YAMAHA®

AUTHORIZED PRODUCT MANUAL

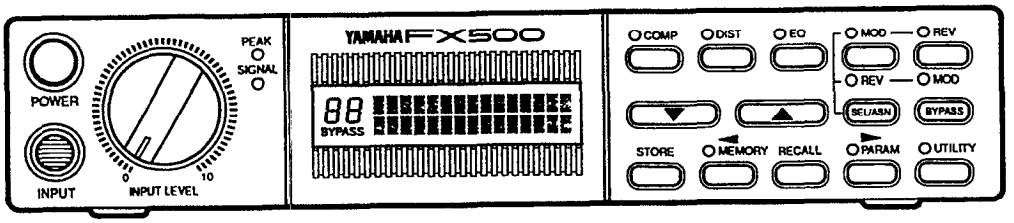
FX500

SIMUL-EFFECT PROCESSOR

YAMAHA

FX500

Operation Manual



Congratulations!

You are the proud owner of a Yamaha FX500 SIMUL-EFFECT PROCESSOR. The FX500 is a high-performance digital effect device which provides a chain of up to 5 different effects, and extensive programming capability so you can create "custom" effect chains to suit your own specific musical requirements. With programmable compressor, distortion, equalizer, modulation and reverb/delay effect stages, the FX500 gives you a complete state-of-the-art signal-processing system in one compact package. 60 superlative preset effect programs are provided that you can simply select and use right away, while 30 RAM memory locations can be used to store your original signal-processing creations. Furthermore, the effects are all created using leading-edge Yamaha digital signal processing technology, so the sound is nothing less than superb.

Please read through this operation manual thoroughly while learning to use your FX500, in order to take full advantage of all the sophisticated capabilities it provides — and keep the manual in a safe place for later reference!

CONTENTS

CANADA

THIS APPARATUS COMPLIES WITH THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTERFERENCE REGULATIONS.

CET APPAREIL EST CONFORME AUX NORMES "CLASSE B", POUR BRUITS RADIOELECTRIQUES. TEL QUE SPECIFIER DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQUE.

1. Precautions *!! PLEASE READ THIS BEFORE PROCEEDING !!*

1. AVOID EXCESSIVE HEAT, HUMIDITY, DUST AND VIBRATION

Keep the unit away from locations where it is likely to be exposed to high temperatures or humidity-such as near radiators, stoves, etc. Also avoid locations which are subject to excessive dust accumulation or vibration which could cause mechanical damage.

2. AVOID PHYSICAL SHOCKS

Strong physical shocks to the unit can cause damage. Handle it with care.

3. DO NOT OPEN THE CASE OR ATTEMPT REPAIRS OR MODIFICATIONS YOURSELF

This product contains no user-serviceable parts. Refer all maintenance to qualified Yamaha service personnel. Opening the case and/or tampering with the internal circuitry will void the warranty.

4. MAKE SURE POWER IS OFF BEFORE MAKING OR REMOVING CONNECTIONS

Always turn the power OFF prior to connecting or disconnecting cables.

5. HANDLE CABLES CAREFULLY

Always plug and unplug cables — including the cord of the power supply — by gripping the connector, not the cord.

6. CLEAN WITH A SOFT DRY CLOTH

Never use solvents such as benzine or thinner to clean the unit. Wipe clean with a soft, dry cloth.

7. ALWAYS USE THE CORRECT POWER SUPPLY

Always use the supplied AC Adaptor to power your FX500 or, if the original adaptor is lost or broken, a replacement or equivalent type obtained from your Yamaha dealer. Also, make sure that the adaptor you have is appropriate for the AC mains supply voltage in the area where you intend to use the FX500 (the correct INPUT voltage is marked on the adaptor).

8. ELECTRICAL INTERFERENCE

Since the FX500 contains digital circuitry, it may cause interference and noise if placed too close to TV sets, radios or similar equipment. If such a problem does occur, move the FX500 further away from the affected equipment.

9. MEMORY BACKUP

The FX500 contains a special long-life battery that retains the contents of its internal RAM memory even when the power is turned OFF. The backup battery should last for approximately 5 years. When the battery voltage drops to a level that is too low to maintain the memory contents, the following message will appear on the FX500 display when the power is turned ON:

```
!  ** WARNING **
   MEMORY DATA
```

If this display appears, have the backup battery replaced by qualified Yamaha service personnel. DO NOT ATTEMPT TO REPLACE THE BACKUP BATTERY YOURSELF!

FCC CERTIFICATION (USA)

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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:

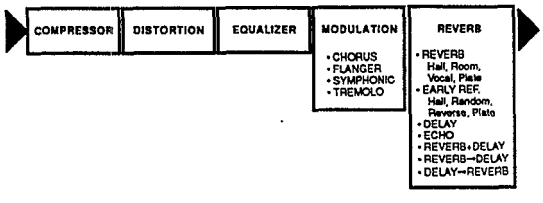
Reorient the receiving antenna.
Relocate the equipment with respect to the receiver.
Move the equipment away from the receiver.
Plug the equipment into a different AC power outlet so that it and the receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems".
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

2. The FX500: What It Is and What It Does

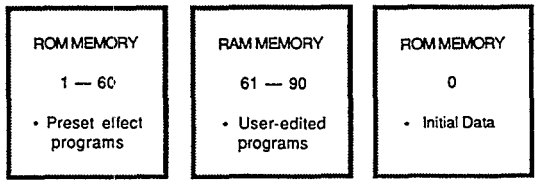
■ *Effects*

The FX500 SIMUL-EFFECT PROCESSOR is a high-performance digital signal processor intended for use with electric guitars, electronic keyboards or other instruments. It employs leading-edge Yamaha digital signal processing technology to provide a "chain" of up to six independent effects that can be independently controlled to produce precisely the required overall sound. As shown below, the FX500 includes five effect (compressor, distortion, equalizer, modulation and reverb) stages. Stages can be turned on or off as required, and the order of the modulation and reverb stages can be reversed. The compressor. distortion and equalizer stages are basically single-function processors. The modulation and reverb stages each incorporate a number of separate effects which can be selected and used as required. Several of the reverb effects actually combine both delay and reverb, effectively giving you a total of six effects in the chain! Each effect has a number of parameters which can be adjusted to tailor its sound to your specific musical needs.



■ *Memory Configuration*

The FX500 has a total of 91 memory locations. Memory locations 1 through 60 are ROM (Read Only Memory) containing 60 pre-programmed effects that you can simply select and use. Memory locations 61 through 90 are RAM (Random Access Memory), and can be used to store original effect programs that you create by editing the presets. The 30 RAM memory locations (61 — 90) originally contain a selected group of the preset programs. The last memory location — memory location number 0 — contains "initialized data" that can be used as a basis for creating your own original effects programs from scratch.



Program No.	Program Title	Program No.	Program Title
1	Broad Dist.	31	Clisp Chords
2	Warm Strings	32	Sharp Chops
3	Standard Jazz	33	Tremolo
4	Soft Echo	34	Sweet Flange
5	Power Pan	35	Chord-Clouds
6	Trad. Dist.	36	Light Symphonic
7	Dark Dist.	37	Clean Acoustic
8	Ring Dist.	38	Acoustic Solo
9	Metal Overdrive	39	Lush Strings
10	Echo Dist.	40	Soft Focus
11	Tight Dist.	41	Brass Room
12	Blue Dist.	42	Brass Burst
13	Fuzz	43	Trumpet Flange
14	Slap Dist.	44	Brass Energizer
15	Power Leads	45	Echo Rhythm
16	Chasing Leads	46	SumphonicHall
17	Power Stack	47	Horror House
18	Symphonic Dist.	48	Sitar
19	Turbo Drive	49	Staccato Vibe
20	Chasing Rhythm	50	Sweep Gate
21	Stereo Dist.	51	Monk Akkal
22	Fusion Dist.	52	Straight Bass
23	Boogie Room	53	Slap Bass
24	Buzz Backer	54	Fretless Bass
25	Liquid Dist.	55	Trad. Bass
26	Electric Chords	56	Sax Solo
27	Clean Repeat	57	Vocal Reverb
28	Sweet Swirl	58	Drum Gate/Rev
29	Mild Motion	59	Tight Snare
30	Pearly Chords	60	Rock Drums

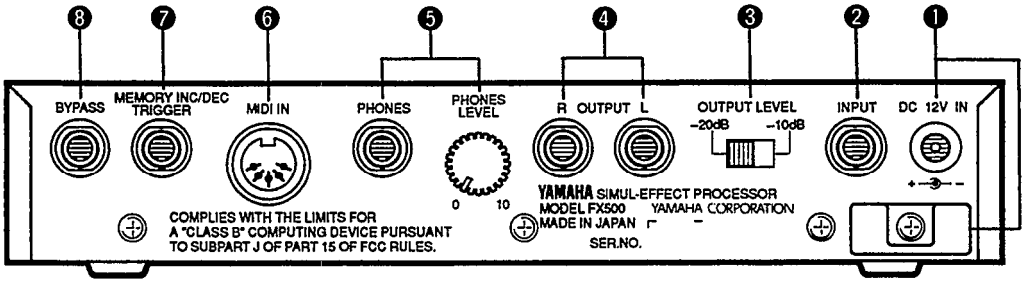
61 - 90	User Programs
0	Initial Data

■ *MIDI Control*

For further versatility and smooth integration with MIDI-based music systems, the FX500 offers broad MIDI control capabilities. Any of its 90 memory locations may be directly selected from a remote MIDI device such as a keyboard or MIDI foot controller *. It is also possible to directly control up to two different effect parameters simultaneously in real time. This means that two MIDI controllers (a MODULATION WHEEL and DATA ENTRY slider on a keyboard, for example) could be used to control, say, the modulation depth of the flanger effects and the reverb time of a reverb effect in real time as you play! Any two MIDI controllers can be assigned to any two effect parameters (See "MIDI Parameter Control: Control Change 1 Table Edit and Control Change 2 Table Edit" on page 20 for operational details).

• Extensive MIDI control is also possible with the MFC1 MIDI Foot Controller. Consult the MFC1 operation Manual for details.

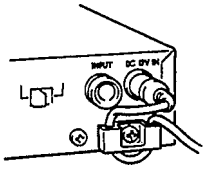
3. Connections: Basic System Setup



❶ DC 12V IN Jack and Cable Clip

The DC output cable from the supplied AC Adaptor should be connected here. When connecting the power supply, make sure that the FX500 POWER switch is in the OFF position (extended).

Plug the AC adaptor output cable into the DC 12V IN jack, and finally the adaptor's AC plug into a convenient AC wall outlet. The cable clip located immediately below the DC 12V IN jack helps to prevent accidental unplugging of the power supply during use. Wrap the DC cable firmly around the clip a few centimeters from the plug end.



CAUTION!

Do not attempt to use a different AC adaptor to power the FX500. The use of an incompatible adaptor may cause irreparable damage to the FX500, and might pose a serious shock hazard!

❷ INPUT Jack

This jack duplicates the function of the front-panel INPUT jack described in the following section. It is important to note, however, that only one of the INPUT jacks can be used at a time. If plugs are inserted into both the front and rear-panel inputs, the front-panel input jack takes priority.

❸ OUTPUT LEVEL Selector

This switch is used to match the output level of the FX500 to the input sensitivity of the amplifier, mixing console or other device it is feeding. For compatibility with standard line-level inputs the -10 dB setting should be appropriate, while the -20 dB setting should be used when the FX500 is connected to a high-sensitivity input-the input of a guitar amplifier, for example.

❹ OUTPUT R and OUTPUT L Jacks

These are the main stereo outputs from the FX500. We recommend using both outputs and connecting them to the corresponding right and left channels of a stereo sound system, since the full impact of many of the FX500 effects can only be appreciated in stereo. If, however, only a mono sound system is available, use either the OUTPUT R or OUTPUT L jack.

❺ PHONES LEVEL Control and PHONES Jack

For private listening or practice when an external sound system cannot be used, a pair of standard stereo headphones (with a 1/4" stereo phone plug or appropriate adaptor plug) can be plugged into the PHONES jack. The PHONES LEVEL control adjusts the headphone listening level.

❻ MIDI IN Connector

The MIDI IN connector accepts MIDI signals from an external MIDI device such as a MIDI foot controller, keyboard, etc. The FX500 will accept MIDI PROGRAM CHANGE messages to directly select effect programs, or MIDI CONTROL CHANGE messages to control individual effect parameters.

[See page 19 for further details]

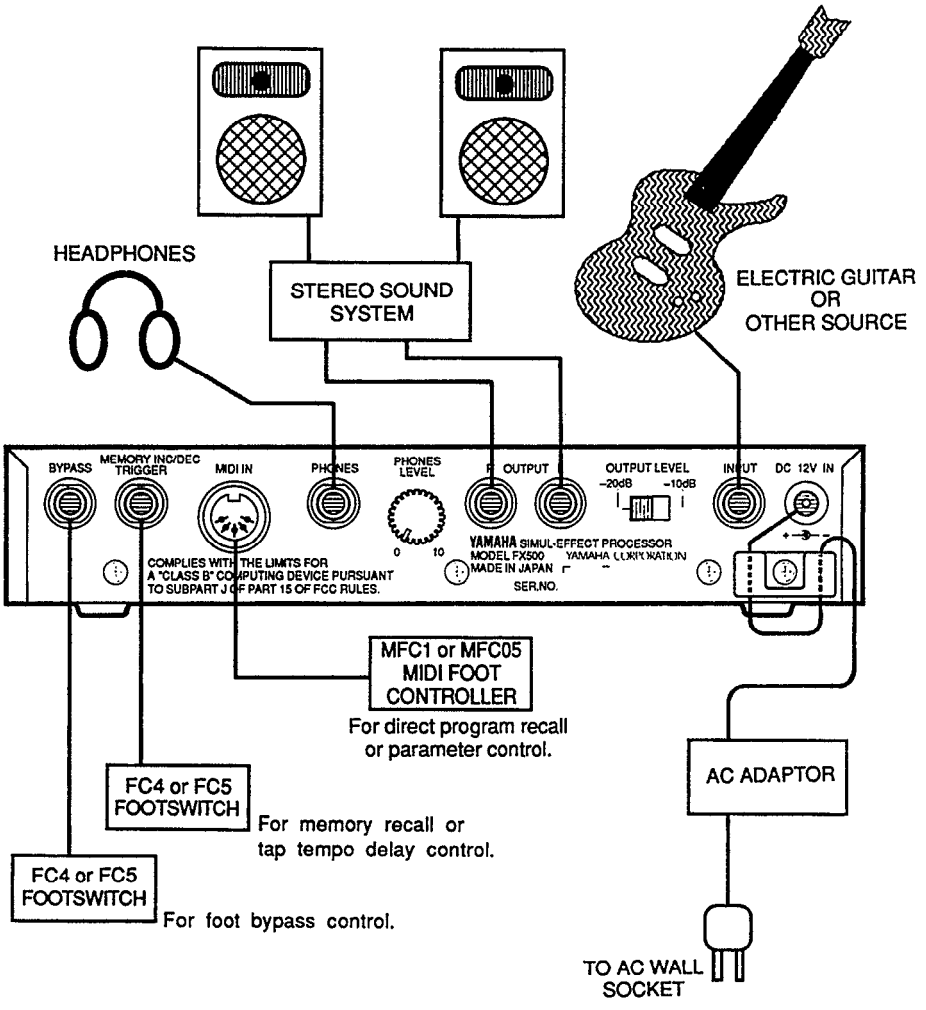
❼ MEMORY INC/DEC, TRIGGER (TAP TEMPO DELAY) Jack

An optional Yamaha FC4 or FC5 Footswitch may be connected here for convenient foot-controlled selection of effect programs or "tap tempo delay" control which is used to set delay time for the delay effects. The function of the footswitch is determined by the UTILITY mode Foot Switch Function Select function (page 22). The range of effect programs that can be selected when the footswitch is assigned to memory selection is determined by the UTILITY mode Footswitch Memory Recall Range Edit function (page 23).

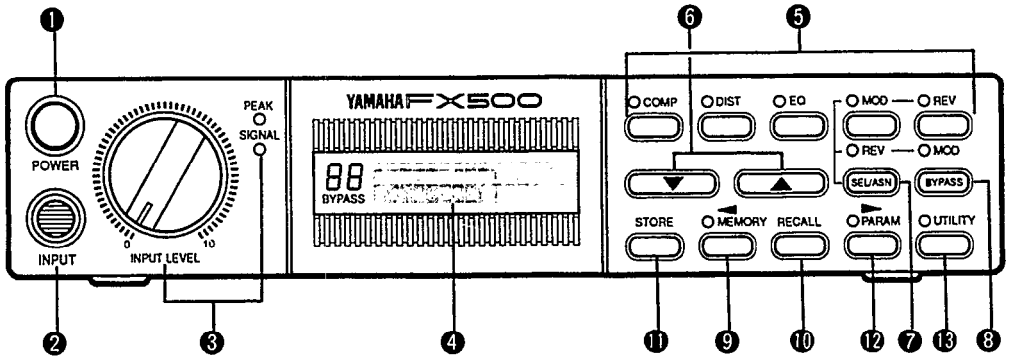
❽ BYPASS Jack

An optional Yamaha FC4 or FC5 Footswitch connected here performs exactly the same function as the front-panel BYPASS key. Press the footswitch once to activate the bypass mode, and again to turn bypass off.

Basic System Configuration



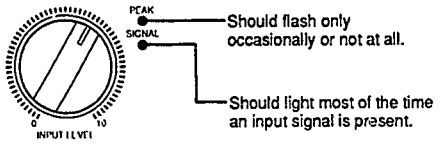
4. The Controls: A Quick Operation Guide



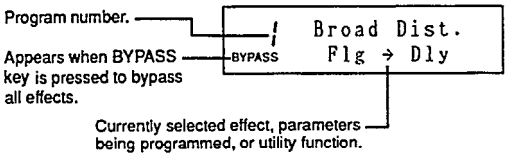
❶ Power Switch
Press once to turn the FX500 on, and a second time to turn the power off. When the power is turned on, a title and copyright notice will appear on the display panel for a few seconds before operation actually begins.

❷ Input Jack
Plug your guitar, keyboard or other signal source in here or into the duplicate INPUT jack provided on the rear panel (see "❷ INPUT Jack" in the "3. Connections: Basic System Setup" section). Both jacks are standard monaural 1/4" phone jacks.

❸ INPUT LEVEL Control with SIGNAL and PEAK Indicators
For the optimum input level setting, play your source at the highest level it will be played in actual use. Adjust the INPUT LEVEL control so that the SIGNAL Indicator lights most of the time but the PEAK indicator does not light, or lights only occasionally on brief high-level peaks.



❹ Liquid Crystal Display Panel
This is the FX500's main "information center", providing all information necessary for effect program selection, programming and utility control.



❺ COMP, DIST, EQ, MOD and REV Effect Keys
These keys function differently in the MEMORY and PARAM modes.

- When the MEMORY mode is selected (i.e. when the MEMORY key indicator is lit—see "❾ MEMORY Mode Key"), these keys are used to turn the corresponding effect stage ON (indicator lit) or OFF (indicator out).
  [See page 10 for further details]
- When the PARAM mode is selected (i.e. when the PARAM key indicator is lit—see "⓬ PARAM Mode Key"), these keys select the various parameters available for editing in the corresponding effect stage.
  [See page 11 for further details]

❻ Arrow(▲)and(▼) keys
The ▲ and ▼ keys function differently in the MEMORY, PARAM and UTILITY modes.

- When the MEMORY mode is selected (i.e. when the MEMORY key indicator is lit-see "❾ MEMORY Mode Key"), the ▲ and ▼ are used to select the desired effect program.
  [See page 9 for further details]
- When the PARAM mode is selected (i.e. when the PARAM key indicator is lit — see "⓬ PARAM Mode Key"), they are used to "edit" the selected effect parameter.
  [See page 11 for further details]
- When the UTILITY mode is selected (i.e. when the UTILITY key indicator is lit — see "⓭ UTILITY Mode Key"), the ▲ and ▼ keys are used to program the selected utility function.
  [See page 19 for further details]

⑦ SEL/ASN Key
The SEL/ASN key functions differently in the MEMORY and PARAM modes.

- When the MEMORY mode is active this key reverses the order of the MOD and REV processing stages.
  [See page 10 for further details]
- In the PARAM mode, the SEL/ASN key is used to assign effect parameters for control via external MIDI controllers.
  [Seepage 21 for further details]

⑧ BYPASS Key
When the BYPASS key is pressed and "BYPASS" appears on the display panel, all FX500 effect stages are completely bypassed and the input signal is fed directly to the output. Press the BYPASS key a second time to turn the bypass function off. The rear-panel BYPASS footswitch jack can also be used for bypass control (see "⑥ BYPASS Jack" on page 5).

⑨ MEMORY Mode Key and Indicator
When the MEMORY key indicator is lit, the FX500 MEMORY mode is active and effect programs (1 — 90) can be selected and recalled using the ▲ and ▼ keys and RECALL key. In the MEMORY mode it is also possible to turn effect stages ON or OFF using the COMP, DIST, EQ, MOD and REV keys. The MEMORY mode can be activated while the PARAM mode is selected by pressing the MEMORY key. The MEMORY mode can not be directly selected from the UTILITY mode by pressing the MEMORY key. The UTILITY mode must first be exited by pressing the UTILITY key several times or holding it down (approximately 1 second) until the UTILITY key indicator goes out.
[See page 9 for further details]

⑩ RECALL Key
After using the ▲ and ▼ keys to select a disired effect program while in the MEMORY mode, the RECALL key is pressed to actually recall and activate the selected program.
[See page 9 for further details]

⑪ STORE Key
After editing any of the effect programs, the new program can be stored in any of the FX500's RAM memory locations (61 through 90) for later recall and use. The STORE key is used to store edited data to a RAM memory location.
[See page 12 for further details]

⑫ PARAM Mode Key and Indicator
The PARAM key selects the PARAM (parameter) mode in which the individual parameters for each effect stage can be edited as required. The PARAM key indicator lights when the PARAM mode is active. The PARAM mode can not be directly selected from the UTILITY mode by pressing the PARAM key. The UTILITY mode must first be exited by pressing the UTILITY key several times or holding it down (approximately 1 second) until the UTILITY key indicator goes out.
[See page 11 for further details]

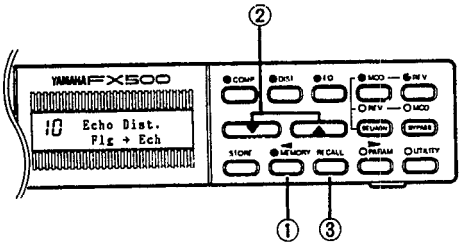
⑬ UTILITY Mode Key and Indicator
Pressing this key activates the UTILITY mode, allowing access to 7 different utility functions:

- Program Title Edit [Page 19]
- MIDI Setup [Page 20]
- Program Change Table Edit [Page 20]
- Control Change 1 Table Edit [Page 21]
- Control Change 2 Table Edit [Page 21]
- Foot Switch Function Select [Page 22]
- Foot Switch Memory Recall Range Edit [Page 23]

The UTILITY key LED lights when the UTILITY mode is active. Each time the UTILITY key is pressed the next function on the utility "list" is selected. The mode that was active before the UTILITY key was pressed (MEMORY or PARAM) is selected following the last function on the utility list. The UTILITY mode can also be exited by pressing the UTILITY key several times or holding it down (approximately 1 second) until the UTILITY key indicator goes out.

5. The MEMORY Mode: Selecting Effect Programs

In the FX500 MEMORY mode, the ▲ and ▼ keys can be used to select individual effect programs. When a new program number is selected, its number will flash on the display and its title will appear on the upper line. Press the RECALL key to actually recall and activate the selected program.



① If the MEMORY mode is not already selected (i.e. if the MEMORY key indicator is not lit), press the MEMORY key to select the MEMORY mode.

```
1  Broad Dist.
   Flg → Dly
```

The MEMORY mode can not be directly selected from the UTILITY mode by pressing the MEMORY key. The UTILITY mode must first be exited by pressing several times or holding (about one second) the UTILITY key until the UTILITY key indicator goes out.

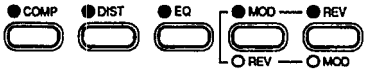
② Use the ▲ and/or ▼ keys to select the number of the desired effect program (in this example we go to program number 10 from number 1, so only the ▲ key is used). Press the ▲ or ▼ key briefly to select the next highest or lowest numbered program, or hold either key down for continuous scrolling in the corresponding direction. Faster scrolling is achieved by pressing the opposite arrow key while holding the arrow key corresponding to the direction of scrolling.

③ The number of the selected effect program should now be flashing on the display, indicating that the program has been selected but has not yet been recalled (the previous effect program is still active). Press the RECALL key to actually recall and activate the selected program. The program number will stop flashing.

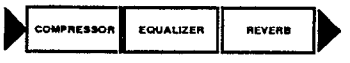
```
10 Echo Dist.
   Flg → Ech
```

6. Effect Processor Selection

In the MEMORY mode the FX500 effect stages can be individually turned ON or OFF by using the COMP, DIST, EQ, MOD and REV keys. Pressing any of these keys alternately turns the corresponding effect stage ON (indicator lit) or OFF (indicator out). When a stage is turned OFF, it is bypassed and the previous active stage is connected directly to the following active stage. If all stages are ON, the effect chain is as shown below:



If, however, you only wanted to use the compressor, equalizer and reverb stages, you could press the DIST and MOD keys to turn the stages OFF, resulting in the effect chain shown below:

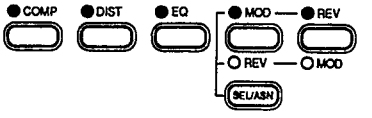


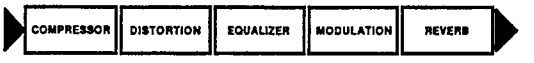
NOTE: The ON/OFF status of each effect is stored to the RAM memory along with all other effect data when a STORE operation is performed (see "Memory Store Operation" on page 12).

■ *Reversing the Order of the Modulation & Reverb Stages*

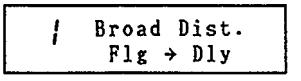
Normally, the last two effects in the FX500 effect chain are a modulation type and reverb type, in that order. By pressing the SEL/ASN key while in the MEMORY mode, however, this order may be reversed. The order of the MOD and REV effect stages is shown on the bottom line of the LCD, and the LEDs associated with the MOD and REV keys will light to show the selected order:
• MOD — • REV — • MOD.

This is the normal order of the MOD and REV effect stages:

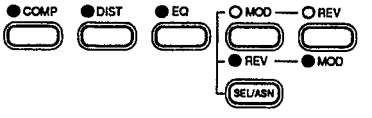


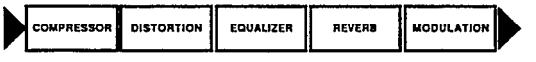


The current order of the selected effects in the MOD and REV stages is also shown on the bottom line of the display ("MOD - REV" in this case).

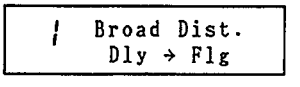


Press the SEL/ASN key to reverse this order.





The new MOD/REV order is also shown on the display.



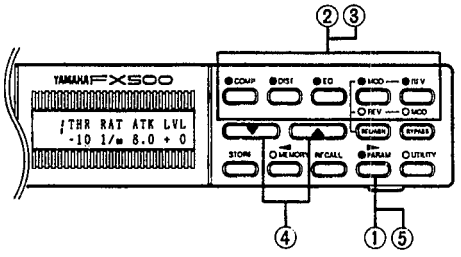
The ability to reverse the order of the modulation and reverb stages is important because it gives you choice of applying reverb/delay to the already-modulated signal, or applying modulation to the reverb/delay signal. The difference in sound can be quite significant.

NOTE: The selected order of the MOD and REV effect stages is stored to the RAM memory along with all other effect data when a STORE operation is performed (see "Memory Store Operation" on page 12).

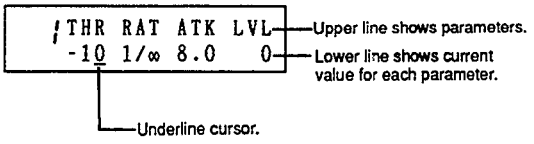
7. The Parameter Mode: Editing the Effect Programs

The parameter mode provides access to several important parameters for each effect, allowing you to change the sound of each effect over a broad range to suit your specific requirements. Once the parameters for each effect stage have been programmed and fine-tuned to provide exactly the sound you want, the entire effect program can be stored into one of the FX500's RAM memory locations for later recall and use.

■ *Editing Parameter Data*



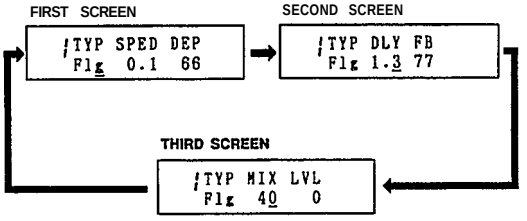
① The parameter mode is entered by pressing the PARAM key. The parameter abbreviations are displayed on the upper line of the LCD, and the corresponding data values are shown on the bottom line (the parameters will be described in detail in the following sections).



The PARAM mode can not be directly selected from the UTILITY mode by pressing the PARAM key. The UTILITY mode must first be exited by pressing several times or holding (about one second) the UTILITY key until the UTILITY key indicator goes out.

② Press the COMP, DIST, EQ, MOD or REV key to select the effect you wish to edit.

③ Press the selected effect key (i.e. the key you pressed in step ②,, above) to move the cursor to the parameter to be edited. Each time the effect key is pressed the cursor moves one parameter to the right. In many effects, two or three parameter screens are required, so the next screen will appear when the cursor is moved past the last parameter on each screen. The first screen is re-selected after the last parameter on the last screen. The modulation stage flanger effect, for example, has the following three parameter screens:



④ Use the ▲ and ▼ keys to adjust the value of the selected parameter. If you hold the ▲ or ▼ key the data will scroll continuously in the specified direction. The data will scroll faster if you press the opposite arrow key while holding either the ▲ or ▼ key.

⑤ The effect selected for editing can be turned ON or OFF by pressing the PARAM key, so you can easily compare the direct and processed sound.

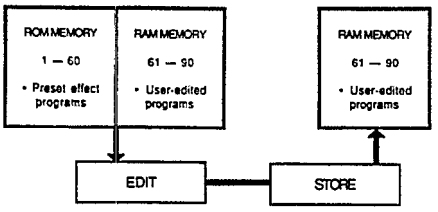
NOTE: To prevent accidental loss of edited data, the FX500 responds with a confirmation display — "RECALL OK ?" — if you press the RECALL key while editing in the PARAM mode. If you actually intend to recall the original (pre-edit) effect, press the RECALL key a second time. If you do not want to carry out the recall operation, simply press any key other than the RECALL key.

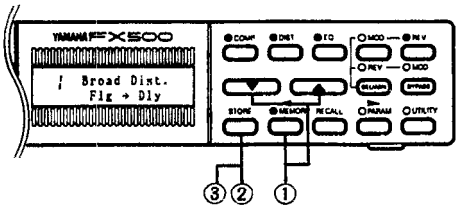
• Assigning MIDI CONTROLLERS to Effect Parameters

If the SEL/ASN key is pressed in the PARAM mode, it becomes possible to assign external MIDI CONTROLLERS to diectly control effect parameters. Refer to "Assigning CONTROLLER 1 and CONTROLLER 2 to Specific Effects" on page 21.

• Memory Store Operation

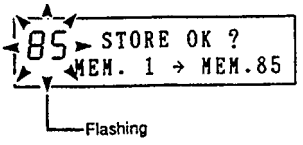
An edited effect program can be stored in any memory location within the FX500's RAM memory area (61 through 90). Original effect programs stored in this way can be selected and used in exactly the same way as the preset effect programs. The ON/OFF status of each effect, the selected order of the MOD and REV stages and MIDI CONTROLLER assignments are stored along with all other parameter data. The UTILITY mode TITLE EDIT function can be used to create new titles for your original effect programs after you have stored them in RAM memory. (See "Program Title Edit" on page 19)



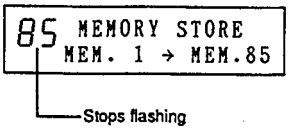


① After editing the parameters to create the desired effect, select the MEMORY mode and select the RAM memory location (61 — 90) with the ▲ or ▼ key to which you wish to store the edited data.

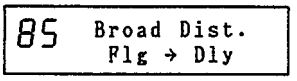
② Press the STORE key.



③ Press the STORE key again. The following display will appear for a few seconds while the store operation is in progress. If you decide not to go ahead with the store operation, simply press any key other than the STORE key.



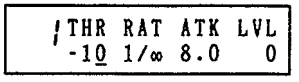
④ When the store operation is complete, the memory location stored to will be selected automatically.



NOTE: If you attempt to use the STORE function while a ROM memory location is selected, the following display will appear and the store operation will be aborted.

■ *COMPRESSOR (COMP)*

The compressor effect stage produces sustain or simple "smoothing" by compressing the signal so that high levels are suppressed while low levels are effectively boosted. The use of compression before other effect stages is particularly effective because it limits the signal to a dynamic range that results in improved sound with the subsequent effects.

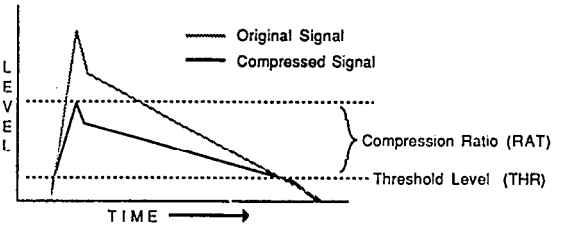


THR (Threshold: -60 — 0 dB)

Sets the compressor threshold level. signal levels exceeding the threshold level will be compressed while those below the threshold level will be unaffected.

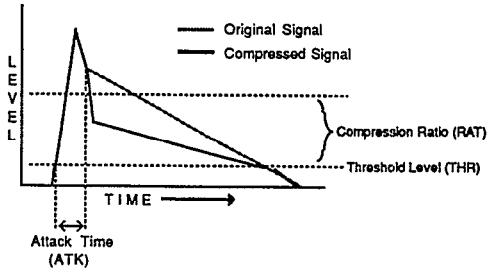
RAT (Ratio: 1/2,1/4,1/8, 1/00)

This parameter sets the degree of compression. A compression ratio of 1/2, for example, compresses signals above the threshold level to one-half their original amplitude. A setting of 1/00 produces almost total compression, producing the same signal level for all signals above the threshold level. This yields the greatest degree of sustain.



ATK (Attack: 1.0 — 20 ms)

Determines how long it takes for compression to begin after an input signal is detected. Higher values produce a longer attack time, allowing more of the natural attack of the input signal to come through. This parameter is particularly useful if, for example, you want to retain a sharp attack while increasing sustain.

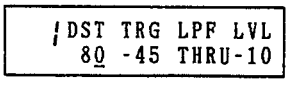


LVL (Output Level: -41 — +24 dB)

Determines the output level of the effect.

■ *DISTORTION (DIST)*

The FX500 distortion stage digitally produces smooth, rich distortion that can be adjusted to achieve and extremely wide variety of effects. In addition to providing full control of the degree of distortion produced, a variable low-pass filter gives you broad control over the tone of the distortion. A built-in noise gate function with adjustable trigger level effectively shuts out unwanted noise.

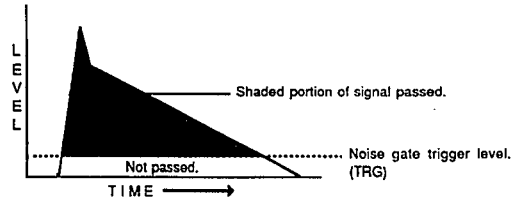


DST (Distortion Drive Level: 0 — 100)

Sets the degree of distortion produced. Higher values produce more distortion.

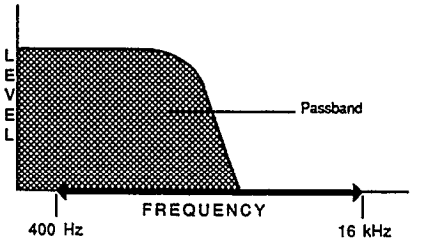
TRG (Noise Gate Trigger Level: -80 — -30 dB)

Sets the threshold level of the distortion effect stage noise gate. Signals below the threshold level are suppressed, thus reducing noise. Caution: excessively high TRG levels can cause notes to be cut off unnaturally.



LPF (Low Pass Filter Cutoff Frequency: 400 HZ — 16 kHZ, THRU)

Controls the tone of the distortion sound. Set at 400 Hz, only signals below 400 Hz will be passed, resulting in a deep, bassy sound. As the LPF frequency is increased more of the total frequency range is passed. When set to THRU, the LPF is effectively OFF and has no effect.

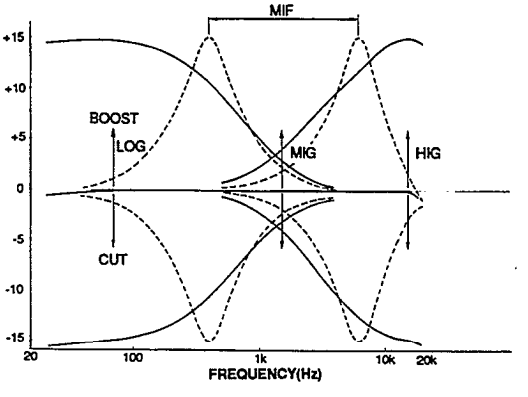


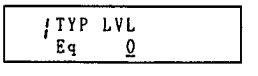
LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

■ *EQUALIZER (EQ)*

The FX500 features a three-band equalizer stage for wide ranging tonal control. Up to 15 dB of boost or cut can be applied to the low, mid and high bands, and the center frequency of the mid band can be adjusted over a broad 400 Hz — 6.3 kHz range.





LoG (Low Gain: -15 — +15 dB)

Sets the amount of boost or cut applied to frequencies below 280 Hz. A setting of 0 produces no boost or cut. “Minus” values produce cut and “plus” values produce boost.

MIG (Mid Gain: -15 — +15 dB)

Sets the amount of boost or cut applied to mid-band frequencies. A setting of 0 produces no boost or cut. "Minus" values produce cut and "plus" values produce boost.

MIF (Mid Frequency: 400 — 6.3 kHz)

Sets the center frequency of the Mid equalizer band.

HIG (High Gain: -15 — +15 dB)

Sets the amount of boost or cut applied to frequencies above 6.3 kHz. A setting of 0 produces no boost or cut. "Minus" values produce cut and "plus" values produce boost.

LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

■ *MODULATION (MOD)*

The MODULATION effect stage contains a number of effects based on signal strength (amplitude) and signal delay variation, or "modulation". The different MODULATION effects are selected by the TYP (type) parameter which appears at the left of every MODULATION display screen.

TYP (Type: Cho, Fig, Sym, Trm)

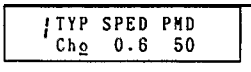
This parameter is common to all modulation programs, and is used to select the desired effect. The various modulation effects are indicated by the following abbreviations:

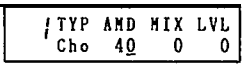
Cho: Chorus
Fig: Flanger
Sym: Symphonic
Trm: Tremolo

Each modulation effect has a slightly different set of parameters. The parameters for each type are described below.

• Chorus (Cho)

The chorus effect combines delay time and amplitude modulation to effectively thicken and add warmth to the sound.





SPED (Modulation Speed: 0.1 — 20.0 Hz)

Sets the speed of modulation and therefore the rate of effect variation.

PMD (Pitch Modulation Depth: 0 — 100 %)

Sets the depth of delay time modulation. Higher values deepen the pitch modulation portion of the effect.

AMD (Amplitude Modulation Depth: 0 — 100 %)

Sets the depth of amplitude modulation. Higher values deepen the amplitude modulation portion of the effect.

MIX (Mixing Balance: 0 — 100 %)

Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

• Flanger (Fig)

Flanging is a fairly pronounced effect based primarily on delay time modulation. By adjusting the various parameters you should be able to create an extremely broad range of sounds, from gentle shimmering to wild sweeps.

SPED (Modulation Speed: 0.1 — 20.0 Hz)

Sets the speed of modulation and therefore the rate of effect variation.

DEP (Depth: 0 — 100 %)

Sets the depth of modulation. Higher values produce deeper modulation.

DLY (Delay Time: 0.2 — 15.0 ms)

Sets the delay time. Delay times shorter than 1 msec produce the greatest effect in the high-frequency range. With delay times from 1 to 3 ms the effect extends to the middle frequencies.

FB (Feedback: 0 — 100 %)

Determines the amount of effect-sound feedback returned to the input of the processor. Higher values produce a more pronounced effect.

MIX (Mixing Balance: 0 — 100 %)

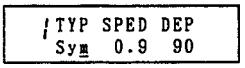
Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

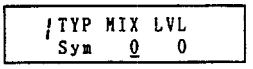
LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

• Symphonic (Sym)

Symphonic is a broad, sweeping effect that adds a sense of dimension to the sound.





SPED (Modulation Speed: 0.1 — 20.0 Hz)

Sets the speed of modulation and therefore the rate of effect variation.

DEP (Depth: 0 — 100 %)

Sets the depth of modulation. Higher values produce deeper modulation.

MIX (Mixing Balance: 0 — 100 %)

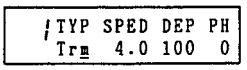
Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

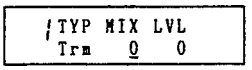
LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

• Tremolo (Trm)

The tremolo effect uses amplitude modulation to produce a periodic volume variation. The FX500 tremolo effect additionally offers a phase parameter which can be used to create a periodic "panning" effect in which the sound appears to move across the stereo sound field.





SPED (Modulation Speed: 0.1 — 20.0 Hz)

Sets the speed of modulation and therefore the rate of effect variation.

DEP (Depth: 0 — 100 %)

Sets the depth of modulation. Higher values produce deeper modulation.

PH (Phase: -8 — +8)

Sets the direction in which the sound image moves in the stereo sound field (this is only effective if the FX500 is used with a stereo sound system). A setting of 0 produces no movement, while settings toward +8 or -8 cause the sound image to move to the left or right.

MIX (Mixing Balance: 0 — 100 %)

Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

■ *REVERB/DELAY (REV)*

The REVERB effect stage includes a number of reverb, early reflection and delay type effects. The parameters are different for each type. The different REVERB effects are selected by the TYP (type) parameter which appears at the left of every REVERB display screen.

TYP (Type: Rhl, Rrm, Rvc, Rpl, Ehl, Erd, Erv, Epl, Dly, Ech, R+D, R→|D, D→ R)

This parameter is common to all reverb programs, and is used to select the desired effect. The various reverb effects are indicated by the following abbreviations:

Reverb Group

Rhl: Reverb Hall
Rrm: Reverb Room
Rvc: Reverb Vocal
Rpl: Reverb Plate

Early Reflection Group

Ehl: Early Reflection Hall
Erd: Early Reflection Random
Erv: Early Reflection Reverse
Epl: Early Reflection Plate

Delay Group

Dly: Delay
Ech: Echo

Reverb and Delay Group

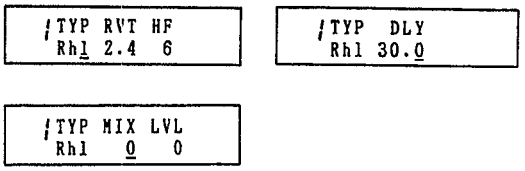
R+D: Reverb + Delay
R →|D: Reverb → Delay
D → R:Delay→ |Reverb

The parameters for each type are described below.

• Reverb Group

• Revert, Hall (Rhl) • Reverb Room (Rrm)
• Reverb Vocal (Rvc) • Reverb Plate (Rpl)

Reverberation is the warm musical "ambience" you experience when listening to music in a hall or other natural environment. The FX500 offers several different reverb effects, simulating types of reverberation you would experience in a hall (Reverb Hall), in a smaller room (Reverb Room), a reverb effect ideally suited to vocals (Reverb Vocal), and the type of reverberation produced artificially by a plate reverberator (Reverb Plate).



RVT (Reverb Time: 0.3 — 40 s)

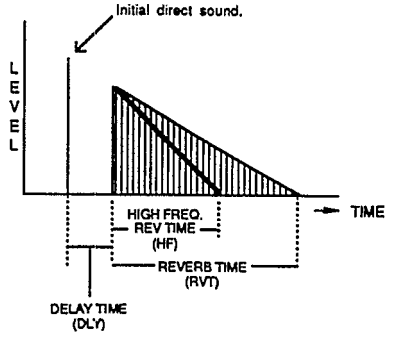
Sets the duration of the reverb effect.

HF (High Frequency Reverb Time Ratio: 1 — 10)

Sets the reverb time of the high frequencies in relation to the overall reverb time. Higher values produce longer high-frequency reverb times, gradually approaching the overall reverb time.
Lower values create a "darker" reverb decay.

DLY (Delay Time: 0.1 — 335.0 ms)

Sets the delay time before the reverb sound begins.



MIX (Mixing Balance: 0 — 100 %)

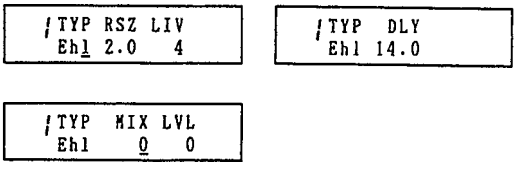
Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

LVL (Output Level: -41 — +6 dB)
Determines the output level of the effect.

• Early Reflection Group

• Early Reflection Hall (Ehl)
• Early Reflection Random (Erd)
• Early Reflection Reverse (Erv)
• Early Reflection Plate (Epl)

These effects are created using different groupings of "early reflections" — the first cluster of reflections that occurs after the direct sound but before the dense reflections that are known as reverberation begin. Early Reflection Hall produces a typical grouping of early reflections that would occur in a performing environment such as a hall. Early Reflection Random produces an irregular series of reflections that could not occur naturally. Early Reflection Reverse generates a series of reflections that increase in level — like the effect produced by playing a recorded reverberation sound backwards. Early Reflection Plate produces a typical grouping of reflections that would occur in a plate reverb unit.



RSZ (Room Size: 0.1 — 20)

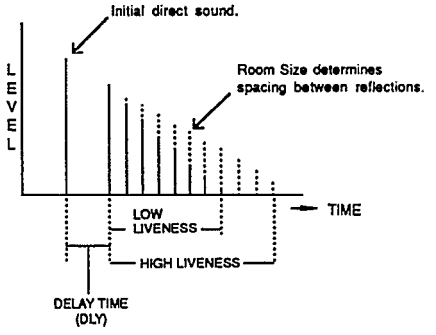
Sets the separation between reflections. The values increment in 0.1 steps from 0 to 10, while values above 10 increment in steps of 1. Higher values produce greater separation between reflections, and therefore the effect of a bigger room.

LIV (Liveness: 0 — 10)

Determines how the early reflections decay. Higher values result in slower decay, producing the effect of a more reflective ('live") room.

DLY (Delay Time: 0.1 — 400.0 ms)

Sets the delay time before the early reflection sound begins.



MIX (Mixing Balance: 0 — 100 %)

Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

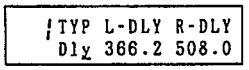
LVL (Output Level: -41 — +6 dB)

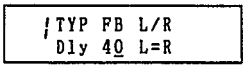
Determines the output level of the effect.

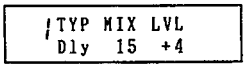
• Delay Group

• Delay (Dly)

This sophisticated delay effect offers independently variable left and right channel delays (repeats).







L-DLY (Left Channel Delay Time: 0.1 — 740.0 ms)

Sets the delay time of the left channel.

R-DLY (Right Channel Delay Time: 0.1 — 740.0 ms)

Sets the delay time of the right channel.

FB (Feedback: 0 — 100 %)

Determines the amount of effect-sound feedback returned to the input of the processor. Higher values produce a a greater number of repeats.

L/R (L/R Channel Delay Level Balance: 0 — 100 %)

Sets the left-to-right channel balance of the delay sound level. Higher values produce higher-level delay sound from the left channel, and smaller values produce a higher-level delay sound from the right channel.

MIX (Mixing Balance: 0 — 100 %)

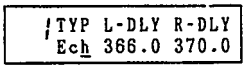
Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

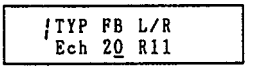
LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

• Echo (Ech)

Although similar to the Delay program, the Echo program has different delay ranges and different "internal" settings that result in a distinctive echo effect.





L-DLY (Left Channel Delay Time: 0.1 — 370.0 ms)

Sets the delay time of the left channel.

R-DLY (Right Channel Delay Time: 0.1 — 370.0 ms)

Sets the delay time of the right channel.

FB (Feedback: 0 — 100 %)

Determines the amount of effect-sound feedback returned to the input of the processor. Higher values produce a a greater number of repeats.

L/R (L/R Channel Delay Level Balance: 0 — 100 %)

Sets the left-to-right channel balance of the echo sound level. Higher values produce higher-level echo sound from the left channel, and smaller values produce a higher-level echo sound from the right channel.

MIX (Mixing Balance: 0 — 100 %)

Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

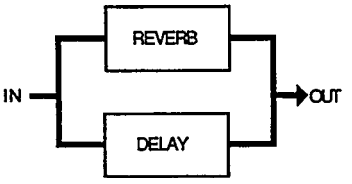
LVL (Output Level: -41 — +6 dB)

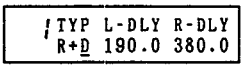
Determines the output level of the effect.

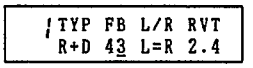
• Reverb and Delay Group (Parallel)

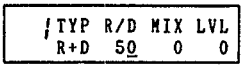
• Reverb + Delay (R+D)

This effect functions like separate reverb and delay processors connected in parallel.









L-DLY (Left Channel Delay Time: 0.1 — 380.0 ms)

Sets the delay time of the left channel.

R-DLY (Right Channel Delay Time: 0.1 — 380.0 ms)

Sets the delay time of the right channel.

FB (Feedback: 0 — 100 %)

Determines the amount of effect-sound feedback returned to the input of the processor. Higher values produce a a greater number of repeats.

L/R (L/R Channel Delay Level Balance: 0 — 100 %)

Sets the left-to-right channel balance of the delay sound level. Higher values produce higher-level delay sound from the left channel, and smaller values produce a high-level delay sound from the right channel.

RVT (Reverb Time: 0.3 — 40 s)

Sets the duration of the reverb effect.

R/D (Reverb/Delay Level Balance: 0 — 100 %)

Determines the balance between the level of the reverb and delay sound. Higher values produce a greater proportion of reverb sound, while smaller values produce a greater proportion of delay sound.

MIX (Mixing Balance: 0 — 100 %)

Sets the balance between the direct and effect sound. Higher values produce a greater proportion of effect sound in relation to direct sound.

LVL (Output Level: -41 — +6 dB)

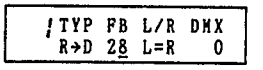
Determines the output level of the effect.

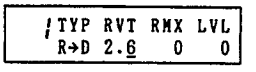
●Reverb and Delay Group (Serial)

- **Delay→Reverb (D→R)**
- **Reverb→Delay (R→D)**

The Delay→Reverb program provides both delay and reverb, with delay before reverb.

The Reverb→Delay provides delay and reverb with reverb before delay.





L-DLY (Left Channel Delay Time: 0.1 — 330.0 ms)

Sets the delay time of the left channel.

R-DLY (Right Channel Delay Time: 0.1 — 380.0 ms)

Sets the delay time of the right channel.

FB (Feedback: 0 — 100 %)

Determines the amount of effect-sound feedback returned to the input of the processor. Higher values produce a a greater number of repeats.

L/R (L/R Channel Delay Level Balance: 0 — 100 %)

Sets the left-to-right channel balance of the delay sound level. Higher values produce higher-level delay sound from the left channel, and smaller values produce a higher-level delay sound from the right channel.

DMX (Delay Mixing Balance: 0 — 100 %)

Sets the balance between the direct and delay sound. Higher values produce a greater proportion of delay sound in relation to direct sound.

RVT (Reverb Time: 0.3 — 40 s)

Sets the duration of the reverb effect.

RMX (Reverb Mixing Balance: 0 — 100 %)

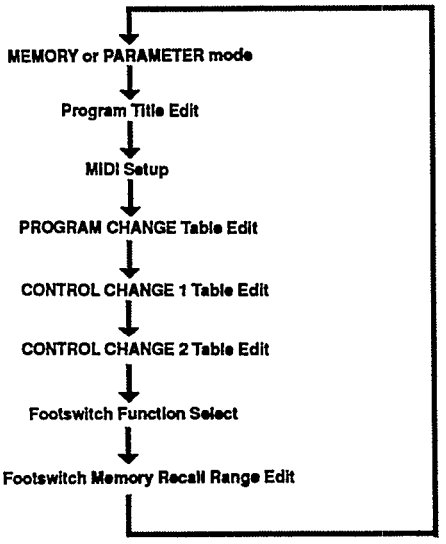
Sets the balance between the direct and reverb sound. Higher values produce a greater proportion of reverb sound in relation to direct sound.

LVL (Output Level: -41 — +6 dB)

Determines the output level of the effect.

8. The Utility Mode

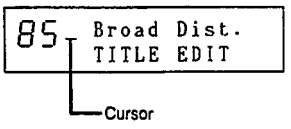
The UTILITY mode allows access to a number of utility functions such as user's area program title editing, memory location number and MIDI program change number assignment, and footswitch memory recall range programming. The UTILITY mode is activated by pressing the UTILITY key. Each press on the UTILITY key calls a different UTILITY function, as shown below:



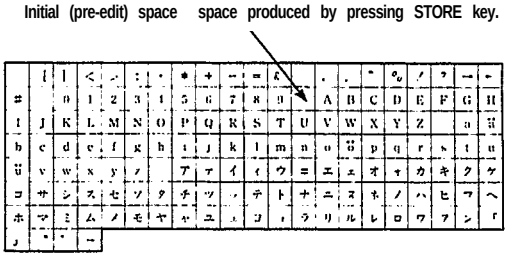
The mode that was active before the UTILITY key was pressed (MEMORY or PARAM) is selected following the last function on the utility list. The UTILITY mode can also be exited by pressing several times or holding (about one second) the UTILITY button until the UTILITY key indicator goes out.

■ *Program Title Edit*

The Program Title Edit function allows you to create original titles for your effect programs, for easy identification. When Program Title Edit is called the LCD will appear something like the example below — the memory title will appear on the upper line. Use the MEMORY (◀) and PARAM (▶) keys to move the cursor to the desired character location, then use the ▲ and ▼ keys to change the character at the cursor location. The STORE key can be used to place a space at the cursor position. Continue until the new title is complete.

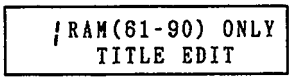


The characters accessible via the ▲ and ▼ keys are shown in the chart below, in their proper order.



A newly created program title is automatically stored with the appropriate program data when the Program Title Edit mode is exited.

NOTE: The TITLE EDIT function can only be used when one of the FX500 RAM memory locations (61 through 90) are selected. If you call the TITLE EDIT function while a ROM memory location (1 through 60) is selected, the following display will appear and editing will not be possible.

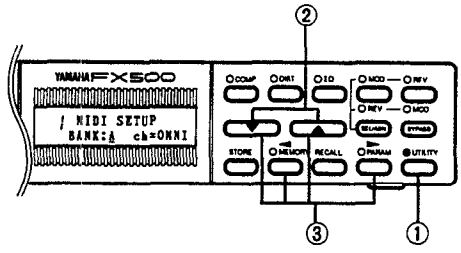


■ *MIDI Program Selection: MIDI Setup and Program Change Table Edit*

The FX500 makes it possible to select specific programs via external MIDI control. You can set up the FX500, for example, so that when you select a voice on a synthesizer the most appropriate effect for that voice is automatically selected. This is accomplished because each time you select a voice on your MIDI synthesizer it transmits the corresponding MIDI PROGRAM CHANGE NUMBER. The FX500 receives this PROGRAM CHANGE NUMBER and selects the effect program that you have assigned to it using the Program Change Table Edit function which will be described below. A more convenient idea for guitarists would be to use a MIDI foot controller such as the Yamaha MFC1 to transmit the required MIDI PROGRAM CHANGE NUMBERs. The FX500 actually can be programmed with four completely independent sets of MIDI PROGRAM CHANGE NUMBER/MEMORY NUMBER assignments. Each of these is contained in a different "bank": A, B, C or D. Each BANK may also be programmed to receive on a different MIDI channel. The four banks may be programmed with different receive channels using the MIDI Setup function described below.

● MIDI Setup

This function makes it possible to select any of the four available program change table BANKs, and to change the MIDI receive channel for each BANK.



① Use the UTILITY key to select the MIDI SETUP display.

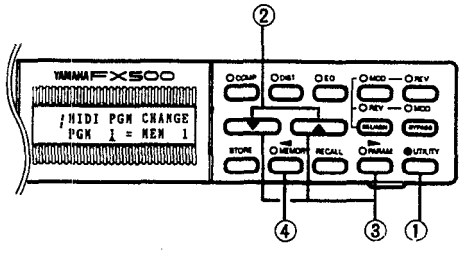
```
MIDI SETUP
BANK:A  ch=OMNI
```

② The underline cursor should be under the BANK parameter. Use the ▲ and ▼ keys to select the bank you wish to program (A, B, C or D).

③ Move the cursor to the "ch=" parameter by pressing the PARAM (▶) key, then use the ▲ and ▼ keys to set the receive MIDI channel (1 — 16), the OMNI mode (all channels can be received), or turn MIDI reception OFF for the selected bank. The underline cursor can be moved back to the BANK parameter if necessary by pressing the MEMORY (◀) key.

● Program Change Table Edit

When this function is called the LCD will appear as shown below, and it becomes possible to assign new memory location numbers to each MIDI program change number.



① Use the UTILITY key to select the MIDI PGM CHANGE display. The underline cursor should be under the PGM parameter.

```
MIDI PGM CHANGE
PGM  1 = MEM  1
```

② Use the ▲ and ▼ keys to select the program change number to which a new FX500 memory location number is to be assigned. The range of available program change numbers is from 1 to 128.

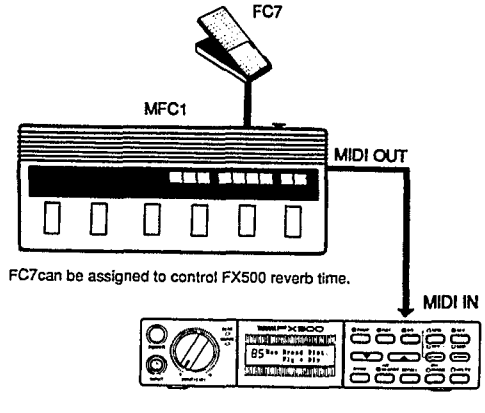
③ Move the underline cursor to the MEM parameter by pressing the PARAM (▶) key. Use the ▲ and ▼ keys to select the memory location number containing the effect which is to be assigned to the currently selected program change number.
If "--" is selected, no new memory location will be selected when that program number is received.

④ Move the underline cursor back to the PGM parameter by pressing the MEMORY (◀) key and repeat the above steps to assign as many program change numbers as necessary.

NOTE: The program number/memory number assignments made are stored in the BANK selected in the previous MIDI Setup function. To program the program change/memory number assignments for a different BANK, return to the MIDI SETUP display, select the desired BANK, then program the required assignments.

■ *MIDI Parameter Control: Control Change 1 Table Edit and Control Change 2 Table Edit*

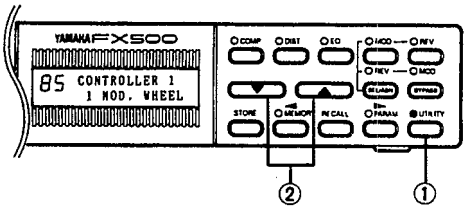
The FX500 allows two MIDI "controllers" to be assigned for remote real-time control of effect parameters. "MIDI controller" actually refers to a MIDI CONTROL CHANGE number between 0 and 127. Some of these numbers are assigned to specific controllers — modulation wheel, data entry, etc — and a MIDI device such as a keyboard or MFC1 MIDI Foot Controller that has the any of these controllers will transmit the corresponding MIDI control change data when the controllers are operated. You could, for example, assign an FC7 connected to an MFC1 to control the FX500 reverb time.



In order to use this kind of setup, the two "controllers" that the FX500 allows — CONTROLLER 1 and CONTROLLER 2 — must be set to receive specific MIDI CONTROL CHANGE data (i.e. receive data from a specific MIDI controller) using the Control Change 1 Table Edit and Control Change 2 Table Edit functions described **below.**

● Control Change 1 Table Edit

When this function is called the LCD appears as shown below, and the ▲ and ▼ keys can be used to select the desired. MIDI control change number for controller 1.




```
85 CONTROLLER 1
   1 MOD. WHEEL
```

The following control change numbers and associated controllers (or none of no controller is specfically assigned) can be selected:

Control Change Number	Controller Assignment
OFF	Controller OFF
0	No specific controller assigned.
1	MOD. WHEEL
2	BREATH CTRL
3	No specific controller assigned.
4	FOOT CTRL
5	PORT TIME
6	DATA ENTRY
7	MAIN VOLUME
8 — 31	No specific controller assigned.
64	SUST SWITCH
65	PORT SWITCH
66	SUST PEDAL
67	SOFT PEDAL
68 — 95	No specific controller assigned.
102 — 114	No specific controller assigned.

* Press the STORE key to directly assign "OFF".

Two other control sources which are not directly associated with MIDI control change numbers can also be selected: NOTE ON VELCTY (key velocity, an integral part of MIDI NOTE ON data), and CHANNEL PRESS (channel pressure).

If NOTE ON VELCTY is assigned and a number of NOTE ON messages are received simultaneously (e.g. a chord is played), the NOTE message with the highest note number takes priority.

NOTE: The FX500 only receives control change data on the MIDI channel specified using the MIDI Setup function.

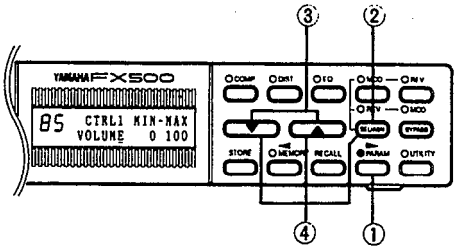
● Control Change 2 Table Edit

This function operates in exactly the same way as Control Change 1 Table Edit, above. The LCD appears as shown below, and the ▲ and ▼ keys can be used to select the desired MIDI control change number for controller 2.

```
85 CONTROLLER 2
   2 BREATH CTRL
```

NOTE: The control number assigned to controller 1, also can be assigned to controller 2.

● Assigning CONTROLLER 1 and CONTROLLER 2 to Specific Effects



Once the MIDI controllers you wish to use have been selected using the Control Change 1 Table Edit and Control Change 2 Table Edit functions described above, you can then assign the controllers to the specific FX500 effect parameters. Control assignment is carried out in the PARAM mode.

① First select the appropriate effect in the MEMORY mode, then activate the parameter mode by pressing the PARAM key (of course, this step is not necessary if you're already editing an effect in the parameter mode).

② To assign CONTROLLER 1 to an effect parameter, press the SEL/ASN key in the parameter mode and a display similar to the following will appear.

```
85 CTRL1 MIN-MAX
   VOLUME  0 100
```

③ The cursor will appear under the currently selected parameter. Use the ▲ and ▼ keys to select the parameter you wish to control. All parameters for the currently selected effects are available. "Cmp-THR," for example, refers to the compressor threshold level parameter. Dst-LPF is the distortion low-pass filter frequency parameter, etc. The individual parameters are described in detail in the "7. The Parameter Mode Editing the Effect Programs" section beginning on page 11. In addition to the standard effect parameters, the following two parameters are available:

- **VOLUME:** assigns the controller to a special volume control stage located immediately after the EQ stage.
- **CURSOR:** Allows the assigned controller to control the position of the cursor in the parameter mode, facilitating selection of parameters for editing.

NOTE: Control change reception is disabled while parameters are being selected.

④ Press the SEL/ASN key to move the cursor to the MIN and then to the MAX position, using the ▲ and ▼ keys at each position to set the desired control range. Both MIN and MAX have a possible value range of 0 to 100%. For example, if the original range for DIST-LVL is -41 to 6 (dB), then setting MIN and MAX to 10 and 90 (%), respectively, produces a control range from -36 to + 1 (dB).

⑤ To assign CONTROLLER 2 to an effect parameter, press the SEL/ASN key again, causing a the CONTROLLER 2 display to appear.

NOTE: If the same parameter is assigned to CTRL 1 and CTRL 2, CTRL 1 takes priority.

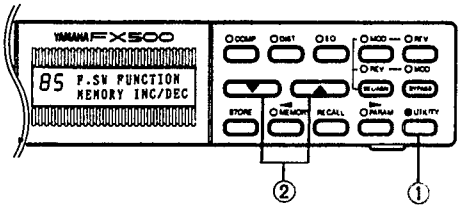
⑥ Carry out steps ③ and ④ above to assign a parameter to controller 2.

⑦ When finished with controller assignment, press any of the effect keys (COMP, DIST, EQ, MOD or REV) to return to the normal parameter editing mode, or press the MEMORY key to return to the MEMORY mode.

⑧ As with all other parameters, individual control assignments can be stored with each program by pressing the STORE key.

■ *Footswitch Function Select*

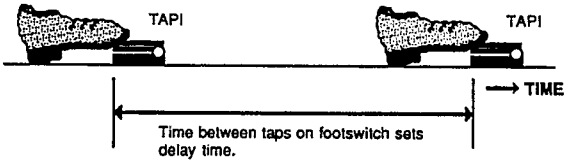
Footswitch Function Select determines the function of an optional Yamaha FC4 or FC5 footswitch connected to the FX500's rear-panel MEMORY IN/DEC TRIGGER jack. The LCD display will appear as below, and the ▲ and ▼ keys can be used to select the desired footswitch function.



TAP TEMPO DELAY is a function which allows delay time to be controlled by tapping the footswitch in time with the music (see "Using Tap Tempo Delay," below). When MEMORY INC/DEC is selected, the footswitch can be used to recall a range of effect programs specified by the Footswitch Memory Recall Range Edit function, described below.

● Using Tap Tempo Delay

When the TAP TEMPO DELAY footswitch function is selected, and the REVERB stage Dly, Ech, R+D, D → R or R → D effect is selected, the footswitch connected to the MEMORY INC/DEC jack can be used to set the time of the L-DLY parameter. Simply tap the footswitch twice at the appropriate interval. The time between "taps" sets the time between delays.The time of the R-DLY parameter is charged by the same amount as the L-DLY time. By tapping in time with the music you are playing, this function makes it simple to accurately match the delay time to tempo.



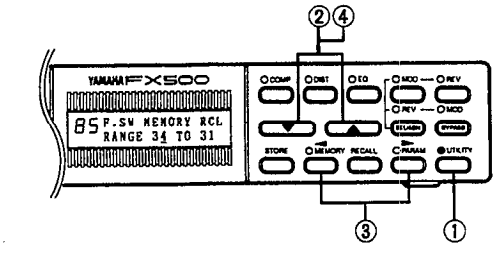
CAUTION: If either the L-DLY or R-DLY parameter is set to its maximum or minimum value, the TAP TEMPO DELAY function cannot be used to create longer or shorter delays.

■ *Footswitch Memory Recall Range Edit*

The FX500 permits memory selection via an optional Yamaha FC4 or FC5 footswitch connected to the MEMORY INC/DEC TRIGGER footswitch jack (as long as the footswitch is assigned to MEMORY INC/DEC operation using the Footswitch Function Select function described above). The Footswitch Memory Recall Range Edit function permits setting the range of memory location numbers that will be selected when the footswitch is pressed.

If, for example, the RANGE parameter is set to "20 TO 30" as shown in the LCD illustration above, each time the footswitch is pressed the next highest memory location will be selected until the last number in the specified range is reached. After the last number in the specified range, the first (lowest) number is selected and the process repeated. Reverse sequences can be programmed by entering the highest number in the range before the lowest, as shown below.

In this case the selection sequence is: 64 → 63 → 62 → 61 → 64, etc.



① Use the UTILITY key to call the F.SW MEMORY RCL display. The underline cursor should be located under the first memory number in the range.

② Use the ▲ and ▼ keys to enter the first number in the range.

③ Press the PARAM (▶) key to move the cursor to the second number in the range.

④ Use the ▲ and ▼ keys to enter the second number in the range. The MEMORY (◀) key can be used to return to the first number in the range if necessary.

9. Specifications

• *ANALOG CIRCUITRY*

Frequency Response

20 Hz — 20 kHz.

Dynamic Range

Better than 85 dB, effect OFF,

Total Harmonic Distortion

Less than 0.1% @ 1 kHz, effect OFF.

Input Impedance/Nominal Level

Greater than 500 kohms/-20 dBm (Unbalanced phone jack, front and rear).

Output Impedance/Nominal Level

1 k-ohm/-20 dBm or -10 dBm, switchable (Unbalanced phone jacks x 2).

Headphone Impedance/Nominal Level

150 ohms/-22 dBm (Unbalanced stereo phone jack).

• *DIGITAL CIRCUITRY*

A/D and D/A Converters

16-bit quantization (linear).

Sampling Frequency

44.1 kHz

• *EFFECTS & MEMORY*

Effect Stages

COMPRESSOR, DISTORTION, EQUALIZER, MODULATION (Chorus, Flanger, Symphonic, Tremolo), REVERB (Reverb, Early Reflection, Delay, Echo, Reverb+Delay, Reverb→Delay, Delay→Reverb)

Memory

ROM area: 60 (No. 1 — 60)
RAM area.: 30 (No. 61 — 90)
Initial data area: 1 (No. 0)

• *FRONT PANEL*

Control & Keys

INPUT LEVEL control, COMP, DIST, EC, MOD, REV, ▲, ▼, SEL/ASN, BYPASS, STORE, MEMORY (◀), RECALL, PARAM (▶), UTILITY POWER

Connector

INPUT jack.

Display

Backlit LCD with 7-segment program number, BYPASS, and 15-character x P-line display area.

LED

PEAK, SIGNAL

Switch

POWER (on/off)

• *REAR PANEL*

Connectors

INPUT, OUTPUT L, OUTPUT R, PHONES, BYPASS, MEMORY INC/DEC or TRIGGER, MIDI IN, DC 12V IN

Control

PHONES LEVEL

Switch

OUTPUT LEVEL -20dB/-10dB

• *GENERAL*

Power Supply

U.S. & Canadian Models: PA-1207U AC Adaptor (120 V AC)
General Model: PA-1210H AC Adaptor (220/240 V AC)

Dimensions (W x H x D)

220 x 45 x 250 mm (8-518" x 1-3/4" x 9-7/8")

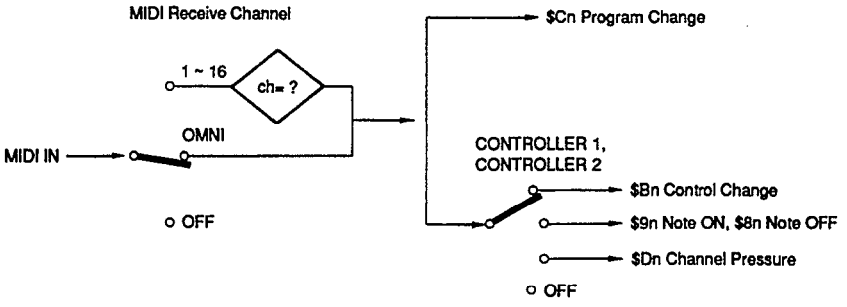
Weight

1.4 kg (3 lbs. approx.)

- 0dB = 0.775 V rms
- Specifications and exterance are subject to change without notice.

10. MIDI Data Format

■ RECEPTION CONDITIONS ■ CONDITIONS DE RECEPTION ■ Empfangene Daten



■ RECEPTION DATA ■ DONNEES DE RECEPTION ■ RECEPTION DATA

Channel Information (Channel Voice Message)

❶ NOTE ON

This message is received on the MIDI channel specified in the currently selected BANK when CONTROLLER 1 or CONTROLLER 2 is assigned to NOTE ON VELOCITY. When a NOTE ON message is received, the value of the assigned effect parameter is changed according to the received velocity value.

STATUS	1001nnnn (9nH)	n-0 (channel #1)
		n=15 (channel #16)
NOTE NO.	0kkkkkkk	k=0—127
VELOCITY	0vvvvvvv	v=1—127,0 (OFF)

❷ NOTE OFF

The NOTE OFF message does not affect operation of the FX500, but receive capability has been included to provide compatibility with transmitting devices that send a NOTE OFF to mark the end of a NOTE ON message.

STATUS	1000nnnn (8nH)	n=0 (channel #1) —
		n=15 (channel #16)
NOTE NO.	0kkkkkkk	k= same as NOTE ON
VELOCITY	0vvvvvvv	v= same as NOTE ON

❸ **CONTROL CHANGE**

This message is received on the MIDI channel specified in the currently selected BANK when CONTROLLER 1 or CONTROLLER 2 is assigned to a control number between 0 and 120. When a CONTROL CHANGE message is received, the value of the assigned effect Parameter is changed according to the received control value.

STATUS	1011 nnnn	(BnH)	n=0 (channel #1) — n-15 (channel #16)
CTL NO.	0ccccccc		c=0—120
CTL VALUE	0vvvvvvv		v=0—127

❹ **PROGRAM CHANGE**

This message is received on the MIDI channel specified in the currently selected BANK. When a PROGRAM CHANGE message is received, the effect program assigned to the received program number in the program change assignment table of the current BANK is selected.

STATUS	1100nnnn	(CnH)	n=0 (channel #1) — n=15 (channel #16)
PGM NO.	0ppppppp		p=0—127

❺ CHANNEL PRESSURE

This message is received on the MIDI channel specified in the currently selected BANK when CONTROLLER 1 or CONTROLLER 2 is assigned to CHANNEL PRESS. When a CHANNEL PRESSURE message is received, the value of the assigned effect parameter is changed according to the received pressure value.

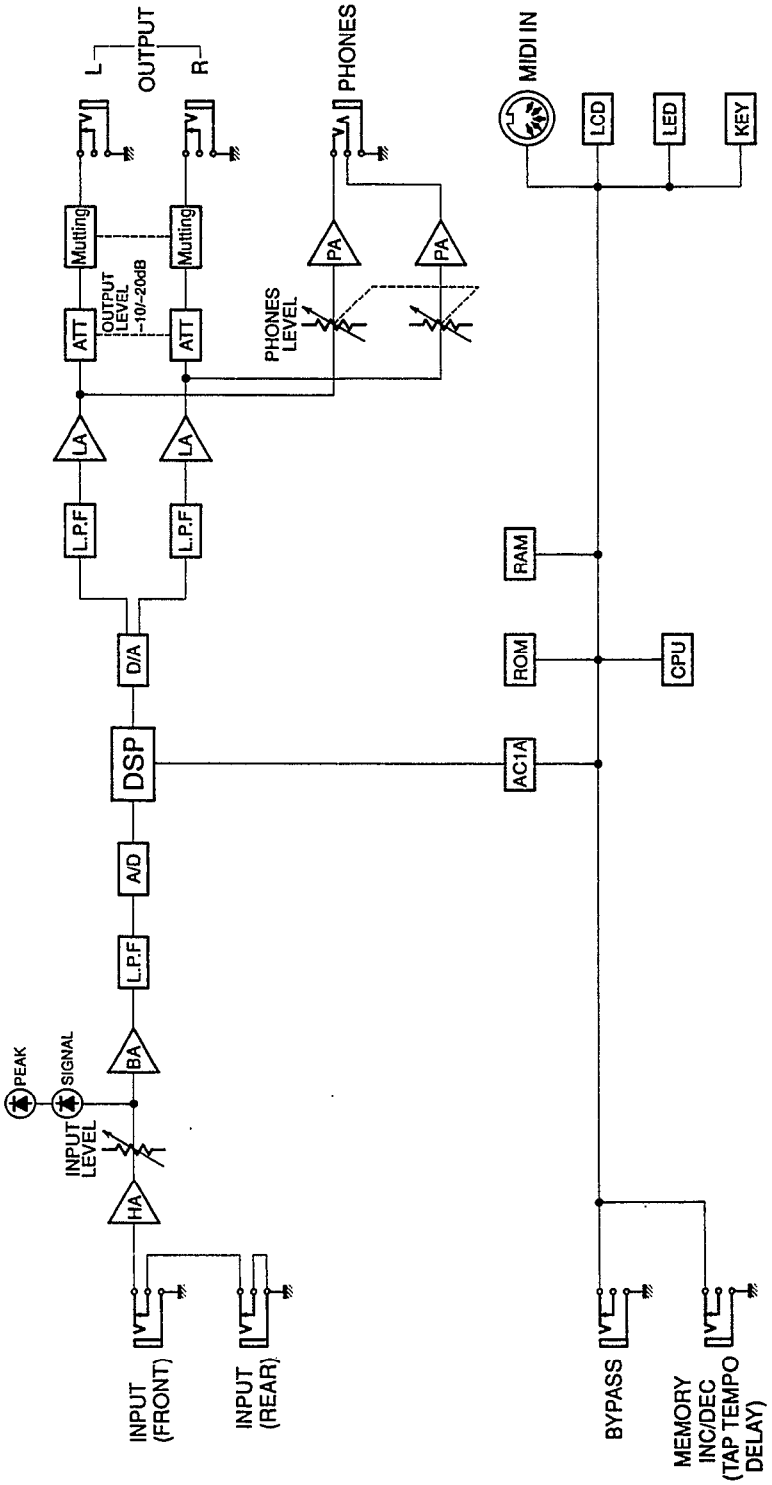
STATUS	1101nnnn	(DnH)	n=0 (channel #1) — n=15 (channel #16)
PRESSURE	0vvvvvvv		v=0—127

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	x	1 - 16, off	memorized
	Changed	x	1 - 16, off	
Mode	Default	x	OMNI on/OMNI on	memorized
	Messages	x	x	
	Altered	**********	x	
Note Number : True voice		x **********	0 - 127 x	
Velocity	Note ON	x	o v=1-127	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	o	
Pitch Bender		x	x	
Control Change	0 - 31	x	o	
	64 - 95	x	o	
	102 - 114	x	o	
	115	x	o	All Bypass
	116	x	o	COMP
	117	x	o	DIST
	118	x	o	EQ
	119	x	o	MOD
	120	x	o	REV
Prog Change : True #		x **********	0 - 127	*1
System Exclusive		x	x	
System Common :	Song Pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System Real Time	Clock	x	x	
	Commands	x	x	
Aux Mes- sages :	Local ON/OFF	x	x	
	All Notes OFF	x	x	
	Active Sense	x	o	
	Reset	x	x	

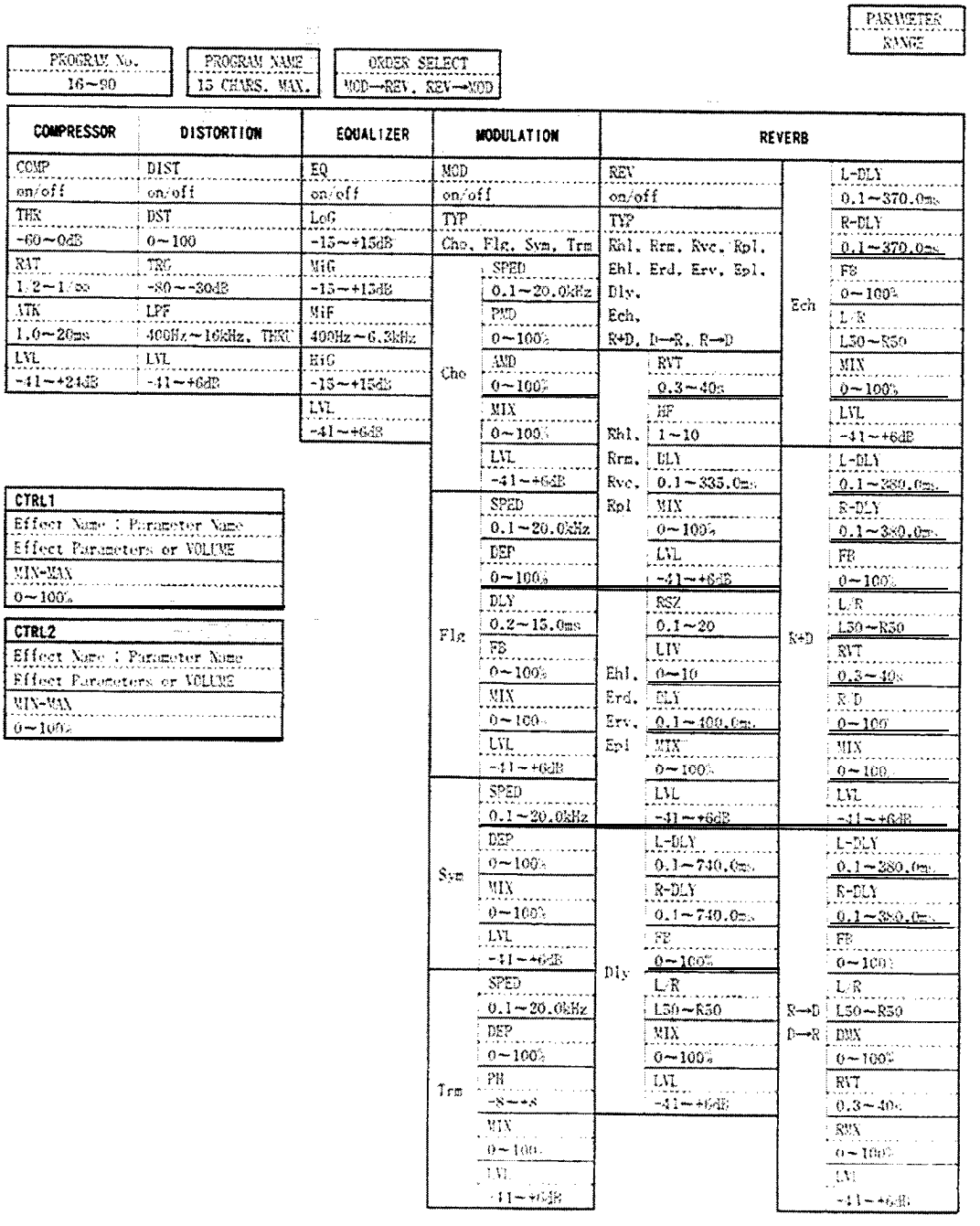
Notes: *1 = For program 1 - 128, memory #0 - #90 is selected

Mode 1 : OMNI On, POLY Mode 2 : OMNI ON, MONO o : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : NO

11. Block Diagram



12. FX500 Parameter Chart



13. Preset Program Parameters

Parameter: Preset Value

PROGRAM No.1 Broad Dist.

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Delay)
THR: -10dB	DST: 80	LoG: 0dB	SPED: 0.1Hz	L-DLY: 366.2ms
RAT: 1/∞	TRG: -45dB	MiG: -5dB	DEP: 66%	R-DLY: 308.0ms
ATK: 8.0ms	LPF: THRU	MiF: 1.6kHz	DLY: 1.3ms	FB: 40%
LVL: 0dB	LVL: -10dB	HiG: 0dB	FB: 77%	L/R: L=R
		LVL: 0dB	MIX: 40%	MIX: 15%
			LVL: 0dB	LVL: +4dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.2 Warm Strings

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Hall)
THR: -4dB	LoG: +1dB	SPED: 0.5Hz	RVT: 2.6s
RAT: 1/∞	MiG: +4dB	DEP: 85%	HF: 5
ATK: 1.1ms	MiF: 6.3kHz	MIX: 100%	DLY: 108.0ms
LVL: +10dB	HiG: +5dB	LVL: 0dB	MIX: 60%
	LVL: 0dB		LVL: +2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.3 Standard Jazz

COMPRESSOR	EQUALIZER	REVERB (Reverb Hall)
THR: -21dB	LoG: +13dB	RVT: 2.6s
RAT: 1/4	MiG: -8dB	HF: 8
ATK: 18ms	MiF: 4.5kHz	DLY: 30.0ms
LVL: +1dB	HiG: +1dB	MIX: 9%
	LVL: -8dB	LVL: +5dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.4 Soft Echo

DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Echo)
DST: 0	LoG: 0dB	SPED: 0.5Hz	L-DLY: 361.0ms
TRG: -70dB	MiG: +2dB	DEP: 97%	R-DLY: 364.0ms
LPF: THRU	MiF: 3.0kHz	MIX: 90%	FB: 25%
LVL: 0dB	HiG: +5dB	LVL: 0dB	L/R: L=R
	LVL: -3dB		MIX: 10%
			LVL: +6dB

CTRL1
VOLUME
CTRL2
Ech:MIX

PROGRAM No.5 Power Pan

DISTORTION	REVERB (Early Ref. Hall)	MODULATION (Tremoro)
DST: 96	RSZ: 20	SPED: 0.7Hz
TRG: -54dB	LIV: 10	DEP: 100%
LPF: THRU	DLY: 290.0ms	FB: +8
LVL: -10dB	MIX: 73%	MIX: 100%
	LVL: +4dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Trm:MIX

PROGRAM No.6 **Trad. Dist.**

COMPRESSOR	DISTORTION	REVERB (Delay)
THR: -22dB	DST: 84	L-DLY: 385.0ms
RAT: 1 ∞	TRG: -48dB	R-DLY: 307.0ms
ATK: 11ms	LPF: THRU	FB: 37%
LVL: +10dB	LVL: -10dB	L/R: L=R
		MIX: 7%
		LVL: 0dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.7 **Dark Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Chorus)	REVERB (Reverb Hall)
THR: -4dB	DST: 88	LoG: +2dB	SPED: 0.1Hz	RVT: 2.6s
RAT: 1 ∞	TRG: -50dB	MiG: +2dB	PWD: 55%	PF: 8
ATK: 1.1ms	LPF: THRU	MiF: 3.2kHz	AMD: 35%	DLY: 60.0ms
LVL: 0dB	LVL: -6dB	HiG: +2dB	MIX: 42%	MIX: 17%
		LVL: 0dB	LVL: 0dB	LVL: -5dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.8 **Ring Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Reverb Hall)
THR: -20dB	DST: 90	LoG: +6dB	RSZ: 1.5
RAT: 1 ∞	TRG: -50dB	MiG: +4dB	LIV: 10
ATK: 1.2ms	LPF: THRU	MiF: 2.2kHz	DLY: 2.0ms
LVL: 0dB	LVL: -12dB	HiG: +7dB	MIX: 27%
		LVL: 0dB	LVL: -3dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.9 **Metal Overdrive**

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Reverb+Delay)
THR: -38dB	DST: 100	LoG: 0dB	L-DLY: 245.0ms
RAT: 1 ∞	TRG: -52dB	MiG: -10dB	R-DLY: 248.0ms
ATK: 1.8ms	LPF: THRU	MiF: 1.2kHz	FB: 25%
LVL: +15dB	LVL: -2dB	HiG: +6dB	L/R: L=R
		LVL: 0dB	RVT: 3.4s
			R/D: 50%
			MIX: 20%
			LVL: -2dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.10 **Echo Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Echo)
THR: -20dB	DST: 90	LoG: +2dB	SPED: 1.0Hz	L-DLY: 370.0ms
RAT: 1 ∞	TRG: -58dB	MiG: +2dB	DEP: 30%	R-DLY: 366.0ms
ATK: 2.2ms	LPF: THRU	MiF: 800Hz	DLY: 6.0ms	FB: 37%
LVL: 0dB	LVL: -10dB	HiG: +4dB	FB: 0%	L/R: L=R
		LVL: 0dB	MIX: 50%	MIX: 6%
			LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
E-D:MIX

PROGRAM No.11 Tight Dist.

DISTORTION	EQUALIZER	REVERB (Early Ref. Plate)
DST: 70	LoG: +6dB	RSZ: 2.3
TRG: -60dB	MiG: +4dB	LIV: 7
LPF: THRU	MiF: 1.6kHz	DLY: 10.0ms
LVL: -12dB	HiG: +3dB	MIX: 75%
	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
E.R:MIX

PROGRAM No.12 Blue Dist.

DISTORTION	EQUALIZER	REVERB (Reverb Hall)
DST: 30	LoG: 0dB	RVT: 2.2s
TRG: -80dB	MiG: +7dB	HF: 6
LPF: THRU	MiF: 900Hz	DLY: 26.0ms
LVL: -10dB	HiG: +3dB	MIX: 9%
	LVL: -3dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.13 Fuzz

DISTORTION	EQUALIZER	REVERB (Reverb+Delay)
DST: 100	LoG: -15dB	L-DLY: 120.0ms
TRG: -48dB	MiG: +15dB	R-DLY: 126.0ms
LPF: THRU	MiF: 4.0kHz	FB: 43%
LVL: -16dB	HiG: 0dB	L/R: L=R
	LVL: -2dB	RVT: 2.3s
		R+D: 50%
		MIX: 15%
		LVL: +5dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.14 Slap Dist.

DISTORTION	EQUALIZER	REVERB (Delay)
DST: 100	LoG: 0dB	L-DLY: 28.7ms
TRG: -35dB	MiG: +5dB	R-DLY: 200.0ms
LPF: 4.0kHz	MiF: 2.0kHz	FB: 0%
LVL: -7dB	HiG: +2dB	L/R: L=R
	LVL: -2dB	MIX: 30%
		LVL: -2dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.15 Power Leads

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Reverb Vocal)
THR: -30dB	DST: 100	LoG: +6dB	SPED: 0.6Hz	RVT: 2.2s
RAT: 1:4	TRG: -50dB	MiG: +9dB	DEP: 75%	HF: 7
ATK: 12ms	LPF: 5.0kHz	MiF: 4.5kHz	DLY: 1.8ms	DLY: 126.0ms
LVL: +6dB	LVL: -10dB	HiG: +1dB	FB: 12%	MIX: 16%
		LVL: -5dB	MIX: 20%	LVL: 0dB
			LVL: 0dB	

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.16 **Chasing Leads**

DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Echo)
DST: 100	LoG: 0dB	SPED: 1.1Hz	L-DLY: 244.0ms
TRG: -34dB	MiG: +4dB	DEP: 87%	R-DLY: 336.0ms
LPF: 7.0kHz	MiF: 1.2kHz	MIX: 40%	FB: 45%
LVL: -8dB	HiG: +3dB	LVL: 0dB	L/R: L=R
	LVL: -2dB		MIX: 7%
			LVL: 0dB

CTRL1
VOLUME
CTRL2
Ech:MIX

PROGRAM No.17 **Power Stack**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Delay)
THR: -20dB	DST: 85	LoG: +8dB	SPED: 2.4Hz	L-DLY: 417.0ms
RAT: 1:∞	TRG: -30dB	MiG: -3dB	DEP: 40%	R-DLY: 740.0ms
ATK: 20ms	LPF: 16k	MiF: 800Hz	MIX: 40%	FB: 30%
LVL: +3dB	LVL: -10dB	HiG: +7dB	LVL: 0dB	L/R: L=R
		LVL: -3dB		MIX: 15%
				LVL: +4dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.18 **Symphonic Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Delay)
THR: -20dB	DST: 85	LoG: -7dB	SPED: 2.4Hz	L-DLY: 417.0ms
RAT: 1:∞	TRG: -45dB	MiG: +2dB	DEP: 70%	R-DLY: 740.0ms
ATK: 3.0ms	LPF: THRU	MiF: 2.2kHz	MIX: 40%	FB: 30%
LVL: +3dB	LVL: -10dB	HiG: 0dB	LVL: 0dB	L/R: L=R
		LVL: 0dB		MIX: 15%
				LVL: +3dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.19 **Turbo Drive**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Delay)
THR: -20dB	DST: 88	LoG: -5dB	SPED: 0.2Hz	L-DLY: 250.0ms
RAT: 1:∞	TRG: -45dB	MiG: +5dB	DEP: 100%	R-DLY: 500.0ms
ATK: 3.0ms	LPF: THRU	MiF: 2.5kHz	DLY: 2.4ms	FB: 36%
LVL: +3dB	LVL: -10dB	HiG: 0dB	FB: 72%	L/R: L=R
		LVL: -2dB	MIX: 50%	MIX: 20%
			LVL: 0dB	LVL: +3dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.20 **Chasing Rhythm**

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Delay)
THR: -20dB	DST: 75	LoG: -7dB	L-DLY: 330.0ms
RAT: 1:∞	TRG: -15dB	MiG: +2dB	R-DLY: 330.1ms
ATK: 3.0ms	LPF: THRU	MiF: 2.2kHz	FB: 85%
LVL: +3dB	LVL: -10dB	HiG: 0dB	L/R: L=R
		LVL: 0dB	MIX: 30%
			LVL: +3dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.21 **Stereo Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Delay)
THR: -19dB	DST: 100	LoG: +6dB	L-DLY: 0.1ms
RAT: 1/8	TRG: -40dB	MiG: +6dB	R-DLY: 27.0ms
ATK: 11ms	LPF: 9.0k	MiF: 5.0kHz	FB: 0%
LVL: +1dB	LVL: -3dB	HiG: +8dB	L/R: R22
		LVL: 0dB	MIX: 100%
			LVL: -4dB

CTRL1
VOLUME
CTRL2
Dly:MIX

PROGRAM No.22 **Fusion Dist.**

DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Echo)
DST: 70	LoG: 0dB	SPED: 0.5Hz	L-DLY: 366.0ms
TRG: -70dB	MiG: +2dB	DEP: 97%	R-DLY: 369.0ms
LPF: THRU	MiF: 5.0kHz	MIX: 90%	FB: 32%
LVL: -3dB	HiG: +5dB	LVL: 0dB	L/R: L>R
	LVL: 0dB		MIX: 3%
			LVL: 0dB

CTRL1
VOLUME
CTRL2
Fch:MIX

PROGRAM No.23 **Boogie Room**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Early Ref. Random)
THR: -15dB	DST: 75	LoG: 0dB	SPED: 1.7Hz	RSZ: 2.0
RAT: 1/∞	TRG: -34dB	MiG: +6dB	DEP: 50%	LIV: 2
ATK: 3.5ms	LPF: 9.0k	MiF: 3.6kHz	MIX: 40%	DLY: 75.0ms
LVL: 0dB	LVL: -12dB	HiG: +3dB	LVL: 0dB	MIX: 35%
		LVL: 0dB		LVL: 0dB

CTRL1
VOLUME
CTRL2
E/R:MIX

PROGRAM No.24 **Buzz Backer**

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Reverb+Delay)
THR: -14dB	DST: 65	LoG: 0dB	L-DLY: 23.0ms
RAT: 1/4	TRG: -50dB	MiG: +2dB	R-DLY: 23.0ms
ATK: 5.0ms	LPF: THRU	MiF: 2.5kHz	FB: 0%
LVL: +2dB	LVL: -3dB	HiG: +4dB	L/R: L>R
		LVL: 0dB	RVT: 0.5s
			R/D: 22%
			MIX: 30%
			LVL: -7dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.25 **Liquid Dist.**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb+Delay)
THR: -20dB	DST: 25	LoG: -2dB	SPED: 0.9Hz	L-DLY: 191.0ms
RAT: 1/∞	TRG: -57dB	MiG: +2dB	DEP: 83%	R-DLY: 190.0ms
ATK: 1.1ms	LPF: THRU	MiF: 5.0kHz	MIX: 60%	FB: 1%
LVL: +5dB	LVL: -6dB	HiG: +1dB	LVL: +1dB	L/R: L>R
		LVL: 0dB		RVT: 2.3s
				R/D: 50%
				MIX: 12%
				LVL: 0dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.26 **Electric Chords**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Chorus)	REVERB (Delay→Reverb)
THR: -22dB	DST: 5	LoG: +13dB	SPED: 1.2Hz	L-DLY: 280.0ms
RAT: 1:2	TBC: -51dB	MiG: +9dB	PMD: 72%	R-DLY: 370.0ms
ATK: 10ms	TON: THRU	MiF: 4.5kHz	WID: 30%	FB: 50%
LVL: +10dB	LVL: 10dB	HiG: +15dB	MIX: 45%	L/R: L→R
		LVL: -4dB	LVL: 0dB	DMX: 40%
				RVT: 2.6s
				RMX: 21%
				LVL: +4dB

CTRL1
VOLUME
CTRL2
REVERB

PROGRAM No.27 **Clean Repeat**

COMPRESSOR	EQUALIZER	MODULATION (Chorus)	REVERB (Delay)
THR: -20dB	LoG: +5dB	SPED: 1.3Hz	L-DLY: 460.0ms
RAT: 1:4	MiG: +3dB	PMD: 0%	R-DLY: 470.0ms
ATK: 7.0ms	MiF: 1.5kHz	WID: 40%	FB: 25%
LVL: +7dB	HiG: +4dB	MIX: 50%	L/R: L→R
	LVL: 0dB	LVL: 0dB	MIX: 10%
			LVL: +1dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.28 **Sweet Swirl**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Hall)
THR: -26dB	LoG: +15dB	SPED: 1.5Hz	RVT: 3.1s
RAT: 1:2	MiG: -11dB	DEP: 88%	HF: 10
ATK: 11ms	MiF: 5.0kHz	MIX: 50%	DLY: 45.0ms
LVL: +1dB	HiG: +11dB	LVL: 0dB	MIX: 21%
	LVL: -8dB		LVL: +6dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.29 **Mild Motion**

COMPRESSOR	EQUALIZER	MODULATION (Chorus)	REVERB (Reverb Vocal)
THR: -20dB	LoG: +3dB	SPED: 0.7Hz	RVT: 2.0s
RAT: 1:2	MiG: +2dB	PMD: 65%	HF: 6
ATK: 1.1ms	MiF: 800Hz	WID: 60%	DLY: 30.0ms
LVL: +3dB	HiG: 0dB	MIX: 70%	MIX: 25%
	LVL: 0dB	LVL: +4dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.30 **Pearly Chords**

COMPRESSOR	EQUALIZER	REVERB (Delay→Reverb)
THR: -10dB	LoG: 0dB	L-DLY: 33.0ms
RAT: 1:∞	MiG: -3dB	R-DLY: 8.0ms
ATK: 1.0ms	MiF: 4.3kHz	FB: 25%
LVL: 0dB	HiG: +10dB	L/R: L→R
	LVL: 0dB	DMX: 25%
		RVT: 2.8s
		RMX: 20%
		LVL: +6dB

CTRL1
VOLUME
CTRL2
REVERB

PROGRAM No.31 Clisp Chords

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Plate)
THR: -10dB	LoG: +8dB	SPEED: 0.8Hz	RVT: 2.4s
RAT: 1 ∞	MiG: +2dB	DEP: 54%	HF: 8
ATK: 7.0ms	MiF: 360Hz	MIX: 30%	DLY: 54.0ms
LVL: +2dB	HiG: +9dB	LVL: +3dB	MIX: 15%
	LVL: 0dB		LVL: +2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.32 Sharp Chops

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Early Ref. Plate)
THR: -15dB	LoG: 0dB	SPEED: 1.1Hz	RSZ: 2.0
RAT: 1 4	MiG: -7dB	DEP: 90%	LIV: 10
ATK: 10ms	MiF: 800Hz	MIX: 30%	DLY: 50.0ms
LVL: +3dB	HiG: +8dB	LVL: 0dB	MIX: 12%
	LVL: +2dB		LVL: 0dB

CTRL1
VOLUME
CTRL2
E/R:MIX

PROGRAM No.33 Tremolo

DISTORTION	EQUALIZER	MODULATION (Tremolo)	REVERB (Reverb Plate)
DST: 15	LoG: 0dB	SPEED: 1.3Hz	RVT: 2.8s
TNE: -80dB	MiG: +7dB	DEP: 100%	HF: 8
LPF: THRU	MiF: 2.0kHz	PH: 0	DLY: 4.0ms
LVL: -8dB	HiG: +4dB	MIX: 100%	MIX: 15%
	LVL: -5dB	LVL: +6dB	LVL: +2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.34 Sweet Flange

COMPRESSOR	EQUALIZER	MODULATION (Flanger)	REVERB (Reverb Room)
THR: -10dB	LoG: +2dB	SPEED: 1.0Hz	RVT: 2.6s
RAT: 1 ∞	MiG: +2dB	DEP: 92%	HF: 10
ATK: 3.0ms	MiF: 2.8kHz	DLY: 1.8ms	DLY: 50.0ms
LVL: +1dB	HiG: +10dB	FB: 35%	MIX: 42%
	LVL: 0dB	MIX: 50%	LVL: 0dB
		LVL: 0dB	

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.35 Chords-Clouds

COMPRESSOR	EQUALIZER	REVERB (Reverb+Delay)	MODULATION (Symphonic)
THR: -15dB	LoG: +6dB	L-DLY: 95.0ms	SPEED: 2.4Hz
RAT: 1 ∞	MiG: -10dB	R-DLY: 225.0ms	DEP: 80%
ATK: 1.8ms	MiF: 1.6kHz	FB: 30%	MIX: 100%
LVL: +2dB	HiG: +7dB	L R: L R	LVL: +2dB
	LVL: 0dB	RVT: 5.0s	
		HF: 5	
		MIX: 20%	
		LVL: +6dB	

CTRL1
VOLUME
CTRL2
Sym:MIX

PROGRAM No.36 **Light Symphonic**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb+Delay)
THR: -20dB	LoG: -15dB	SPED: 1.8Hz	L-DLY: 130.0ms
RAT: 1/∞	MiG: -10dB	DEP: 83%	R-DLY: 292.0ms
ATK: 1.1ms	MiF: 1.1kHz	MIX: 60%	FB: 1%
LVL: +5dB	HiG: +4dB	LVL: +1dB	L/R: L=R
	LVL: +5dB		RVT: 2.3s
			R/D: 50%
			MIX: 41%
			LVL: +6dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.37 **Clean Acoustic**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Hall)
THR: -13dB	LoG: -4dB	SPED: 0.8Hz	RVT: 1.8s
RAT: 1/∞	MiG: +6dB	DEP: 60%	HF: 7
ATK: 11ms	MiF: 2.2kHz	MIX: 48%	DLY: 18.0ms
LVL: +1dB	HiG: -3dB	LVL: 0dB	MIX: 17%
	LVL: -1dB		LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.38 **Acoustic Solo**

COMPRESSOR	EQUALIZER	MODULATION (Chorus)	REVERB (Reverb Vocal)
THR: -24dB	LoG: +2dB	SPED: 1.4Hz	RVT: 2.0s
RAT: 1/∞	MiG: +3dB	PMD: 50%	HF: 4
ATK: 1.0ms	MiF: 3.6kHz	AMD: 40%	DLY: 55.0ms
LVL: 0dB	HiG: +3dB	MIX: 40%	MIX: 30%
	LVL: +6dB	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.39 **Lush Strings**

COMPRESSOR	MODULATION (Chorus)	REVERB (Reverb Hall)
THR: -40dB	SPED: 0.2Hz	RVT: 3.2s
RAT: 1:2	PMD: 100%	HF: 5
ATK: 1.1ms	AMD: 0%	DLY: 125.0ms
LVL: -15dB	MIX: 75%	MIX: 50%
	LVL: 0dB	LVL: +2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.40 **Soft Focus**

COMPRESSOR	EQUALIZER	REVERB (Delay→Reverb)	MODULATION (Symphonic)
THR: -40dB	LoG: +1dB	L-DLY: 250.0ms	SPED: 1.6Hz
RAT: 1:2	MiG: -5dB	R-DLY: 380.0ms	DEP: 75%
ATK: 1.1ms	MiF: 1.0kHz	FB: 72%	MIX: 55%
LVL: -15dB	HiG: 0dB	L/R: L=R	LVL: +5dB
	LVL: 0dB	DMX: 70%	
		RVT: 3.4s	
		RMX: 100%	
		LVL: 0dB	

CTRL1
VOLUME
CTRL2
Sym:MIX

PROGRAM No.41 Brass Room

COMPRESSOR	EQUALIZER	REVERB (Early Ref. Random)
THR: -4dB	LoG: +5dB	RSZ: 2.0
RAT: 1 ∞	MiG: +3dB	LIV: 3
ATK: 1.1ms	MiF: 3.2kHz	PDY: 0.1ms
LVL: 0dB	HiG: +3dB	MIX: 30%
	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
E/R:MIX

PROGRAM No.42 Brass Burst

COMPRESSOR	DISTORTION	EQUALIZER	REVERB (Reverb Hall)
THR: -10dB	DST: 20	LoG: 0dB	RVT: 1.0s
RAT: 1 ∞	TNE: -40dB	MiG: +3dB	HF: 6
ATK: 20ms	LPF: THRU	MiF: 6.3kHz	DLY: 132.0ms
LVL: 0dB	LVL: 0dB	HiG: +2dB	MIX: 25%
		LVL: -1dB	LVL: -3dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.43 Trumpet Flange

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Reverb Room)
THR: -17dB	DST: 0	LoG: +6dB	SPED: 2.5Hz	RVT: 0.7s
RAT: 1/4	TNE: -42dB	MiG: +2dB	DEP: 25%	HF: 8
ATK: 1.0ms	LPF: 8.0kHz	MiF: 6.3kHz	DLY: 1.3ms	DLY: 30.0ms
LVL: 0dB	LVL: +3dB	HiG: +5dB	FBK: 60%	MIX: 30%
		LVL: -1dB	MIX: 40%	LVL: 0dB
			LVL: 0dB	

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.44 Brass Energizer

COMPRESSOR	EQUALIZER	REVERB (Early Ref. Random)
THR: -26dB	LoG: +6dB	RSZ: 2.6
RAT: 1/2	MiG: +5dB	LIV: 3
ATK: 1.1ms	MiF: 3.6kHz	DLY: 7.0ms
LVL: +8dB	HiG: +1dB	MIX: 43%
	LVL: 0dB	LVL: +2dB

CTRL1
VOLUME
CTRL2
E/R:MIX

PROGRAM No.45 Echo Rhythm

COMPRESSOR	EQUALIZER	MODULATION (Flanger)	REVERB (Delay→Reverb)
THR: -36dB	LoG: +1dB	SPED: 1.5Hz	1-DLY: 180.0ms
RAT: 1/2	MiG: -2dB	DEP: 70%	R-DLY: 380.0ms
ATK: 1.1ms	MiF: 500Hz	DLY: 1.2ms	FBK: 0
LVL: +8dB	HiG: +10dB	FBK: 70%	D/R: 1:3
	LVL: 0dB	MIX: 50%	DMX: 50%
		LVL: 0dB	RVT: 3.2s
			RMX: 42%
			LVL: +6dB

CTRL1
VOLUME
CTRL2
RMD:RMX

PROGRAM No.46 Symphonic Hall

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb+Delay)
THR: -30dB	LoG: +5dB	SPED: 1.0Hz	L-DLY: 190.0ms
RAT: 1/2	MiG: -2dB	DEP: 92%	R-DLY: 380.0ms
ATK: 1.6ms	MiF: 500Hz	MIX: 48%	FB: 29%
LVL: +12dB	HiG: +4dB	LVL: 0dB	L/R: R6
	LVL: -3dB		RVT: 3.0s
			R/D: 64%
			MIX: 59%
			LVL: +2dB

CTRL1
VOLUME
CTRL2
R+D:MIX

PROGRAM No.47 Horror House

DISTORTION	EQUALIZER	REVERB (Reverb+Delay)	MODULATION (Flange)
DST: 100	LoG: +4dB	L-DLY: 120.0ms	SPED: 0.3Hz
TRG: -48dB	MiG: +5dB	R-DLY: 126.0ms	DEP: 87%
LPF: THRU	MiF: 4.0kHz	FB: 43%	DLY: 1.3ms
LVL: -16dB	HiG: 0dB	L/R: L=R	FB: 43%
	LVL: 0dB	RVT: 2.3s	MIX: 50%
		R/D: 50%	LVL: 0dB
		MIX: 15%	
		LVL: 0dB	

CTRL1
VOLUME
CTRL2
Flg:MIX

PROGRAM No.48 Sitar

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Flanger)	REVERB (Reverb Plate)
THR: -15dB	DST: 0	LoG: -10dB	SPED: 0.2Hz	RVT: 3.0s
RAT: 1/∞	TRG: -80dB	MiG: +15dB	DEP: 11%	HF: 10
ATK: 7.0ms	LPF: THRU	MiF: 4.5kHz	DLY: 9.1ms	DLY: 43.0ms
LVL: +1dB	LVL: +1dB	HiG: 0dB	FB: 97%	MIX: 58%
		LVL: -2dB	MIX: 36%	LVL: +3dB
			LVL: -3dB	

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.49 Staccato Vibe

COMPRESSOR	EQUALIZER	REVERB (Delay)	MODULATION (Symphonic)
THR: -15dB	LoG: +4dB	L-DLY: 471.0ms	SPED: 3.0Hz
RAT: 1/∞	MiG: -10dB	R-DLY: 467.0ms	DEP: 77%
ATK: 1.8ms	MiF: 800Hz	FB: 20%	MIX: 100%
LVL: 0dB	HiG: +7dB	L/R: L=R	LVL: +2dB
	LVL: +2dB	MIX: 11%	
		LVL: +5dB	

CTRL1
VOLUME
CTRL2
Sym:MIX

PROGRAM No.50 Sweep Gate

COMPRESSOR	DISTORTION	REVERB (Early Ref. Hall)	MODULATION (Tremolo)
THR: -20dB	DST: 50	R/Z: 18	SPED: 0.6Hz
RAT: 1/∞	TRG: -64dB	LIV: 10	DEP: 100%
ATK: 1.2ms	LPF: THRU	DLY: 2.0ms	PHS: +8
LVL: 0dB	LVL: -10dB	MIX: 66%	MIX: 100%
		LVL: +1dB	LVL: +5dB

CTRL1
VOLUME
CTRL2
Trm:MIX

PROGRAM No.51 **Monk Akka!**

DISTORTION	EQUALIZER	REVERB (Delay)	MODULATION (Flanger)
DST: 06	LoG: -2dB	L-DLY: 715.0ms	SPED: 1.3Hz
TRG: -32dB	MiG: +7dB	R-DLY: 168.0ms	DEP: 81%
LPF: THRU	MiF: 4.0kHz	FB: 60%	DLY: 10.0ms
LVL: 7dB	HiG: +5dB	L/R: L=R	FB: 35%
	LVL: 0dB	MIX: 62%	MIX: 50%
		LVL: -3dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Flg:MIX

PROGRAM No.52 **Straight Bass**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Early Ref. Rondom)
THR: -26dB	LoG: +8dB	SPED: 0.7Hz	SSZ: 1.0
RAT: 1:∞	MiG: -8dB	DEP: 82%	LIV: 3
ATK: 1.0ms	MiF: 800Hz	MIX: 100%	DLY: 10.0ms
LVL: +2dB	HiG: +2dB	LVL: +5dB	MIX: 40%
	LVL: 0dB		LVL: +4dB

CTRL1
VOLUME
CTRL2
E/R:MIX

PROGRAM No.53 **Slap Bass**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)
THR: -26dB	LoG: +6dB	SPED: 1.4Hz
RAT: 1:8	MiG: -4dB	DEP: 80%
ATK: 1.0ms	MiF: 800Hz	MIX: 100%
LVL: +4dB	HiG: +2dB	LVL: -2dB
	LVL: +4dB	

CTRL1
VOLUME
CTRL2
Sym:RMX

PROGRAM No.54 **Fretless Bass**

COMPRESSOR	DISTORTION	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Hall)
THR: -20dB	DST: 0	LoG: +6dB	SPED: 1.7Hz	RVT: 2.0s
RAT: 1:∞	TRG: -78dB	MiG: +8dB	DEP: 50%	HF: 2
ATK: 3.5ms	LPF: THRU	MiF: 800Hz	MIX: 100%	DLY: 80.0ms
LVL: 0dB	LVL: 0dB	HiG: +2dB	LVL: 0dB	MIX: 24%
		LVL: 0dB		LVL: +2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.55 **Trad. Bass**

COMPRESSOR	EQUALIZER	MODULATION (Symphonic)	REVERB (Reverb Room)
THR: -20dB	LoG: +8dB	SPED: 0.7Hz	RVT: 2.6s
RAT: 1:8	MiG: 0dB	DEP: 50%	HF: 8
ATK: 2.2ms	MiF: 1.0kHz	MIX: 30%	DLY: 30.0ms
LVL: 0dB	HiG: +2dB	LVL: 0dB	MIX: 20%
	LVL: 0dB		LVL: -3dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.56 Sax Solo

COMPRESSOR	EQUALIZER	REVERB (Delay→Reverb)
THR: -31dB	LoG: +3dB	L-DLY: 40.0ms
RAT: 1/∞	MiG: +2dB	R-DLY: 380.0ms
ATK: 1.1ms	MiF: 800Hz	FB: 40%
LVL: +8dB	HiG: +3dB	L/R: L=R
	LVL: +4dB	DRY: 25%
		RVT: 2.6s
		RVX: 20%
		LVL: 0dB

CTRL1
VOLUME
CTRL2
REV:RVX

PROGRAM No.57 Vocal Reverb

COMPRESSOR	EQUALIZER	REVERB (Reverb Vocal)
THR: -52dB	LoG: -3dB	RVT: 3.4s
RAT: 1/∞	MiG: -4dB	HF: 8
ATK: 1.1ms	MiF: 5.0kHz	DLY: 42.0ms
LVL: +17dB	HiG: 0dB	MIX: 100%
	LVL: +2dB	LVL: -2dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.58 Drum Gate/Rev

COMPRESSOR	EQUALIZER	REVERB (Early Ref. Random)
THR: -12dB	LoG: +5dB	SSZ: 2.0
RAT: 1/∞	MiG: -4dB	LIV: 3
ATK: 1ms	MiF: 800Hz	DLY: 50.0ms
LVL: 0dB	HiG: -7dB	MIX: 100%
	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
REV:MIX

PROGRAM No.59 Tight Snare

COMPRESSOR	EQUALIZER	REVERB (Reverb Vocal)
THR: -20dB	LoG: +4dB	RVT: 1.1s
RAT: 1/∞	MiG: -3dB	HF: 5
ATK: 1ms	MiF: 2.0kHz	DLY: 30.0ms
LVL: 0dB	HiG: -1dB	MIX: 100%
	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

PROGRAM No.60 Rock Drums

COMPRESSOR	EQUALIZER	REVERB (Reverb Vocal)
THR: -20dB	LoG: +7dB	RVT: 1.1s
RAT: 1/∞	MiG: -3dB	HF: 5
ATK: 5.0ms	MiF: 1.0kHz	DLY: 50.0ms
LVL: +4dB	HiG: 0dB	MIX: 100%
	LVL: 0dB	LVL: 0dB

CTRL1
VOLUME
CTRL2
Rev:MIX

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