

Change 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 8).

Store

After selecting the desired effects, editing the effect parameters and changing the title, press the store button to save the changes. The display will read:

```
Save Changes to
Program 12
```

The current program number will be shown if a user slot (1-128) 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 (129 - 256) is being edited, the corresponding user slot number 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 128 slots above it. 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, escape back to the editing mode by pressing the compare button.

Aborting Changes. If the program has been edited but not stored, the DSP-256XL 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, write them in the "User Programs" (Appendix B). This will help keep track of all the programs and sounds that are stored on the DSP-256XL.

Title

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

```
Edit Title
Age of Plastic
```

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!"#$%&'()*+,-./:
;<=>?@[]^_`{|}→←

After changing the title, press the title button again. The DSP-256XL 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 unedited 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:

```
Comparing
```

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.

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.

Utility Menu

Press the utility button to access the following functions:

1. Select MIDI channel
2. Change MIDI continuous controller (CC) links
3. Change the MIDI program link table (also called MIDI mapping)
4. Transmit program changes to other MIDI devices down-line
5. Change footswitch functions
6. Change the LCD contrast
7. Dump all programs to a MIDI computer, MIDI recorder or another DSP-256XL.
8. Dump a single program to a MIDI computer, MIDI recorder or another DSP-256XL.
9. Restore unit to factory preset condition
10. Show software version number

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.

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 DSP-256XL.

There are 128 MIDI functions, called continuous controllers, which can be used to externally control most functions of the DSP-256XL. See Appendix D, "Standard MIDI Continuous Controllers".

Utility Menu (continued)

SELECT MIDI CHANNEL

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

```
MIDI channel
      1
```

The DSP-256XL 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 no channels (none), channels 1 through 16, or all channels simultaneously (omni).

Press the right parameter button to go to the next utility function, or left parameter button to go to the previous utility function.

CHANGE MIDI CC LINKS

This function links a DSP-256XL effect parameter to a MIDI continuous controller (CC). For example, if the modulation wheel or lever (normally CC1) is linked to the parameter reverb level, the modulation wheel or level can be programmed to control the reverb level.

When this utility is selected, the display reads:

```
Accent Dly Time
Linked to CC   ø
```

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 DSP-256XL comes from the factory with no 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 CC's 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 the ø. Press the up or down parameter button to select a CC.

There are 128 CC's, 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.

MIDI PROGRAM LINK TABLE

In addition to MIDI channels and CC's, there are also MIDI programs. Using this utility, programs on the DSP-256XL are changed at the same time program changes are made on a MIDI controller.

Because there are only 128 MIDI program numbers, and the DSP has 256 programs, use this utility to select which DSP program is called up when the MIDI program number is changed.

For example, the synthesizer may use program 12 for a trumpet sound, but the effects that go with this sound are on program 223 of the DSP-256XL. Set the MIDI link table to read:

```
MIDI program  12
is 223 on DSP-256XL
```

When this utility is selected, the cursor is under the number on the top line. Press the parameter up and down buttons to change the MIDI program numbers and look at the linkages. From the factory, all linkages are set so MIDI programs 1 through 128 are linked to DSP-256XL programs 1 through 128.

Utility Menu (continued)

To change a linkage, push the parameter right button. The cursor moves to the DSP-256XL 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.

FOOTSWITCH

Two DigiTech FS-300 three-button pedals, or standard single-button tip-to-ground footswitches can be used. Make sure the pedals are plugged in, then push any pedal button. The function of that button will appear on the bottom line of the display. To change the footswitch button function, push the parameter up or down buttons.

Now push the second pedal button and its function will be displayed. Change functions with the parameter up or down buttons. Set each footswitch button to the desired function in the same manner.

The pedal buttons can perform all the functions shown on the DSP-256XL front panel, plus patch select. Using this, the footswitch button can call up specific program numbers.

When the patch select function is shown, the display will read:

```
Foot controller
Patch select   #
```

SOFTWARE VERSION

This function displays the software version installed on the DSP-256XL. The display will read:

```
DigiTech
DSP-256XL
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."

Utility Menu (continued)

Press the right parameter button and the # turns into a program number. Push the up or down parameter buttons to change program numbers. Now the selected program is recalled whenever that footswitch button is pressed.

After setting the footswitch configuration, press the right parameter button to go to the next utility function.

CHANGE LCD CONTRAST

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

```
LCD contrast
      1
```

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.

DUMP ALL PROGRAMS

This utility sends all the DSP-256XL programs to a MIDI computer, a MIDI recorder or to another DSP-256XL.

When selected, the display reads:

```
Dump MIDI Data?
  Up = Yes
```

Make sure the receiving device is properly connected to the DSP-256XL MIDI out jack and both devices are using the same MIDI channel, then press the parameter up button. The display will show the message "MIDI Data Dump in Progress".

To skip this utility, press the right parameter button.

DUMP A SINGLE PROGRAM

This utility sends the current DSP-256XL program to a MIDI computer, a MIDI recorder or to another DSP-256XL. This is a great way to copy a user program off someone else's DSP-256XL.

When selected, the display will ask if it should dump MIDI data. Make sure the receiving device is properly connected and both devices are using the same MIDI channel. First, select the program you wish to dump by using the parameter up, down buttons. Press the parameter right button and select the target program or where you want the program to end up. Press the parameter down button to initiate dump.

To skip this utility, press the right parameter button.

RESTORE UNIT

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

When selected, the display reads:

```
Restore unit?
  Up = Yes
```

If the parameter up button is pressed, the display gives the following warning:

```
Okay to destroy
all data?
  Up = Yes
```

Press parameter up to confirm, or press any other front panel button to cancel the restore command. Then press the parameter right button go to the next utility function.

Effect Parameters

The DSP-256XL is a highly-complex processor which converts analog signals 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 effects can be used simultaneously.

REVERB

Reverberation is the repeated reflection of sound off surfaces in an enclosed space. The DSP-256XL provides 14 programmable reverb effects. The parameters of these effects have been preset to create four sounds:

Hall — Simulates the acoustic environment of a large room or music hall. A large room has more diffusion and a longer decay time than smaller rooms because the sound travels farther.

Room — Imitates the feel of being in a small room, directly opposite the sound source. The reverb has a short decay time.

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.

REVERB EFFECTS

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.

Effect Parameters (continued)

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 reverse reverb effect before, at or after the end of the reverse reverb decay.

Accent Amplitude — Strength of the delayed accent at the end of the reverse reverb effect.

Normalized Reflectivity — Reflectivity of surfaces in the 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 x 3.4 = 2.38 secs.

Room Size — Selects between Studio, Club, Chamber, Hall or Arena type rooms.

Position — Simulates distance from sound source; near, mid, or far.

DELAY EFFECTS

Delay is the time between the original signal and an echo. The DSP-256XL provides seven programmable delay effects:

DELAY TIME

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

0 - 750
0 - 1500

Delay Level — Relative internal strength of the delay effect.

Feedback — Amount of signal internally fedback in the delay. Feedback repeats the echo.

Right Multi-Tap Delay Time — Amount of time between multiple delay effects on the right signal.

Left Multi-Tap Delay Time — Amount of time between multiple delay effects on the left signal.

Center Multi-Tap Delay Time — Amount of time between multiple delay effects on both the right and left signals.

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

Effect Parameters (continued)

MODULATION EFFECTS

Chorusing — 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 — Effect originally produced by slowing tape reels by pressing against the flanges. Created by splitting the signal, using feedback and a small delay time on one, then joining it with the original.

MODULATION PARAMETERS

Speed — LFO 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 Delay — Time delay of the chorus effect.

Chorus Level — Relative internal level of the chorus effect.

Flange Feedback — Amount of flange effect fed back into the original signal.

Flange Delay Time — Time delay of the flange effect.

Flange Level — Relative internal level of the flange effect.

EQUALIZATION

Equalization is used to compensate for frequency deficiencies and to control an instrument's tonal qualities. The DSP-256XL provides two programmable equalizers:

Nine-Band Graphic Equalizer — Adjusts frequencies within set bandwidths: bass (63 Hz to 250 Hz), midrange (500 Hz to 2 kHz), and treble (4 kHz to 16 kHz).

Three-Band Parametric Equalizer — Adjusts frequencies within variable bandwidths from 0.10 to 12 kHz. Band levels can also be adjusted from -12 to +12 dB.

FILTERING

The DSP-256XL is programmed to provide frequency filtering:

Low-Pass Filter Cutoff Frequency — High-frequency roll-off point for the low-pass filter.

Specifications

Maximum Input:	+18 dBv (ref 0.775v_{rms})
Maximum Output:	+18 dBv (ref 0.775v_{rms})
Input Control:	±12 dB from center +4 to -20 dB nominal level
Output Control:	±12 dB from center +4 to -20 dB nominal level
Input Impedance:	40k ohm stereo 20k ohm mono
Output Impedance:	51 ohm
THD:	Less than 0.08% at 1 kHz
Resolution:	16-bit linear PCM conversion
SNR:	88 dB nominal level
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

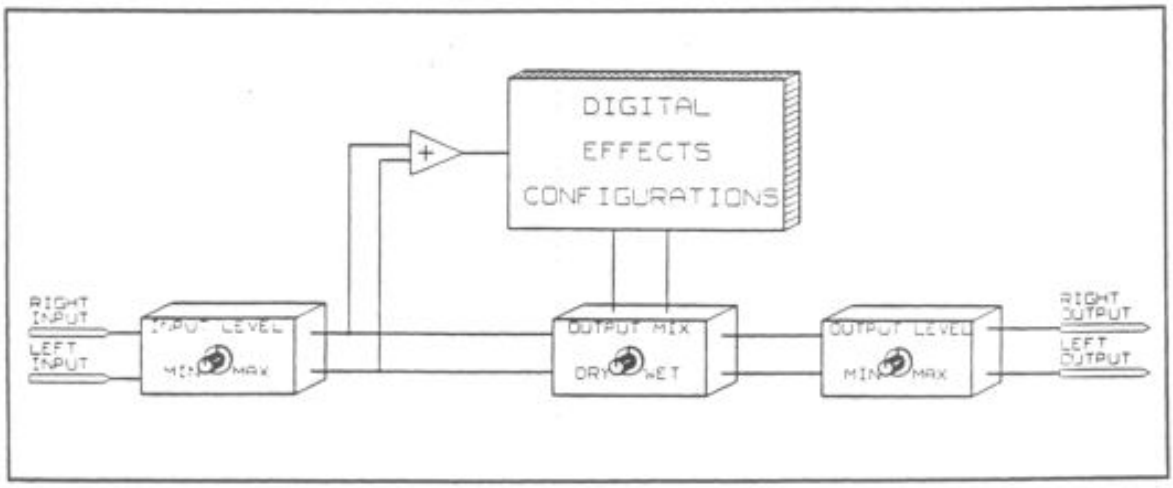
Acronyms and Abbreviations

A-D	analog-to-digital
CC	continuous controller
ChP	channel pressure
DSP	digital 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
LPF	low-pass filter
LSB	least significant byte
MIDI	Musical Instrument Digital Interface
MSB	most significant byte
msec	milliseconds
PCM	pulse-code modulation
rms	root mean square
RT60	reverb time 60 dB
SNR	signal-to-noise ratio
THD	total harmonic distortion
T-R-S	tip-ring-sleeve
VLSI	Very-Large-Scale Integrated chip

Appendix A

EFFECT CONFIGURATIONS

The DSP-256XL has 25 programmable effects configurations, using different combinations of 22 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 128 user programs, which can be logged in Appendix C. The illustration below provides an overview of the signal going into and out of the effects.



Mute

Effects Parameter	Parameter Range
None	None

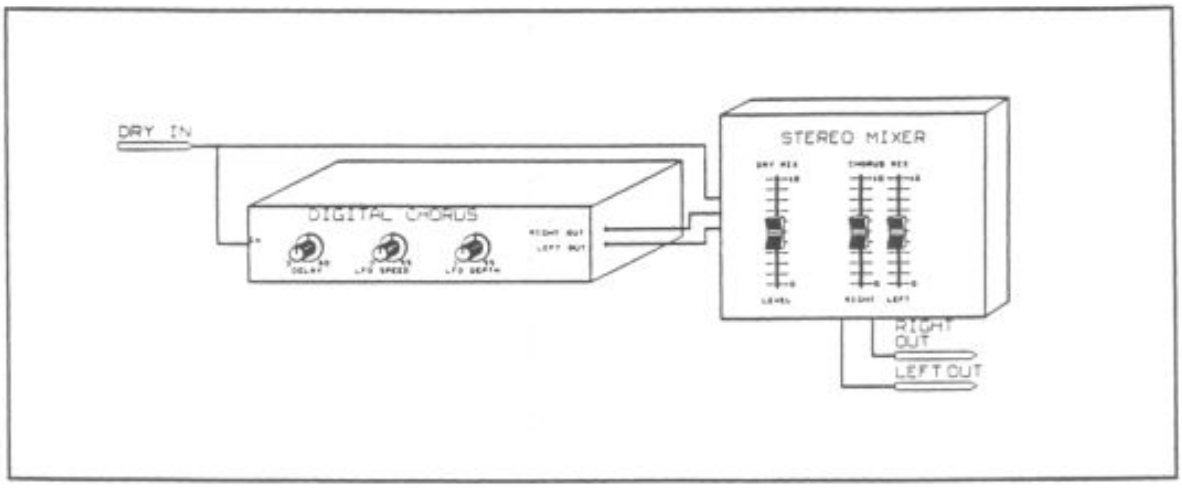
Dry

Effects Parameter	Parameter Range
None	None

Appendix A (continued)

EFFECT CONFIGURATIONS

Stereo Chorus

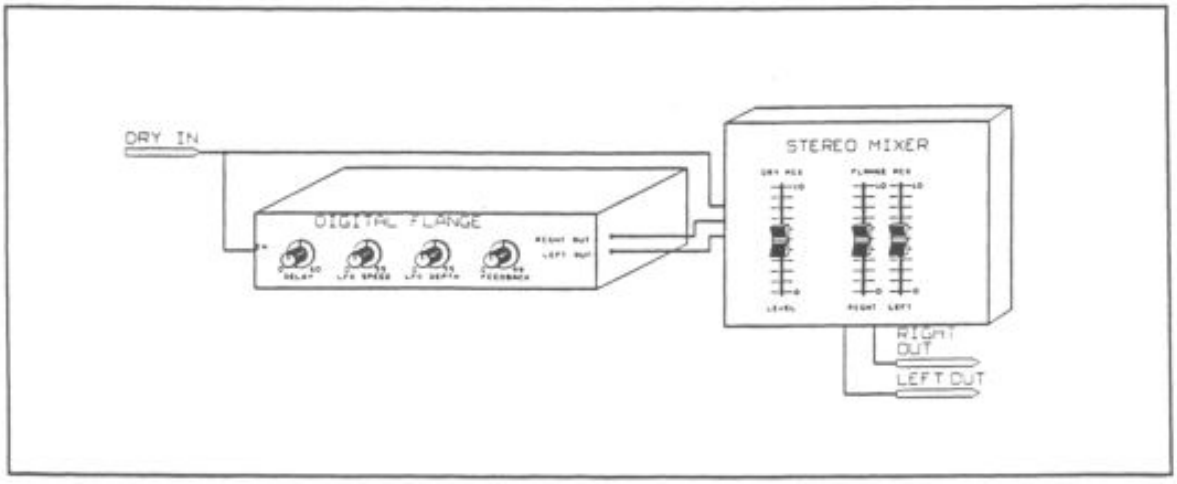


Effects Parameter	Parameter Range
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Mix Dry	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Stereo Flange

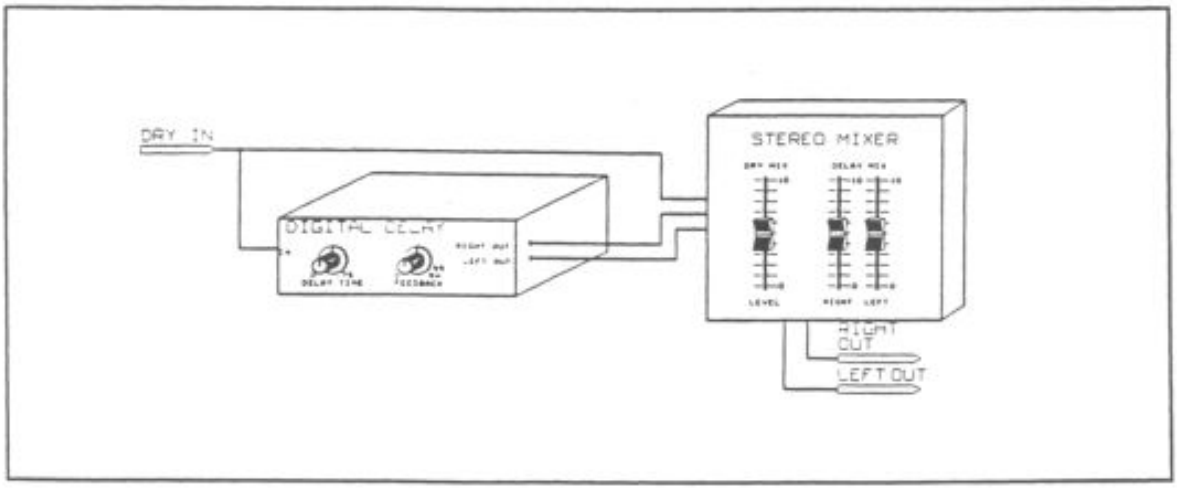


Effects Parameter	Parameter Range
Flange Delay	0 to 10 millisecs
Flange LFO Speed	0 to 65
Flange LFO Depth	0 to 99
Flange Feedback	0 to 99 percent
Mix Dry	0 to 10
Mix Flange Right	0 to 10
Mix Flange Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Stereo Delay

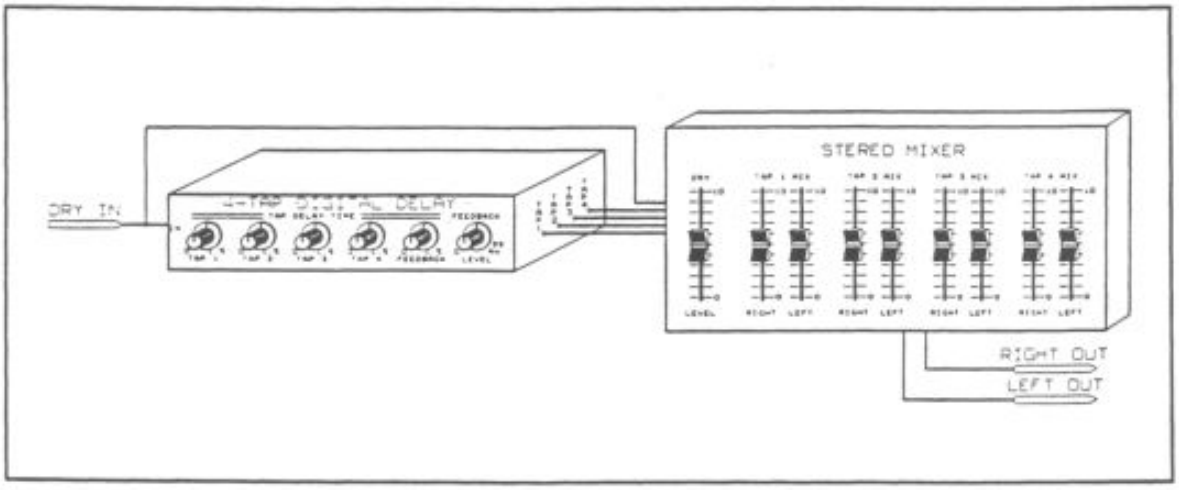


Effects Parameter	Parameter Range
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix Dry	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

4-Tap Delay

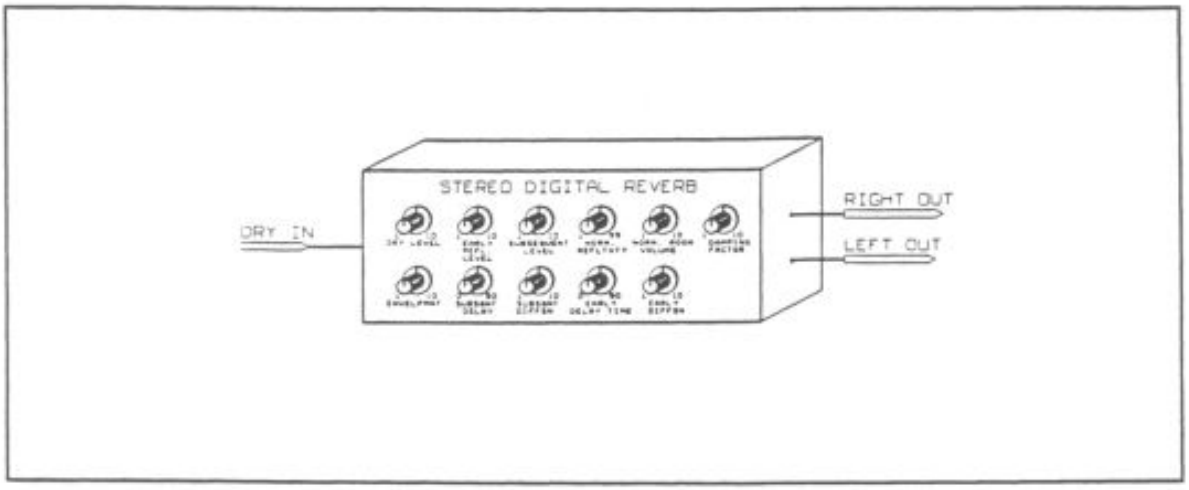


Effects Parameter	Parameter Range
Delay Time Tap1	0 to 1.5 sec
Delay Time Tap2	0 to 1.5 sec
Delay Time Tap3	0 to 1.5 sec
Delay Time Tap4	0 to 1.5 sec
Delay Time Feed	0 to 1.5 sec
Delay Feedback	0 to 99 percent and Repeat Hold
Mix:Dry Level	0 to 10
Mix:Tap1 R Level	0 to 10
Mix:Tap1 L Level	0 to 10
Mix:Tap2 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 A (continued)

EFFECT CONFIGURATIONS

Ultimate Reverb

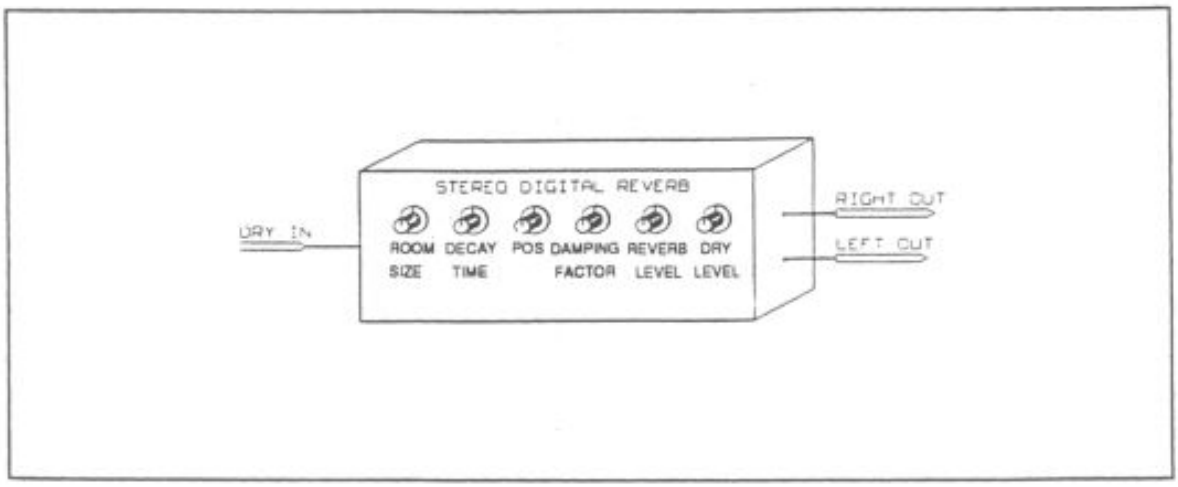


Effects Parameter	Parameter Range
Dry Level	1 to 10
Early Reflect Level	1 to 10
Subsequent Level	1 to 10
Normal Reflectivity	1.0 to 99 seconds
Norm Room Volume	0.1 to 1.0
Damping Factor	1 to 10
Envelopment	1 to 10
Subsequent Delay	0 to 80 millisecs
Subsequent Diffusion	1 to 10
Early Delay Time	0 to 80 millisecs
Early Diffusion	1 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Room Simulator

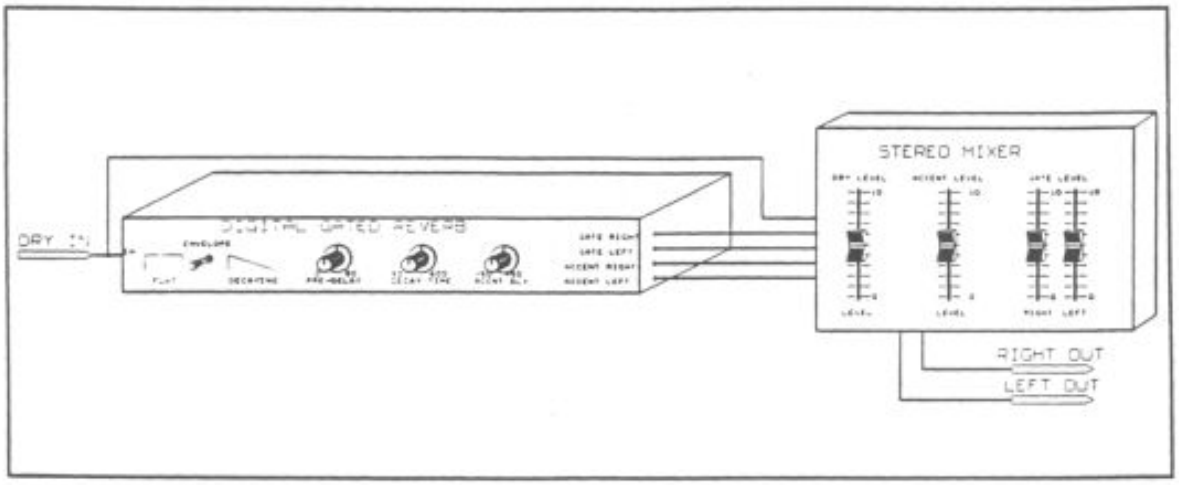


Effects Parameter	Parameter Range
Room Size	Chamber, Club, Hall, Arena, Studio
Decay Time	0.20 Seconds to 34.0 Seconds
Position	Near, Mid, Far
Damping	1 to 10
Reverb Level	0 to 10
Dry Level	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Gated Reverb

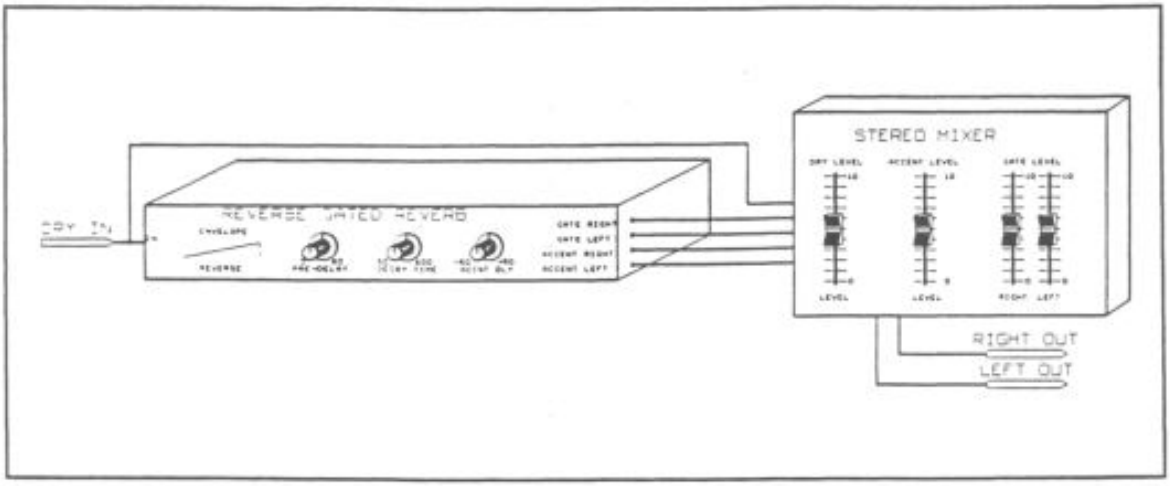


Effects Parameter	Parameter Range
Predelay	0 to 80 millisecs
Gate Envelope	Flat or decaying
Gate Decay Time	50 to 600 millisecs
Accent Delay	-50 to +50 millisecs
Accent Level	0 to 10
Mix:Dry Level	0 to 10
Mix:Gate R Level	0 to 10
Mix:Gate L Level	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Reverse Reverb

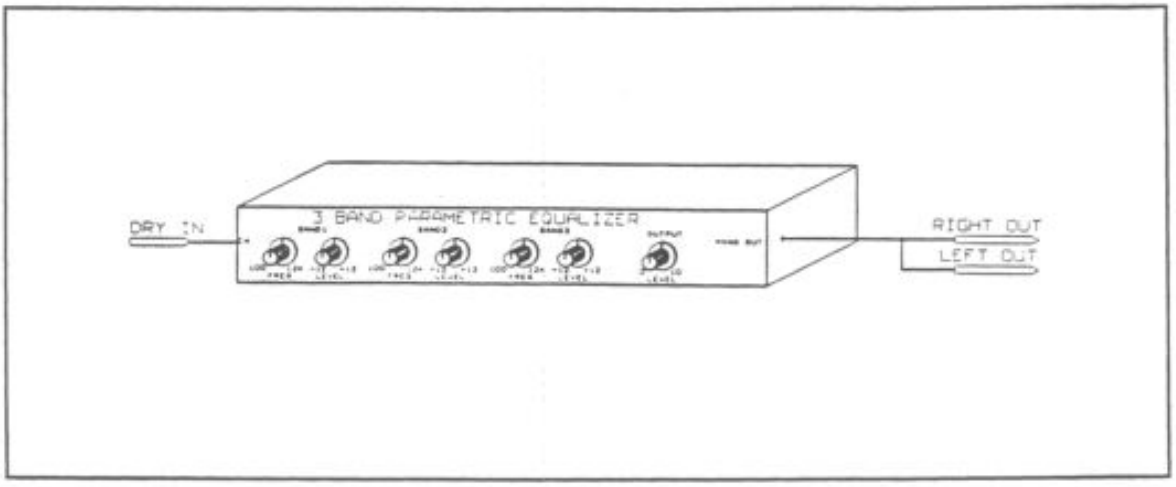


Effects Parameter	Parameter Range
Predelay	0 to 80 millisecs
Reverse Time	50 to 600 millisecs
Accent Delay	-50 to +50 millisecs
Accent Level	0 to 10
Mix:Dry Level	0 to 10
Mix:Reverse R Level	0 to 10
Mix:Reverse L Level	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Parametric EQ

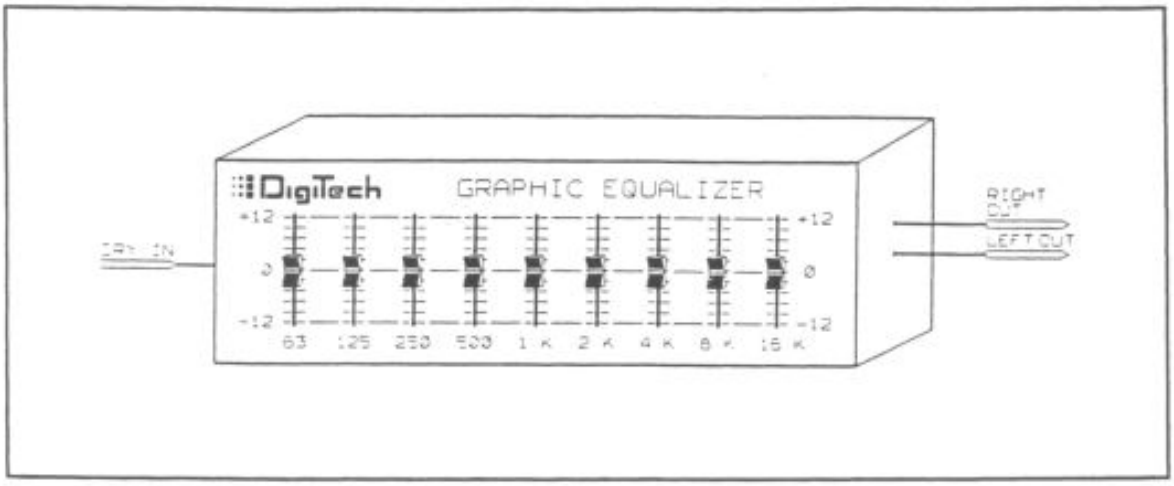


Effects Parameter	Parameter Range
Band 1 Frequency	0.10 to 12.0 kHz
Band 1 Level	-12 to +12 dB
Band 2 Frequency	0.10 to 12.8 kHz
Band 2 Level	-12 to +12 dB
Band 3 Frequency	0.10 to 12.8 kHz
Band 3 Level	-12 to +12 dB
Mix EQ	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Graphic EQ

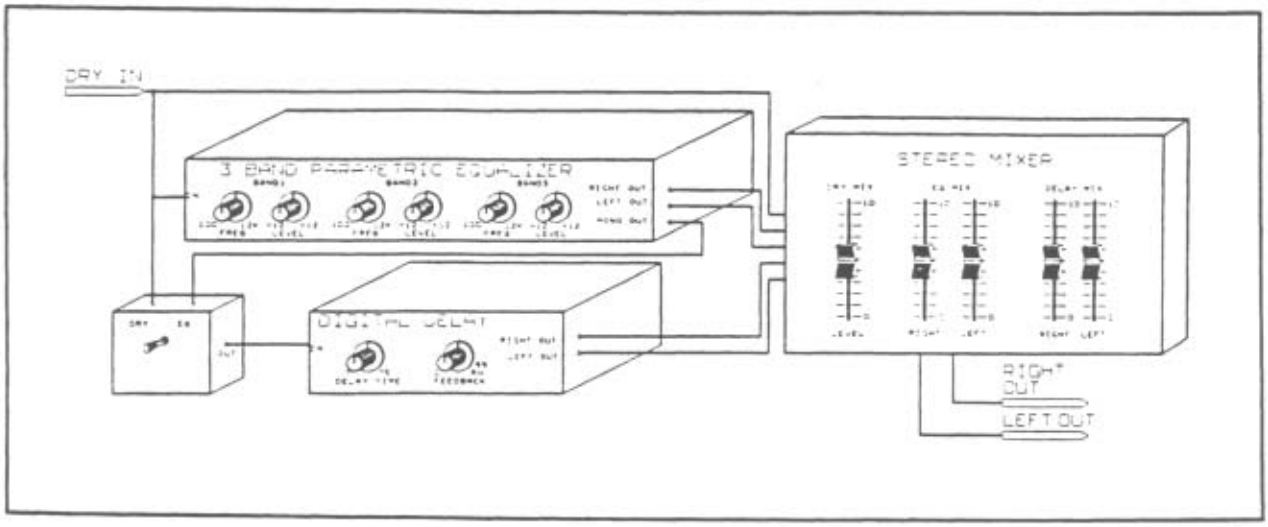


Effects Parameter	Parameter Range
Graphic 63 Hz	-12 to +12 dB
Graphic 125 Hz	-12 to +12 dB
Graphic 250 Hz	-12 to +12 dB
Graphic 500 Hz	-12 to +12 dB
Graphic 1 kHz	-12 to +12 dB
Graphic 2 kHz	-12 to +12 dB
Graphic 4 kHz	-12 to +12 dB
Graphic 8 kHz	-12 to +12 dB
Graphic 16 kHz	-12 to +12 dB

Appendix A (continued)

EFFECT CONFIGURATIONS

Para+Delay+Mixer

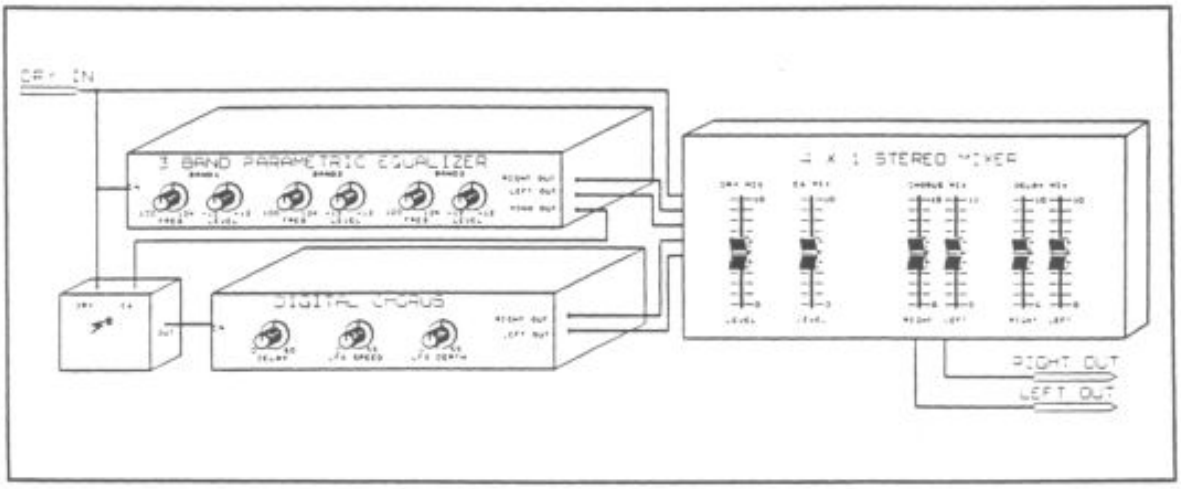


Effects Parameter	Parameter Range
Band 1 Frequency	0.10 to 12.0 kHz
Band 1 Level	-12 to +12 dB
Band 2 Frequency	0.10 to 12.8 kHz
Band 2 Level	-12 to +12 dB
Band 3 Frequency	0.10 to 12.8 kHz
Band 3 Level	-12 to +12 dB
Delay EQ Source	Pre-EQ or Post-EQ
Delay In:EQ	0 to 10
Delay Time	0 to 1.5 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix Dry	0 to 10
Mix EQ	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Para+Chorus+Mix

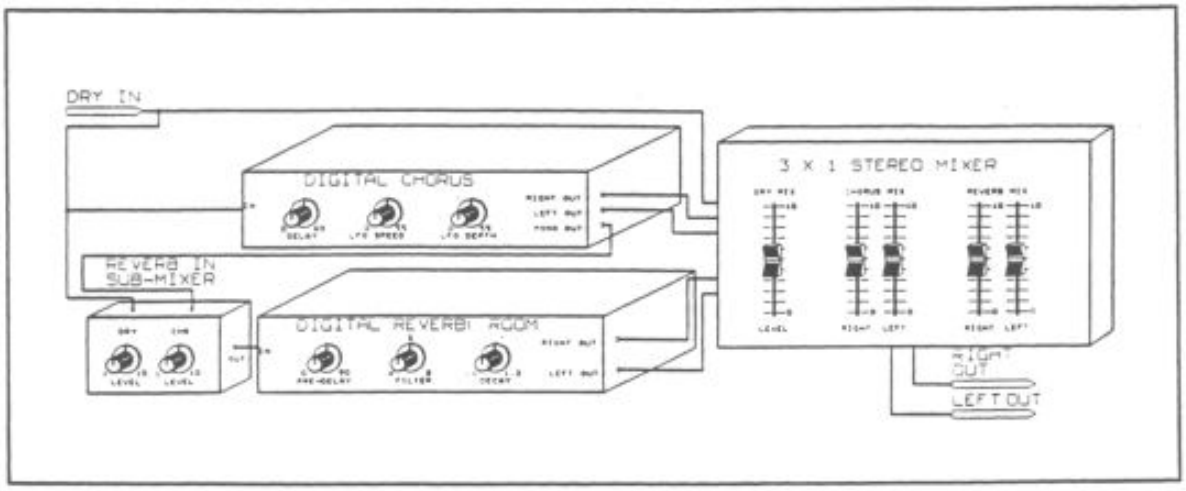


Effects Parameter	Parameter Range
Band 1 Frequency	0.10 to 12.0 dB
Band 1 Level	-12 to +12 dB
Band 2 Frequency	0.10 to 12.8 kHz
Band 2 Level	-12 to +12 dB
Band 3 Frequency	0.10 to 12.8 kHz
Band 3 Level	-12 to +12 dB
Chorus EQ Source	Pre-EQ or Post-EQ
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Mix Dry	0 to 10
Mix EQ	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Chorus+Room+Mix

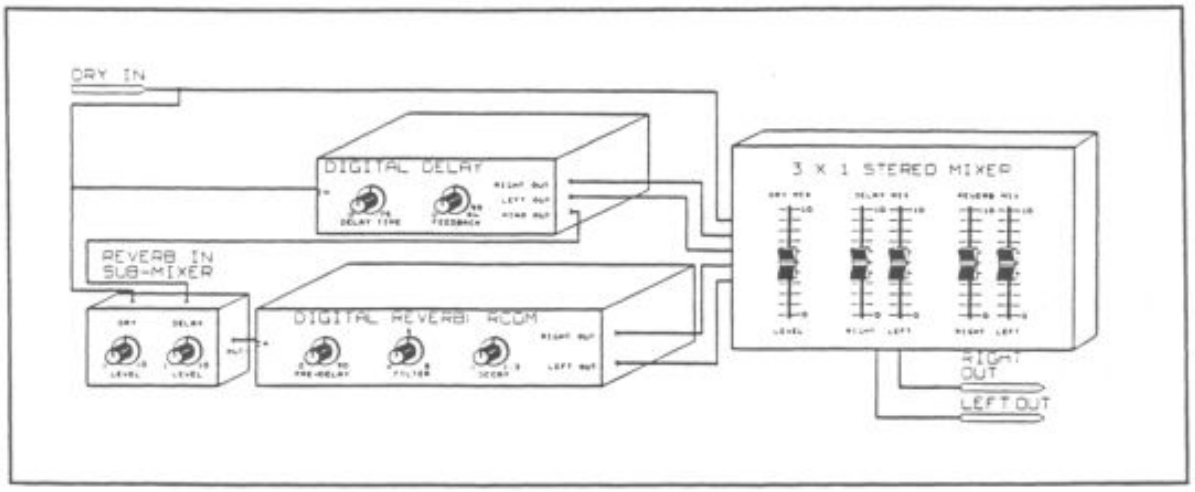


Effects Parameter	Parameter Range
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Reverb In:Dry	0 to 10
Reverb In:Chorus	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Delay+Room+Mixer

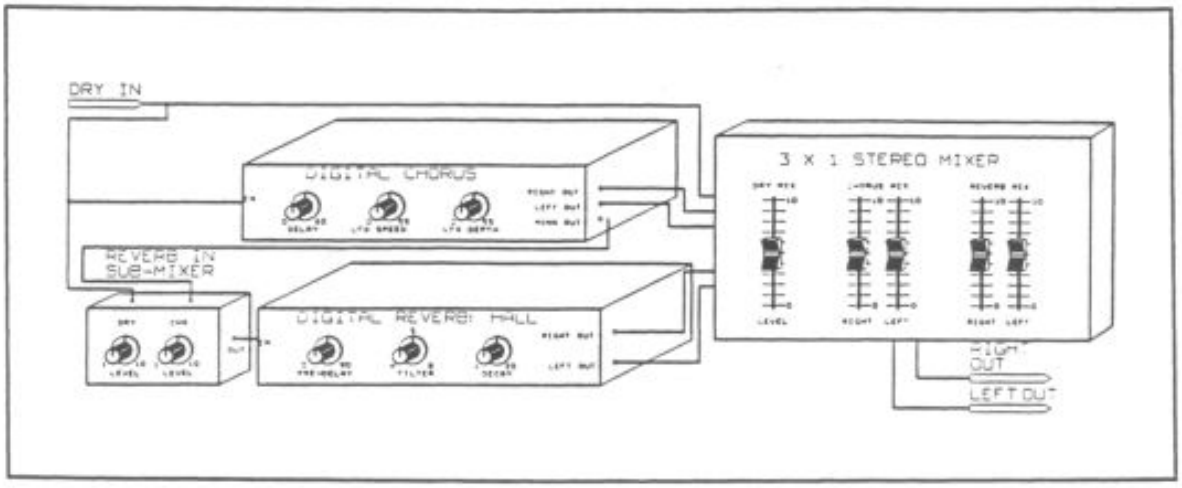


Effects Parameter	Parameter Range
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Chorus+Hall+Mix

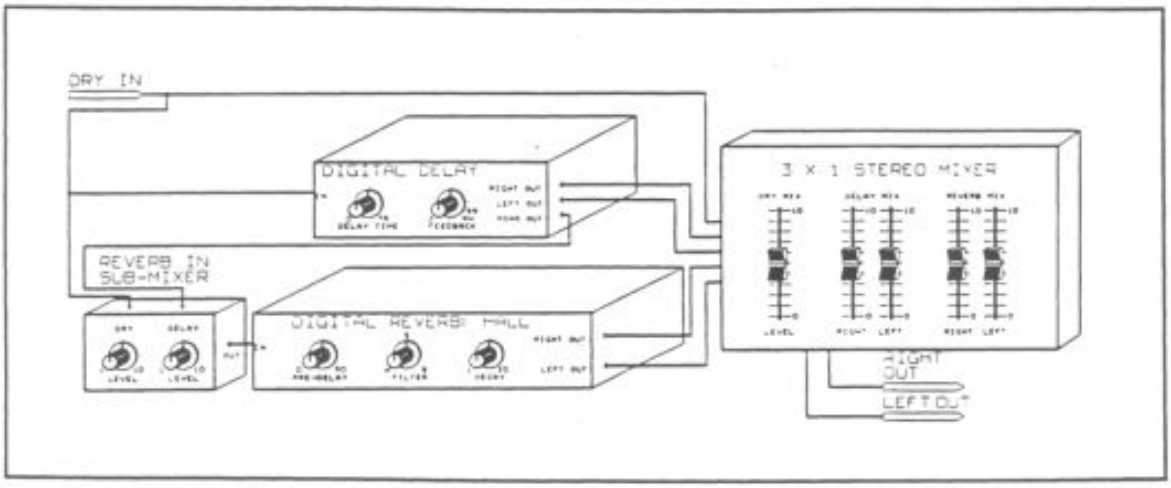


Effects Parameter	Parameter Range
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Reverb In:Dry	0 to 10
Reverb In:Chorus	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Delay+Hall+Mixer

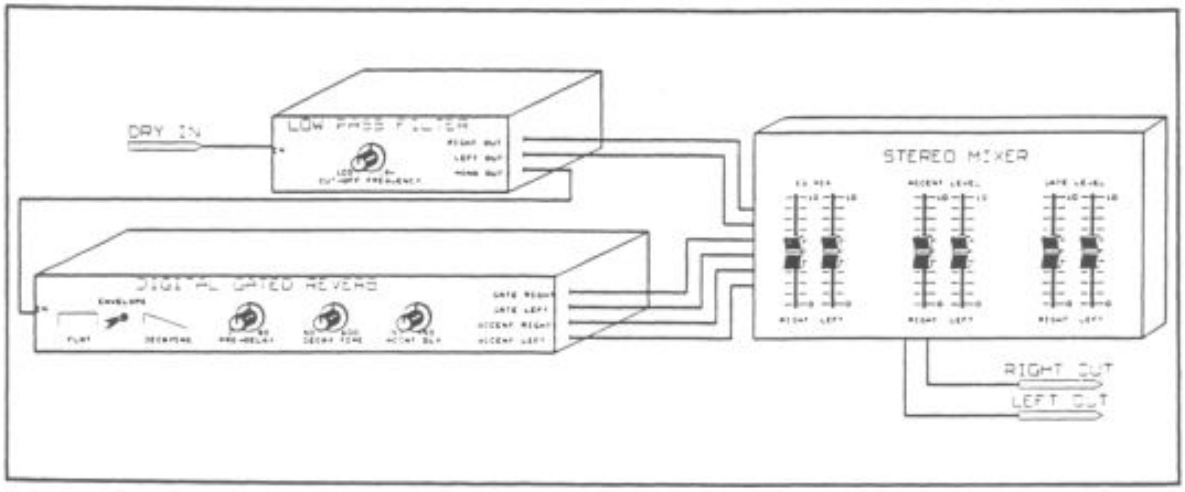


Effects Parameter	Parameter Range
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

EQ+Gate+Mixer

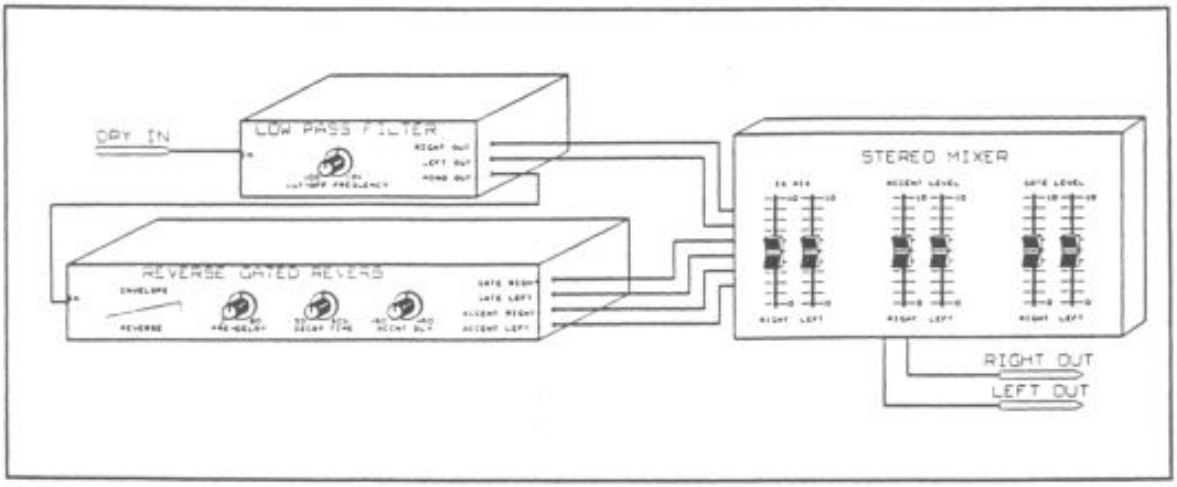


Effects Parameter	Parameter Range
LPF Cut-off Freq	100 Hz to 18 kHz
Gate Envelope	Flat or Decaying
Gate Decay Time	50 to 600 millisecs
Mix:EQ Right	0 to 10
Mix:EQ Left	0 to 10
Mix:Accent Right	0 to 10
Mix:Accent Left	0 to 10
Mix:Gate Right	0 to 10
Mix:Gate Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

EQ+Reverse+Mixer

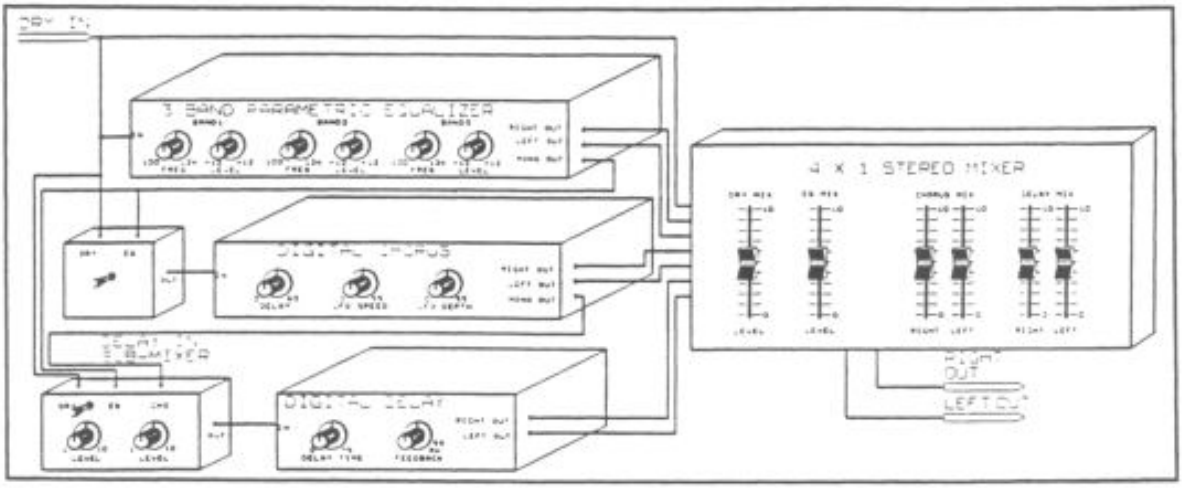


Effects Parameter	Parameter Range
LPF Cut-off Freq	100 Hz to 18 kHz
Reverse Time	0 to 600 millisecs
Decay Time	50 to 600 millisecs
Accent Delay	-50 to +50 millisecs
Mix:EQ Right	0 to 10
Mix:EQ Left	0 to 10
Mix:Accent Right	0 to 10
Mix:Accent Left	0 to 10
Mix:Reverse R	0 to 10
Mix:Reverse L	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Para+Cho+Dly+Mix

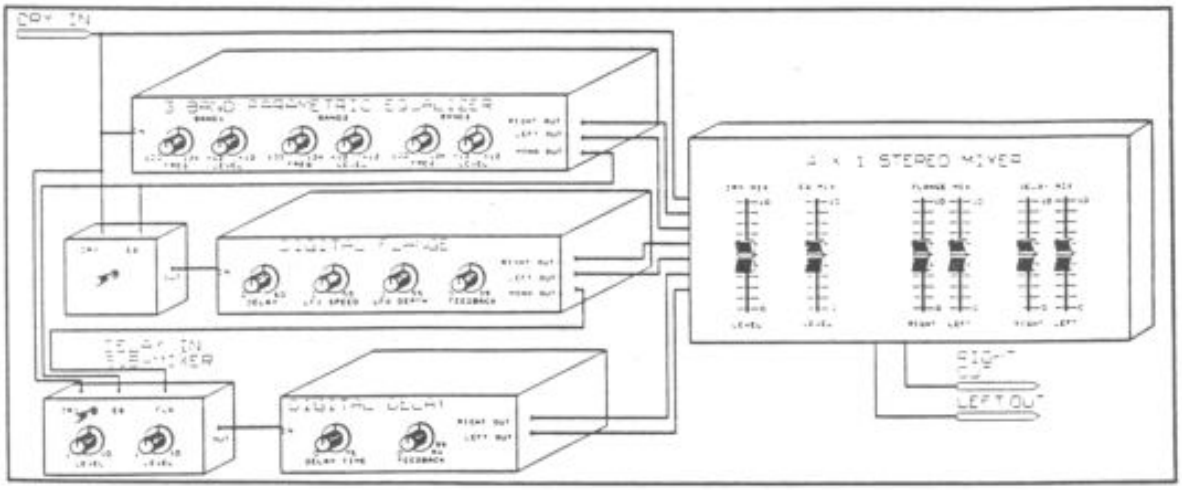


Effects Parameter	Parameter Range
Band 1 Frequency	0.10 to 12.0
Band 1 Level	-12 to +12 dB
Band 2 Frequency	0.10 to 12.8 kHz
Band 2 Level	-12 to +12 db
Band 3 Frequency	0.10 to 12.8 kHz
Band 3 Level	-12 to +12 dB
Chorus EQ Source	Pre-EQ or Post-EQ
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Delay EQ Source	Pre-EQ or Post-EQ
Delay In:EQ	0 to 10
Delay In:Chorus	0 to 10
Delay Time	0 to 1.5 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix Dry	0 to 10
Mix EQ	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Para+Fla+Dly+Mix

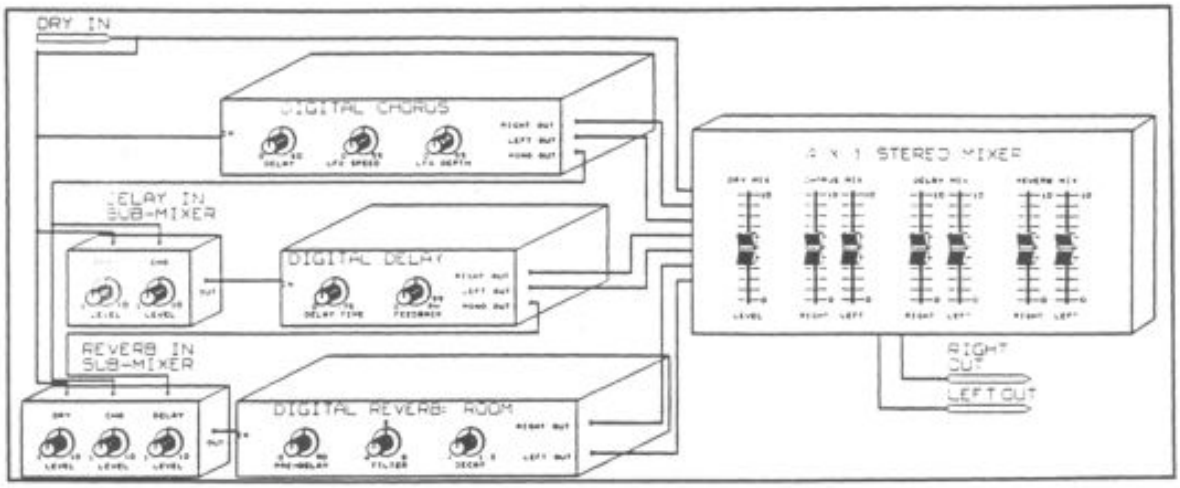


Effects Parameter	Parameter Range
Band 1 Frequency	0.10 to 12.0 kHz
Band 1 Level	-12 to +12 dB
Band 2 Frequency	0.10 to 12.8 kHz
Band 2 Level	-12 to +12 db
Band 3 Frequency	0.10 to 12.8 kHz
Band 3 Level	-12 to +12 dB
Flange EQ Source	Pre-EQ or Post-EQ
Flange Delay	0 to 10 millisecs
Flange LFO Speed	0 to 65
Flange LFO Depth	0 to 99
Flange Feedback	0 to 99 percent
Delay EQ Source	Pre-EQ or Post-EQ
Delay In:EQ	0 to 10
Delay In:Flange	0 to 10
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix Dry	0 to 10
Mix EQ	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Flange Right	0 to 10
Mix Flange Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Cho+Dly+Room+Mix

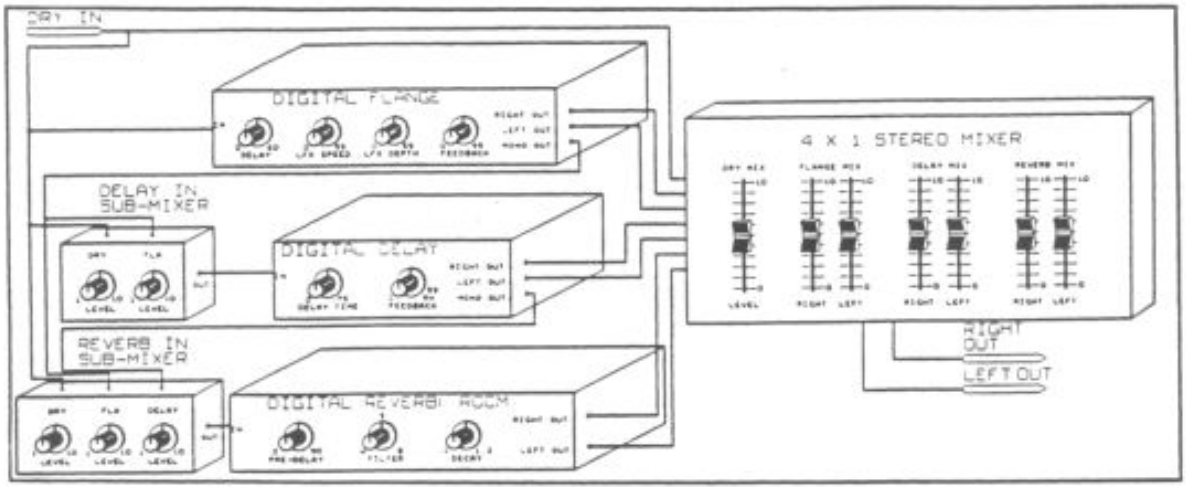


Effects Parameter	Parameter Range
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Delay In:Dry	0 to 10
Delay In:Chorus	0 to 10
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Chorus	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Fla+Dly+Room+Mix

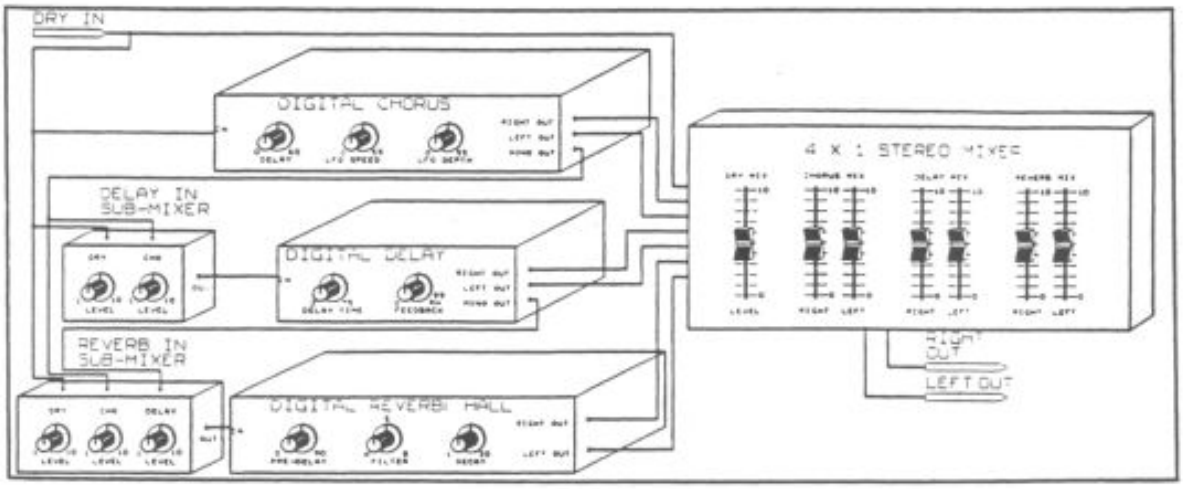


Effects Parameter	Parameter Range
Flange Delay	0 to 10 millisecs
Flange LFO Speed	0 to 65
Flange LFO Depth	0 to 99
Flange Feedback	0 to 99%
Delay In:Dry	0 to 10
Delay In:Flange	0 to 10
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Flange	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Flange Right	0 to 10
Mix Flange Left	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Cho+Dly+Hall+Mix

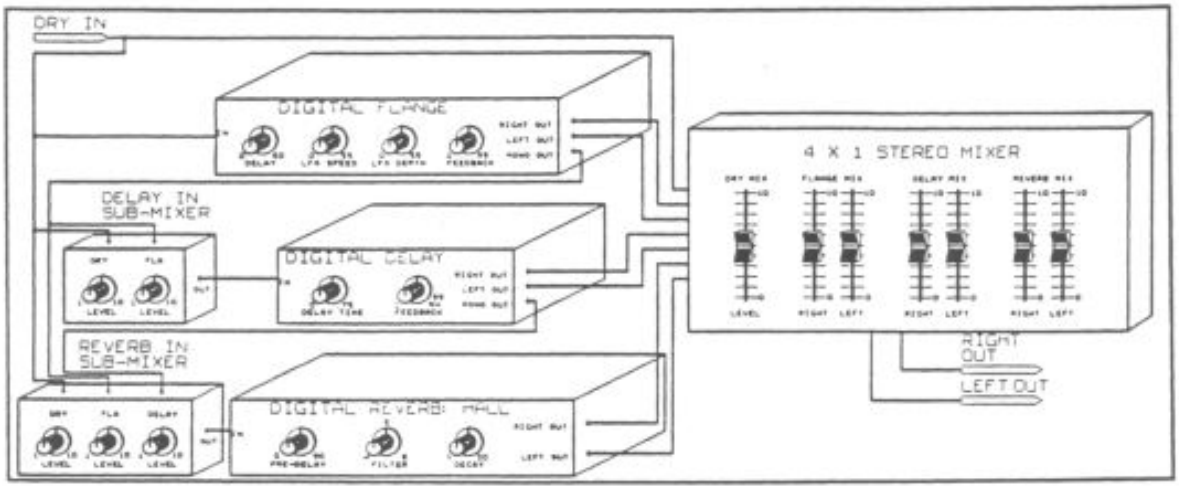


Effects Parameter	Parameter Range
Chorus Delay	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Delay In:Dry	0 to 10
Delay In:Chorus	0 to 10
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Chorus	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Chorus Right	0 to 10
Mix Chorus Left	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

Fla+Dly+Hall+Mix

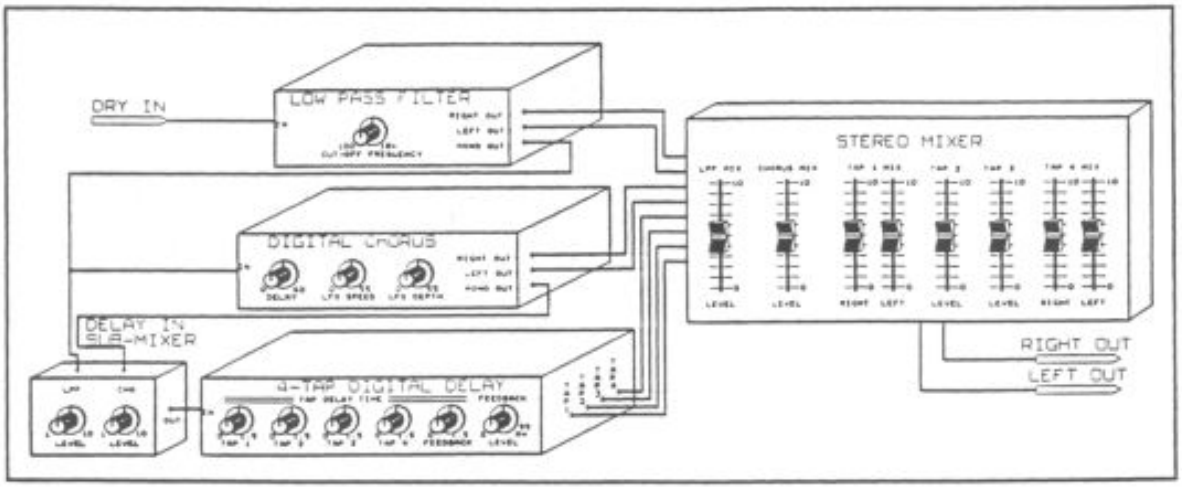


Effects Parameter	Parameter Range
Flange Delay	0 to 10 millisecs
Flange LFO Speed	0 to 65
Flange LFO Depth	0 to 99
Flange Feedback	0 to 99%
Delay In:Dry	0 to 10
Delay In:Flange	0 to 10
Delay Time	0 to 0.75 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Reverb In:Dry	0 to 10
Reverb In:Flange	0 to 10
Reverb In:Delay	0 to 10
Reverb Predelay	0 to 80 millisecs
Reverb Filter	Bright, Soft or Warm
Reverb Decay	100 to 1200 millisecs
Mix Dry	0 to 10
Mix Flange Right	0 to 10
Mix Flange Left	0 to 10
Mix Delay Right	0 to 10
Mix Delay Left	0 to 10
Mix Reverb Right	0 to 10
Mix Reverb Left	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

EQ+Chor+4Tap+Mix

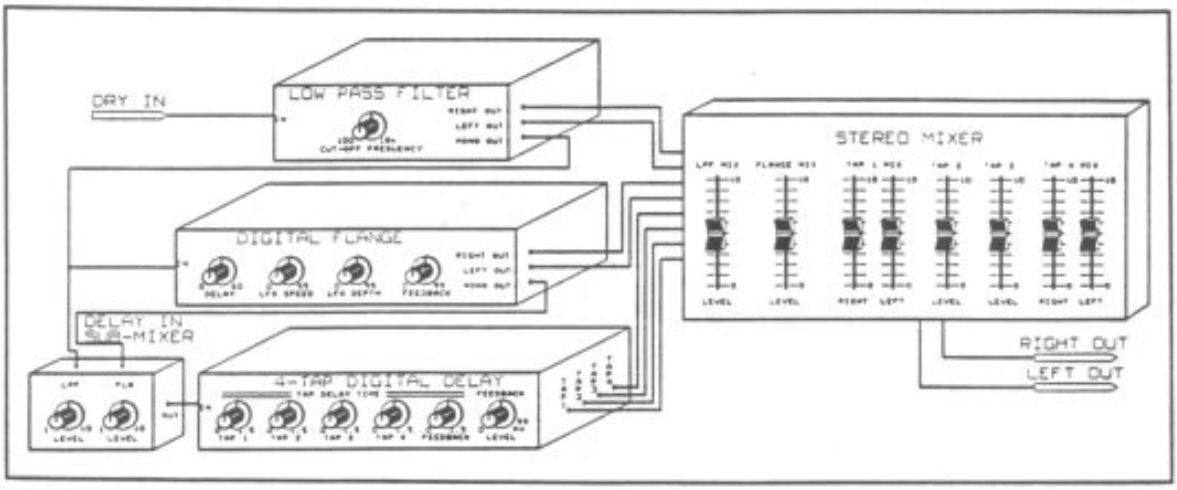


Effects Parameter	Parameter Range
LPF Cut-off Frequency	0.10 to 18 kHz
Chorus Delay Time	0 to 60 millisecs
Chorus LFO Speed	0 to 65
Chorus LFO Depth	0 to 99
Delay In:EQ	0 to 10
Delay In:Chorus	0 to 10
Delay Time Tap1	0 to 1.5 seconds
Delay Time Tap2	0 to 1.5 seconds
Delay Time Tap3	0 to 1.5 seconds
Delay Time Tap4	0 to 1.5 seconds
Delay Time Feed	0 to 1.5 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix:EQ Level	0 to 10
Mix:Chorus Level	0 to 10
Mix:Tap1 R Level	0 to 10
Mix:Tap1 L Level	0 to 10
Mix:Tap2 Level	0 to 10
Mix:Tap3 Level	0 to 10
Mix:Tap4 R Level	0 to 10
Mix:Tap4 L Level	0 to 10

Appendix A (continued)

EFFECT CONFIGURATIONS

EQ+Flan+4Tap+Mix



Effects Parameter	Parameter Range
LPF Cut-off Freq	100 Hz to 18 kHz
Flange Delay Time	0 to 10 millisecs
Flange LFO Speed	0 to 65
Flange LFO Depth	0 to 99
Flange Feedback	0 to 99 percent
Delay In:EQ	0 to 10
Delay In:Flange	0 to 10
Delay Time Tap1	0 to 1.5 seconds
Delay Time Tap2	0 to 1.5 seconds
Delay Time Tap3	0 to 1.5 seconds
Delay Time Tap4	0 to 1.5 seconds
Delay Time Feed	0 to 1.5 seconds
Delay Feedback	0 to 99 percent and Repeat Hold
Mix:EQ 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 Level	0 to 10
Mix:Tap3 Level	0 to 10
Mix:Tap4 R Level	0 to 10
Mix:Tap4 L Level	0 to 10

Appendix B

USER PROGRAMS (copy this page and write your programs here)

Program Number:_____ Configuration:_____ Title:_____

Program Number:_____ Configuration:_____ Title:_____

Program Number:_____ Configuration:_____ Title:_____

Program Number:_____ Configuration:_____ Title:_____

Program Number:_____ Configuration:_____ Title:_____

Program Number:_____ Configuration:_____ Title:_____

Appendix C

DSP-256XL FACTORY PRESETS

1. Left in Hall
2. Fat Animation
3. Rebounce
4. Jazz by Three
5. Cathedral
6. To the Left
7. Chor/Dly in Back
8. Flange Echoverb
9. Chorus Hall 4Vox
10. Splashverb 2
11. Get Back
12. The Gym
13. Opera House
14. Theater
15. Large Chapel
16. Arena
17. Marble Mansion
18. Afterglow
19. Rich Plate
20. Early Reflection
21. Real Room
22. Sweet Hall
23. Water Tank
24. Parking Terrace
25. Stereo Bolero
26. Rich Left & Right
27. Cresc Back & 4th
28. Decrecendo Echos
29. Mary Gone Round
30. 1 & 1/2 Seconds
31. Back & 4th 250 ms
32. Back & 4th 300 ms
33. Back & 4th 375 ms
34. Beefy Echo
35. Galloping 16ths
36. Wait a Half Sec
37. Jazz Waltz
38. Nice Lil' Delay
39. Flange/Thin Dly
40. Ping-Pong Chorus
41. .150 sec with 30%
42. .225 sec with 20%
43. Stereo Image 2
44. Thin Delay
45. Bottom End Chor
46. Chorus in a Tub
47. Fat Flange
48. Medium Chorus
49. Slow & Sweet
50. Slim Machine
51. I Love Leslie
52. Rapid Sweep
53. Animal Flange
54. Tubular Flange
55. Animal Flange 2
56. Chorus Room
57. Chorus Delay
58. Slap Chorus
59. Delayed Flange
60. Swimming Delay
61. Fat Chr Thin Dly
62. Rotary Organ
63. Flange Solo
64. Flange Pan
65. Soap Opera
66. High Synth Lead
67. Crispy Lead Synth
68. Piano Chorus
69. L.A. Chimes
70. Fat Synth Bass
71. Keyboard Cho/Vrb
72. Adagio For Strings
73. Sharpened Edges
74. Guitar Solo 1
75. Full Bass
76. Guitar Delay
77. Lead Guitar 1
78. Lead Guitar 2
79. Row Yer Rowds
80. Stereo Image 1

Appendix C (continued)

DSP-256XL FACTORY PRESETS (continued)

81. Metal Guitar EQ
82. Monster Gate
83. Ambient Snare
84. Fat Snare
85. Big Snare Chamber
86. Gates of Hell
87. Bright Drum Room
88. Darker Drum Room
89. Kick Chamber
90. Big Kick Room
91. Delayverb
92. Splashverb 1
93. Delayverb II
94. Echo the Left
95. To the Right
96. 600 ms Reverse
97. 400 ms Reverse
98. 200 ms Fast Gate
99. Absolute Gate
100. 350 ms Gate
101. Chorus Rev Right
102. Delay Chase Room
103. Chorused Bedroom
104. Low Boost Graph
105. Mid Boost Graph
106. High Boost Graph
107. Parametric #1
108. Parametric #2
109. Parametric #3
110. Sweeping Hall
111. Vocalverb
112. Dark Reverse
113. Slow Combed Room
114. Space Flanger
115. Super Stereo
116. Crystal Hall
117. Big Chorus Room
118. On the Town
119. Dark Bird
120. Light Flange Rm
121. Generalverb
122. Funky Bow
123. Vox Whispers
124. Slightly Combed
125. Into the Abyss
126. Pink Melon Cafe
127. Chorus in a Hall
128. Bypass

Note: Presets 129 through 256 are identical to those in 1 through 128 but are non-programmable. A complete parameter listing for all of the above presets may be obtained from the factory. See back page for address.

NOTES

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1. The warranty registration card must be mailed within ten days after purchase date to validate this warranty.

2. DigiTech warrants this product, when used solely within the U.S., to be free from defects in materials and workmanship under normal use and service.

3. DigiTech liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, provided the product is returned through the original dealer, where all parts and labor will be covered up to a period of one year. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.

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