

XL-7 command station

128-Voice Synth Multi Track Sequencer

Owners Manual

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Important Notice:

In order to obtain warranty service on your XL-7 unit, the serial number sticker must be intact and you must have a sales receipt or other proof of purchase. If there is no serial number sticker on the XL-7, please contact E-MU Systems at once.

This product is covered under one or more of the following U.S. patents: 4,404,529; 4,506,579; 4,699,038; 4,987,600; 5,013,105; 5,072,645; 5,111,727; 5,144,676; 5,170,367; 5,248,845; 5,303,309; 5,317,104; 5,342,990; 5,430,244 and foreign patents and/or pending patents. All other trademarks belong to their respective companies. Specifications and features are subject to change without notice.

Table of Contents

Introduction	1
Product Description	1
Important Safety Instructions	4
Foreign Language Warnings - German	7
Foreign Language Warnings - French	10
Setup	15
Unpacking.....	15
Connection Instructions.....	16
Basic Setup	16
Studio Setup	17
Performance Setup	18
Power Down Sequence	19
Rack Mounting XL-7.....	19
Instant Gratification	21
Playing Patterns & Songs	21
Playing Songs	23
Playing Demo Sequences	24
Auditioning Presets	24
Selecting and Quick Editing Presets	25
Exploring the Master Arpeggiator	27
Multi-Channel Arpeggiator	28
Time to Save?	30

Basic Operations	33
Power Switch	33
Volume Control	33
12VDC Lamp	33
Mode/View Buttons	34
Track/Channel +/- Buttons	35
Data Entry Control	35
Left/Right Cursor Buttons	35
LED View Select Section	35
Sequencer Controls.....	36
Stop Button	36
Play Button	36
Record Button	36
Song Record modes	36
Pattern Record modes	36
Tap Tempo	36
Edit Section	37
Song Edit Button	37
Pattern Edit Button	37
Preset Edit Button	37
Global Button	37
Controllers Button	37
Arpeggiator Button	38
Real-time Controller Knobs	39
Knob Functions	40
Quick Edit mode	40
Programmable Knobs mode	41
Multichannel Volume Knobs	41
Multichannel Pan Knobs	42
Trigger/Mute Buttons.....	43
Trigger Mode	43
Preset Menu Jump Keys	43
Touchstrip, Transpose, Keypads & Glide	44
Touchstrip Hold	44
Transpose Buttons	44
Rubber Keypads	44
Glide Button	44
Erase Button	45
Repeat Button	45
Preset Screen	46
MIDI Channel Selection	46
Preset Selection	46
Channel Volume	47
Channel Pan	48
Channel Arpeggiator	48
Sound Navigator	49
Preset Category	49
Instrument Category	49

Sequencer	51
Overview	52
Definitions	53
Events	53
Tracks	53
Patterns	53
Pattern Recording & Editing	54
The Asterisk	54
Standard MIDI Files	54
Songs	55
Song Record Modes	55
Pattern Mode.....	56
Pattern Play	56
Restart/Pattern Fire Key	57
Realtime Recording	57
Preparing to Record a Pattern	57
Input Quantize	58
Count In	59
First Note Record	60
Pattern Length	60
Metronome	61
Recording a Pattern	61
Automatic Channel Assignment	65
Replace Record	66
Grid Recording	67
What is Grid Recording?	67
Step Time Recording	71
Note Value/Number of Ticks	72
Pattern Edit Menu	74
Track Enable/Mute Buttons	74
Name Pattern	74
Pattern Length	74
Setting Meter (Time Signature)	75
Metronome	76
Loop Section	77
In Pattern Mode	77
In Song Mode	78
Quantize	79
Quantize Parameters	79
More about Swing	80
Scale/Shift Start Times	81
Tips & Tricks	81
Scale/Shift Duration	82
Thin Events	83
Erase Events	85
Transpose	86
Scale/Shift Velocity	87
Extend Sequence Data To	88
Erase Track	89

Cut Track to Clipboard	90
Copy Track to Clipboard	91
Paste Clipboard to Track	92
Apply Clipboard Settings	93
Explode/Combine Tracks	94
Combine Tracks	94
Explode Tracks	94
Channel Assign	96
Multichannel Track Recording	98
Note List Editor	99
Event List Editor	100
Continuous Controller Edit	100
Continuous Controller Screen	100
Pitch Strip Edit	100
Pitch Strip Screen	100
Poly Pressure Edit	101
Poly Pressure Screen	101
Program Change Edit	101
Program Change Screen	101
The Conductor Track (track 0)	103
Conductor Track Screens	103
Revert to Saved Pattern	105
Song Mode	106
Song Play	106
Song Step Recording	106
Realtime Song Recording	110
Song Edit Menu	113
Song Name	113
Event Source	113
Setting Meter (Time Signature)	114
Metronome	115
Quantize	115
Scale/Shift Start Times	116
Scale/Shift Duration	116
Thin Events	116
Erase Events	117
Transpose	118
Scale/Shift Velocity	119
Cut Track to Clipboard	120
Copy Track to Clipboard	121
Paste Clipboard to Track	122
Song Channel Assign	123
Note List Editor	124
Event List Editor	125
Continuous Controller Edit	125
Continuous Controller Screen	125
Pitch Strip Edit	125
Pitch Strip Screen	125
Poly Pressure Edit	126
Poly Pressure Screen	126

Program Change Edit	126
Program Change Screen	126
Revert to Saved Song	127
Live Performance Features	128
XMix	128
Using the Repeat Button for Live Performance	130
Mute Hold	130
Loop Section	131
Restart Pattern Fire Key	131
Pattern Change Tempo Hold	131
Event Timing.....	132
Track Priority	132
Applications	133
Using the Internal Sequencer with an External MIDI Keyboard	133
How to Record the Audition Riffs	134
Controllers Menu	135
Realtime Control Functions.....	136
Keyboard Transpose	136
Keyboard Channel	136
Aftertouch Curves	136
Local Control On/Off	137
Footswitch Jack Function	138
Trigger Buttons Function	139
Trigger Buttons	140
Trigger Button Select	140
Latch on/off	140
MIDI Key	140
MIDI Channel	140
Destination	140
Key Velocity	140
Triggers Pattern Select	141
Trigger Mode Quick Select	142
Programmable Knobs	142
Knob Preset Quick-Edit	143
Real-time Controller Assignment	143
MIDI Footswitch Assign	145
Tempo Controller	145

Global Menu	147
Multisetups	148
Restoring Multisetups	148
Multisetup Name	149
Saving Multisetups	149
Defining Global Parameters.....	150
Transpose/Tune	150
Bend Range	150
Velocity Curve	151
Mix Output	152
Master Effects.....	154
Effects Mode	154
Effects Multi Mode Control	154
Master FXA Algorithm	155
A Effect Types	155
FXA Parameters: Decay/HF Damping FxB -> FxA	156
FXA Send Amounts	156
Master FxB Algorithm	156
B Effect Types	157
FxB Parameters: Feedback/LFO Rate Delay Time	157
FxB Send Amounts	157
Miscellaneous Parameters.....	158
Edit All Layers Enable	158
User Key Tuning	158
Output Format	158
Screen Viewing Angle	159
 MIDI Menu	 161
Base Tempo	162
Pattern Change Tempo Hold	162
Rechannelize Input	163
Keyboard Outputs MIDI	164
Knobs Output MIDI	164
Transmit MIDI Clock	164
External Song Start/Stop	165
Merge MIDI In to MIDI Out	165
MIDI In Channels	165
MIDI Enable	166
Receive Program Change	166
MIDI Program Change -> Preset	167
MIDI SysEx ID	168
MIDI SysEx Packet Delay	168
Send MIDI System Exclusive Data	168
MIDI Mode	170

Programming Basics	171
Modulation	172
Modulation Sources	173
Random Sources	174
Modulation PatchCords.....	174
Envelope Generators.....	175
Tempo-based Envelopes	176
Envelope Repeat	176
Low Frequency Oscillators (LFOs)	177
Clock Modulation	178
Modulation Destinations.....	180
Modulation Processors.....	181
Preset Modulation Processors	183
Using the Modulation Processors	185
More Examples	187
Dynamic Filters	189
What is a Filter?	190
Parametric Filters	193
The Z-Plane Filter	194
Signal Flow.....	195
MIDI Channels & Real-time Controls	196
Bank Select Commands	198
Stereo Mix Outputs	199
 Preset Edit Menu	 201
Preset Name	202
Four Layer Architecture.....	202
Selecting Layers	203
Defining Layer Parameters.....	204
Selecting an Instrument	204
Sound Navigator	204
Defining Key Range	205
Defining the Velocity Crossfade Range	207
Defining the Real-time Crossfade Range	209
Transposing the Instrument	212
Tuning	213
Background: Transpose vs. Coarse Tuning	213
Amplifier	213
Volume Envelope	214
Selecting the Mode	214
Defining the Volume Envelope	215
Chorusing the Layer	216
Sound Start Offset, Delay & Key-up Layer	216
Non-Transpose Mode	218
Solo Mode	218
Assign Group	219
Glide	220

Z-Plane Filters	221
XL-7 Filter Types	221
Filter Types	221
Filter Parameters	223
Filter Envelope	224
Defining the Filter Envelope	225
Auxiliary Envelope	225
Low Frequency Oscillators (LFOs)	226
Shape	226
Sync	227
Rate	227
Delay	229
Variation	229
PatchCords	230
Modulator Polarity	231
Pitch Bend Range	233
Mix Output	233
Common Preset Parameters.....	234
Preset Effects	234
FXA Algorithm	236
A Effect Types	236
FXA Parameters	237
FXA Send Amounts	237
FXB Algorithm	237
B Effect Types	237
FXB Parameters	238
FXB Send Amounts	238
Preset Patchcords	238
Initial Controller Amount	240
Keyboard Tuning	241
Preset Links	243
Preset Tempo Offset	244
Audition Riff Selection	244
Play Solo Layers	244
Arpeggiator/Beats Menu	245
Arpeggiators	246
Arp Controllers	247
Arpeggiator Resolution	247
Arpeggiator Extension	247
Arpeggiator Velocity	247
Arpeggiator Gate	247
Arpeggiator Interval	247
Master Arpeggiator Parameters.....	247
Status	248
Mode	248
Note Value	249
Arpeggiator Pattern Speed	249
Pattern	249

Velocity	250
Gate Time	250
Extension Count	251
Extension Interval	251
Sync	252
Pre-Delay	252
Duration	253
Post-Delay	253
Recycle	254
Keyboard Thru	254
Latch	254
Arp/Riff MIDI Out	255
MIDI Song Start	256
Send MIDI System Exclusive Data	256
Editing a User Arpeggiator Pattern	257
Pattern Step Number	257
Key	258
Key Offset	258
Tie	258
Rest	258
Skip	258
End	259
Velocity	259
Duration	259
Repeat	259
User Pattern Name	260
Multichannel Arpeggiating	260
Beats	261
Beats Mode	263
Status	263
Beats Channel	263
Trigger Channel	263
Beats Controllers	266
Beat Velocity Group 1-4	266
Beat Xpose Group 1-4	266
Beat Busy	266
Beat Variation	267
Beats Keys/Trigger Layout	268
1-Bar Trigger Option	268
Beats Keys Offset	269
Beats Part Velocity	269
Beats Part Transpose	270
Beats Part Group	271
Master Riff	271
Riff Tempo	272
Riff Controllers	272

Effects	273
Effects Overview	273
The Effects Sends	273
Effect Types	275
Effect Parameters	275
Decay	276
High Frequency Damping	276
Feedback	276
LFO Rate	276
Delay	276
Effects Programmed in the Preset.....	277
Master Effects.....	278
Effects Mode	280
Flexible Effects Control	280
Using the Effects Channel Settings in Multi Mode	282
Effect B Into Effect A	282
General Effect Descriptions	284
Reverb	284
Chorus	285
Doubling	285
Slapback	285
Stereo Flanger	285
Delay	286
Stereo Delay	286
Panning Delay	286
Dual Tap	286
Vibrato	286
Distortion	286
 Save/Copy Menu	 287
Save Pattern	287
Saving a Preset	288
Saving a Song	288
Copying Information	289
Copy Preset	289
Copy Layer	289
Copy PatchCords	290
Copy Preset PatchCords	291
Copy Arpeggiator Settings	291
Copy Arpeggiator Pattern	292
Copy Preset Bank	292
Copy Sequencer Pattern	293
Copy Song	293
Sound Authoring	294
Rename Flash SIMM	295
Duplicate Flash	296
Compact Flash Now!.....	297
Create Random Preset.....	297

Preset Programming	299
Editing Presets	299
Changing the Instrument	299
Changing the Tuning of an Instrument	300
Chorus	301
Volume Envelope	301
Working with Filters	303
Adding the Filter Envelope	305
Changing Filter Types	307
Envelope Repeat	307
Practice Modulating	308
Troubleshooting	309
Linking Presets	310
Appendix	311
Front Panel Knob Functions	311
Knob Controller Descriptions	312
Presets.....	312
XL-7 Preset Categories	312
Preset Listing	313
XL-7 Pattern Layout	317
Pattern Listing.....	318
Riff Listing.....	319
Instrument Listing	322
Velocity Curves	331
PatchCord Amount Chart.....	333
Shift Key Shortcuts.....	334
Rhythmic Notation.....	335
Time Signatures.....	335
Block Diagrams	336
Volume & Pan	336
Pads Routing	337
MIDI In	338
Block Diagrams	339
Triggers & Programmable Knobs	339
Quick Edit	340
E-MU Expansion Sound Sets.....	341
Installing Sound SIMMs.....	343
MIDI	346
Operating System Upgrades	351
Received Channel Commands	353
SysEx Specification	353
Technical Specifications	354
Warranty	355
Index	357

Introduction

Product Description

XL-7 truly represents the ultimate melding of E-MU's pristine audio quality and cutting edge controller technologies, making it uniquely qualified to serve as the control center of your MIDI studio or live performance rig.

Upgradable Sounds

XL-7 contains a thorough collection of Electronica/Dance presets. These sounds are rich in harmonic texture and a perfect complement to the Z-plane filters. XL-7 contains three additional, user-upgradable sound SIMM sockets, allowing you to mix and match sound sets according to your needs. New sounds can be added as easily as plugging in a new 16MB or 32MB SIMM module. Each E-MU sound set has been meticulously crafted to be the finest of its kind. Samples are matched across the keyboard, perfectly looped, and rich in harmonic texture.

1024 Presets & more

XL-7 contains 512 user presets and 512 factory ROM presets, but it can be expanded with literally thousands of ROM presets. *(ROM presets are automatically added when sound SIMMs are installed. As an example, a 32 MB SIMM may contain up to 1024 ROM presets.)* XL-7's Sound Navigator makes it easy to find the exact sound you want. It's powerful, yet simple to use.

Velocity & Pressure Sensitive Pads

Thirteen velocity-sensitive pads with aftertouch allow you to perform live or into the 16-track sequencer. These pads have been specifically designed for the Command Station and are extremely responsive, capturing all the subtle nuances of your performance.

Multi-Function Controllers

Multi-function buttons allow you to trigger sequences, arpeggiators and loops internally or on any of your other MIDI devices. They can act as Note Inputs for Grid or Step recording, Track Select, Mute or MIDI Trigger buttons (latched or unlatched).

Sixteen real-time controller knobs are also multi-function controls. These knobs make it a snap to edit and modify internal preset parameters. Another useful mode allows the knobs to control volume and pan for all sixteen MIDI channels. These controllers are fully programmable and can control internal preset or other MIDI equipment on multiple MIDI channels. They can be programmed to adjust multiple internal parameters at once, allowing complex levels of control. For example, a single knob can simultaneously turn up filter cutoff, while detuning one sample, and adjusting the release time of the volume envelope. Virtually every synth parameter in the XL-7 is controllable using the real-time knobs or by any internal or external control source.

Super Sequencer

XL-7 contains a powerful, yet simple to use 16-track interactive sequencer. You can record in real-time, step and grid modes and can switch modes without ever stopping your creative flow. Sixteen dedicated Mute/Select buttons allow you to add, monitor and modify parts on the fly without cumbersome menu scrolling. It's never been this easy to lay down your ideas. The XL-7 Command Station can store over 300,000 notes and you can import and export standard MIDI files (SMF) to and from your Mac or PC using E-MU's E-Loader program.

Multi-Channel Arpeggiators

XL-7's Rhythmic Pattern Generator/Arpeggiator can play up to 32 synchronized arpeggiator patterns at once using a different sound for each! Patterns can be edited using pattern flow commands such as: delay for 2 bars, play for 4 bars, hold for 2 beats and repeat. You can program or download 100 user patterns in addition to the 200 factory patterns.

Ultra Powerful Synthesizer

The extremely flexible yet easy to use 4-layer synthesizer voices make it easy to build sounds of any kind. Layers can be switched or crossfaded using key position, velocity, real-time controllers or any modulation source. 128 voice polyphony ensures that you can play and sequence the most complex material. XL-7 also contains 50 different 2nd to 12th order resonant & modeling filters which are used to shape and modify over 1200 waveforms contained in 32 megabytes (MB) of ROM.

Sixty four modulation sources include three multistage envelopes and two LFOs per layer, as well as full MIDI control over virtually every parameter. The digital patch bay, with 24 cords per layer, (and 12 more cords per preset) lets you connect modulation sources to 64 destinations in any imaginable way. The patch bay also contains a set of arithmetic modifiers, allowing you to create complex synthesis models. Synth parameters as well as arpeggiator and BEAT tempos can be controlled from XL-7's internal clock (or an external MIDI clock). Up to 8 LFOs and 12 envelopes can be perfectly synchronized at different rates. This is an extremely powerful synthesizer!

24-bit Effects

Once you have created your preset, you can add richness to your sound using XL-7's 24-bit stereo effects. You can choose a different effects setup for each preset from over 60 algorithms. XL-7's effects section is actually two separate effects processors with control over each wet/dry mix level on four effects sends. Effects Processor "A" contains primarily ambiance algorithms like reverb and delays, while effects processor "B" contains primarily spectral algorithms such as chorus, flange, phase, distortion, and delay. Effects can be linked to each preset or used globally to further enhance your sound.

Other features include multiple solo, voice assignment and performance modes for expressive control, 12 user-definable alternate tunings, and, of course, an extensive MIDI implementation.

Important Safety Instructions

Use in countries other than the U.S.A. may require the use of a different line cord or attachment plug, or both. Refer all servicing to qualified service personnel. There are no user serviceable parts or adjustments inside the unit. There are no user serviceable parts inside the power supply enclosure.

WARNING: To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

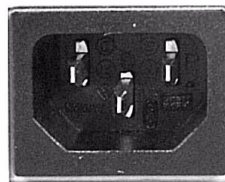
Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current, reducing the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet properly installed and grounded in accordance with all local codes and ordinances.

Mains Switch

The front panel On/Off switch is a “Soft” power switch that can be used to turn power on and off when the XL-7 is rack mounted. Use the AC power switch on the rear panel if you wish to completely disconnect XL-7 from the AC mains.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.



~100-240VAC 50/60Hz 1A

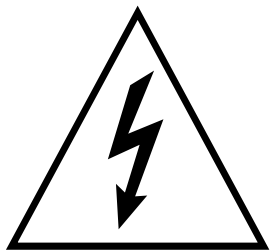
Danger!

Improper connection of the equipment's grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product. If it will not fit the outlet, have a proper outlet installed by a qualified technician.

User Maintenance Instructions



This symbol is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the unit.



This symbol is intended to alert you to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

1. The XL-7 should be kept clean and dust free. Periodically wipe the unit with a clean, dry, lint free cloth. Do not use solvents or cleaners.
2. There are no user lubrication or adjustment requirements.

Caution -Servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in these operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

READ THESE INSTRUCTIONS: When using electric products, basic precautions should always be adhered to, including the following:

1. Read all instructions before using XL-7.
2. Keep these instructions.
3. Heed all warnings.
4. Follow these instructions.
5. Do not use near water.
6. Clean only with a dry cloth.
7. Install in accordance with E-MU's instructions. Do not block any openings. This apparatus should be situated so that its location or position does not interfere with proper ventilation. The ventilation should not be impeded by covering the ventilation openings with items such as newspapers, tablecloths, curtains, etc.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) which produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the grounding prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Use only attachments/accessories specified by E-MU Systems.
12. Use only with the cart, stand, tripod, bracket, or table specified by E-MU or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug the XL-7 apparatus from the power outlet during lightning storms or when left unused for a long period of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power



This symbol is intended to alert you to use caution when moving a cart/apparatus combination to avoid injury.

Radio and Television Interference

supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, the apparatus does not operate normally or has been dropped.

15. No open flame sources, such as lit candles, should be placed on the apparatus.
16. The apparatus is designed for use in moderate climates.
17. The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the apparatus.
18. To reduce the risk of injury, close supervision is necessary when using the apparatus near children.
19. The apparatus should be connected only to a power supply of the type described in the operating instructions and marked on the product.
20. This product, in combination with an amplifier and headphones and speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, consult an audiologist.

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with our instructions—it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules. These rules are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation, especially if a “rabbit ear” TV antenna is used.

If XL-7 does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move XL-7 to one side or the other of the television or radio.
- Move XL-7 farther away from the television or radio.
- Plug XL-7 into an outlet on a different circuit than the television or radio.
- Consider installing a rooftop antenna with a coaxial lead-in between the antenna and television set.

Foreign Language Warnings **- German**

Wichtige Sicherheits- vorschriften

In Ländern ausserhalb den U.S.A. können andere Kabel oder Stecker notwendig werden. Zur Verminderung des Risikos von Feuer oder eines elektrischen Schlages übergebe man den Service an qualifizierte Fachleute. Das Gerät niemals Regen oder Nässe aussetzen.

Erdungsin- struktionen

Das Gerät muss geerdet sein. Bei einem Defekt oder Ausfall bietet Erdung dem elektrischen Strom den Weg des geringsten Widerstandes und reduziert das Risiko eines Schlages. Dieses Gerät ist mit einem geerdeten Kabel und Stecker ausgerüstet. Der Stecker muss in eine passende, einwandfrei montierte und geerdete Steckdose in Übereinstimmung mit den örtlichen Vorschriften eingeführt werden.

Gefahr

Unvorschriftsgemässer Anschluss des Gerätes kann zum Risiko eines elektrischen Schlages führen. Im Zweifelsfalle über die ordnungsgemässe Erdung soll ein qualifizierter Elektriker oder eine Serviceestelle beigezogen werden. Ändern Sie den mitgelieferten Stecker nicht. Sollte er nicht in die Steckdose passen, soll die einwandfreie Installation durch einen qualifizierten Techniker erfolgen.

Vorsicht

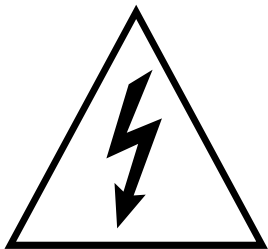
Wird der XL-7 (Modell Nummer 7750) in einem Rackgestell montiert, muss ein offener 19-Zollrahmen verwendet werden.

Unterhaltsinstruktionen für anwender

Vorsicht



Dieses Symbol weist den Anwender auf wichtige Gebrauchs- und Service-Vorschriften in den beiliegenden Drucksachen.



Dieses Symbol verweist auf nicht-isolierte Stromspannungen im Geräte-Innern, welche zu einem elektrischen Schlag führen könnten.

1. XL-7 soll sauber und staubfrei gehalten werden. Das Gerät mit einem sauberen und säurefreien Tuch periodisch abreiben. Keine Lösungs- oder Reinigungsmittel anwenden.
2. Schmieren und Justieren sind nicht notwendig.
3. Bei weiteren Servicefragen wende man sich an eine qualifizierte Service-stelle.

Diese Gebrauchsanweisungen sind nur für qualifizierte Techniker beabsichtigt. Um die Gefahr eines elektrischen Schlages zu vermeiden, sollen Sie keine Arbeit unternehmen, die nicht in diesen Instruktionen vorgeschrieben ist. Wenden Sie Sich bei weiteren Servicefragen an eine qualifizierte Servicestelle.

INSTRUKTIONEN BETR. FEUERRISIKO, ELEKTROSCHOCK ODER VERLETZUNG VON PERSONEN

WARNUNG; Beim Einsatz elektrischer Geräte sollten folgende Vorsichtsmassregeln stets beachtet werden:

1. Lesen Sie vor dem Einschalten des XL-7 alle Instruktionen.
2. Zur Vermeidung von Verletzungsrisiken müssen Kinder bei eingeschaltetem XL-7 sorgfältig überwacht werden.
3. XL-7 nicht in der Nähe von Wasser in Betrieb nehmen -- z.B. in der Nähe von Badewannen, Waschschüsseln, auf nassen Gestellen oder am Swimmingpool.
4. XL-7 stets so aufstellen, dass seine Belüftung nicht beeinträchtigt wird.
5. XL-7 nicht in der Nähe von Hitze aufstellen, wie Heizkörper, offenem Feuer, Öfen oder von Backöfen.
6. XL-7 ausschliesslich mit einem Netzgerät gemäss Bedienungsanleitung und Gerätemarkierung verwenden.
7. Dieses Gerät kann bei Verwendung von Kopfhörern und Verstärkern hohe Lautpegel erzeugen, welche zu bleibenden Gehörschäden führen. Arbeiten Sie nicht während längerer Zeit mit voller Lautstärke oder hohem Lautpegel. Stellen Sie Gehörverlust oder Ohrenläuten fest, wenden Sie sich an einen Ohrenarzt.
8. XL-7 kann mit einem polarisierten Kabelstecker (mit ungleichen Stiften) ausgerüstet sein. Das geschieht für Ihre Sicherheit. Können Sie den Stecker nicht in die Steckdose einführen, ändern Sie nicht den Stecker ab, sondern wenden Sie sich an einen Elektriker.

9. Das Netzkabel des XL-7 bei längerem Nichtgebrauch aus der Steckdose ziehen.
10. Vermeiden Sie sorgfältig das Eindringen von Gegenständen oder Flüssigkeiten durch die Gehäuseöffnungen.
11. Das Gerät soll durch qualifizierte Serviceleute gewartet werden, falls:
 - A. das Netzkabel beschädigt wurde, oder
 - B. Gegenstände oder Flüssigkeit in das Gerät gelangten,
 - C. das Gerät Regen ausgesetzt war, oder
 - D. das Gerät nicht normal oder einwandfrei arbeitet, oder
 - E. das Gerät stürzte oder sein Gehäuse beschädigt wurde.
12. Servicearbeiten sollten nur qualifizierten Fachleuten anvertraut werden.

DIESE INSTRUKTIONEN AUFBEWAHREN

Foreign Language Warnings - French

Instructions de Sécurité Importantes

Une utilisation dans des pays autres que les U.S.A. peut nécessiter l'usage d'un cordon d'alimentation différent. Afin de réduire les risques d'incendie ou d'électrocution, référez-vous à un personnel de service qualifié, et n'exposez pas cet appareil à la pluie ou à l'humidité.

Instructions de Mise à la Terre

Cet appareil doit être relié à la terre. Dans le cas d'une malfonction éventuelle, la terre fournit un passage de moindre résistance pour le courant électrique, réduisant ainsi les risques d'électrocution. Le XL-7 est équipé d'un cordon muni d'un conducteur et d'une fiche devant être branchée dans une prise appropriée et reliée à la terre en conformité avec les normes locales.

Danger

Une connexion incorrecte peut résulter en des risques d'électrocution. Vérifiez avec un technicien qualifié si vous avez des doutes quant à la connexion. Ne modifiez pas vous-même le cordon d'alimentation livré avec cet appareil; s'il ne rentre pas dans la prise, faites-en installer un autre par un technicien qualifié.

Attention

Si le XL-7 (Model 7750) est installé dans un rack, utilisez un rack standard ouvert de 48.25cm.

Instructions de Maintenance

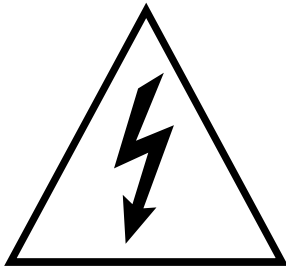
1. Le XL-7 doit être maintenu propre et sans poussière. Nettoyez-le périodiquement à l'aide d'un chiffon propre et non-pelucheux. N'utilisez pas de solvants, ou d'autres produits de nettoyage.
2. Aucune lubrification et aucun réglage ne sont nécessaires de votre part.
3. Pour tout autre service, référez-vous à un personnel qualifié.

Instructions Concernant les Risques d'Incendie, d'Electrocution, ou de Blessures Corporelles.

ATTENTION: Lorsque vous utilisez des appareils électriques, certaines précautions élémentaires doivent toujours être prises, incluant les suivantes:



Ce symbole vous alerte de la présence d'instructions importantes d'opération et de maintenance dans la notice accompagnant l'appareil.



Ce symbole vous alerte de la présence d'un voltage non-isolé dangereux à l'intérieur de l'appareil, pouvant être d'une magnitude suffisante pour constituer un risque d'électrocution.

Ces instructions de dépanage sont destinées uniquement aux personnes qualifiées. Afin d'éviter les risques d'électrocution, n'effectuez que les opérations décrites dans ce manuel, à moins que vous ne soyez qualifié pour cela. Faites effectuer toute réparation par une personne qualifiée.

1. Lisez bien toutes les instructions avant d'utiliser le XL-7.
2. Afin de réduire les risques de blessures, une attention particulière est nécessaire en la présence d'enfants en bas âge.
3. N'utilisez pas le XL-7 dans ou près d'endroits humides - par exemple près d'une baignoire, d'un lavabo, dans les toilettes, dans une cave humide, sur un bar fréquenté, en présence d'un bull-dog en rut, ou dans une piscine pleine. Protégez cet appareil de tout liquide, éclaboussure ou fuite.
4. Le XL-7 doit être placé de façon à ce que sa position n'interfère pas avec sa propre ventilation.
5. Le XL-7 doit être placé loin de sources de chaleur telles que des radiateurs, cheminées, fours, ou groupies en chaleur.
6. Le XL-7 doit uniquement être connecté à une alimentation du type décrit dans les instructions d'opération et tel qu'indiqué sur l'appareil.
7. Une attention particulière doit être observée quant aux objets pouvant tomber et aux liquides pouvant être versés sur et à l'intérieur de le XL-7.
8. Le XL-7 peut être équipé d'une fiche secteur polarisée (avec une broche plus large que l'autre). C'est une mesure de sécurité. Si vous ne pouvez pas brancher cette fiche dans une prise, ne neutralisez pas cette sécurité. Contactez plutôt un électricien pour remplacer la prise obsolète.
9. Evitez de marcher sur le cordon d'alimentation ou de le coincer, particulièrement près des prises de courant, des boîtiers électriques et du point de sortie de l'appareil.
10. Le cordon d'alimentation de le XL-7 doit être débranché lorsque ce dernier n'est pas utilisé pendant une longue période.
11. Cet appareil, combiné avec un amplificateur, des haut-parleurs, et/ou un casque, est capable de générer des niveaux sonores pouvant occasionner une perte de l'ouïe permanente. Ne travaillez pas trop longtemps à un volume trop élevé ou même inconfortable. Si vous observez une perte de l'audition ou un bourdonnement dans les oreilles, consultez un O.R.L.
12. N'utilisez que les accessoires spécifiés par E-MU Systems.
13. Cet appareil doit être examiné par un personnel qualifié lorsque:

Interférences Radio et Télévision

- A. Le cordon d'alimentation a été endommagé, ou
 - B. Des objets sont tombés, ou du liquide a été versé sur/à l'intérieur de l'appareil, ou
 - C. Le XL-7 a été exposé à la pluie, ou
 - D. Le XL-7 est tombé, ou
 - E. Le XL-7 ne fonctionne pas normalement, ou affiche un changement radical de performance.
14. Tout service doit être effectué par un personnel qualifié.

SAUVEGARDEZ CES INSTRUCTIONS

L'appareil décrit dans cette notice génère et utilise une énergie de fréquence-radio. S'il n'est pas installé et utilisé correctement - c'est à dire en suivant strictement nos instructions - il peut occasionner des interférences avec la réception d'une radio ou d'une télévision.

Cet appareil a été testé et est conforme aux normes de Classe A en accord avec les spécifications du paragraphe J de la section 15 des lois FCC. Ces lois sont désignées pour fournir une protection raisonnable contre de telles interférences dans une installation résidentielle. Toutefois, il n'est pas garanti qu'aucune interférence n'apparaisse dans des installations particulières, et plus spécialement lorsqu'une antenne de télévision en «oreilles de lapin» est utilisée.

Si le XL-7 occasionne des interférences, vous pouvez essayer de les corriger en utilisant une ou plusieurs des mesures suivantes:

- Tournez l'antenne de la télé ou de la radio jusqu'à ce que les interférences disparaissent.
- Déplacez le XL-7 d'un côté ou de l'autre de la télé ou de la radio.
- Eloignez le XL-7 de la télé ou de la radio.
- Branchez le XL-7 sur une prise différente que la télé ou la radio.
- Installez une antenne sur le toit munie d'une connexion coaxiale entre elle et le poste de télévision.

Declaration of Conformity



Manufacturer:

E-MU Systems
1600 Green Hills Road
Scotts Valley, CA 95067-0015 USA

We hereby declare that the equipment listed herein conforms to the harmonized standards of the following European Commission Directives: 89/336/EEC and 72/23/EEC.

Trade Name: XL-7

Model Number: 7750

Under 89/336/EEC as amended by 92/31/EEC, and 93/68/EEC

In accordance with EN 55103-1:1996, Emission Environments E4

In accordance with EN 55103-2:1996, Immunity Environments E4

Test information is contained in a report by Atlas Compliance and Engineering, Inc.

Dated July 5, 2001

Report No.: 0126EMUx17_103

Under 73/23/EEC as amended by 93/68/EEC

In accordance with EN 60950 with amendments A1, A2, A3, A4, A11

This Declaration is made July 5, 2001

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Setup

Unpacking

This section thoroughly describes how to set up your new XL-7 for use. Setup includes unpacking instructions, how to hook up the unit to your sound system and, most importantly, how to turn the thing on and off.

Carefully remove XL-7 from the packaging material. Take care to save the packing materials in case you need to transport the unit. Check to make sure all components are included and in good condition. If there are missing or damaged components, contact E-MU Systems immediately for replacement or repair.

The XL-7 box should include the following components:

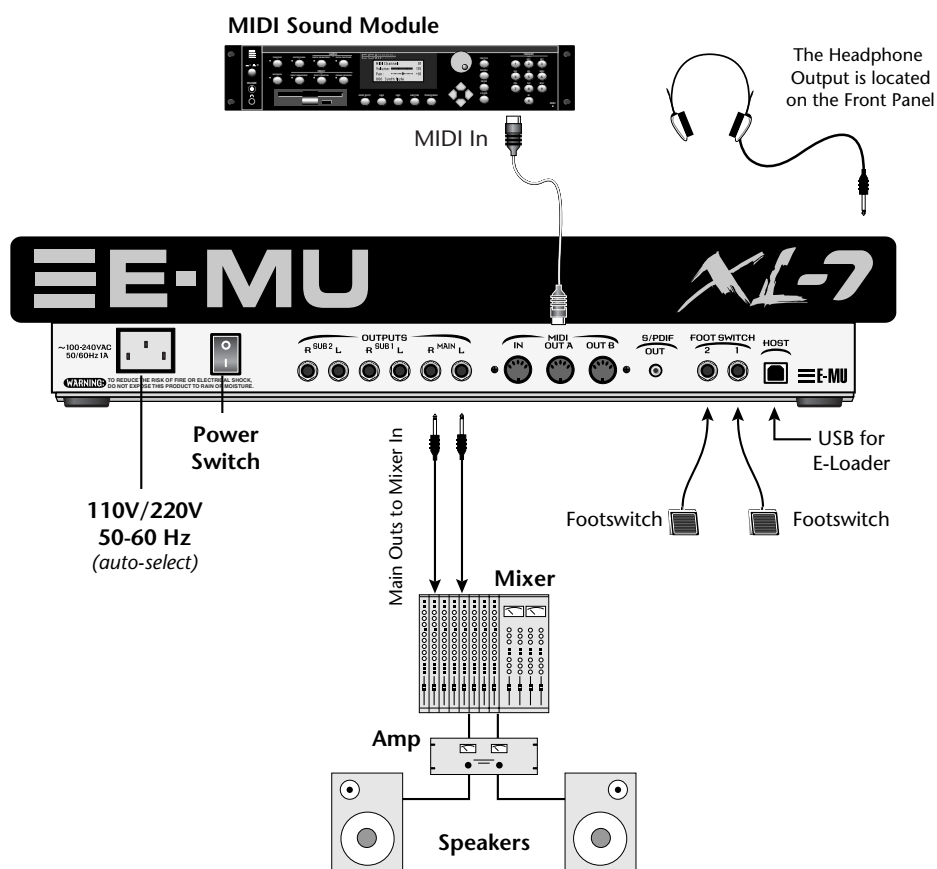
- XL-7 unit
- Power cable
- This operation manual
- Command Station CD-ROM

The following optional accessories are not included with your XL-7, but are available from your E-MU dealer for a nominal fee:

- Model 7770 - Rack Mounting Ears
- Model 7771 - XL-7 Gig Bag
- Model 7773 - Locking 12VDC Lamp

Connection Instructions

Basic Setup



Power Switch & AC Receptacle


The AC power switch located on the rear panel is a “hard” power switch. The front panel On/Off switch is a “soft” power switch that can be used to turn power on and off when the XL-7 is rack mounted. There is no 110/220 Volt power selector switch since XL-7 utilizes an auto-switching power supply which accepts from 100V-250V, 50-60Hz.

Outputs

In order to reproduce XL-7’s wide dynamic range and frequency response, use a high quality amplification and speaker system and a stereo setup is highly desirable. The headphone output is the same as the Main output signal. The headphone jack is located on the left side of the front panel.

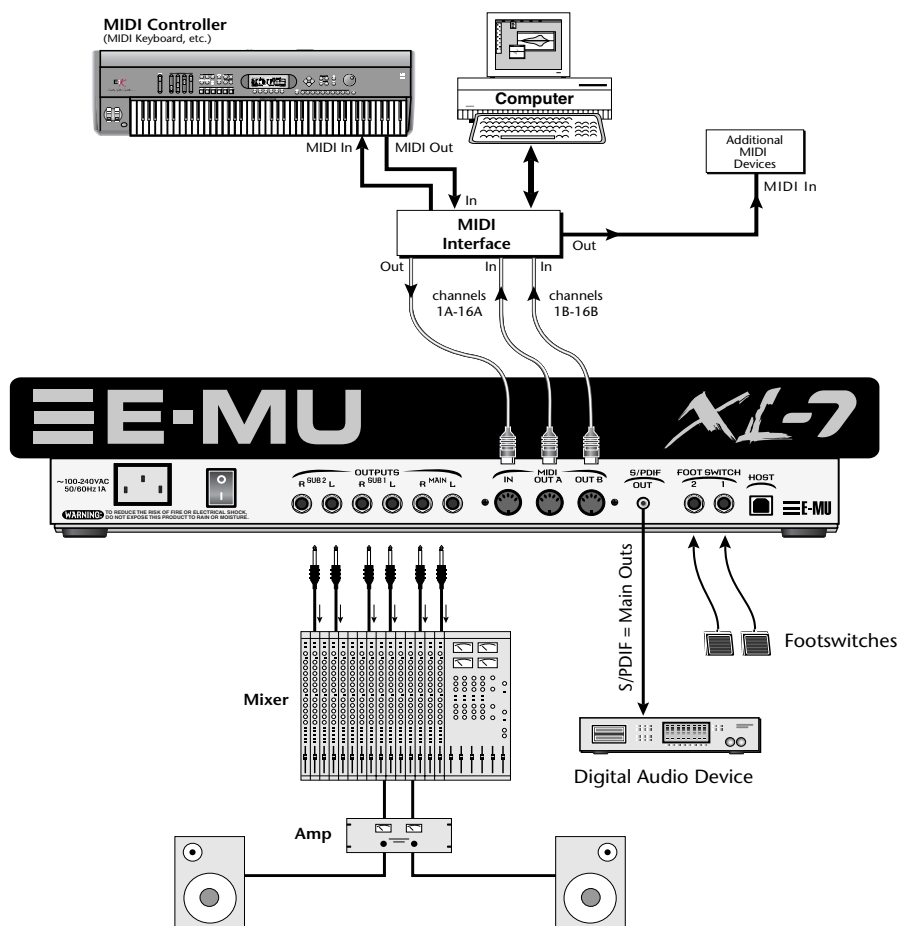
Footswitches 1 & 2

Connect one or more momentary footswitches for additional control. XL-7 auto-senses either normally-open or normally-closed switches when they are plugged in. Their functions are programmable in the Controllers, Footswitch menu and the Preset Edit, PatchCord menu.

 The Right Main output jack carries a mono mix of the left and right channels when the Left Main plug is not plugged in.

The Left Main output jack is a stereo jack carrying both channels when the right output jack is empty.

Studio Setup



MIDI In

In this setup, XL-7 is controlled by MIDI messages received at the MIDI input, which are routed by a computer MIDI interface. Any MIDI controller, such as a MIDI keyboard or a computer, can control the module.

Audio Outputs

Three sets of programmable stereo outputs (Main, Sub 1, and Sub 2) are provided. The internal effects are available only on the Main outputs. Specific presets (or MIDI channels) can be routed to one of these stereo pairs in order to be processed further or mixed separately. The S/PDIF output duplicates the function of the main outputs.

Footswitches 1 & 2

The two footswitch inputs accept either normally-open or normally-closed momentary footswitches and are programmable in the Controllers, Footswitch menu and the Preset Edit, PatchCord menu.

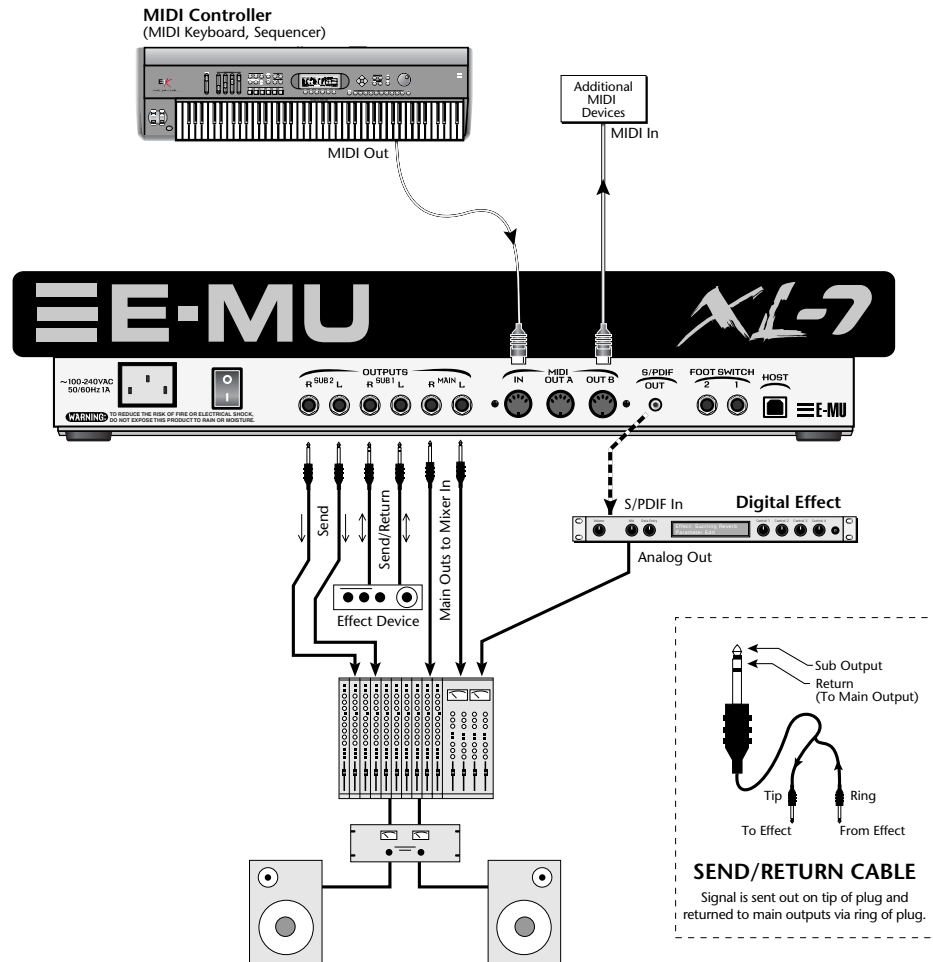


XL-7 contains two MIDI output ports (A & B) so that it can transmit on 32 MIDI channels instead of the usual 16. Use the main MIDI A port for OS Downloads & SysEx dumps.



Channels 01A-16A go to MIDI Out port A and channels 01B-16B go to MIDI Out port B.

Performance Setup



MIDI In

In this setup, XL-7 is additionally controlled by a MIDI keyboard.

MIDI Out

In this setup, XL-7's MIDI data will be retransmitted out port B. See page 165.

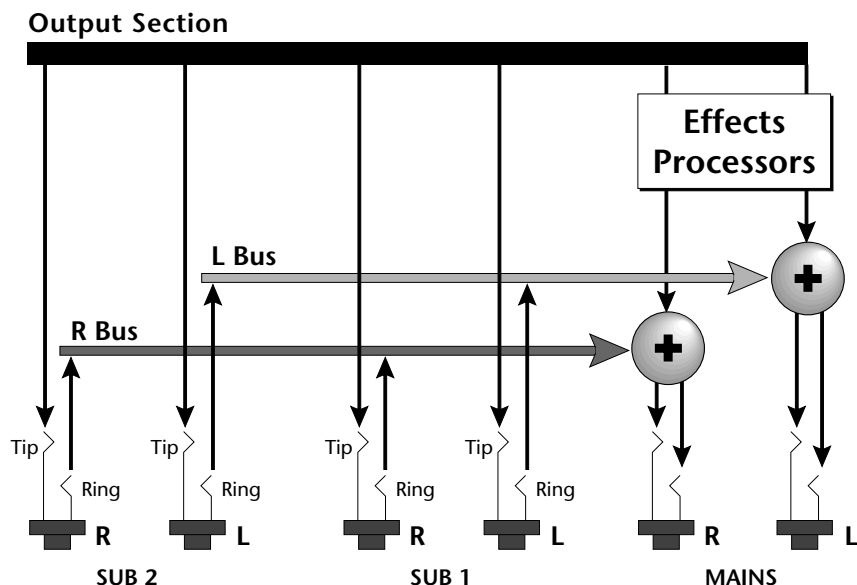
Audio Outputs

The Sub 1 and Sub 2 output jacks are stereo jacks. The tip of each jack (accessed when a standard phone plug is inserted) connects to the left or right output of that group. The S/PDIF output is a digital copy of the stereo signal on the main outputs.

If you insert a stereo plug into one of the Sub Outputs, the ring of the plug serves as a signal Return which sums into the Main outputs.

Therefore, the Sub 1 and Sub 2 jacks can serve as effect sends and returns in order to further process selected instruments and then return them to the main mix.

You can use the Sub 1 and Sub 2 jacks as send/returns in order to further process selected XL-7 presets without using the effects bus on the mixing board. In a pinch, the effect returns can be used to sum additional instruments into the main outputs. It's like having an extra line mixer when you need more inputs!



You can use the Sub 1 and Sub 2 jacks as effect returns to the Main Outputs.
Note that the Effects Processors are only routed to the Main Outputs.

Power Down Sequence

To avoid accidentally turning off the power while playing XL-7, the front panel power switch incorporates a five second "fail-safe" feature when powering down. Once the power down sequence has begun, you have five seconds to press the power switch again and stop XL-7 from turning off.

*** POWERING DOWN : 4
Press On / Off to Abort . . .

Rack Mounting XL-7

XL-7 can be rack mounted if you so desire. You'll need (6) rack spaces to fit XL-7 into your rack. The black end caps remove easily with three screws to reduce the width to 19 inches. Rack mounting ears are available from your E-MU dealer (Model 7770).




Instant Gratification

Playing Patterns & Songs

This section presents step-by-step instructions for the most fundamental operations to get you up and running as quickly as possible.

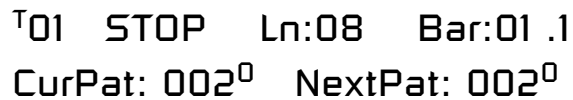
When you turn XL-7 on, it comes up in Pattern mode. XL-7 comes with over a hundred factory patterns. The Pattern screen is shown below.



T01 STOP Ln:08 Bar:01 .1
000⁰ Ambideep

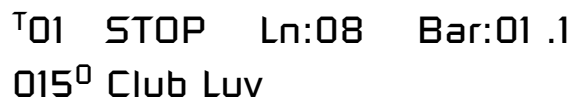
► To Play Patterns

1. Select a **pattern** using the data entry control.
2. Press the **Play** button, located near the center of the unit. The pattern begins playing and the lower line of the display changes.



T01 STOP Ln:08 Bar:01 .1
CurPat: 002⁰ NextPat: 002⁰

3. While the pattern is playing, select **another pattern** using the data entry control. The name of the pattern to be played next is now shown. Notice that the Home/Enter LED is now flashing.



T01 STOP Ln:08 Bar:01 .1
015⁰ Club Luv

4. Press the **Home/Enter** button to select the new pattern. The lower line of the display now shows the numbers of the Current and Next


patterns. The new pattern will begin playing when the current pattern has finished.

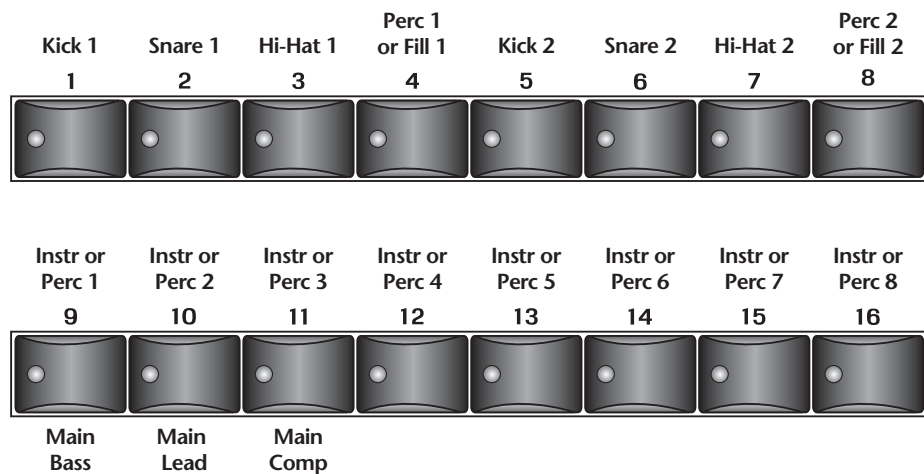
⌞01 STOP Ln:08 Bar:01.1
CurPat: 002⁰ NextPat: 022⁰

5. Select a new pattern, press **Stop**, then press **Play** to change patterns without waiting for the current pattern to end.

Track Muting

6. Press the **Track Enable/Mute** buttons to bring tracks in and out. Every factory pattern has from eight to sixteen tracks. The LED in each button illuminates when a track is enabled (unmuted). The diagram below shows the default factory track assignments.

 XL-7's buttons have been designed so that you can slide your fingers across them to quickly mute and unmute tracks.



Track Mixing

7. Press the **Mix** button (located beneath the LCD) while a pattern is playing. The Channel Volume display screen appears, showing the volumes of all 32 channels.

CH VOLS

01A:125

8. Now press the **Controller Function Select** button (located above the controller knobs) twice so that Volume is selected.
9. The sixteen controller knobs now function as volume controls for MIDI channels 01A-16A.



- While we're on the subject of Tracks and Channels, it might be a good time to mention that in all the factory patterns, a given track will control the MIDI channel of the same number. That means Track 1 will play the preset on channel 01A, track 2 will play channel 02A and so on up to 16. Feel free to turn the knobs and remix the pattern. The LEDs next to the knobs flash to indicate activity on that channel/track.

Change the Sound

10. Adjust your remix so that track9 (the bass) is the most prominent instrument in the mix.
 11. Press the **Preset View** button and select Track9 using the Track/Channel buttons to the left of the LCD.
 12. Now repeatedly press the **Controller Function Select** button until "Quick Edit" is selected.
 13. Now the knobs control the bass sound. You know what to do.
 14. Turn the **data entry control** to completely change the preset.
 15. Use the **Track/Channel** select buttons to change any of the presets. In XL-7's default mode, the rubber keypads are active on whichever preset is showing in the preset view screen. They can be set to always play a specific channel in the Controllers menu (page 136).
- Nothing is made permanent until you save the pattern or preset, so play around as much as you like.



*If you move the cursor underneath the **Preset Name** before changing the preset, another bass preset will be selected.*

Jump Back

16. You can jump between Volume mode, Quick Edit mode or Pattern mode at any time without missing a beat. Select a new pattern, tweak parameters, change the mix, enable or mute tracks.

Playing Songs



*Press the **Pattern Mode** button while a Song is playing to loop on the current pattern. Pressing **Song Mode** continues playing the song.*

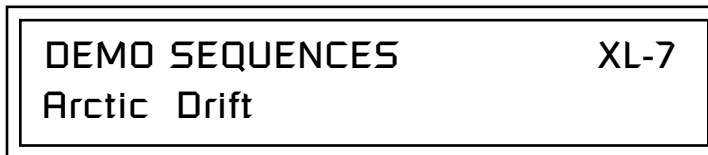
Now that you've explored Pattern mode a little, check out Song mode. In its most basic form, a song is just a sequence of patterns chained together one after another.

► To Play a Song

1. Select Song mode by pressing the **Song** button located underneath the LCD. (Stop the sequencer first.)
2. Select one of the factory programmed songs using the **data entry control**.
3. Press **Play**. The song begins playing.

Playing Demo Sequences

XL-7 has several factory demonstration sequences that let you hear what this incredible machine can do. The actual number of demo sequences depends on which ROM sounds sets are installed. You can play these demo sequences by accessing the Demo Sequence page.



► To Play a Demo Sequence

1. Press and hold the **Song** and **Pattern** buttons at the same time to enter the Demo Sequence page. The screen shown above appears.
2. Select a sequence using the **data entry control**. The Enter LED will be flashing.
3. Press the **Enter** button to begin playing the selected sequence. The following screen appears.



4. Press the **Enter** button again to stop playing the sequence.
5. When a demo sequence plays to the end, the next demo will automatically begin playing. The screen will display the new demo name.
6. With the sequence stopped, **press any other button** to Exit demo sequence mode.

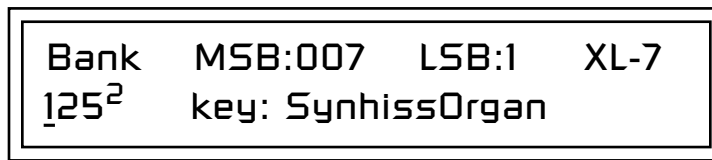
Auditioning Presets



To audition presets with their programmed effects, switch to Omni or Poly mode (located in the MIDI menu). Remember to switch back to Multi mode before playing sequences again.

The front panel audition button allows you to hear any preset in XL-7 without even playing a note! When the Audition button is pressed, the button's LED will illuminate and a short "Riff" (programmed as part of the preset) will play. The Riff is latched on and plays continuously until the button is pressed again. Presets can be changed while Audition is latched.

The top line of the Preset View display changes to show the MIDI Bank Select controller values needed to select the preset being auditioned. This is an extremely handy feature when sequencing.

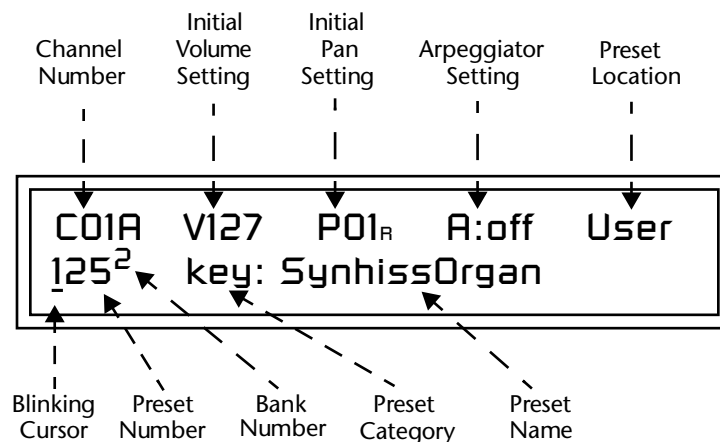


► To Audition a Preset

1. Select **Preset View** mode by pressing the preset button in the Mode/View section immediately below the LCD.
2. Select a preset by turning the **data entry control** while the cursor is anywhere on the lower line. The preset number field (shown above) is the normal position of the cursor and pressing the Enter button will return the cursor to this position.
3. Press the **Audition** button on the front panel. The Audition LED will illuminate and a short riff will play the selected preset.
4. Continue to select and audition presets.
5. Press the **Audition** button again to turn Audition mode off. The LED will extinguish.
6. Play the rubber keypads.
7. Be sure to check out the transposition buttons and touchstrip.

Selecting and Quick Editing Presets

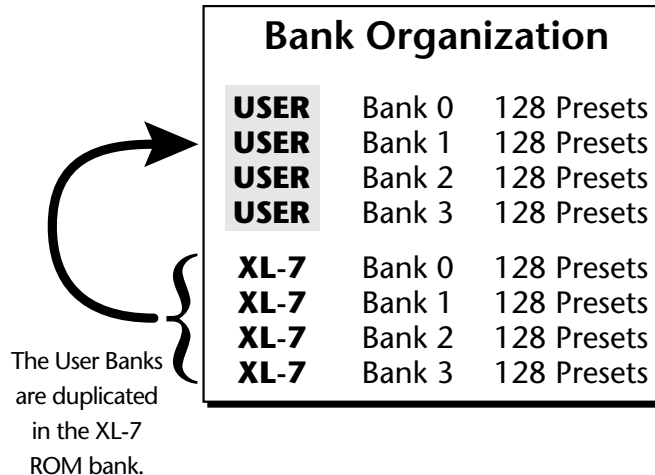
The first thing you'll do with the XL-7 is select and play the factory provided presets. XL-7 comes standard with 8 banks containing 128 presets each. See "Preset Screen" on page 46.



The first four banks are USER locations that can be overwritten and used to store your own presets. The presets that come stored in the USER presets are duplicated in banks 0-3 of the "XL-7" ROM bank, so feel free to overwrite them with your own presets. You won't be losing anything.

The *ROM Card* identifier is shown in the top right of the display. The preset is identified in the bottom line of the main screen (the screen that appears when you press the Mode/View Preset button).

Each bank of 128 presets is identified by a superscripted *Bank Number* to the right of the preset number. The bank numbers reset to 0 at the start of each ROM card you have installed. So with the XL-7 ROM installed, the USER banks will go from 0-3, then start over from 0-3 for the XL-7 ROM banks.





The four User Banks can hold 512 custom presets. Feel free to overwrite these since the factory user presets are duplicated in nonvolatile ROM.

To the right of the preset number and bank is the preset *Category* name followed by the *Preset Name*.

► To Change the Preset

1. Press the **Preset** button in the Mode/View box directly below the liquid crystal display. The main Preset selection screen appears.
2. The cursor will be located under the first character in the Preset Number field. This is the "Home" position which is selected instantly when you press the Home/Enter button. Pressing either of the two cursor buttons repeatedly also gets you there.
3. Turn the **data entry control** knob on the front panel to select a new preset number. If you turn the knob slowly, the presets advance one number for each "click" of the knob. If you spin the knob quickly, the numbers advance much faster (more than one number per click).
4. **Play the keyboard** (or press the Audition button) and listen to the sounds made by your XL-7!
5. **TRY OUT ANY OF THE 16 KNOBS** on the front panel (*in Quick Edit mode*) and note how they change the sound of each preset! Don't worry about ruining the sound, the values are automatically reset as soon as you select a new preset.

 You can select presets from the Preset Number, Bank Number, Preset Category or Preset Name fields.

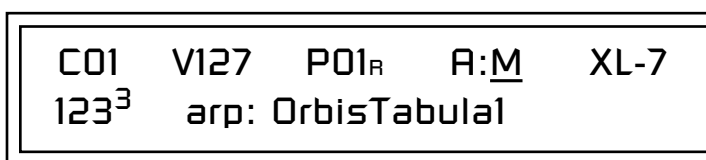
 Notice that an asterisk appears in the display when you change the knobs. This indicates that you have edited the preset.

Exploring the Master Arpeggiator

XL-7's multi-channel Pattern Generator/Arpeggiator is one of the greatest features ever put in a synth. Let's explore the Master Arpeggiator.

► To Arpeggiate a Single Preset:

1. **Select a preset.** Note that the factory presets all have prefixes which describe the type of sound. For this investigation it might be best to choose a preset with the prefix "arp," for arpeggiator. These presets are optimized for use with the arpeggiator.
2. Set the Arp parameter in the main preset selection screen to "M" for Master Arpeggiator.




3. Press the **Arp** button in the Edit section of the front panel to access the master Arpeggiator menu, then use the **data entry control** to scroll to the screen shown below.



4. Make sure the arpeggiator Status is "on." Play the keyboard to start arpeggiating.
5. Press either **cursor** key repeatedly to move the cursor below the Status field.
6. Turn the **data entry control** clockwise one click. The Mode screen appears.



7. Use the **cursor** keys to move the cursor to the *Mode* field (up, down, up/down, forw asgn, backw asgn, forw/backw, random, pattern). Try out the different modes as you play the keyboard.
8. Move the cursor back to the lower left position and explore the other parameters. The *Note Value* parameter changes the rate of the arpeggios. By the way, note value is a divisor based on the Master Tempo. Try changing the tempo, but come right back.

 Try using control knobs 15 & 16 to change the arpeggiator parameters.

9. Let's check out the pattern generator. Go back to the **Mode** screen and set the mode to "Pattern".
10. Now advance to the Pattern screen (shown below) and move the cursor to the **Pattern Number** field (the second field from the left).



See the Arpeggiator Chapter for detailed information on creating Patterns.

Multi-Channel Arpeggiator

11. Try the various patterns. There are 200 permanent factory patterns and 100 user locations to store the patterns you create. Each pattern can have up to 32 notes.

XL-7 is totally unique in its ability to run up to 32 arpeggiators at once! Even two or three patterns at once can create very complex sequences and dynamic landscapes of sound.

Here's one way to access this ultra-powerful feature. There is one arpeggiator for each MIDI channel. First you'll assign three of the Trigger Keys to MIDI channels 01A-03A. Next, you'll assign arpeggiator presets to these channels. Then you'll become addicted to this new way of making music.

Program the Trigger Keys

1. Press the **Controllers** button, then turn the data entry control until the screen shown below appears.
2. Move the **cursor** until it is underneath the **Latch** field and turn Latch mode On.



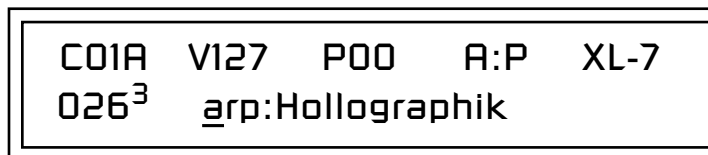
3. Move the **cursor** until it is underneath the **Channel** field (Ch) and set the channel to 01A.
4. Move the **cursor** until it is underneath the **Trigger** field (T1) and change the **Trigger** to T2 (trigger button 2).
5. Turn **Latch On** for trigger button 2 and set the channel to 02A.
6. Change the **Trigger** to T3 (trigger button 3).
7. Turn **Latch On** for trigger button 3 and set the channel to 03A.



Make sure the "Trigger Buttons Function" in the Controllers menu is set to "Play Note Events".

Set up the Presets

8. Press the **Preset View** button (located beneath the LCD). The preset select screen appears.
9. Move the cursor underneath the **Category** field (as shown above) and select the “arp” category.




10. Move the **cursor** underneath the preset name and select any “arp” preset for channel 1A.
11. Press the “+” **Track/Channel** select button (located to the left of the LCD), so that C02A is displayed.
12. Select any other “arp” preset for channel 2A.
13. Select channel 03A and choose another arp preset.

Select Trigger Mode

14. Press the **Selector Button** in the upper left corner of the Command Functions section. Pressing this button will switch between Track Enable/Mute and Triggers mode. Select Triggers mode.

Play it!

15. Now press **Trigger Buttons 1, 2 and 3**. You should be hearing three arpeggiators playing at once.
16. **Change the arp preset** on the current MIDI channel. Since the cursor is located on the preset name, all your selections will be in the arp category.
17. Press the **Track/Channel** button and change the arp presets for channels 1A, 2A & 3A. Since each factory preset has differently programmed arpeggiator settings, changing the preset not only changes the sound, but the arpeggiator as well.
18. You can also **play the keypads**. You’ll be playing the preset currently showing in the display.
19. Press the **Control Select** button above the knobs so that “Quick Edit” is selected. Adjusting the front panel control knobs now modifies the preset showing on the LCD.
20. Press the **Control Select** button above the knobs again so that “Volume” is selected. The first three knobs now control the volume of each arpeggiator preset.

 Sometimes a simple volume change will bring out hidden voices and patterns.

There’s lots more to the arpeggiators. To find out more, refer to the arpeggiator chapter beginning on page 245.



Multisetups save your entire XL-7 setup. Find out more on page 148.

Time to Save?

If you want to SAVE everything exactly as it is, continue on.

1. Press the **Save/Copy** button.
2. Rotate the **data entry control** until you get to the menu shown below.

MULTISETUP NAME
User Setup

3. Press the **right cursor** button to move to the lower line.
4. **Name your Multisetup** so you can find it later, then press **Enter**.
5. Scroll to the next screen using the **data entry control**.

SAVE SETUP TO
002 User Setup

6. Move the **cursor** to the lower line, select a location and press **Enter**.

► To Record the Trigger Buttons

You can record the note trigger buttons into the sequencer in order to automate your multi-arpeggiator performance. These instructions also apply to recording trigger buttons without the arpeggiators.

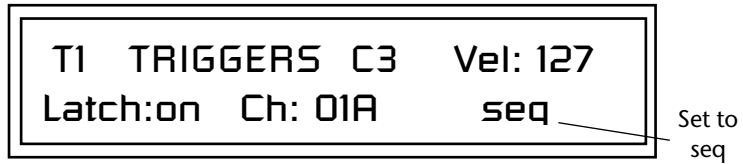
1. Set up the multichannel arpeggiators as described on page 28.
2. Press the **Pattern Edit** button and scroll to the **Channel Assign** screen shown below.
3. Set the channel setting to **MultiA** and Dest: **internal**, as shown in the screen below. *(The trigger buttons are set to play on multiple MIDI channels. if this track were not set to **Multi**, all channels would be rechannelized to the selected channel and the triggers would play back incorrectly.)*

T01 CHANNEL ASSIGN
Channel: MultiA Dest: int

4. Make sure that the Trigger Buttons destinations are set to “seq” as shown below. *(This sends the trigger keys to the sequencer input.)*



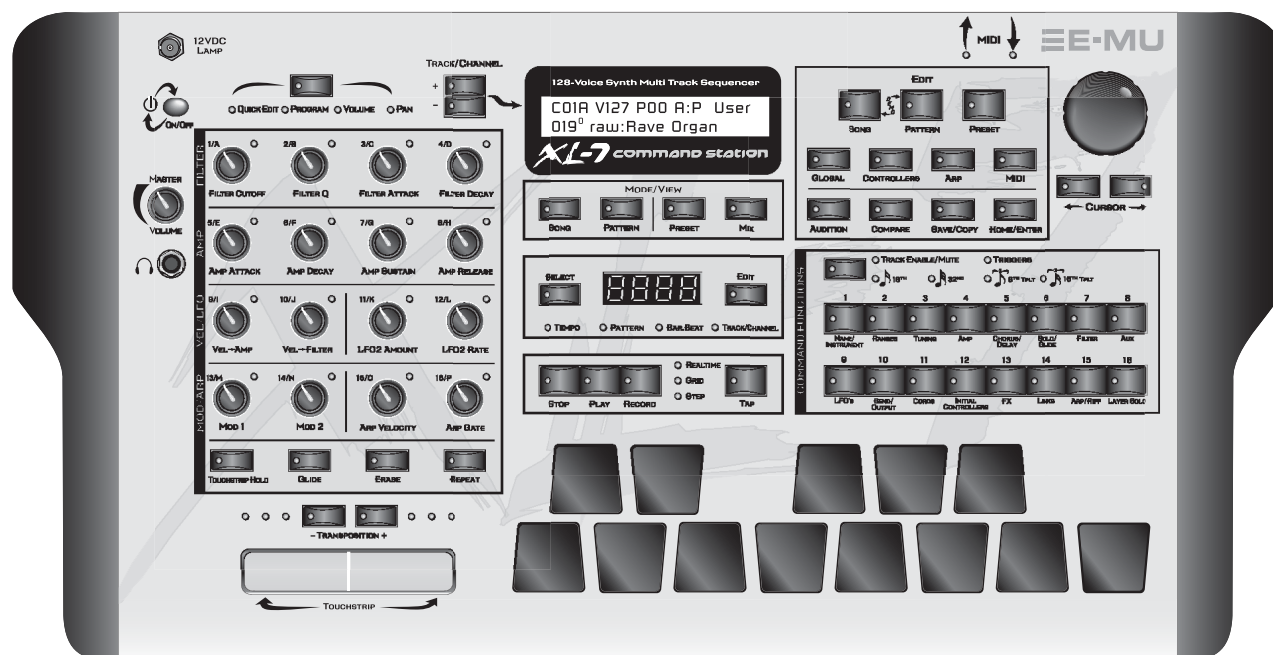
If you want to record the Trigger Buttons on a single MIDI channel, set the track Channel Assignment to the same channel as the trigger buttons.



5. **Save the Multisetup.**
6. Start with a new **blank pattern** and set the pattern **length**. Choose 20 bars or so to start.
7. **Restore the Multisetup.** (*Just to make sure everything is set up correctly.*)
8. Press **Record**, then **Play**. Start recording the trigger buttons.



Basic Operations



The XL-7 front panel contains an LCD screen, 13 velocity & pressure sensitive performance pads, a bi-directional touchstrip, 49 buttons, and 16 real-time controller knobs. Functions are grouped logically and the controls are arranged for ease of use.

Power Switch

The front panel On/Off switch is a “Soft” power switch that can be used to turn power on and off when the XL-7 is rack mounted. Use the AC power switch on the rear panel if you wish to completely disconnect XL-7 from the AC mains.

The power switch incorporates a “fail-safe” feature when powering down. Once the power down sequence has begun, you have five seconds to press the power switch again and stop XL-7 from turning off.

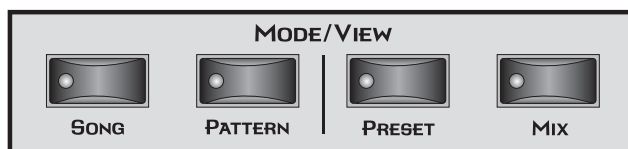
Volume Control

This control is the master volume control for all audio outputs. The Volume Control does not affect any editing or user interface operations. The front panel volume control is a digital attenuator. For maximum dynamic range, turn this knob all the way up and control the volume from your mixer or amplifier.

12VDC Lamp

The BNC connector in the upper left corner of the XL-7 panel supplies 12 volts DC at 250 mA to power a standard mixing desk lamp. (Order E-MU Model Number 7773 - Locking Lamp from your E-MU dealer.)

Mode/View Buttons



The Song and Pattern buttons change both the mode and current display view. Pressing Song or Pattern places the XL-7 in the selected mode.


Since Song and pattern are Mode buttons, the LEDs stay on when they have been selected, even if Preset or Mix view buttons are activated.

Song Mode Display

♪:100 M:04/4 Bar:001.1
000 256 bar blank

Pattern Mode Display

⌂01 STOP Ln:01 Bar: 01.1
009¹ Smooth 6

 An asterisk (*) appears in the Pattern, Song or Preset display to indicate that the item needs to be saved.



The Preset button brings up the Preset/MIDI Channel selection screen shown below. This important screen allows you to change the Preset, Volume and Pan position for all 32 MIDI channels. The Preset button does not change the Song or Pattern mode status and this screen can be edited while a Pattern or Song is playing back.

Preset Select Screen

C01 V127 P01_R A:off USER
079³ bts: Logic

The Mix button brings up a graphic display of the volume settings for all 32 MIDI channels. This is the same volume setting as in the Preset Select screen except that all 32 MIDI channels can be simultaneously viewed and edited. The Mix button does not change the Song or Pattern mode status and this screen can be edited while a Pattern or Song is playing back.

Mix Screen

CH VOL5 
01A:125 

► To View the Pan Settings for all 32 Channels

1. Press the **Home/Enter** key (to move the cursor to "Home" position) and turn the **data entry control** clockwise from the Mix screen.

Track/Channel +/- Buttons

These very handy buttons, located to the left of the LCD, serve as a shortcut to increment or decrement the Track (in Pattern mode), the MIDI Channel (in Preset mode), Layer (in Preset Edit mode) or Step Numbers (in Arpeggiator Edit mode).

Pressing the increment track button from 16 will wrap around to 1, and pressing the decrement key from 1 will wrap back to 16. Channel selection works in the same way.

Data Entry Control

The data entry control is a stepped, variable control switch used to change parameter values. The wheel increments or decrements the current value one unit with each click. This control incorporates acceleration, which advances the value faster if the data entry control is turned quickly.

Left/Right Cursor Buttons

These buttons move the cursor to the next parameter on the display. (The cursor is a little flashing line underneath one of the parameters in the display.) Press either cursor button until the cursor is underneath the desired parameter. The cursor buttons have an auto-repeat feature which advances the cursor when the button is held continuously.

The cursor can be moved bidirectionally using the data entry control while either cursor select button is held down (for example, press and hold the right cursor button and turn the data entry control).

LED View Select Section

The numeric LED display in the center of the XL-7 can display: Tempo, Pattern Number, the current Bar/Beat, or the MIDI Channel. Repeatedly pressing the Select button cycles through the four modes.



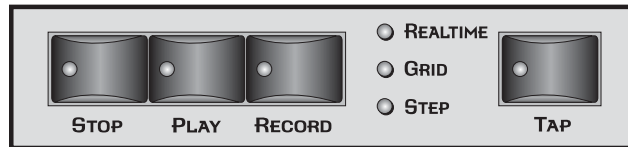
Selecting patterns using this method allows you to see the current and next pattern numbers.

Pressing the Edit button lights its associated LED and allows you to edit the displayed value using the data entry control. Pressing Edit again deactivates this mode. To select a new pattern, you must **exit Edit mode** for the new pattern to be selected.

By pressing and holding the Edit button, and then turning the data entry control, the displayed parameter can be quickly edited without latching the Edit mode on.

Sequencer Controls

These buttons control the sequencer transport functions.



Stop Button

Pressing the **Stop** button immediately stops any currently playing Pattern Sequence or Song Sequence. The sequence remains at its current location.

Press the **Play** button to resume from the current location.

Press the **Stop** button when the sequence is stopped to return to the beginning of the sequence (RTZ). Pressing the **Stop** button a third time reloads the initial setup information for the Pattern or Song.

Play Button

The **Play** button engages the transport, regardless of sequencer mode (except in step edit). The LED in the button will be illuminated when the sequence is running.

Pressing **Play** while in **Record** mode puts the sequencer into **Pause** mode. The sequencer stops and the Play LED flashes. Pressing **Play** again resumes **Record** mode.

Record Button


The Record button selects one of the three Pattern record modes or two Song record modes.

Song Record modes (from Song mode)

- One press Realtime record mode
- Two presses Step record mode

Pattern Record modes (from Pattern mode)

- One press Realtime record mode
- Two presses Grid record mode
- Three presses Step record mode

 While a pattern is playing, **press and hold the Play button and press Record** to jump into Grid Edit mode.

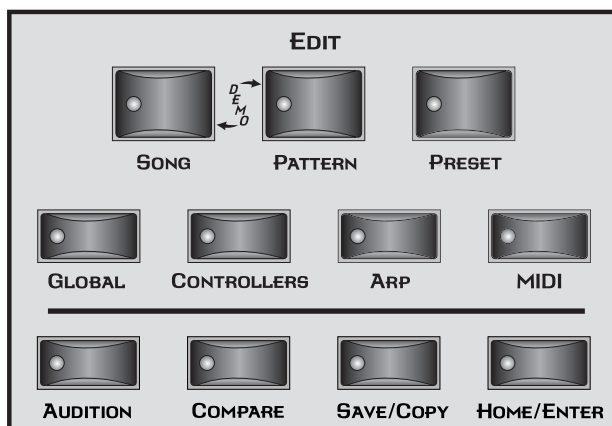
The LEDs to the right of the button indicate the record mode. After selecting a record mode, the Play button LED will be flashing. Press **Play** to begin recording.

You can press **Record** at any time during recording or playback to go in and out of Realtime Record mode (i.e. Punch In & Out)

Tap Tempo

The Tap Tempo button allows you to change the tempo at any time by tapping the button at the desired tempo. Three taps are initially required to change the tempo and then the tempo follows with each subsequent tap.

Edit Section



Song Edit Button

The Song Edit menu allows you to name and edit songs. An illuminated LED in the button indicates that you are in Song Edit mode. For more information about Songs and Song mode, see page 106. When pressed in combination with the Pattern Edit button, Song Edit puts the XL-7 in Demo mode.

Pattern Edit Button

The Pattern Edit menu allows you to name and edit patterns. An illuminated LED in the button indicates that you are in Pattern Edit mode. For more information about Patterns and Pattern Editing, see page 56. When pressed in combination with the Song Edit button, this button puts XL-7 in Demo mode.

Preset Edit Button

The Preset Edit menu allows you to create and edit presets. An illuminated LED in the button indicates that you are in Preset Edit mode. For more information about the Preset Edit menu, see page 201.

Global Button

The Global menu contains parameters that affect the entire machine. An illuminated LED in the button indicates that you are in the Global menu. For more information about the Global menu, see page 147

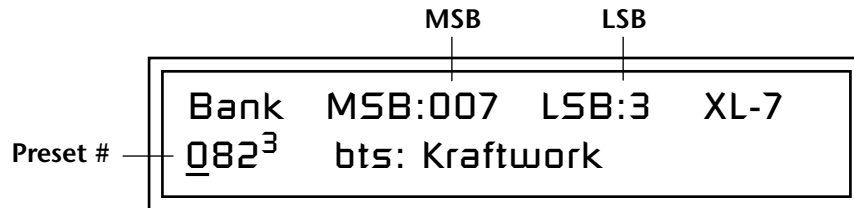
Controllers Button

The Controllers menu contains parameters that are related to the front panel controller knob and button triggers. An illuminated LED in the button indicates that you are in the Controllers menu. For more information about the Controllers menu, see page 135.

<i>Arpeggiator Button</i>	The Arpeggiator menu contains parameters that are related to the Master Arpeggiator such as creating and editing arpeggiator patterns. An illuminated LED in the button indicates that you are in the Arpeggiator menu. For more information about the Arpeggiator menu, see page 245
<i>MIDI Button</i>	The MIDI menu contains parameters that are MIDI related. An illuminated LED in the button indicates that you are in the MIDI menu. For more information about the MIDI menu, see page 161.
<i>MIDI Panic Button</i>	Pressing the MIDI and Home/Enter buttons simultaneously sends a MIDI “All Notes Off” and “All Sound Off” for all 32 MIDI channels.
<i>Home/Enter Button</i>	The Home/Enter button is dual purpose. In general, this button acts as the “Home” button. For example, when in an Edit menu, this button snaps the cursor to the page name field of the current screen. When viewing the Preset Select screen, this button snaps the cursor to the preset number field. The flashing green LED of the Home/Enter button indicates that pressing the button will initiate a particular operation.
<i>Save/Copy Button</i>	<p>The Save/Copy button is used to save changes to a pattern, song, preset, copy data between presets, randomize presets and to move other types of data. Selected groups of parameters, such as PatchCord settings, can be copied between Presets and/or between Layers using this menu. The menu is context-sensitive and will start at the appropriate save screen. See Save/Copy on page 287 for more information.</p> <p>The LED in the button illuminates to indicate that you are in the Save/Copy menu. The LED also illuminates when any preset parameter has been changed in the Edit menu (or if the front panel knobs have been moved with Quick-Edit mode enabled).</p>
<i>Compare Button</i>	The Compare button allows you to toggle between an edited version of a preset and the original, unedited version. When a preset has been edited, an asterisk appears in the preset name field and the Save/Copy LED flashes. Press the Compare button, lighting it's LED, to hear the unedited preset. Press the Compare button again to hear the edited preset. If edits are made to the preset while listening to the compared original version, compare mode is aborted and the compare LED goes off.
<i>Audition Button</i>	When the Audition button is pressed, the LED next to the button will illuminate and a short “Riff” (programmed as part of the preset) will play. The Riff is latched on and plays continuously until the button is pressed again. Presets can be changed while Audition is latched on. See “Bank Select Commands” on page 198 for more information on selecting banks via MIDI.

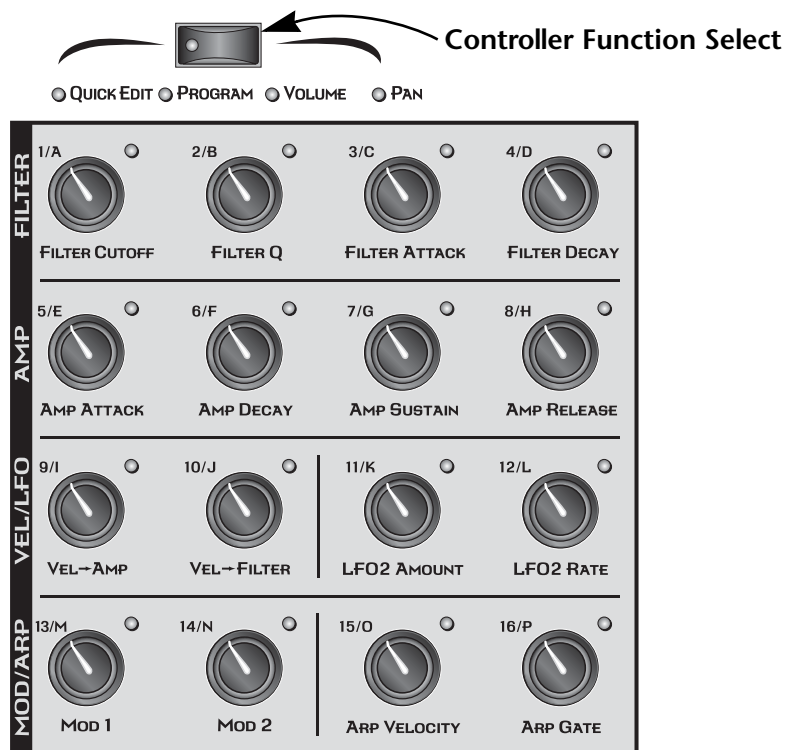
Real-time Controller Knobs

The top line of the Preset display changes to show the MIDI Bank Select controller values needed to select the preset being auditioned. This handy feature lets you know the exact Bank and Preset number.



The Real-time Controller Knobs can serve several purposes. The first four functions are selected using the **Controller Function Select** button above the realtime control knobs. Preset Quick Edit can be enabled to use the knobs for editing in the Preset Edit menu.

1. **Quick Edit** - Real-time control of internal synthesizer parameters and “Quick Editing” the initial settings of the real-time controllers
2. **Programmable Knobs** - Real-time control of MIDI continuous controllers on external synthesizers
3. **Volume** - Setting the volume of 16 channels.
4. **Pan** - Setting the pan position of 16 channels.



Knob Functions



*Quick Edit knob
movements can be recorded into
the sequencer using realtime
song or pattern record modes.*

Quick Edit mode

The Real-time controller knobs provide direct control of the XL-7's synthesizer parameters when the Controller Function Select is set to Quick Edit.

There is an LED next to each of the control knobs which illuminates to indicate that the knob setting has been changed from the value programmed in the preset ("Knobs Preset Quick Edit" mode must be enabled in the Controllers menu). If the knob position is returned to the original setting, the LED is extinguished.

Initial controller values can be stored in every preset. When you move a knob with Quick-Edit enabled, the Initial Controller Value is updated with the knob's new value. The knob's LED lights indicating that the preset value has been changed. The MIDI A-P values are stored in the corresponding *Initial Controller Amount* parameter in the Preset Edit menu (see "Initial Controller Amount" on page 240). The Save/Copy button LED flashes to remind you that the preset has been edited. "Quick-Edits" made to a preset are lost if you select another preset before saving them.

The four rows of knobs always control the preset on the basic MIDI channel (the channel showing on the preset select screen), when the control switch is set to Quick Edit.

The labels (Filter Cutoff, Filter Q, Filter Attack, Filter Decay, etc.) printed on these rows show how the factory ROM presets are programmed to respond. *(The controls may not exactly conform to the front panel labels depending on the preset.)* You can change the way a preset responds to MIDI A-P messages from the Preset Edit menu (PatchCords). The knobs only generate a message when you move a knob to a new value. The current value jumps to the new value.

► To Quick-Edit a Preset


1. Select **Quick Edit** mode using the Controller Function Select button.
2. Use the Control Knobs to change the sound of the current preset as desired. An asterisk (*) appears in the preset view display indicating that the preset has been modified.
3. Press the **Save/Copy** button. You may have to turn the data entry control so that the display reads, "Save PRESET to."
4. Press the right cursor button to select the bottom row.
5. **Optional:** Select a new preset location if you don't want to overwrite the current preset, or if the current preset is a ROM preset.
6. Press the **Enter** button to save the preset.

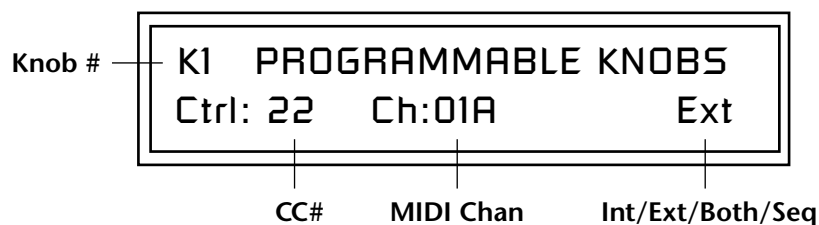
Programmable Knobs mode

If the “*Programmable Knobs*” parameter in the Controllers menu is set to “Ext,” or “Both,” the system sends MIDI controller messages when you turn the Controller knobs. Each knob can be programmed to send on any MIDI channel (01A-16B) and on any continuous controller number from 1-95. The knobs only generate a message when you move a knob to a new value. The Controller Knob LEDs always remain off in this mode.

► To Program the Programmable Knobs

1. Press the **Controllers** button. Its LED will illuminate.
2. Turn the data entry control to select the **Programmable Knobs** screen.

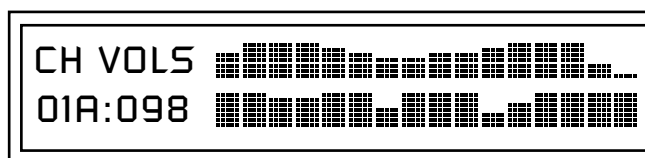
 Turning a knob while in this screen automatically selects that knob for programming!



3. Use the left/right cursor controls to select the fields.
4. Select the MIDI Continuous Controller number, the MIDI channel, and Internal/External or Both for each of the 16 knobs.
5. **Save the Multisetup** if you want to save these settings. See page 149.

Multichannel Volume Knobs

In this mode, each of the 16 knobs will control MIDI Channel Volume for the like-numbered channel. This directly edits the value shown on the preset select screen and is equivalent to sending MIDI cc#7.



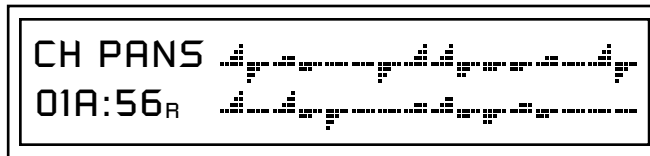
View Mode must be set to “MIX” in order to see the display shown above.

When “Knobs MIDI Out” in the MIDI menu is enabled, any knob change will send MIDI cc#7 to the MIDI out port as well as controlling the internal channel volume.

In this mode, the LEDs next to the sixteen knobs blink to indicate MIDI activity on the same numbered MIDI channel (from the keypads, sequencer or external MIDI sources).

Multichannel Pan Knobs

In this mode, each of the 16 knobs will control MIDI Channel Pan for the like-numbered channel. This directly edits the value shown on the preset select screen and is equivalent to sending MIDI cc#10.




View Mode must be set to “MIX” in order to see the display shown above.

When “Knobs MIDI Out” in the MIDI menu is enabled, any knob change will send MIDI cc#10 to the MIDI out port as well as controlling the internal channel volume.

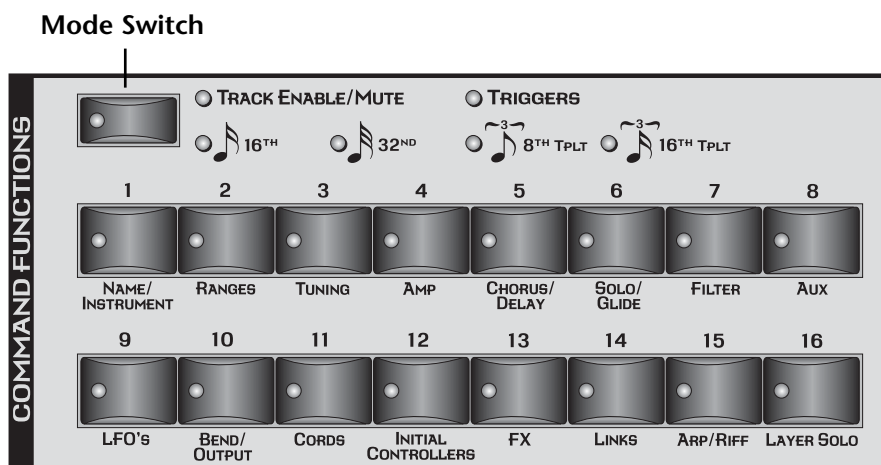
In this mode, the LEDs next to the sixteen knobs blink to indicate MIDI activity on the same numbered MIDI channel (from the keypads, sequencer or external MIDI sources).

Trigger/Mute Buttons

 Trigger button presses can be recorded into patterns and songs.

The trigger button section serves multiple purposes which are listed below.

- Assignable & latched note triggers. See page 140.
- Sequencer track select/mute buttons See page 22 and page 56.
- Sequencer grid edit entry keys. See page 67.
- Preset Edit menu jump keys. See below.



The mode switch is normally used to select between Triggers and Track Select/Mute. In Sequencer Grid Edit, the mode switch is used to select step resolution.

Trigger Mode

Select Triggers mode by pressing the mode select button so that the “Triggers” LED is illuminated. Now the 16 buttons work like keyboard notes. Each of the 16 buttons can be assigned to any MIDI note, on any MIDI Channel (01A-16B), with any velocity (0-127), and can be set to be latched or momentarily on. Latched note will hold until the button is pressed again. Latched notes will be indicated by the LEDs. Trigger keys are assigned from the Controllers menu. See page 140 for more information.

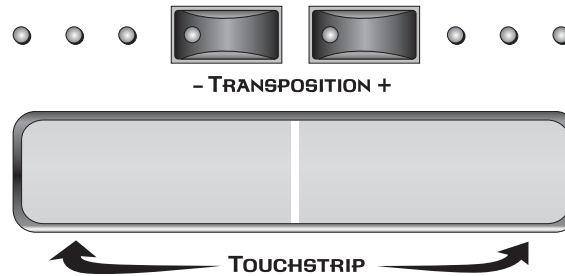
Preset Menu Jump Keys

Whenever you are in the Preset Edit menu, the sixteen command buttons function as “jump” buttons to the various screens in the Preset Edit menu. The jump location is labelled directly below each button.

Pressing a jump button instantly takes you to the first screen in the selected category. Pressing the button again takes you to the second screen in the category and so on. Repeated pressing will rotate you back to the first screen in the category.

Touchstrip, Transpose, Keypads & Glide

The Touchstrip is a bi-directional controller which is normally connected to control pitch. It can, however, be patched in to any modulation destination in the Cords section of the Preset Edit menu. The Touchstrip is referred to and programmed as “Pitch Wheel” in the Cords menu. See page 230.



Simply slide your finger along the touchstrip while playing the keypads to hear pitch bend. There is a slight “dead band” in the very center of the strip to facilitate starting on pitch. You can press anywhere along the strip and the pitch will instantly jump to that setting. When you release your finger, the pitch will jump back to normal.

Touchstrip Hold

The Touchstrip Hold button holds the pitch at the position last touched so that it doesn't jump back to center when released. The LED in the button illuminates when this function is on.

Transpose Buttons

These buttons transpose the current range of the rubber keyboard up and down in one octave intervals. The LEDs on either side of the transpose buttons show the currently selected range. With no LEDs illuminated, the keyboard is in its normal range, Middle C to High C (60-72). Each LED to the right of the buttons stands for one octave up. Each LED to the left of the buttons stands for one octave down.

Rubber Keypads

The velocity and pressure-sensitive keypads can play on any MIDI channel as programmed in the Controllers menu. They are normally set to play on the “Basic” channel, which means that they play the preset currently showing in the preset view screen. The keypads output channel (mono) pressure internally (routed in the PatchCords) and both channel and polyphonic pressure over MIDI.

Glide Button

This button turns Glide (portamento) on or off for the current preset. The LED in the button illuminates when Glide is turned on in the current preset. See Glide on page 220.

Erase Button

When this button is latched on (LED illuminated) while recording a pattern, any note played on the keyboard will remove that note from the pattern as long as the keyboard key is held down. This allows you to quickly removed any “flubbed” notes without having to enter Pattern Edit mode.

In Grid record mode, pressing the Erase button while the cursor is on one of the grid locations, removes the note from that location.

In Song step record mode, pressing the Erase button erases the currently selected step from the song.

Repeat Button



Using the Repeat button, even in play mode, causes the current pattern to be dirtied (asterisk showing). Although nothing is actually recorded in the current pattern, this could cause an unsaved pattern to be wiped out.

When this button is latched on (LED illuminated) while recording or playing back a pattern, played notes will repeat at the current pattern quantize setting (page 57). You can get some great effects with this feature by simultaneously changing the volume or pitch as the sound repeats.

In Song step edit mode, the Repeat button functions as a “Pattern Insert” button. See page 107 for more information.

Preset Screen



Realtime changes made to this screen are NOT recorded as part of your pattern or song. See page 63 to learn how to record volume and pan information into your sequences.

MIDI Channel Selection

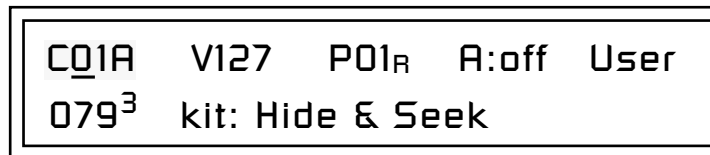
Preset Selection

Bank	Contents
0	128 RAM Presets
1	128 RAM Presets
2	128 RAM Presets
3	128 RAM Presets
ROM 1	0 – 128 ROM Presets
	1 – 128 ROM Presets
	2 – 128 ROM Presets
...	...
??	Depending on ROM sets installed



An asterisk * in the preset view screen indicates that the preset has been modified. (Change the preset without saving to remove the asterisk.)

The Preset Select screen is accessed by pressing the Preset View button located directly under the LCD. This screen allows you to examine or set the Preset, Volume, Pan Position and select the Preset (sound) for each of the 32 MIDI channels.



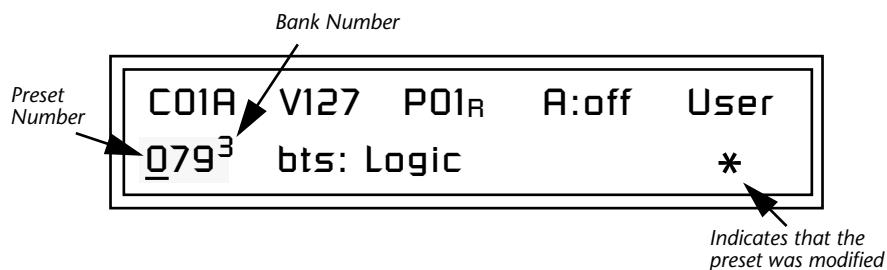
► To Change the MIDI Channel

1. Press the Preset View button to display the Preset Select screen.
2. Press the Track/Channel buttons located to the left of the liquid crystal display to select channels 01A through 16B. The preset, volume and pan settings for each channel will be displayed as you scroll through the channels.

The channel number shown in the main screen is the **Basic MIDI Channel** when in Omni or Poly modes.

► To Change the Preset

1. Press the **Preset View** button to display the Preset Select screen.
2. Press either **cursor key** until the cursor is underneath the preset number. (The cursor is a little flashing line underneath one of the parameters in the display.) As you rotate the data entry control, the preset number and name changes.
3. The displayed preset is assigned to the displayed MIDI channel. Presets are arranged into banks of 128, as shown in the diagram at left.



Using the screen above as an example, the superscripted number 2 in the second line of the display identifies the current bank number.

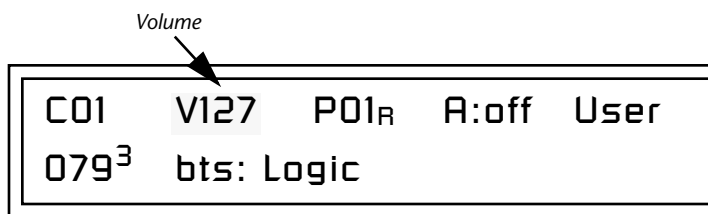
- Select banks independently of the of the preset number by locating the cursor on the Bank field and turning the data entry control.

MIDI BANK SELECT			
	MSB	LSB	
	cc00	cc32	
USER	00	00	Bank 0
USER	00	01	Bank 1
USER	00	02	Bank 2
USER	00	03	Bank 3
XL-7	14	00	Bank 0
XL-7	14	01	Bank 1
XL-7	14	02	Bank 2
XL-7	14	03	Bank 3

This chart shows the MSB and LSB numbers needed to select preset banks over MIDI. Select a bank, then send the program change number. Without a bank select command, presets are selected from within the current bank.

Channel Volume

Channel Volume sets the volume of the selected MIDI channel in relation to the other channels. This is the same parameter as MIDI volume control #7, and changes made over MIDI are shown in the display.

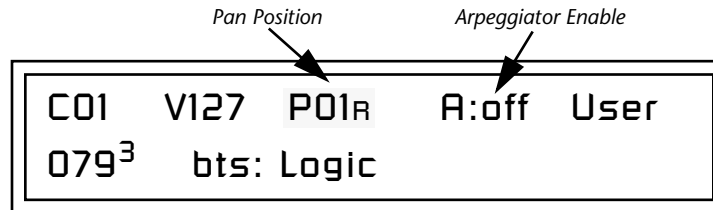


► To Change the Channel Volume

1. Press the **Preset View** button to display the Preset Select screen.
2. Press either **cursor key** until the cursor is underneath the volume value.
3. Rotate the **data entry control** to select a volume level. The Channel Volume range is 000-127.

Channel Pan

Channel Pan sets the stereo position of the selected MIDI channel. This control operates like the balance control on your home stereo system. Channel Pan is the same parameter as MIDI pan controller #10, and changes made over MIDI are shown in the display.



Note: Pan settings in the preset ADD algebraically with the Channel Pan setting. Therefore, if the pan setting in the preset were set to “63R,” moving the Channel Pan setting full left would return the sound to the center position.

► To Change the Channel Pan

1. Press the **Preset View** button to display the Preset Select screen.
2. Press either **cursor key** until the cursor is underneath the pan field.
3. Rotate the data entry control to **select a pan value**. 64L indicates a hard left pan, 63R indicates a hard right pan. With a setting of “00,” the sound is centered in the stereo field.

Channel Arpeggiator

This function controls the arpeggiator for each MIDI channel. When the channel arpeggiator mode is set to Off, then there is no arpeggiation on that channel, regardless of what is set up in the Master Arpeggiator or preset. If the channel arpeggiator is On, the preset’s arpeggiator is used, regardless of whether or not it is turned on in the Preset Edit menu. This lets you turn on arpeggiation from the main screen.

If the mode is set to “P” (for preset), the preset’s arpeggiator settings and on/off status is used. If the mode is set to “M” (for master), the master arpeggiator settings and on/off status (located in the Arp menu) are used. See the “Arpeggiator/Beats Menu” on page 245 for more information.

► To Play the Arpeggiator (Quick Start)

1. From the **Preset View** screen, press either cursor key repeatedly until the cursor is underneath the **arpeggiator field (A:)**.
2. Rotate the data entry control to select “P” for preset.
3. Press either cursor key repeatedly until the cursor is underneath the **Preset Category** field and select “arp:” using the data entry control.
4. Press the right cursor button to move it to the **Preset Name** field.
5. **Play notes or chords** on the keyboard. Change presets as desired to audition the various patterns and presets.

Sound Navigator

Preset Category

Sound Navigator allows you to search through preset and instrument categories to find the type of sound you're looking for. Each preset and instrument has a name and a three letter preset category. You can create your own categories in order to group favorite presets. The preset category is assigned in the Preset Edit menu (Preset Name). Instrument categories are fixed.

When you want to find presets in a particular category, you simply change the category field in the Preset View screen, then move the cursor to the preset name field to scroll through all the presets in the selected category.

When the cursor is on the Preset Category field, turning the data entry control selects different preset categories. The Name Field will change to show the first preset in each category.



► To Change the Preset Category

1. From the Preset View screen (shown above), press either cursor key repeatedly until the cursor is underneath the preset category field.
2. Rotate the data entry control to select one of the preset categories. Preset Categories are displayed in alphabetical order.

► To Select a Preset within a Category

1. After selecting a category, move the cursor to the Preset Name field.
2. Rotate the data entry control to scroll through the presets in the selected category. Note that the preset numbers will no longer change sequentially.

Instrument Category

When the cursor is on the Instrument Category field (Preset Edit menu), turning the data entry control selects different instrument categories. The Name Field changes to show the first instrument in each category. Move the cursor back to the instrument name to choose other instruments in the selected category.





Sequencer



Warning: Sequencer Patterns and Songs are **NOT** saved until you save them in the Save/Copy menu.

An asterisk (*) appears in the Pattern or Song display to indicate that the item needs to be saved. The Save/Copy button LED will also be flashing to remind you.

The XL-7 Sequencer is an extremely powerful, yet easy to use MIDI recording device. Several different methods of creating and editing sequences are provided to suit your personal style of composition.

► To Enable the Sequencer

XL-7 always powers up in pattern mode. Pattern mode can be selected from any other screen by pressing the Pattern mode button below the LCD.

A Pattern can be immediately started by pressing the Play button. Press the Song mode button to select Song mode.

► To Select a Song or Pattern

With the XL-7 in Song mode and the cursor in the Home position, turn the data entry control to select a new song.

With the XL-7 in Pattern mode and the cursor in the Home position, turn the data entry control to select a new pattern.

► To Edit a Pattern

Select the pattern you wish to edit, then press the Pattern Edit button. Turn the data entry control to scroll through the Pattern Edit menu items. See page 74.

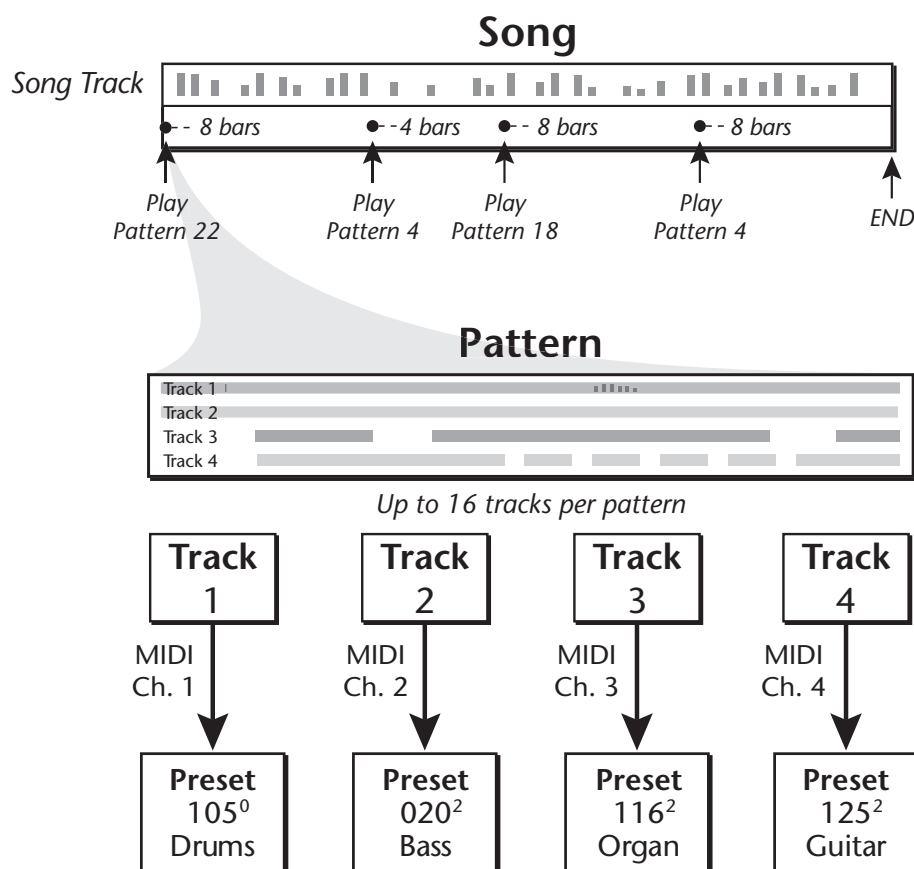
► To Edit a Song

Select the song you wish to edit, then press the Song Edit button. Turn the data entry control to scroll through the song edit menus. See page 113.

Overview

XL-7's sequencer is a Song/Pattern based recorder featuring high resolution recording at 384 ticks per beat. Multiple record modes - Song, Pattern, Grid, Step & Realtime Record - allow you ultimate flexibility in the way you compose you music. You can add, monitor and modify parts on the fly or switch recording modes without ever stopping the sequencer. The sequencer features 16 tracks, each of which can record from one (*default*) to 16 channels. Automated mixing and synth control is a snap. Read on and discover just how fast and easy multitrack recording can be.

The diagram below shows the basic organization of the sequencer.



A song can link patterns together and contains one extra track. Patterns can contain up to 16 tracks. By default, each track uses the same numbered MIDI channel and plays the preset on that channel.

A **Pattern** can contain up to 16 tracks, each of which is normally assigned to a single channel and preset. (*Tracks can also be set up to record and playback multiple MIDI channel if you wish.*)

Songs can link patterns together to form more complicated arrangements. There is also an additional song track which can be used to record notes, controllers, pattern mutes or any other MIDI data. Songs can be of any length, unlike patterns which are limited to 32 bars.

Definitions

Events

In this section the various components of XL-7 sequences are described, starting from the smallest units “events” and ending with the largest element, a “song”. Songs can be up to 999 bars in length.

Events are the smallest bits of information that are recorded into a sequencer. Note-on, note-off, continuous controller messages, MIDI clocks, and program change commands are all events.

Tracks

Tracks are groups of events that will (by default) be assigned to the same numbered MIDI channel and will play the preset assigned to that channel. You should probably stick to using this default setting if you don’t need more than 16 tracks. Any of the 16 tracks can be muted on playback.

XL-7 presets (sounds) are completely separate from the sequencer tracks. If you change the sound of a preset, it will sound different for all tracks that use that preset. If you want to customize a factory sound, save it to a user location and use the new preset in your sequence.

Tracks may also contain multiple MIDI channels. This feature allows the XL-7 sequencer to control up to 64 different channels at once. There are 32 internal MIDI channels (1A-16A, 1B-16B), and two assignable MIDI ports, each of which can carry 16 external MIDI channels. A track can be assigned to play: internal sounds only, external sounds only (MIDI), both internal and external, or not assigned at all. See page 96.

Multichannel track events can be programmed to play on their assigned MIDI channels or can be “rechannelized” to a play on a single channel. See page 96.

Patterns

Patterns are collections of tracks and are the basic unit of storage for sequences. You cannot save a track unless it is part of a pattern.

Patterns can be up to 32 bars in length. After playing to the end of its specified length, a pattern will loop back to the start. Looping repeats indefinitely as long as the sequencer is running.

Patterns store the following information in non-volatile Flash memory, which is recalled immediately before the pattern is played.

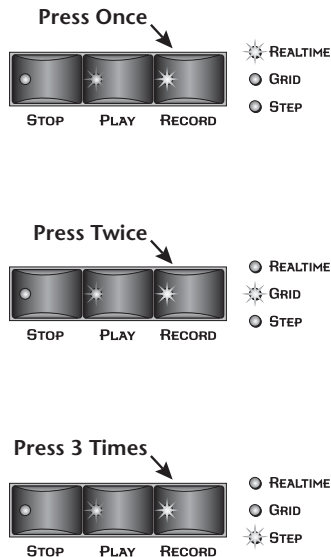


Note: Pattern Setup information is saved as it was set at the moment you saved the pattern.

Important! You must have recorded data on the track in order for the Setup information to be saved.

- Pattern Name & Number
- Track Events
- Initial Tempo & Meter
- Master FX setup
- Track to MIDI Channel mapping
- Track Mutes
- Bank/Program changes
- Volume & Pan settings.....
- Mix Output setup.....
- Arp Status (off, on, preset, master)

These parameters are stored for each track used in the pattern.



Asterisk Appears

Pressing Rec
List Edit
(press enter)
Executing
an Edit
function

No Asterisk

Changing:
tempo,
meter,
length,
name, chan.
assign, etc.



Use the "Revert to
Saved Pattern" feature to
remove the asterisk and discard
your pattern edits. See
page 105 for more
information.

Pattern Recording & Editing

Patterns can be edited in three ways:

- **Realtime Record** - Events are stored in the designated track as they are played on the keypad or from the MIDI input port. Events are over-dubbed into the track as the track plays and loops. The original channel of each event is maintained when recorded.

Individual events can be erased by pressing the realtime erase button and re-playing the event during the time that the event occurs in the pattern.

- **Grid Editing** - In this mode, the sixteen trigger buttons become a time grid. A note event is first selected and is then placed at any time location by pressing the appropriate grid button.

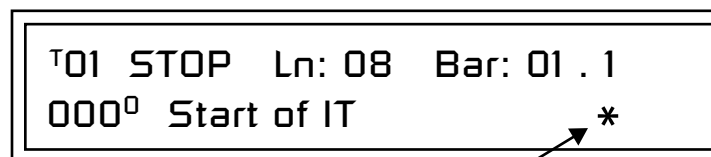
The grid resolution can be changed to allow a whole measure or a fraction of a measure to be displayed on the button grid.

- **Step Edit** - In this mode, you can single-step through the time locations (bars, beats, & ticks) and place events anywhere you want.

The play button jumps from the current location to the next note value as determined by the resolution setting.

The Asterisk

When a pattern (or song) has been edited and needs to be saved an asterisk (*) appears in the display. The Save/Copy LED will also be flashing as a reminder to save your work. The asterisk and your edits remain in the single edit buffer even if you change patterns. Edits are only erased by saving the pattern, editing another pattern, invoking the "Revert To Saved" feature, or turning the unit off. Saving saves the current pattern and NOT the edit buffer.



Indicates that the Pattern
needs to be saved.

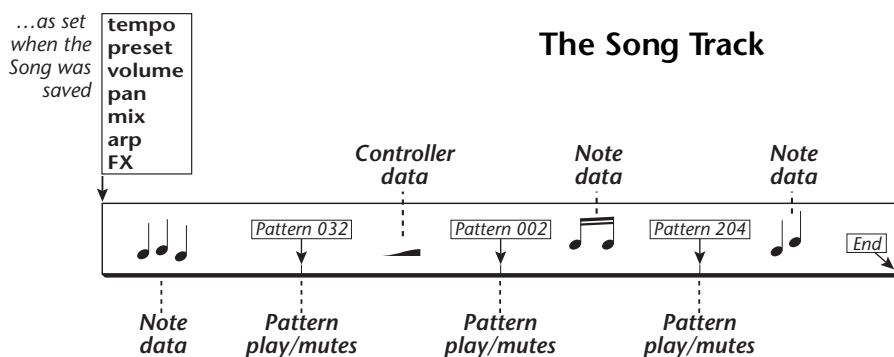
Standard MIDI Files

Patterns can also be imported from a Standard MIDI File (SMF) dump. SMF type 0 files are imported with MIDI channels 1-16 going to the same numbered XL-7 track. SMF type 1 files are imported with tracks 1-16 going to the same numbered XL-7 track. Tracks 17 and above will not be imported into XL-7.

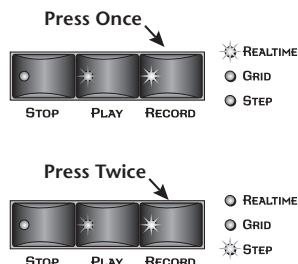
Songs

Songs are recorded on a single track which allows you to record Pattern Play messages as well as real-time note and controller information. This lets you link previously recorded patterns together to form more intricate arrangements, then overdub controller information such as volume, pan or other controller information or additional note information. You can change pattern length and track mutes in song mode without affecting your stored patterns.

Song mode is also useful when you wish to record, playback or import a sequence longer than 32 bars. For example, you could import a long multi-channel sequence created on another sequencer as an XL-7 song.



The Song Track contains Pattern Play events as well as real-time data (note-on/off, continuous controllers and other MIDI data).



Song Record Modes

- **Realtime Record** - Events are stored as they are played on the keypad, controllers or from the MIDI input port as the single realtime track plays. The original channel of each event is maintained when recorded.
- **Step Edit** - In this mode, you can single-step through the bar locations and place Pattern Inserts wherever you want.


Songs store the following information in non-volatile Flash memory:

- Song Name & Number
- Realtime note & controller information
- Track Mutes (these can be recorded in real-time on the linear song track and supersede the pattern track mutes.)

The following events are also saved as they were set **when the Song was saved**. The "Event Source" option in the Song Edit menu (page 113) determines whether song or pattern events will be used in the song.

- Initial Tempo
- Master FX setup
- Event Source
- Volume
- Pan
- Mix Output setup.....
- Arp channel status (off/on/preset/master)

These parameters are stored for each channel used in the song.

 The 16 tracks of a song can be assigned to either the A or B channels using the "Song Channel Assign" function on page 123.

Pattern Mode

Pattern mode is selected by pressing the **Pattern mode** button beneath the liquid crystal display. The screen shown below is displayed in Pattern mode when the sequencer is stopped.

```

T01 STOP Ln: 08 Bar: 01 . 1
0000 Start of IT

```

Pattern Play



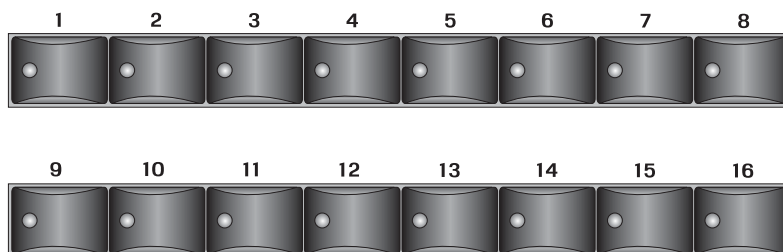
Pressing **Play** in Pattern mode causes the selected pattern to continuously play and loop. The display changes as shown.

```

T01 STOP Ln:08 Bar:01 .1
CurPat: 0020 NextPat: 0020

```

The **Track Mute** buttons can be used to select specific tracks for playback. The track mute settings are saved when the pattern is saved and restored when the pattern is run.



STOP

Pressing the **Stop** button stops the pattern immediately. Pressing **Stop again** rewinds the pattern to the beginning (RTZ).

Pressing the **Stop** button a third time reloads the initial setup information for the Pattern (or Song).

To select another pattern while one is already playing: Turn the data entry control in Pattern Mode/View. The lower line of the display changes to show the name and number of the pattern you have selected. The Home/Enter LED will be flashing.

```

T01 STOP Ln:08 Bar:01 .1
0150 Club Luv

```

L.E.D. Beat Markers

- The Tap Tempo LED stays on slightly longer at each bar.
- The Tap Tempo LED flashes to mark each quarter note.

Press **Enter** to jump to the new pattern when the current pattern ends. The lower line of the display now again shows the current and next pattern numbers.

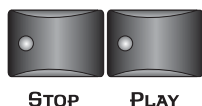
^T01 STOP Ln:08 Bar:01 .1
 CurPat: 002⁰ NextPat: 022⁰

To start a new pattern immediately, press **Stop**, select the new pattern and press **Play**.

or... To select a pattern while playing, press **Enter**, press **Stop**, then **Play**.

Restart/Pattern Fire Key

Holding **PLAY** and tapping **STOP** will instantly RTZ (Return-To-Zero) and continue playing. The stop key may be pressed many times while holding the play key to get a “stutter” sequencing effect. This also serves the purpose of instantly starting a new sequence if one is queued.



Hold **PLAY** & hit **STOP** to restart the pattern.

There can be a slight delay when restarting dense sequences, as there is no time to pre-queue the initial events. Simpler patterns will restart faster as there is less “pre-sequence” information to load.

Realtime Recording

As described on page 54, there are three ways to record patterns. Realtime recording is the easiest way to begin recording. Notes and Controller events are recorded into a pattern. External MIDI data can also be recorded.

Preparing to Record a Pattern

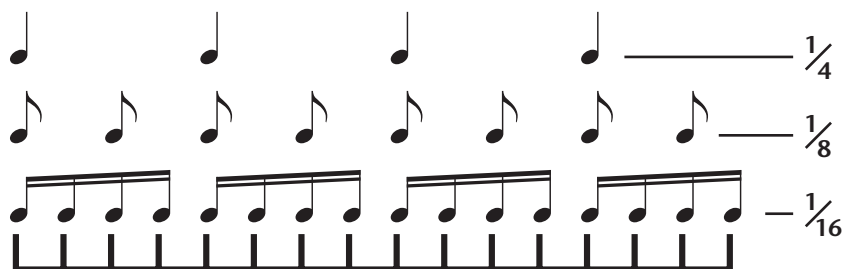
Before you record a pattern there are a few things you’ll want to set up. Most of these steps apply to realtime or step recording.

- **Erasing** the pattern (if necessary).
- Program the **Metronome** (if necessary). Page 76.
- Define the pattern’s **Time Signature** and **Pattern Length**. Page 60.
- Setting the **Count-in** length (if necessary). Page 59.
- Setting **Input Quantize** (to correct timing errors in Realtime Recording, to set the step rate in Step Recording, or to set the repeat rate when using the front panel Repeat button). Page 57.
- Select the desired **Channel**, **Track** and **Preset** for recording.

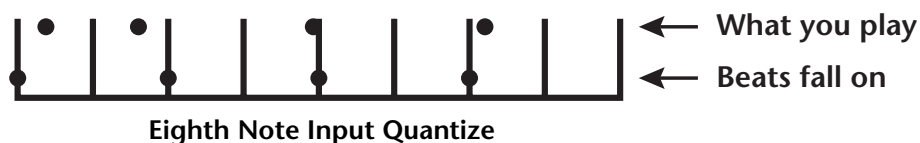
Input Quantize

Input quantize corrects your timing and places notes exactly on the note value of your choice. You can choose any of the following note values: quarter notes, quarter note triplets, 8th notes, 8th note triplets, 16th notes, 16th note triplets, 32nd notes, 32nd note triplets, 64th notes, 128th notes and 64th note triplets.

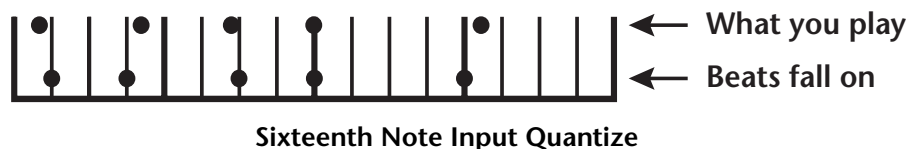
The illustration below shows one measure of 4/4 music (there are four quarter notes, 8 eighth notes, and 16 sixteenth notes in a measure of 4/4).



Suppose you wanted to record a bass drum beat on every quarter note. The upper row of dots in the diagram below shows where you might have played the four drum beats. The lower row of dots shows what happens when Input Quantize is set to eighth note resolution. Each beat is now moved to the nearest eighth note.



In the next example we'll set Input Quantize to sixteenth note resolution. In this example the beats you played have been assigned to the nearest sixteenth note, which works on beats 3 & 4, but not on 1 & 2.



This brings up an important point.

Use the Lowest Quantization value needed.

If you're recording a simple snare backbeat, there's no point in using higher quantization than eighth notes. To record something more complex, use a finer resolution such as sixteenth or thirty-second notes.

You can change the Input Quantize setting in Pattern mode whether the XL-7 is running or stopped, recording or not. You can also use different resolutions on the same part. Use low resolution to record most of the part, then switch to a finer resolution to add complexity.

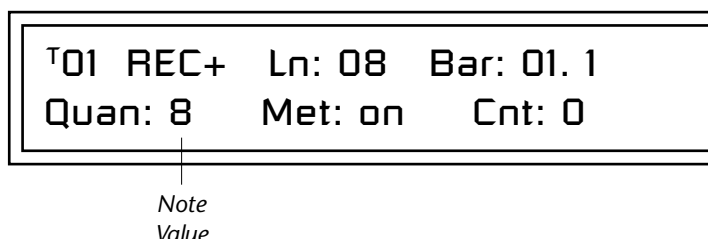
Recording triplets is easy since there are four triplet modes (1/4t, 1/8t, 1/16t and 1/32t). You can also switch between triplet and non-triplet modes to record complex polyrhythms.

When Input Quantize is turned Off, you are recording in XL-7's high resolution mode in which beats can be placed on any one of 384 ticks per measure. High resolution recording is great if you're a good player and want your performance captured as accurately as possible.

► To Set Input Quantize

Input Quantize only works in Pattern mode.

1. Choose Pattern mode and **select a Pattern**.
2. Go into Record mode by pressing the **Record** button. The Pattern Record screen shown below appears.



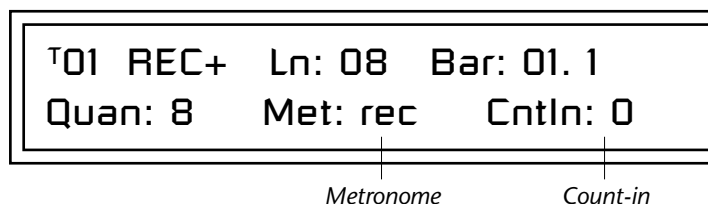
3. Choose the desired **Input Quantize** value using the data entry control.
4. Press **Play** to begin recording.

Count In

The Count-in feature lets you hear the metronome for either one or two measures before recording begins. This helps you get the feel of the beat before you actually begin recording.

► To Set Count-in

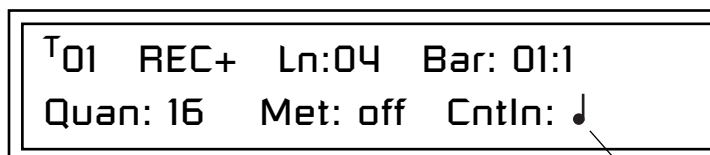
1. Choose Pattern mode and **select a Pattern**.
2. Go into Record mode by pressing the **Record** button. The Pattern Record screen shown below appears.



3. Move the cursor underneath the **Count-in** (Cnt) field using cursor keys.
4. **Select 0, 1, or 2 bars** of count-in using the data entry control.
5. Press **Play** to begin recording.

First Note Record

Dialing the count-in field past 2 displays a quarter note icon, indicating first note record. This mode could also be called “First Event Record” since recording actually begins when the first event of any type is received.



First Note Record Option

This feature has several modes of operation depending on the way you are recording.

- If paused in record mode, the sequencer automatically starts rolling when a recordable event is received.
- First note record mode also changes the way punch-in operations are handled in “Replace Record” mode. These new modes are described on page 66.

► To Record a Pattern using First Note Record:

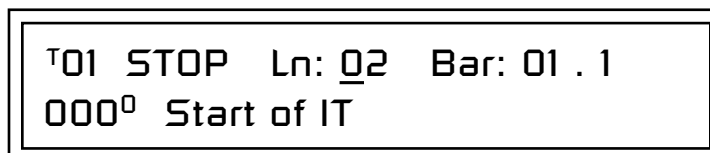
1. Select an “Empty Sequence”.
2. Press the **Preset** button, select a preset, then press the **Pattern** button.
3. Press the **Record** button. The screen shown above appears:
4. Move the cursor to the **CntIn** field and turn the data entry control clockwise until the quarter note appears.
5. Set up the track length, quantization and metronome as desired.
6. Recording will begin when you play a note or turn a controller knob.

Pattern Length

You can set the length of a pattern from 1 to 32 bars, either before, after or even during recording.

► To Set the Pattern Length from the Main Pattern Screen

1. **Select the pattern** in Pattern mode.
2. Move the cursor to the **Length** (Ln) field using the cursor keys.



3. Set the **Length** of the pattern using the data entry control.

Metronome

The metronome is a timing aid when recording or playing back patterns which produces an accented click on the first beat of each measure and a softer click on other beats. This setting is NOT saved with the pattern.

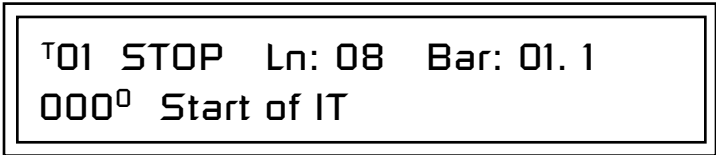
► To Set the Metronome

1. Go into Record mode by pressing the **Record** button.
2. Scroll to the **Metronome** screen using the data entry control.
3. Move the cursor underneath the **Metronome** field and set it to **On**, **Off** or **Rec** using the data entry control. Set to **On**, the metronome plays during recording and playback. Set to **Rec**, the metronome only plays while recording.
4. The metronome value is set in the Pattern Edit menu. See page 76.

Recording a Pattern

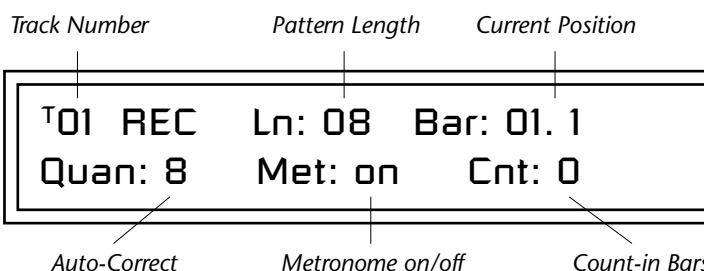
► To Record a new Pattern

1. Press the **Pattern** mode button. The screen shown below appears.




T01 STOP Ln: 08 Bar: 01.1
000⁰ Start of IT

2. Select a Blank pattern to begin recording using the data entry control.
3. Press the **Record** button. The screen shown below appears.




Track Number Pattern Length Current Position
T01 REC Ln: 08 Bar: 01.1
Quan: 8 Met: on Cnt: 0
Auto-Correct Metronome on/off Count-in Bars

4. Set the **Pattern Length** and **Input Quantize** value. For more information on Input Quantize see page 57.
5. Set the number of count-in bars if you wish.
6. Select a **Track** number. The default value is Track one. This is fine for the first track.
7. Press the **Preset View** button. The preset screen shown below appears.



C01A V127 P00 A:P User
050³ kit:80's Tones

8. Select a **Preset** for your first track.

 For these instructions, make sure Keyboard/Knob Channel in the Controllers menu is set to "Basic Channel".



You can go in and out of Record mode at any time by pressing the **Record** button



To Quick-Erase a Track:
Press and Hold the **Erase** button, then press the **Track** button you want to erase.



To Erase an Entire Pattern: Copy an "Empty Sequence" over the pattern. (Save/Copy menu).



To Quick-Select a Track:
1. Press and hold **Tap**.
2. Press the **Track Enable/Mute** button corresponding to the track you wish to select.

9. Press the **Preset View** button again after you've selected a preset. The LED will go out and you'll be returned to the Pattern screen.

Get ready to record the first track!

10. Press **Play** to begin recording. Recording will begin after the count-in period (if any). The pattern will loop when it reaches the end of its length.
11. Press **Stop** when you're finished recording.

Are you happy with your performance? If not, you can erase the track and try again.

To Erase the Track

12. Press the **Pattern Edit** button and turn the data entry control until you find the "Cut Track to Clipboard" screen.
13. Move the cursor to the lower line of the display under **Track 1**.
14. Press the flashing **Enter** button to erase the track.
15. Press the **Pattern Edit** button again to exit the menu, then go back to step 10 and re-record the track.

To Erase Specific Notes

16. Press the **Erase** button in Realtime Record mode and **hold down the keyboard note** you wish to erase. The note will be erased when it comes around in the pattern.

To Record another Track

17. Press the **+Track** button located to the left of the LCD. The track number increments to Track 02.
18. Press the **Preset View** button. Notice that the MIDI channel has also incremented to C02A. Select a preset.
19. Press the **Preset View** button again after you've selected a preset. You'll be returned to the Pattern screen.
20. Press the **Stop** button to return the beginning of the pattern.
21. Press **Record**, then **Play** to begin recording on track 2.
22. After recording track 2, check out the **Track Enable** buttons to mute and un-mute the tracks.
23. A pattern must be SAVED or it will be erased when you power down or record another pattern. See "Save Pattern" on page 287.
You can continue to add up to 16 tracks. If you need more than this, keep in mind that you can add up to 16 channels of data to each track! Normally, it's simpler to use just one channel per track.
 - To setup a track for multichannel playback see "Channel Assign" on page 96.



The Event Source parameter (page 113) controls how pattern settings are used in Song mode.



Too much controller information can clog the sequencer causing sluggish performance and sloppy timing. Use the "Thin Events" function (page 83) to reduce the amount of controller data in the pattern.

► Saving Patterns

When you save a pattern (page 287), the following settings are also saved (as set at the moment you saved). These settings are restored just before pattern playback.

- Tempo & Meter
- Master FX setup (See page 154)
- Track to MIDI Channel mapping (See page 96)
- Track Mutes
- Bank/Program changes
- Initial Volume & Pan settings.....
- Mix Output setup (See page 152).....
- Arp Status (off, on, preset, master)

These parameters are stored for each track used in the pattern.

► To Record Realtime Controller Data

You can mix and embellish your patterns by recording continuous controllers along with note data.

1. Start by recording and saving a pattern.

Recording Quick Edits

The Quick Edit knobs are only active on the Basic Channel (*the channel currently displayed in the Preset View screen*).

2. Select **Quick Edit** mode by pressing the Controller Function Select button.
3. **Select the channel** with the preset you wish to Quick Edit.
4. Practice your knob movements before recording by **Playing the pattern** and twisting the knobs.
5. When you're ready to record, press **Record** while the sequencer is playing (to punch-in), then perform the knob movements.

Record Multitrack Volume and Pan Information

You can record Volume and Pan information for all 16 channels simultaneously by using Volume Knob mode. You'll be recording multichannel volume or pan data onto a track. The default channel assignment will rechannelize this data to a single channel. You must change this.

6. **Select a track** for the Realtime Controller data.
7. Press the **Pattern Edit** button and scroll to the "**Channel Assign**" page.
8. Set the track to **MultiA**. Now the track will record multichannel data.
9. Press the **Pattern Edit** button to exit the menu.

Automating the Volume of each Channel

10. Select **Volume** knob mode by repeatedly pressing the Controller Function Select button (page 39).
11. Select **Mix View** mode if you wish to view the volume settings.



Use the "Erase cc# Events" function (page 85) to erase controller data from the pattern.

12. Press the **Stop** button twice to make sure the pattern starts at the beginning.
13. Press the **Record** button in Pattern mode to get ready to realtime record. The Play button LED will be flashing.
14. Press the **Play** button to begin recording. The controller knobs now adjust the volumes of all 16 channels.
15. Press **Stop** when you're finished recording.

Real-time Panning

16. Select **Pan Knob** mode by pressing the Controller Function Select button.
17. Select **Mix View** mode by pressing the Mix button (if it's not already selected).
18. Turn the data entry control clockwise to select **Ch Pan** view.
19. Press the **Stop** button twice to make sure the pattern starts at the beginning.
20. Press the **Record** button in Pattern mode to get ready to record. The Play button LED will be flashing.
21. Press the **Play** button to begin recording. The controller knobs now adjust the pan positions of all 16 tracks.
22. Press **Stop** when you're finished recording.

► **Erasing Controller Data**

1. The **Erase Events** function (page 85) can be used to erase controller data from a pattern.
2. Find the realtime controller number of the knob you wish to erase in the Controllers menu.
(Volume is always cc#7, and Pan is always cc#10. The numbers of the 16 controller knobs can vary.)
3. Press the **Pattern Edit** button.
4. Scroll to **Erase Events** and move the cursor to the lower line of the display.
5. **Select the realtime controller** number from step 2.
6. Press **Enter** to erase the controller data.

► **Using Realtime Repeat**

When this button is latched on (LED illuminated) while recording or playing back a pattern (or song), played notes will repeat at the current pattern quantize setting (page 57). Simultaneously changing the volume or pitch as the sound repeats can generate some great effects.

1. Press the **Record** button once to go into Realtime Record mode.
2. Set the **Input Quantize** resolution on the LCD to the desired rate.
3. Press the **Repeat** button illuminating the LED.

4. Press **Play** to begin recording.
5. **Play the Keypads** (or keyboard). Notes now repeat according the Input Quantize setting.
 - You can change the Input Quantize setting at any time while recording.

Automatic Channel Assignment

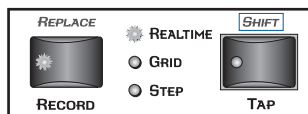
Whenever you change a channel, the sequencer looks for a track that is assigned to that channel. This feature automatically selects the proper track in most cases, freeing you from having to think about it.

For your information, the algorithm works as follows:

1. If the current track is already assigned to this channel, or if this track is a “multi” track containing this channel (i.e. MultiA if channel was set to 07A) it does not change the current track.
2. If not, it starts at track 1 and looks for a track that is assigned to this exact channel, and sets it to the **first** track that is.
3. If there wasn't one, again it starts at track 1 and looks for a “multi” track that contains this channel, and sets it to the first track that does.
4. If none of the above succeed (meaning that this channel is not being played on any track), it does not change the current track.

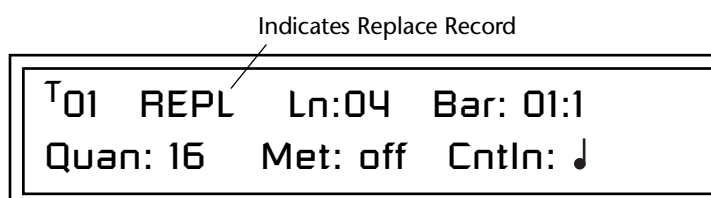
Also, changing the track in the list editors or channel assignment screens sets the current track and vice versa.

Replace Record



Replace record is a new realtime record mode that selectively overwrites track data upon recording new data over it.

Press and hold Tap and press the Record button when in real-time record mode. “REC+” in the display changes to read “REPL”, indicating that you are now in Replace Record mode.



REC+ ----- New data is added to the existing track data.
REPL ----- New data overwrites exiting track data.

Replace record works differently depending on whether the first-note record status is on or off. See the chart below.

Record LED

Solid - - - - Erasing Data

Flashing - - Rec. Armed

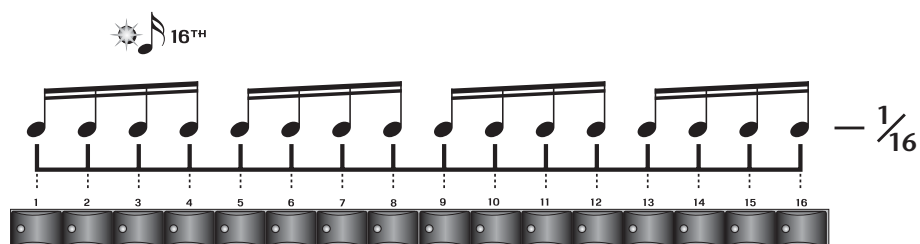
Mode	First Note Record On	First Note Record Off
Start Point (Punch In)	Data will be replaced from the moment you play any sort of MIDI event that the sequencer records; note, controller data, etc.	Data will be erased (and replaced) anytime its start time is passed while replace record is active.
End Point (Punch Out)	Data will be erased until the earlier of the following: A: The pattern reaches the loop point (patterns) or end point (songs). At this point, the transport automatically punches out (unless no data was played, see next row). B: You punch out, either by pressing STOP or REC.	
If No Data is Recorded During a Loop	The transport stays in “record armed” mode until data is played, even over the loop point. If you punch out before recording anything, no data is erased.	If you don’t play any data during a pass, the record mode will stay active over the loop. If you manually punch out without recording anything, data that was in the region of recording will be erased. Once you play data, the next loop point will automatically punch out.
Playing Existing Data	The sequencer plays existing notes in the track until the first data is played.	The sequencer will not play any data on the track to be recorded.

Grid Recording

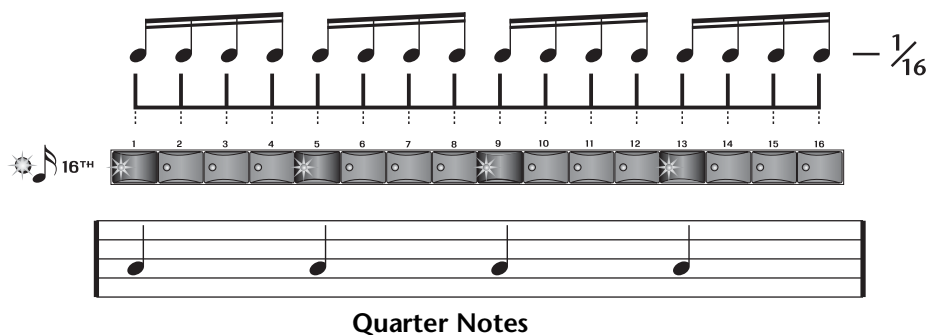
Grid recording allows you to lay out notes along a pre-defined grid. This is a very visual way to lay down a beat and it makes it easy to experiment, since you can change everything by just turning buttons on and off. XL-7 brings a host of new features to the party.

What is Grid Recording?

Grid recording can be visualized as a series of notes placed along a line where each note can be turned On or Off with a button. In the example below, you'll hear sixteen notes to a measure in 4/4 time.

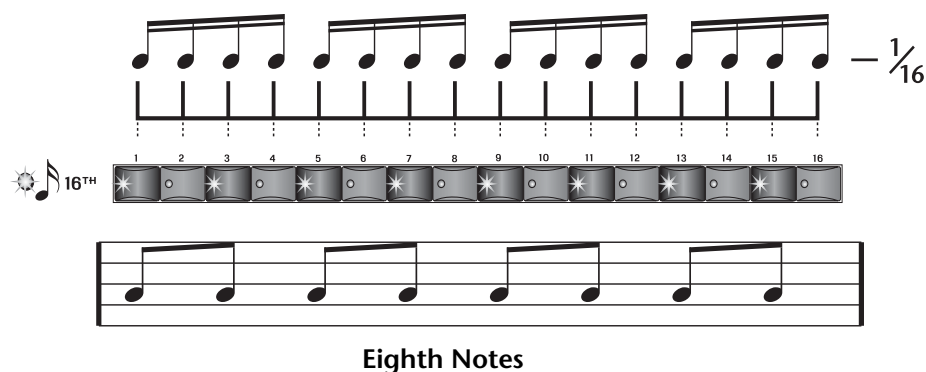


To program quarter notes, you would turn on one note out of every four as shown below.




Quarter Notes

Turning on every other button with the 16th note grid selected gives you Eighth notes.

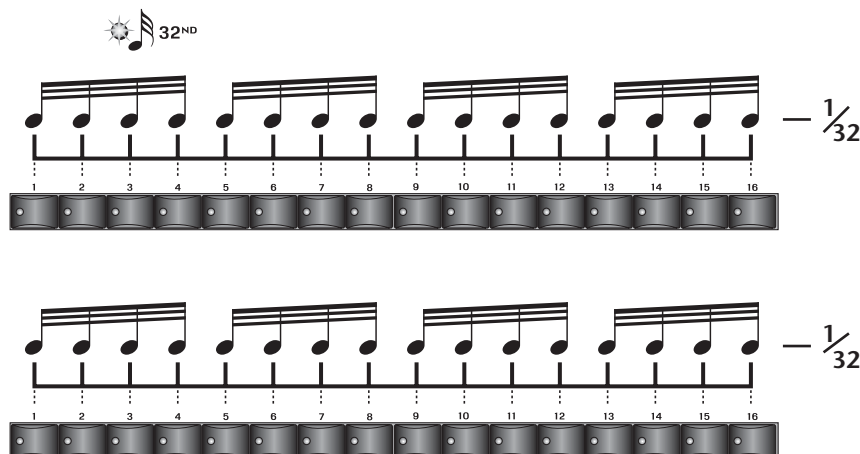


Eighth Notes

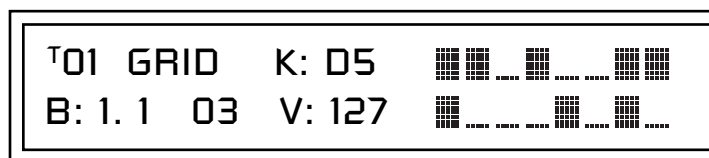
 Press and hold **Play**, then press **Record** while a pattern is playing to jump right into Grid Record mode.

The grid can be set up for 16th notes, 32nd notes, 8th note triplets or 16th note triplets.

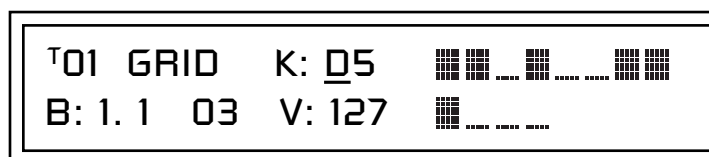
When using 32nd notes or recording patterns longer than one bar, the grid displays as much of the pattern as it can then switches to the next section. When playing one bar of 32nd notes, for example, the sixteen grid buttons and LEDs show the first 16 notes, then switch to the second group of sixteen notes.



The liquid crystal display shows the status of the 16 grid locations.



The time signature determines how the grid is laid out. The pattern below is in 3/4 time and so only 12 locations are needed.

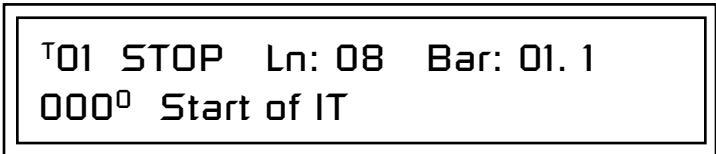


Grid mode can also be used in conjunction with either of the other record modes. You can go into grid record mode and edit a pattern you created in realtime record mode, or you could start with grid recording and record over it in either realtime or step mode.

To examine a pattern in grid mode, place the cursor under the **Key** field and turn the data entry control while the pattern is playing. When you find a recorded note, you'll see bars appear and the grid button LEDs will illuminate.

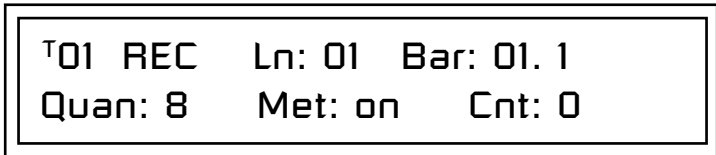
► To Record a Pattern using Grid Recording

1. Press the **Pattern** mode button. The screen shown below appears.



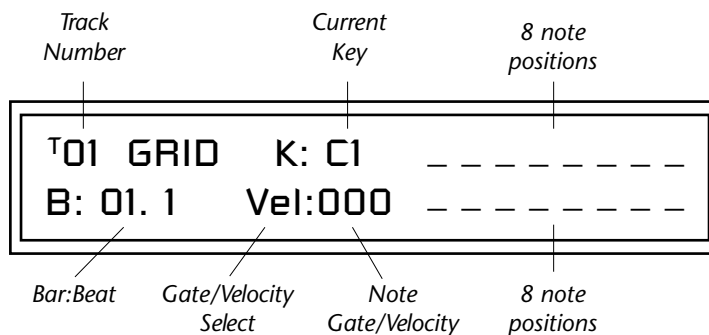
T01 STOP Ln: 08 Bar: 01.1
 000⁰ Start of IT

2. Select an empty sequence to begin recording using the data entry control.
3. For now, set the pattern **Length** to **1 Bar**. This will make Grid mode easier to understand at first.
4. Press the **Record** button. The Realtime LED illuminates and the screen shown below appears.




T01 REC Ln: 01 Bar: 01.1
 Quan: 8 Met: on Cnt: 0

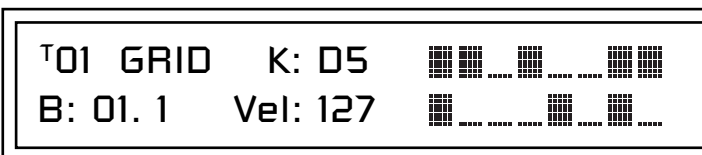
5. Press the **Record** button again. The Grid LED illuminates and the screen shown below appears.




6. Press the **Preset View** button and select a preset to use for track one. A “prc” or “kit” preset might be a good choice. Press the **Preset View** button again after you’ve made your selection to return to the Grid recording screen.
7. Select a note using the rubber keypads. Press the transposition buttons to find other sounds. Note that the **Current Key** field in the LCD changes as you play the keypad.
8. Now turn on a few of the grid buttons. It doesn’t matter which for now.
9. Press **Play**. You’ll be hearing some sort of rhythm.
10. Go ahead and change the grid buttons. Play around until you get something you like.

 **To Quick-Select a Track:**
 1. Press and hold **Tap**.
 2. Press the **Track Enable/Mute** button corresponding to the track you wish to select.

The LCD will now probably look something like the next screen. The vertical bars correspond to the grid buttons you've selected.




 You could also assign each new part to another Track ... or not. It's up to you.

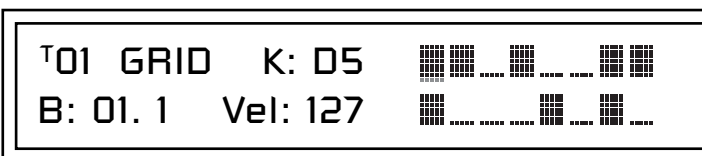
Another Rhythm?

11. Without even stopping, play another note. Keep hunting until you find one you like. The last played key will be the selected sound.
12. With the new sound selected, turn on some grid buttons. (Note that they all went off when you changed sounds.)


Change of Velocity

13. To pause the sequencer without exiting Grid mode, press the **Play** button. Press the **Play** button again to continue.
14. Press one of the Grid buttons. The flashing cursor is now positioned underneath that bar in the display.

 If you accidentally press the Stop button by mistake, simply press the Record button twice to return to Grid mode.



15. Now turn the data entry control. The height of the selected bar changes, as does the velocity readout. This is one way to change the velocities of grid notes.
16. You can also change the velocity by simply **playing the velocity** on the keypads...or turn the **16 controller knobs to adjust the velocity** setting of the 16 grid locations.
17. Turn some of the grid buttons on and off. Note that they now have the same velocity as the last note you modified. Since velocity is often coupled to volume in the preset, changing the velocities of note can have a dramatic effect on the sequence.
18. Now press the **Home/Enter** button. The cursor is now underneath the **Key** field. pause the sequencer by pressing the **Play** button.
19. **Re-key** the note. If you didn't hit the right note the bars will disappear. When you find a recorded note the bars will reappear.
20. Re-key the note playing hard and soft on the keypads. Note that when you select grid buttons, the last played velocity is used.

 You can also use the data entry control to select notes.

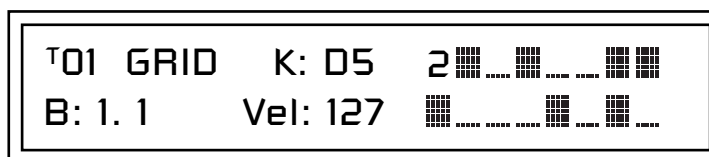
Gate Percentage

21. You can adjust the time (*percentage*) that the "gate" stays on by **pressing the Controller Knob Select Button** to toggle between Gate and Velocity edit modes. Turn the **16 controller knobs** in gate mode to adjust the gate percentage.

The gate is analogous to the time that a key is held. Depending on the settings of the envelope generators, this can have a dramatic effect on the sound.

Double Time

22. With the sequencer running, select one of the Grid positions by pressing its button.
23. Press the **Repeat** button located below the controller knobs. A number now appears at the grid location which indicates the number of times that the grid resolution has been increased for that location. For example, if the number is 2, the note will play twice in that time slot.
 - Pressing the **Erase** button while the cursor is on one of the grid locations, removes the note from that location.



24. Repeatedly pressing the repeat button increments the number. The display goes up to nine times, but it will go even faster if you keep pressing the repeat button. Special effects anyone?
25. The **Erase** button, located right next to the Repeat button, turns off the grid locations (as does the grid button itself).

Step Time Recording

In this mode, you can insert events one at a time and place them exactly where you want. In Step mode, key events, knobs or external MIDI events are recorded into the current pattern step. The resolution of the step is selected and indicated in the “Res” field on the LCD. In Step Record mode, the Resolution (Res) setting determines the rhythmic value of each step. For example, with Resolution set to 1/8 notes, you will step through the pattern an eighth note at a time. Step recording records the actual “played” velocity of note-on events.

Another cool feature is that each quantized step is from the current time setting. This allows you to easily create complex offbeats using the quantize feature. The way it works is simple. If you offset the current time using the data entry control, the next step will be quantized *from that point!*

As an example, let’s say you started at Bar:01.01.0000 with Resolution set to 8. The next step would be Bar:01.01.0192, the next at Bar:01.02.0000 and so on. If the initial time setting was instead, Bar:01.01.0050, the next step would be, Bar:01.01.0242 (192 + 50).

When Auto mode is enabled (Y), the step is automatically incremented when a note is entered. The step is not recorded and incremented until the last “key up” of a chord. This allows you to make changes to the step as long as one key is still held.

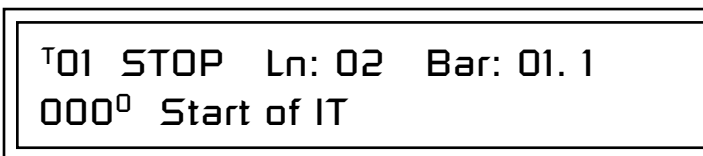
The Gate field allows you to set the note-on duration for note-on events. A setting of 50% with eighth note resolution would keep the note held for half that period (or a 16th note). Settings of greater than 100% hold the note over into the next note.

Note Value/Number of Ticks

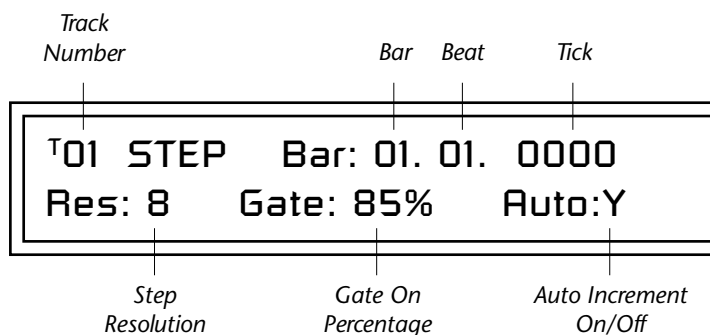
Resolution	Ticks	Resolution	Ticks
Whole notes	1536	Eighth note triplets	128
Half notes	768	Sixteenth notes	96
Quarter notes	384	Sixteenth notes triplets	64
Quarter note triplets	256	32nd note	48
Eighth notes	192	32nd note triplets	32

► To Record a new Pattern in Step Time

1. Press the **Pattern** mode button. The screen shown below appears.



2. Select an empty sequence to begin recording using the data entry control.
3. Set the **Pattern Length**. Choose a one or two bar length to start.
4. Press the **Record** button three times to select Step Record mode. The screen shown below appears.



5. Select a **Track** number. The default value is Track one.
6. Turn **Auto Increment** On. This feature automatically increments the step (by the selected step resolution) each time you press the Play button.
7. Press the **Preset View** button. The preset screen shown below appears.

C01A V127 P00 A:P User
050³ kit:80's Tones

8. **Select a Preset** for your first track.
9. Press the **Preset View** button again after you've selected a preset. The LED will go out and you'll be returned to the Pattern screen.

Get ready to record!

10. Set the **Step Resolution** to eighth notes for now (8).
11. Play a note (or notes) on the keypad. The step records and increments when you release the keys. Note the setting of the bar.beat.tick display as the steps increment.
12. Keep adding notes to steps. You can also record knob settings. Simply turn the knobs in any of the controller knob modes and these moves will be recorded.
13. Press **Stop** when you've finished recording.
14. Press **Stop** again to rewind to the beginning of the pattern.
15. Change the **Resolution** and record another pass.



To Erase a Track: Press and Hold the Erase button, then press the Track button you want to erase.

To Erase the Pattern:

16. There are several ways to erase entire pattern. Probably the easiest way is to simply Save an empty sequence over the pattern you want to erase.
 - You could also "Erase All Events" from the Pattern Edit menu.

Pattern Edit Menu

Track Enable/Mute Buttons

The Pattern Edit menu contains housekeeping, pattern editing filters and other tools.

The Pattern Edit button is DISABLED unless you are in Pattern Mode!

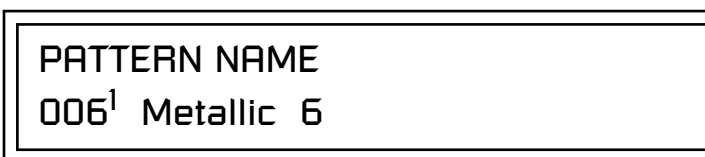
IMPORTANT: In Pattern Edit mode, Track Enable/Mute buttons are used to select which tracks will be affected by the editing operation.



Any enabled tracks will be edited and any disabled tracks will be unaffected by the editing operation—Quantize, Thin Events, Erase Events, Velocity Scale/Shift, Extend or Transpose.

Name Pattern

Patterns can be named with up to 16 characters. Position the cursor under the character location and use the data entry control to change the character.



Pattern Length

Patterns can be anywhere from one to thirty two measures in length. A pattern loops when it reaches the end whether in record or playback modes.

A pattern's length can also be changed at any time, before or after recording. If you increase the length of a pattern after recording, it will play silently for the extra time unless new data is recorded there. If you shorten a pattern's length after recording, it will play up to it's new length then loop. Changing the length of a pattern does not change any data until you save it. If you save a shortened pattern, the unplayed data will be erased.

► To Set the Pattern Length from the Pattern Edit menu

1. Select **Pattern Edit** mode from Pattern mode.
2. Locate the **Pattern Length** screen using the data entry control.

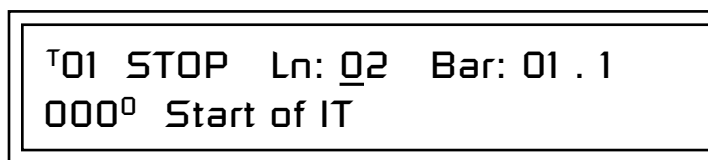


3. Move the cursor to the lower line of the display using either cursor key, then set the **length** of the pattern using the data entry control.

Setting Meter (Time Signature)

► To Set the Pattern Length from the Main Pattern Screen:

1. Select the **pattern** in Pattern mode.
2. Move the cursor to the **Length** (Ln) field using the cursor keys.



3. Set the **Length** of the pattern using the data entry control.

XL-7 allows you to set almost any conceivable time signature. The numerator (indicating number of beats in a measure) can be set from 1 to 99. The denominator (indicating the rhythmic value of each beat) can be set to 1, 2, 4, 8, 16, 32, or 64. The time signature can be changed at any time before or after recording.

The meter setting affects the bar:beat display, the pattern length, metronome accent, and the grid recording display.

For background information about Time Signatures, see page 335.

► To Set the Time Signature

1. Select the **pattern** in which you want to record.
2. Press the **Pattern Edit** button. The Pattern Edit menu screen displays the menu page most recently selected since powering up XL-7.
3. Scroll to the **Meter** screen using the data entry control. The meter setting will probably show the 04/4 default time signature.



4. Press the right cursor button once to move the cursor underneath the numerator field.
5. Set the **time signature numerator** value using the data entry control.
6. Press the right cursor button again to move the cursor underneath the denominator field.
7. Set the **time signature denominator** value using the data entry control.
8. Press the **Pattern Edit** button again to exit pattern edit mode.

Metronome



The higher metronome speeds are useful when recording a fast part since you may slow the tempo way down and still hear where you are in the pattern.

The metronome is a timing aid when recording or playing back patterns and songs and can be set to a wide variety of different beats. The metronome produces an accented click on the first beat of each measure and a softer click on other beats. The following metronome beat options are available:

Symbol		Symbol	
1/1	whole notes	1/2d	dotted half notes
1/2	half notes	1/4d	dotted quarter notes
1/4	quarter notes	1/8d	dotted eighth notes
1/8	eighth notes	1/4t	quarter note triplets
1/16	sixteenth notes	1/8t	eighth note triplets
1/32	thirty-second notes	1/16t	sixteenth note triplets
		denom	uses the denominator value of the meter setting

The metronome setting is NOT saved with the pattern.

► To Set the Metronome

1. Press the **Pattern Edit** button. The Pattern Edit menu screen displays the menu page most recently selected since powering up XL-7.
2. Scroll to the **Metronome** screen using the data entry control.

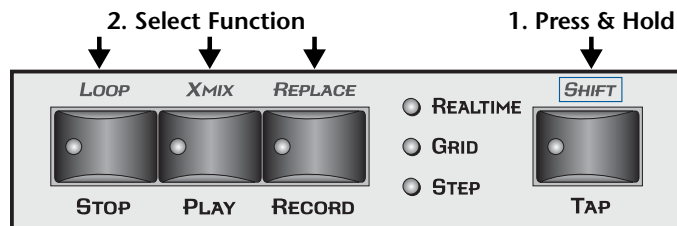
METER	METRONOME	VALUE
04 / 4	off	1/8

3. Move the cursor underneath the **Metronome** field and turn the metronome to **On**, **Off** or **Rec** using the data entry control.
 - **Off** - the metronome doesn't play.
 - **On** - the metronome plays during recording and playback.
 - **Rec** - the metronome only plays while recording.
4. Move the cursor underneath the **Value** field and set the metronome beat value using the data entry control.



Play the pattern to listen to the Metronome while you set the Value.

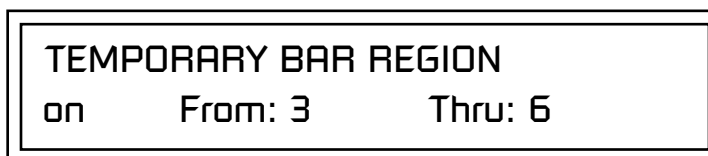
Loop Section



The **Tap-Tempo** key functions as a **Shift Key** to access the new features.

In Pattern Mode

This feature allows you to specify a subsection of a pattern to loop. In a live performance, you can specify a temporary region to loop while the pattern is playing then turn off the loop to go on to the next section. This feature is really useful for recording and editing, since you can set the loop to a specific bar of your pattern in grid or realtime modes.



Temporary Bar Region

From:3 Thru:6

bar 1	bar 2	bar 3	bar 4	bar 5	bar 6	bar 7	bar 8
-------	-------	-------	-------	-------	-------	-------	-------

Played -

bar 3	bar 4	bar 5	bar 6
-------	-------	-------	-------

Loop Section is a temporary loop which is not saved with the pattern or multisetup. Loop Section defaults to “off” upon pattern change. While loop is enabled, the Stop LED will blink.

An interesting detail is that the loop can be set to jump across the start and end points of the pattern. For example, let’s say you’re looping an eight bar pattern. If the “From” point were set to 7 and the “Thru” point set to 2, then the pattern would play bars 7-8-1-2, 7-8-1-2, etc.

Temporary Bar Region

From:7 Thru:2

bar 1	bar 2	bar 3	bar 4	bar 5	bar 6	bar 7	bar 8
-------	-------	-------	-------	-------	-------	-------	-------

Played -

bar 7	bar 8	bar 1	bar 2
-------	-------	-------	-------

In Song Mode

Loop Section works a little differently in Song mode where it simply specifies alternate start and end points. When the song reaches the endpoint, it stops and auto locates to the start point. In both pattern and song modes, RTZ still locates to the beginning of the sequence.

► To Set the Temporary Bar Region from the Pattern & Song menus

The loop points and the loop on switch can be set while the sequencer is either running or stopped.

1. Locate the Temporary Loop Points screen in the pattern or song menu.
2. Use the cursor buttons to move the cursor to the lower line of the display.
3. Turn the Loop on.
4. "From" sets the loop start point and "Thru" sets the loop end point.

► Shift-Key Method to Set the Temporary Bar Region

These hidden "power-user" features are designed to be used while the pattern or song is playing, but the loop points can be set when the sequencer is either running or stopped.

Setting the Loop From and Thru Points

1. Start the sequencer.
2. **To set the "Loop From" point:** Hold **Tap** and hit **Select** (*to the left of the LED display*) when the pattern or song is playing, or is located to, the desired bar.
3. **To set the "Loop Thru" point:** Hold **Tap** and hit **Edit** (*to the right of the LED display*) when the pattern or song is playing, or is located to, the desired bar.

Turning the Loop On and Off

4. Hold **Tap** and hit the **Stop** button. This toggles Loop on and off.

Quantize

The timing can also be changed after a pattern has been recorded. Quantize moves all the note start times in the track to fall on (or closer to) the specified time values.

► To Quantize a Pattern

1. Select the pattern.
2. Select the **Track(s)** you wish to quantize using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the **Quantize** screen shown below using the data entry control.

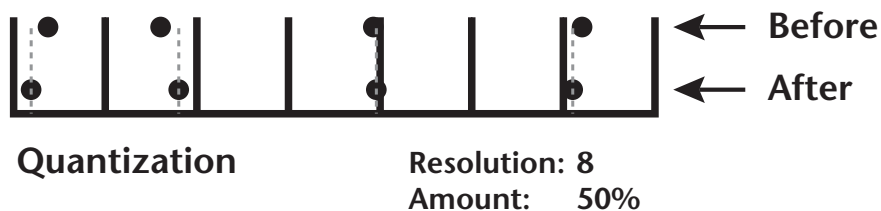
QUANTIZE	Resolution: 16
Amount: 75%	Swing: 50%

5. Set up the **Quantize parameters** as desired. The Home/Enter LED will be flashing once the cursor is moved to one of the editable fields.
6. Press **Enter** to Quantize or add Swing. Press any other button to **Cancel** the operation.

Quantize Parameters

Resolution- Sets the desired note value to which note-on events will be corrected. With sixteenth notes selected, Quantize will move played notes toward, or exactly onto, sixteenth note time slots.

Amount - Controls how much quantization is applied. With a setting of 100%, events are moved all the way to the specified note value. With a setting of 50%, events are moved 50% closer to the specified note value.

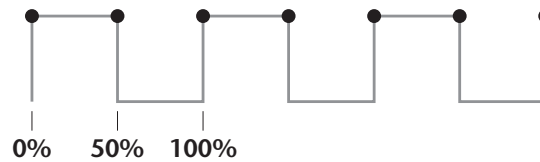


With an amount of 50%, notes are moved 50% closer to the specified Quantization value.

Swing - Swing adds a rhythmic feel by shifting the time allocated to every other grid point in a pattern. In the default case where swing is set to 50% (No Swing), the first eighth note takes up 50% of the quarter note and the second eighth note takes up the remaining 50% of the time.

50% Swing

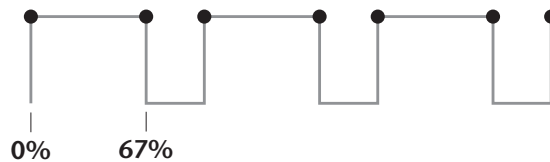
Eighth notes play at regular intervals



If swing were set to 67%, the first eighth note falls on the beat, but the second eighth note is delayed by 67%.

67% Swing

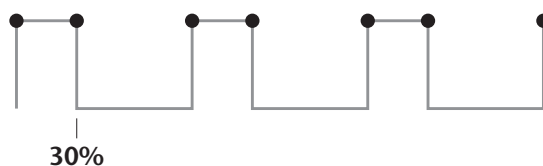
Every other eighth note plays late



Values below 50% give a kind of “reverse swing” where every other eighth note comes in early. Odd, but maybe just the thing for your style of music.

30% Swing

Every other eighth note plays early



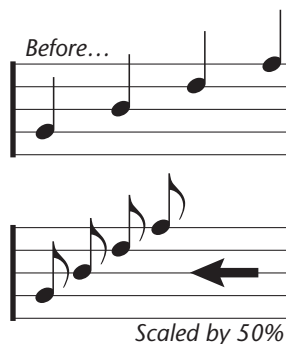
More about Swing

Swing can help add a more human “feel” to a series of repeating patterns. For example, if you repeat the same pattern four times, try setting a swing factor of 54% for, say, the third pattern. This results in a series of patterns which are more psycho-acoustically interesting than merely repeating the same pattern over and over.

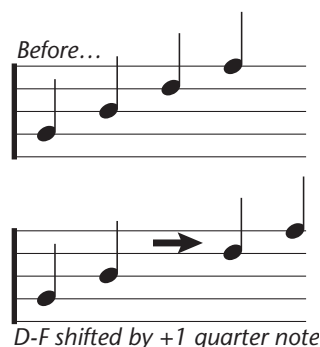
67% is considered the “classic” jazz swing factor, where the first eighth note is $\frac{2}{3}$ of a quarter note, and the second eighth note is $\frac{1}{3}$ of a quarter note (i.e. the second eighth note behaves more like an eighth note triplet). If this sounds too “perfect”, try a swing factor of 64% instead. The results will be similar, but the “feel” will be slightly different.

Scale/Shift Start Times

Scale Start Time



Shift Start Time



This filter allows you to either scale (multiply by a value) or shift (add a value to) the start times of notes. The scale function is performed before the shift value is added.

Scale - Multiplies all note start times by a percentage from 0% to 800%. Scaling by 100% would leave all note start times untouched. Scaling by 50% would shorten the section by one half.

Shift - Adds or subtracts a specific note time in quarter notes and ticks to note-on events in the selected tracks.

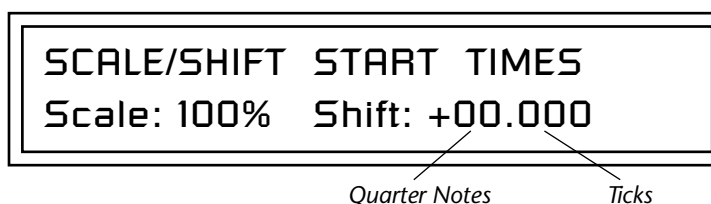
Events shifted past the end of the sequence will be deleted on save only. That is, if you change your mind, you can slide events back into the playing loop. Events shifted earlier than tick 0 for notes and tick 1 for events will clip at that tick, possibly bunching up events.

Tips & Tricks


- In addition to the percentages, certain exact ratios are provided and are displayed as fractions. (2/3, 4/3, 5/3, 8/3, 10/3, 20/3) These ratios are useful for changing between duplets and triplets.
- Subtracting a few ticks with the shift function can be used to “push” the beat giving the music a sense of urgency. Adding a few ticks can impart a more laid back feel.
- Since a single note can be selected (cursor down to the key range field and play the key), individual drums can be shifted forward or back.
- The Shift feature can be used to compensate for a preset with a slow attack. Simply shift the track earlier (negative value) a little so that your pad or string swell comes in right on the beat.

► To Scale or Shift Note Start Times:

1. Select the **pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Scale/Shift Start Times** screen shown below using the data entry control.



4. Select the **amount** of note start time **scaling** or **shift** (offset). The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.

 **Tip:** To shift all notes forward or back by a particular amount, set *Scale* to 100%, (this zeros the value) then set *Shift* to the desired amount.

5. Press **Enter**. The screen shown below appears and the track buttons will be flashing to remind you to select the tracks you want to edit.

SELECT TRACKS AND RANGE

Key Range: C-2 to: G8

Low Key
High Key

6. Select the **Track(s)** you wish to Scale or Shift using the Track Enable/Mute buttons.
7. **Select a key range** for filtering. The default setting is all keys. Keys can be selected from the keyboard when the cursor is on the key fields.
8. Press **Enter** to scale/shift the note start times. Press any other menu button to **Cancel** the operation.


Scale/Shift Duration

This filter allows you to either scale (multiply by a value) or shift (add a value to) the note durations in the selected tracks. The Scale function is performed before the Shift value is added.

- Scale** - Multiplies all note durations by a percentage from 0% to 125%. Scaling by 100% would leave all note durations untouched. Scaling by 50% would cut all note durations in half.
- Shift** - Adds or subtracts a specific note duration in quarter notes and ticks to note-on events in the selected tracks.

► To Scale or Shift Note Duration

1. Select the **pattern** you wish to edit.
2. Select the **Track(s)** you wish to Scale or Shift using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the **Scale/Shift Note Duration** screen shown below using the data entry control.

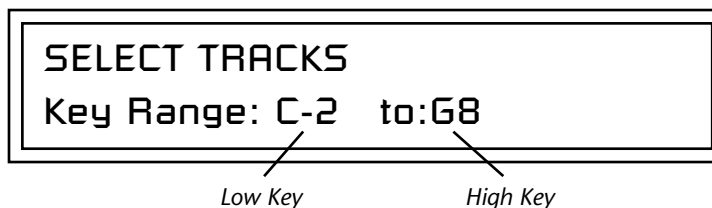
 **Tip:** To set all notes to a particular value, set *Scale* to 0%, (this zeros the value) then set *Shift* to the desired duration.

SCALE/SHIFT NOTE DURATION

Scale: 87% Shift: +00.000

Quarter Notes
Ticks

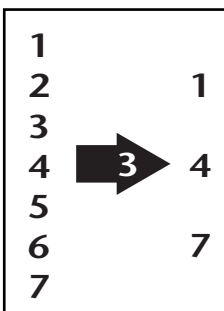
5. Select the **amount of note duration scaling or shift (offset)**. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
6. Press **Enter**. The screen shown below appears to remind you to select the tracks you want to filter. Select a key range for filtering. The default setting is all keys.



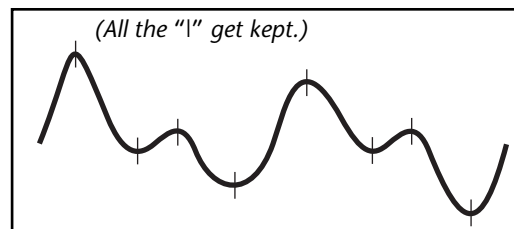
7. Press **Enter** to scale/shift the note durations. Press any other menu button to **Cancel** the operation.

Thin Events

Event thinning is usually performed to reduce the amount of extraneous controller data and thus reduce the memory size of patterns. This filter reduces the number of events in a musical fashion. Events may be reduced by a specified amount from 1 to 128. The setting represents the smallest change that will be kept. For example, if the setting were set to 3 and you were thinning a controller sweep that went 1-2-3-4-5-6-7, you would be left with:1-4-7. The filter also keeps any change in direction values.



The setting
represents the smallest
change that will be kept.



If too much data is recorded into a pattern, the sequencer may slow or clog. Use the "Thin Events" function to reduce the amount of extraneous data in the pattern.

The following types of events can be thinned:

- Tempo
- Poly Aftertouch
- Channel Aftertouch
- Pitch Wheel (Touchstrip)
- Any Continuous Controller (1-95)

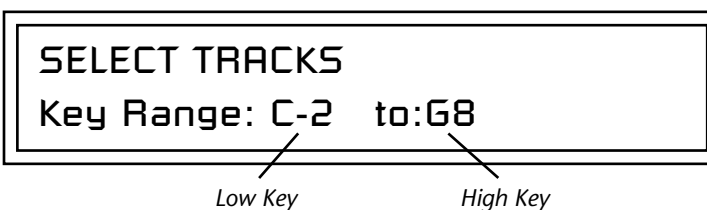
► **To Thin Events in a Pattern**

1. Select the **pattern** you wish to edit.
2. Select the **Track(s)** you wish to thin using the Track Enable buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the **Thin Events** screen shown below using the data entry control.



THIN EVENTS
chan aftertouch Amt: 40

5. Select the **type of event** you want thinned, then set the **amount** of thinning. The Home/Enter LED will be flashing once the cursor is moved to one of the editable fields.
6. Press **Enter**. The screen shown below appears to remind you to select the tracks you want to thin. Select a key range for thinning. The default setting is all keys.



SELECT TRACKS
Key Range: C-2 to:G8

Low Key High Key

7. Press **Enter** to thin events. Press any other menu button to **Cancel** the operation.

Erase Events

Specific types of events can be completely erased from a pattern.

The following types of events can be erased:

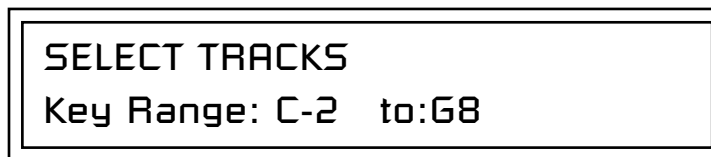
- All Track Events
- Notes
- All Controllers
- Program Changes
- SysEx Data
- Meter
- Tempo
- Poly Aftertouch
- Channel Aftertouch
- Pitch Wheel (Touchstrip)
- Any Continuous Controller (1-119)

► To Erase Events from a Pattern

1. Select the **pattern** you wish to edit.
2. Select the **Track(s)** you wish to erase using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the **Erase Events** screen shown below using the data entry control.



5. Select the **type of events** you want erased. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
6. Press **Enter**. The screen shown below appears to remind you to select the tracks you want to erase. Select a key range. The default setting is all keys.



7. Press **Enter** to erase the events. Press any other menu button to **Cancel** the operation.

Transpose

All notes in a pattern can be transposed up or down from -127 to +127 semitones. For example with a setting of +7, all notes in the pattern would be transposed up a perfect fifth.

Warning: If you transpose notes past the hard limits of 0 and 127, those notes will be erased from the pattern.

► To Transpose a Pattern

1. Select the **pattern** you wish to edit.
2. Select the **Track(s)** you wish to Transpose using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the Transpose screen shown below using the data entry control.

TRANPOSE

+7 semitones

5. Select the **amount of transposition** you want. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
6. Press **Enter**. The screen shown below appears to remind you to select the tracks you want to transpose. Select a key range. The default setting is all keys.

SELECT TRACKS

Key Range: C-2 to:G8

7. Press **Enter** to transpose the selected tracks. Press any other button to **Cancel** the operation.


Scale/Shift Velocity

This filter allows you to either scale (multiply by a value) or shift (add a value to) the velocity values of notes in a pattern. The Scale function is performed before the Shift value is added.

- Scale** - Multiplies all note-on velocities by a percentage from 0% to 125%. Scaling by 100% would leave all velocity values untouched. Scaling by 50% would cut all velocity values in half.
- Shift** - Adds or subtracts a specific velocity value (-127 to +127) to every note-on event in the pattern.

► To Scale or Shift Velocity

1. Select the **pattern** you wish to edit.
2. Select the **Track(s)** you wish to Scale or Shift using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button.
4. Scroll to the **Scale/Shift Velocity** screen shown below using the data entry control.

 **Tip:** To set all notes to a particular velocity value, set Scale to 0%, then set Shift to the desired velocity.

SCALE/SHIFT VELOCITY

Scale: 87% Shift: +0

5. Select the **amount of velocity scaling or shift**. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
6. Press **Enter**. The screen shown below appears to remind you to select the tracks you want to velocity scale or shift. Select a key range. The default setting is all keys.

SELECT TRACKS

Key Range: C-2 to:G8

7. Press **Enter** to change velocity in the selected tracks. Press any other button to **Cancel** the operation.

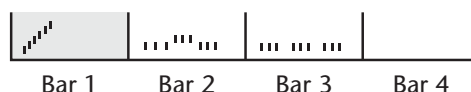
Extend Sequence Data To

This feature lets you change the length of any selected tracks after recording a pattern. If you are lengthening a pattern, the pattern is looped to fill in the empty space. If you set the length shorter than the existing pattern, the pattern will be truncated.

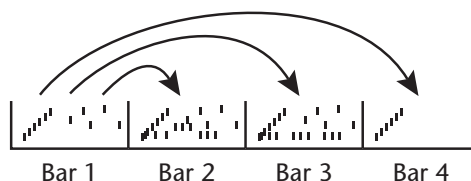
You can set the pattern length before you extend so that only those bars will be copied. The copied data will be merged with the data in the subsequent bars of the pattern.

To Extend the 1st Bar over 4 Bars

1. Set Pattern Length to 1-bar



2. Extend Sequence Data to 4-bars



► To Extend the Length of Selected Tracks

1. Select the **pattern** you wish to extend.
2. Select the **Track(s)** that you want to extend using the Track Enable/Mute buttons.
3. Press the **Pattern Edit** button from pattern mode.
4. Scroll to the **Pattern Length** screen and set the length to the measures you wish to extend. For example, if you want to copy the first measure, set the length to 1.
5. Scroll to **Extend Sequence Data** using the data entry control.

EXTEND SEQUENCE DATA TO
bar: 8

6. Move the cursor to the lower line of the display and select the new pattern length.
7. Press **Enter**. The following screen appears.

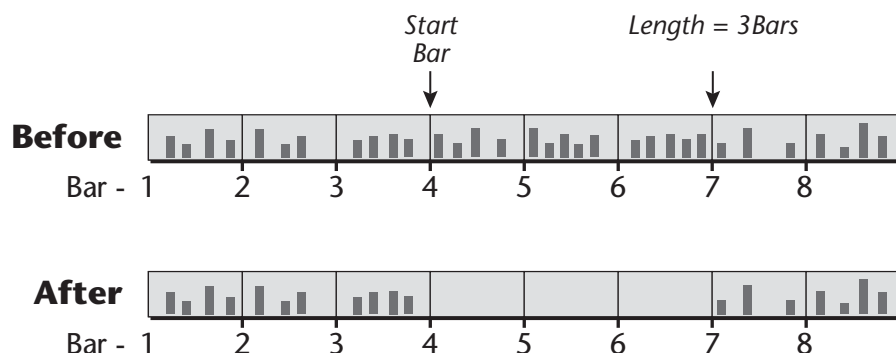
--- PERFORM OPERATION? ---
Enter = Yes Other = Cancel

8. Press **Enter** again to extend the pattern or any other menu button to cancel the operation.

Erase Track

An entire track or a section of a track can be erased in a single operation. This feature makes it easy to erase a flubbed take or erase a section of track before pasting new data.

Erase Pattern or Song Track



► To Erase a Track

1. Press the **Pattern Edit or Song Edit** button.
2. Scroll to the **Erase Track** screen shown below using the data entry control.

ERASE TRACK

Track: 1 Bar: 01 Len: 32

Track to be
Erased

Start
Location

Length in
bars

3. **Select the track** you want to erase. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
4. **Select the first Bar** you want to erase. The bar range for patterns is 01-32; the bar range for songs is 001-999.
5. **Select the Length** of the track you want erased.
6. Press **Enter** to erase the selected section of the Track.
7. Press any other menu button or exit the edit menu to **Cancel** the operation.

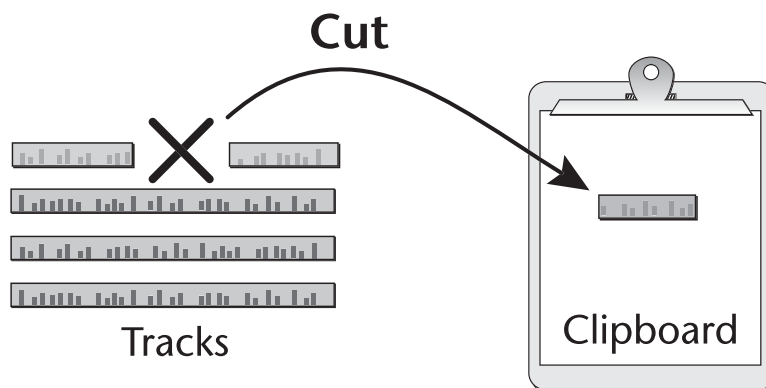
Cut Track to Clipboard



Cut track can be used as a way to erase a track.

An individual track or a section of a track can be cut or copied and held on a digital “clipboard” so that it can be pasted into another track or pattern. This function cuts or removes a track (or section of a track) from the pattern and places it on the clipboard, where it will be held until it is replaced with another cut or copy operation, or the power to XL-7 is turned off.

Cutting a section from a track will leave a blank space in the track.



The cut section is placed on the clipboard leaving a blank space in the track where the data was cut out.



Tracks can be freely cut, copied or pasted between songs and patterns.

► To Cut a Track

1. **Select the pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Cut Track to Clipboard** screen shown below using the data entry control.

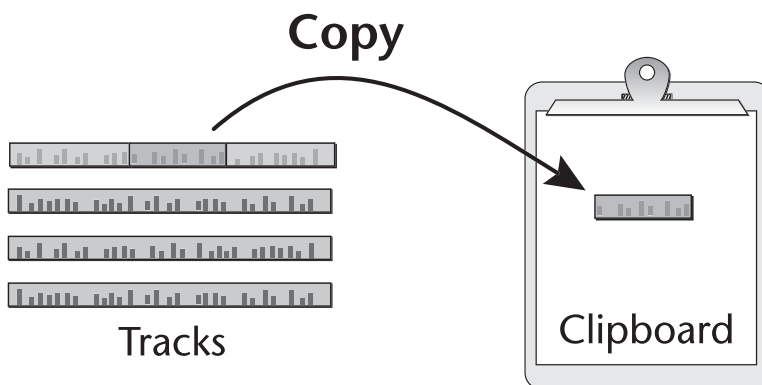
CUT TRACK TO CLIPBOARD

Track: 1 Bar:04 Len:07

4. **Select the track** to be cut. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Select the **Start Bar** and the **Length** (in bars) to be cut.
6. Press **Enter** to cut the track. Press any other menu button to **Cancel** the operation.

Copy Track to Clipboard

An individual track or a section of a track can be copied and held on a digital “clipboard” so that it can be pasted into another track or pattern. This function makes a digital copy of the selected track and places it on the clipboard, where it will be held until it is replaced with another cut or copy operation, or the power to XL-7 is turned off.



► To Copy a Track

1. Select the **pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Copy Track to Clipboard** screen shown below using the data entry control.

COPY TRACK TO CLIPBOARD

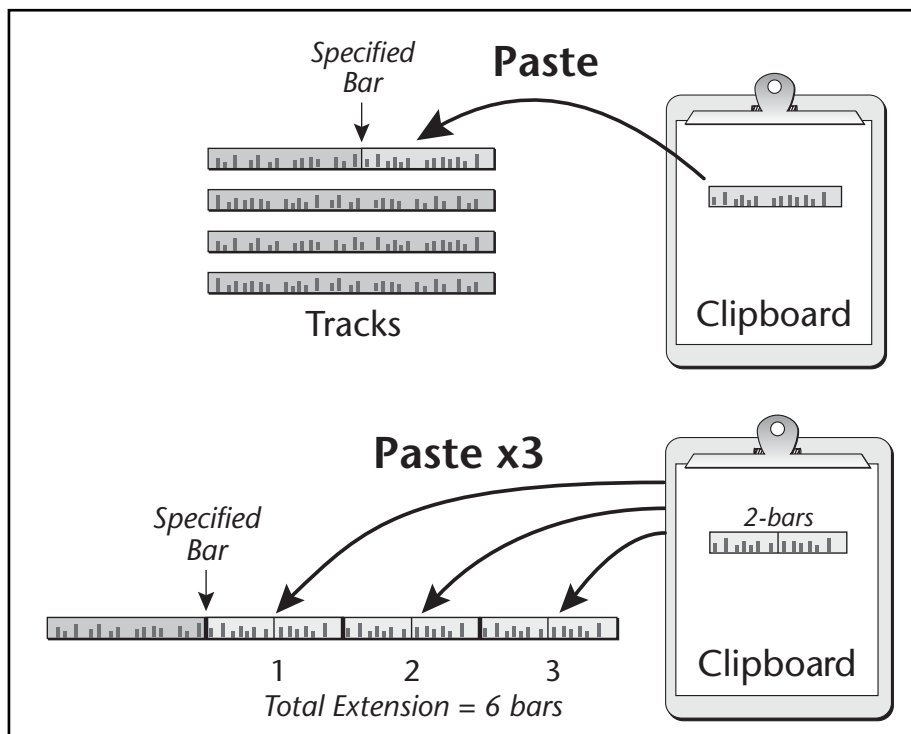
Track: 1 Bar:06 Len:07


4. Select the **track** to be copied. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Select the **Start Bar** and the **Length** (in bars) to be copied.
6. Press **Enter** to copy the track. Press any other menu button to **Cancel** the operation.

Paste Clipboard to Track

Once a track (or a section of a track) has been cut or copied to the “clipboard”, it can be pasted into another track or pattern from 1 to 99 times. The Paste operation *Merges* the clipboard data with the data on the destination track. It adds the new information to the existing data with the start of the data in the clipboard placed at the selected bar position.

Because of the data merging feature, the Paste operation can be used to “bounce down” multiple tracks to a single multichannel track. *See below.*



 Tracks can be freely cut, copied or pasted between songs and patterns.

► To Paste the Clipboard into a Track

1. Press the **Pattern Edit** button.
2. **Cut or Copy** data to the clipboard. See pages 90 and 91.
3. Scroll to the **Paste Clipboard to Track** screen shown below using the data entry control.

PASTE CLIPBOARD TO TRACK		
Track: 1	At Bar:06	X:3
Destination Track	Start Location	Number of Pastes



You will not hear the results of the Paste operation until the sequence cycles around. (Hint: Press RTZ)

4. **Select the track** where you want the clipboard data to be pasted. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. **Select the bar** where the clipboard contents will be pasted.
6. **Select the number of times** you want the clipboard data pasted.
7. Press **Enter** to paste the data. Press any other menu button to **Cancel** the operation.

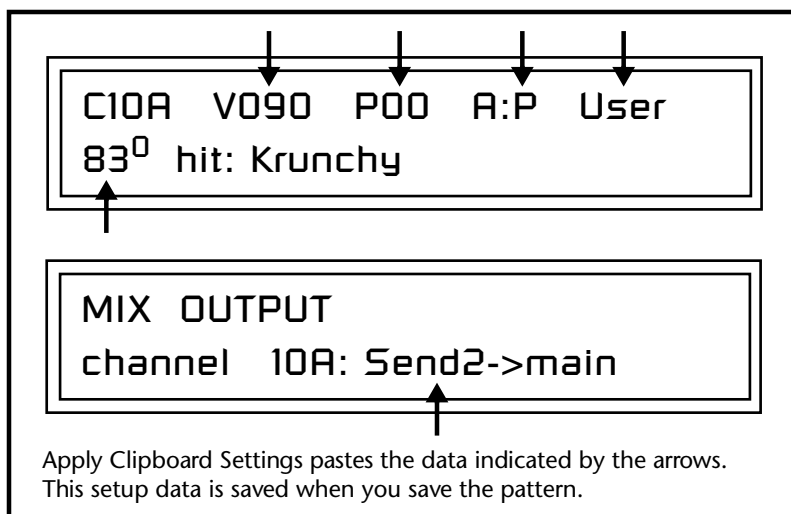
► To Bounce Tracks

1. **Copy the first track** you wish to bounce.
2. **Paste the track** to the desired destination track.
3. **Repeat steps 1 & 2** for the other tracks you wish to bounce down.
4. Press the **Pattern Edit** button and scroll to the **Channel Assign** screen.
5. **Set the Track** containing all your bounced tracks to **MultiA**.
(or **MultiB** if the original tracks were recorded using the "B" channels.)

Apply Clipboard Settings

This function copies the volume, pan, preset, arp status, and send bus assignments (*Global Mix Output*) from the clipboard to the selected track. If the clipboard contains multichannel data, the settings will be applied for each channel.

This feature is useful when you copy and paste a track and want the preset settings to be copied and pasted as well. This feature can also be used if you want to record a new track with the same preset settings on another track.



► To Apply Clipboard Preset Settings:


1. **Copy** a track to the clipboard.
2. Scroll to the **Apply Clipboard Settings** screen.

APPLY CLIPBOARD SETTINGS

Track: 1

3. Move the cursor to the lower line and **select the track** you want the setup data copied to.
4. Press **Enter** to apply the setup data to the selected track.

Explode/Combine Tracks

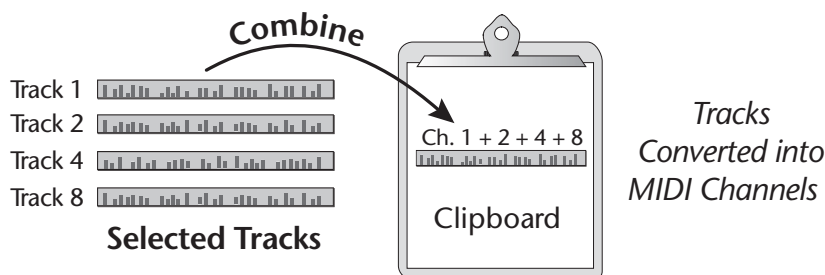
 *Combine allows you to free up tracks by converting multiple tracks into a single multichannel track.*

The new multichannel track can be routed externally or can control MIDI channels 1B-16B.

These functions facilitate the interchange between single multi-channel tracks and multiple single-channel tracks. Both of these functions use the clipboard as the intermediary step in the conversion.

Combine Tracks

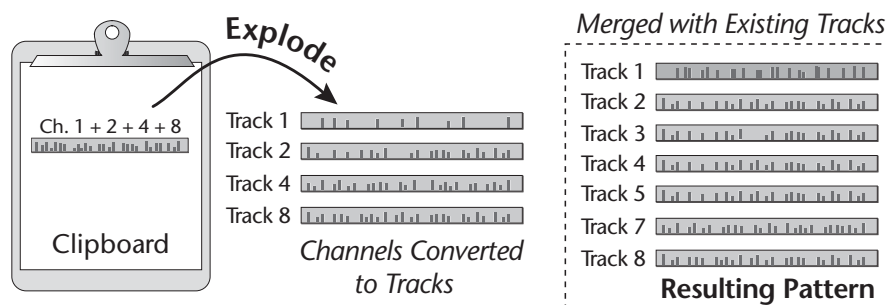
This function takes all selected tracks (*selected by pressing the flashing mute keys*), combines them into a single multichannel track and transfers them to the clipboard, overwriting any previous clipboard data.



Note that any A/B channel routing will be lost, although the 16 channel assignments will be preserved. Merging 02A, 04B, 13A will result in channel 2, 4, and 13 transmitting on the port (A or B) already assigned to the track that you paste into.

Explode Tracks

This function takes multichannel data on the clipboard and divides it up by MIDI channel over all existing tracks, mixing with any data already there. Channel 1 will go to track 1, channel 2 to track 2, etc. This is the case even if the track routings do not match. (i.e. if track 7 is assigned to channel 3).



► **To Combine Multiple Tracks into a Single Multitrack:**

1. Select the pattern you wish to edit and press the **Pattern Edit** button.
2. Scroll to the **Combine Selected Tracks To Clipboard** screen shown below using the data entry control.

COMBINE SELECTED TRACKS
TO CLIPBOARD: do it

3. Move the cursor to the lower line of the display using either the left or right cursor key and press **Enter**. The following screen appears.

SELECT TRACKS
Press Enter When Done . . .

4. Select the tracks you wish to combine using the flashing Track Enable/ Mute buttons.
5. Press **Enter**. The selected tracks will be copied to the clipboard.
6. **Set the destination track to Multi A or B.** (*Channel Assign screen.*)
7. Use the **Paste Clipboard To Track** function to paste the multichannel track into the existing pattern or into another pattern.
8. If you're pasting to another sequence use the **Apply Clipboard Settings** function (page 93) to copy the clipboard's volume, pan, preset, arpeggiator status, and send bus assignments to the selected track.



If you don't set the destination track to Multi A or B, the track will be rechannelized into a single MIDI channel.

► **To Explode the Clipboard Data into Multiple Tracks:**

1. Select the pattern you wish to edit and press the **Pattern Edit** button.
2. Scroll to the **Explode Clipboard To Tracks** screen shown below using the data entry control.


EXPLODE CLIPBOARD TO
TRACKS: do it

3. Move the cursor to the lower line of the display using either the left or right cursor key and press **Enter**. The following screen appears.

- - PERFORM OPERATION? - -
Enter=Yes Other=Cancel

4. Press **Enter**. The clipboard data will be divided up and merged with exiting pattern tracks.

Channel Assign

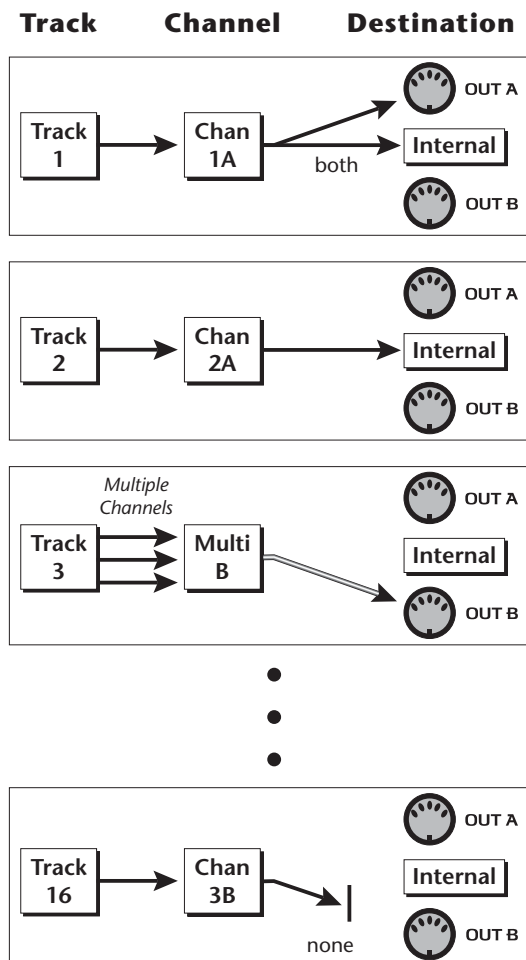
 You might want to designate a certain track to handle external program changes. Set this track to "Ext" and choose "MultiA" or "MultiB".

This important screen assigns each track to a Main channel (01A-16B). This "rechannelizes" the data on the track to the channel you choose here. The default mode of operation for XL-7 is to have tracks assigned to the same-numbered MIDI channel. This convention makes it easy to keep everything organized and it works well for most recording.

Because tracks can be recorded with multiple MIDI channels, "Multi A" and "Multi B" options are provided in the channel selection field. The Multi options route data to either the A or B channels (internal or external). For example, you could route a multichannel track to only use the B channels.

Each track can also be routed to: internal MIDI channels, the external MIDI ports, both, or none. Channels 1A-16A and Multi A are routed to MIDI port A and channels 1B-16B and Multi B are routed to MIDI port B, if "ext" or "both" is selected as a destination for that track.

Important Note: Program change messages are NOT transmitted externally if the destination is set to Both. To transmit program changes to external MIDI devices, set the destination to External (EXT).



► **To Assign Tracks to MIDI Channels**

1. Select the **pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Select Track Changes** screen shown below using the data entry control.



4. Select the desired **track(s)**.
5. Select the desired **channel** for the track.
6. Select the desired **destination** for the track.
7. Press the **Pattern Edit** button again to exit the module.

Multichannel Track Recording



The Channel Assignment screen is a MIDI rechannelizer. The Multi A or B assignments allow multiple MIDI channels on a track.

Each of XL-7's 16 tracks can contain multichannel MIDI data. Because tracks can be routed internally or externally on either of the two MIDI ports, the XL-7 sequencer can actually control up to 64 separate MIDI channels (16 internal-A, 16 internal-B, 16 MIDI port-A, 16 MIDI port-B). Once a track is enabled for multichannel recording you can record into it using the rubber keypads or external MIDI data.

► To Setup a Track for Multichannel Recording

1. Select the **pattern** you wish to record.

Playback Setup (steps 2-7 set up the track for multi-channel play back)

2. Press the **Pattern Edit** button.
3. Scroll to the **Select Track Changes** screen shown below using the data entry control.

TO CHANNEL ASSIGN

Channel: 01A: Dest: both

4. Select the desired track.
5. Set the track to **MultiA** or **MultiB**.
6. Select the desired **destination** for the track (internal, external or both).
7. Press the **Pattern Edit** button again to exit the module.

Continue on to Record a Multichannel Track using the Rubber Keypads...

8. Press the **Controllers** button and make sure "Keyboard/Knob Channel" is set to "Basic". This feature automatically changes the channel of the keypad to whatever channel is shown in the preset view display.
9. Make sure the multichannel track you set up (step 4 above) is selected.
10. Set the Pattern Length.

Ready to Record

11. Press the **Preset View** button.
12. Select a **preset** for channel 01A.
13. Press **Record**, then **Play**. Start playing!

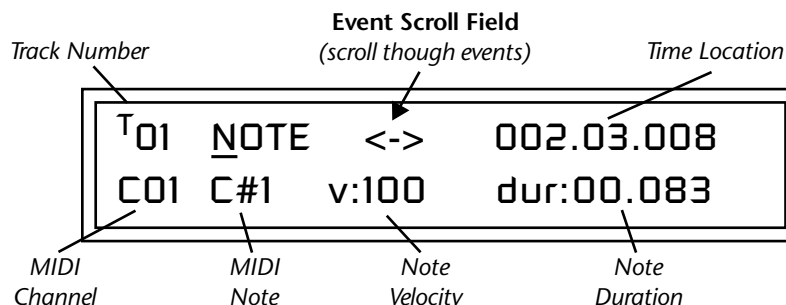
Record Channel 2

14. Select channel 02A.
15. Select a **preset** for channel 02A.
16. Press **Record**, then **Play**. Start playing!
17. Continue to record channels.

Note List Editor

Individual MIDI notes in the pattern can be edited, inserted or deleted from this screen. **Place the cursor underneath the “Event Scroll Field” shown below and turn the data entry control to navigate through events.**

- Hold the **Enter** button and turn the **data entry control** to scroll through events when the cursor is on any other field

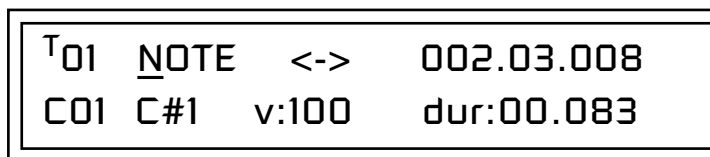


- **Erase** button - - - - Erases the currently selected note.
- **Repeat** button - - - - Duplicates the currently selected note, allowing you to edit and create a new note.
 - 1) **Press Repeat.**
 - 2) **Change the time, channel, or MIDI note.**


Note: You cannot have two events with the exact same time and data in a pattern. XL-7 will delete any duplicate events as soon as you increment the event or exit the screen.

► To Edit a MIDI Note

1. **Select the pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Note List Editor** screen shown below using the data entry control.
4. Press the **Enter** button as prompted by the display to begin editing.
5. Select the **Track** that you want to edit using the Track/Channel select button near the LCD.



6. Press the **right Cursor** button to move the cursor underneath the Event Scroll field (<->).
7. Turn the **data entry control** to scroll through the event list and locate the event you want to edit.
8. Move the cursor to the data field you want to edit and make changes using the data entry control.
9. Press the **Pattern Edit** button to exit the Pattern Edit module.

 You can edit notes and note velocity by playing the keyboard.

Event List Editor

Continuous controller, pitch wheel, mono pressure, poly pressure and program change MIDI messages can be edited, inserted or deleted using this menu. **Place the cursor underneath the "Event Scroll Field" shown below and turn the data entry control to navigate through events.**

The event list editor also allows you access to the *Conductor Track* which sets the tempo and meter for the pattern.

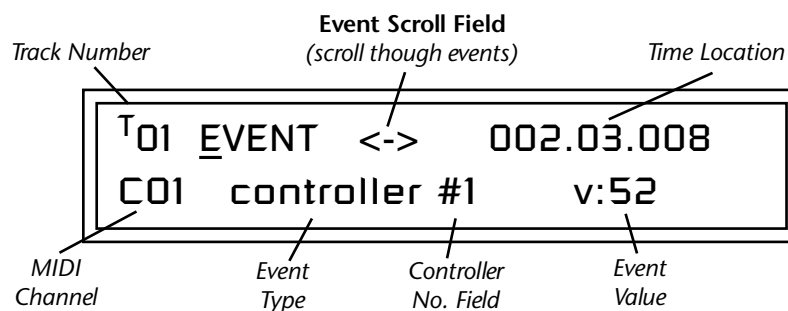
Hold the **Enter** button and turn the **data entry control** to scroll through events when the cursor is on any other field.

- **Erase** button - - - - Erases the currently selected event.
- **Repeat** button - - - - Duplicates the currently selected event, allowing you to edit and create a new event.
 - 1) **Press Repeat.**
 - 2) **Change the time, channel, or MIDI event type.**
- **Note:** You cannot have two events with the exact same time and data in a pattern. XL-7 will delete any duplicate events as soon as you increment the event or exit the screen.

Continuous Controller Edit

Continuous controller numbers 1-95 can be edited. Continuous controllers and Channel Pressure messages may range in value from 0-127.

Continuous Controller Screen



Pitch Strip Edit

PitchStrip messages are bidirectional and may range in value from -8192 to +8191.

Pitch Strip Screen



Poly Pressure Edit

Polyphonic pressure messages are assigned on a per note basis and have range of 0-127. XL-7 can generate polyphonic pressure messages, but it cannot receive them.

Poly Pressure Screen

T01	EVENT	<->	002.03.004
C01	polypress:	C1	62

MIDI Note
Poly Pressure Value

Program Change Edit

Program change numbers from 0-127, and on any bank number, can be inserted, deleted or edited in this screen. If you do not select bank numbers (off), the program change will be sent to the currently selected bank. See "Bank Select Commands" on page 198.



In order to send program changes to external devices, the Track must be assigned to an "external" channel. See page 96 for details.

Program Change Screen

T01	EVENT	<->	003.02.026
C01	prog: 10	m:off	l:off

Program Change Number
Bank Number MSB cc:0
Bank Number LSB cc:32

► To Edit a MIDI Event

1. Select the pattern you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Event List Editor** screen shown below using the data entry control.
4. Press the **Enter** button as prompted by the display to begin editing.
5. Select the **Track** that you want to edit using the Track/Channel select button near the LCD.

T01	EVENT	<->	002.03.008
C01	controller #1		v:52



By Popular Request ->

6. Press the **right Cursor** button to move the cursor underneath the **Event Scroll Field** (<->).
7. Turn the **data entry control** to scroll through the event list and locate the event you want to edit.
8. Move the cursor to the data field you want to edit and make changes using the data entry control.
9. Press the **Pattern Edit** button to exit the Pattern Edit module.

► To Insert an Internal or External MIDI Program Change

1. Select the **pattern** you wish to edit.
2. Press the **Pattern Edit** button.

Insert the Program Change Event

3. Scroll to the **Event List Editor** screen shown below using the data entry control.
4. Press the **Enter** button as prompted by the display to begin editing.
5. Select an **Empty Track** using the Track/Channel select button near the LCD. (Use an *empty track* for now to keep things simple.) The display reads:

T06 EVENT <-> 001.01.001
- no events in track -

6. Press the **right Cursor** button to move the cursor underneath the **Time Field**.
7. Turn the **data entry control** and set the time to the location where you want the program change to occur.
8. Move the cursor to the lower line of the display and select the “prog” event type as shown below.

T06 EVENT <-> 003.02.026
C01 prog: 50 m:0 l:1

↑
MIDI Channel
↑
Program No.
↑
Bank LSB
↑
Bank MSB




Important: If you choose location 001.01.001 the program change will only occur when the pattern is first selected. See page 132 for details.



See page 198 for more information about MIDI Bank Select commands.

9. Set the MIDI channel, program change number and bank select LSB and MSB if applicable. If the bank selects are set to “off” no bank select command will be transmitted.
10. Press **Repeat** and change the data fields as desired if you want to insert another program change or other event.

 If you want to insert internal program changes choose **Internal** and set the channel number or **Multi**.

Set the Track to Transmit Externally

11. Press Home/Enter and scroll to the "Channel Assign" screen.

T06 CHANNEL ASSIGN

Channel: MultiA Dest: Ext

12. In order for the program change to be transmitted, the track must be assigned to an **External** destination (*or Both*).
13. You must also **set the channel** to the same channel as the program change or to **Multi**. Use MultiA or MultiB if you want to send program changes on multiple MIDI channels. (*MultiA goes out port A; MultiB goes out port B.*)
14. **Save the Pattern.**

The Conductor Track (track 0)

The conductor track allows you to insert tempo and meter changes anywhere in the pattern. Select the track below track 1 and the first screen shown below will appear.

Conductor Track Screens

TCT EVENT <-> 003.01.000

C01 tempo: 138 bpm

TCT EVENT <-> 003.01.000

C01 meter: 04/4

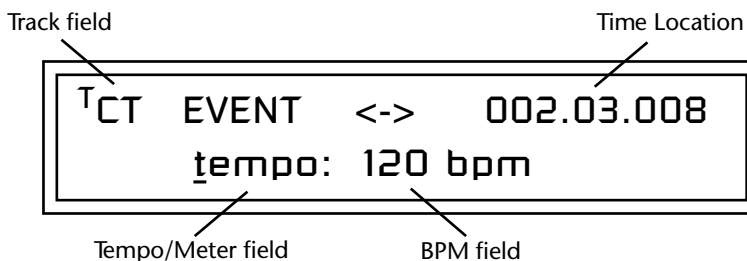
► To Insert a Tempo Change into the Conductor Track

1. **Select the pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Press the (-) **Track/Channel** button until "CT" appears in the track field.
4. Press the **Enter** button as prompted by the display to begin editing.
5. Move the cursor to the lower line of the display and select **tempo**.



To Insert a new Event:

- 1) Press the Repeat button.
- 2) Modify the Time & Tempo.

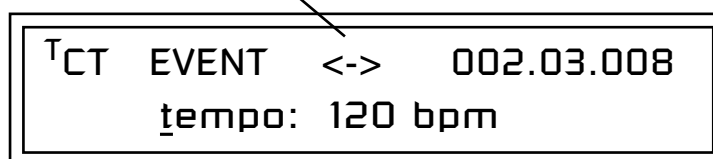


6. Move the cursor under the **bpm** field and set the tempo.
7. Set the **Time Location** where you want the tempo change to occur.
8. If you want to add another tempo change, press the **Repeat** button on the XL-7 front panel.
9. Change the **Time Location** and **Tempo**.
10. Press the **Pattern Edit** button to exit the Pattern Edit module.

► **To Remove or edit a Tempo Change from the Conductor Track**

1. Select the pattern you wish to edit.
2. Press the **Pattern Edit** button.
3. Press the (-) **Track/Channel** button until "CT" appears in the track field.
4. Press the **Enter** button as prompted by the display to begin editing.
5. Press the **right Cursor** button twice to move the cursor underneath the **Event Scroll** field (<->).
6. Turn the **data entry control** to scroll through the event list and locate the tempo change you want to edit.

Event Scroll Field
(scroll though events)



7. Press the front panel **Erase** button on XL-7 to erase the tempo event.
8. Simply change the **Tempo** or **Location** fields to modify the tempo or time of the event.
9. Press the **Pattern Edit** button to exit the Pattern Edit module.

► **To Insert or Edit Meter Changes**

Meter changes are inserted and edited exactly like tempo changes.

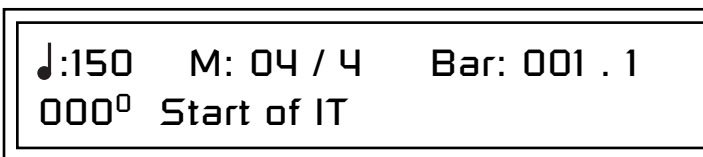
Revert to Saved Pattern

This screen allows you to discard any edits made to the pattern and restore the last saved version. This is not the same as an “Undo” function since Revert permanently discards any edits you have made since saving. This function removes the asterisk in the display that appears after you’ve edited the pattern.

REVERT TO SAVED PATTERN
000⁰ A2DJ

Song Mode

Song mode is selected by pressing the **Song mode** button beneath the liquid crystal display. The screen shown below is displayed in Song mode. See “Songs” on page 55.



Song Play



Pressing **Play** in Song mode causes the selected song to play.



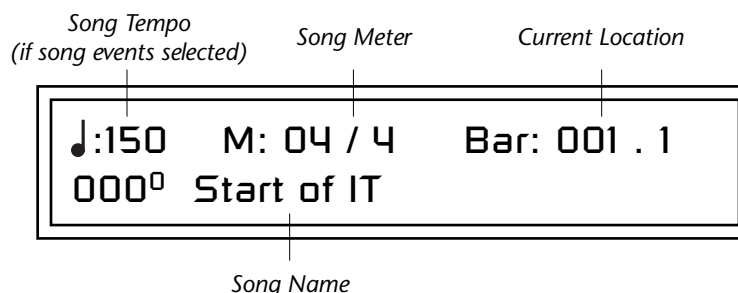
Pressing the **Stop** button stops the song immediately. Pressing **Stop again** rewinds the song to the beginning (RTZ). Pressing **Stop** a third time reloads the initial setup information for the Song.

Song Step Recording

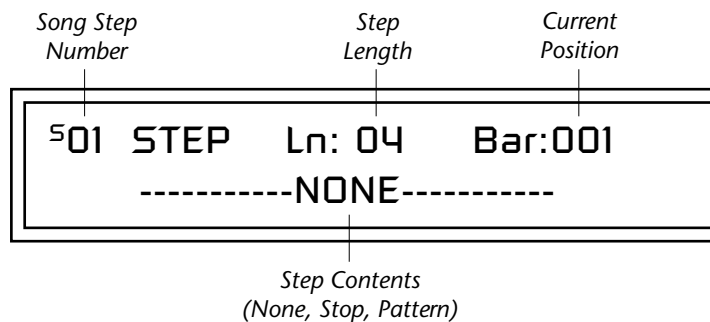
As described on page 55, songs can be recorded in two ways. Step recording involves inserting pattern play events into the song track to form more intricate arrangements of patterns.

► To Step Record a Song

1. Press the **Song mode** button. The screen shown below appears.



2. Select a **Blank** song to begin recording using the data entry control.
3. Press the **Record** button twice to select Step Record mode. The Step record LED illuminates and the screen shown below appears.





Hot Tip: You can audition patterns in Song Step Record by pressing the **Play** button. Press **Play** again to stop auditioning.



You must press the **Enter** button to confirm each step change. Any changes you make without pressing **Enter** will be discarded.

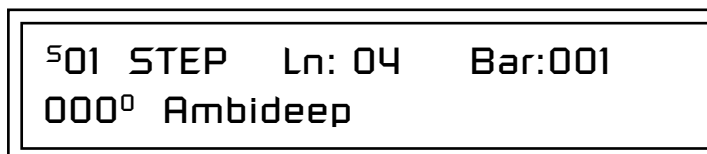


HOME/ENTER

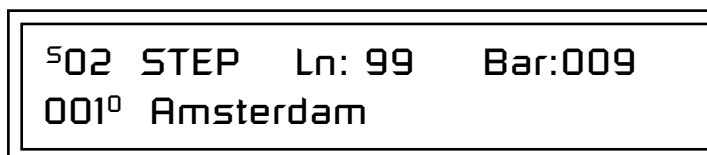


You can move the cursor to any field and change it while in step record mode.

- The cursor is on the lower line of the display. Turn the data entry control to **select a Pattern** for step one.



- Press **Enter** to choose the pattern and increment the step counter. Note that the current position (Bar) field now indicates the bar position just beyond the length of the first pattern.
- Select another pattern** for song step 2. Press the **Play** button to audition the pattern before pressing **Enter**.



- Press **Enter** when you've made your selection and the step counter increments again.
- Continue to add Patterns.** When you're ready for the Song to end, turn the **data entry control** counter-clockwise and select the **STOP** command. If you don't insert a "Stop" command, the last pattern will simply continue to play indefinitely.

► To Edit a Song

Changing the Length of Patterns

- While in Step Record mode, you can move the cursor to the Length (Ln) field and change the length of the pattern at that step. Lengthening a pattern will cause it to loop. Shortening a pattern will truncate the playback to the selected length.

Deleting a Pattern

- Pressing the **Erase** button (located below the controller knobs) erases the currently selected step from the song.

Inserting a Pattern

You can insert a pattern at any bar of the song by pressing the **Repeat** button. Patterns can be inserted into a Song in two different ways.

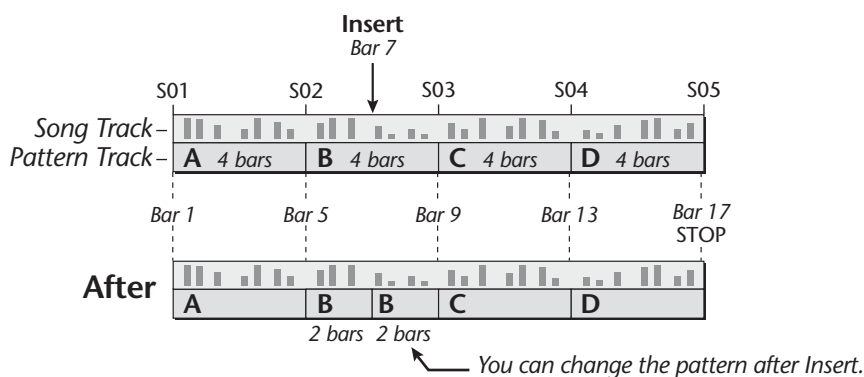
- Insert** - If you insert a pattern play event in the middle of a step, the pattern will be split at that bar location. The song stays the same length.
- Repeat** - If you insert a pattern play event at a step location, the current step will be duplicated and all events (including both step events and linear track events) will be slid forward to accommodate the insertion of the new step (with length equal to the duplicated step). Note that Delete still functions as is, only deleting the step event, not any data or time.

Inserting a Pattern in the Middle of a Step (split)

3. Move the cursor beneath the **Bar** field and select the insert point between two step numbers.
4. Press the **Repeat** button. The step will be divided at the insert point. Please refer to the diagram below.

Insert

If you press **Repeat** between pattern change events, a Pattern Play Event is inserted, splitting the previous pattern. The linear track information remains intact.



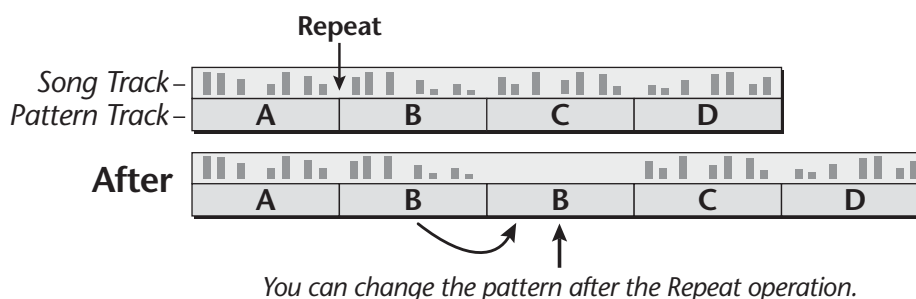
5. If you want to change the pattern of a step, simply **change it**, then press **Enter**.

Inserting a Pattern at a Step (repeat)

6. Use the **Track/Channel** keys to select a **Step** number.
7. Press the **Repeat** button (located below the controller knobs), then press **Enter**. The current step will be duplicated and all events (including both step events and linear track events) will be slid forward to accommodate the insertion of the new step (with length equal to the duplicated step). Note that Delete still functions as is, only deleting the step event, not any data or time.
8. Change the pattern to the desired pattern.

Step Repeat

If you press **Repeat** at a pattern change event, the Pattern Play Event is duplicated and the linear track information is pushed forward in time.



To Insert a Pattern at the beginning of a Song

9. Scroll to the first step in the song and press **Repeat**.
10. Press the (-)**Track/Channel** key to move back one step.
11. Select the desired pattern, then press **Enter**.

Inserting Track Mutes

12. You can enable or disable Track Mutes anywhere in the song by simply selecting them while in record mode. Mute commands are recorded as “hidden” text events in the linear song track. Track mutes can be erased or modified in the Song Event List Editor.

Stop the Song

13. Turn the data entry control counter-clockwise until you find the STOP command. This will be the last step of your song.

Time to Save?

14. Changes are not made permanent until you **Save** the song. An asterisk will appear in the Song display if the Song has been modified and needs to be saved. The Save/Copy button LED will also be flashing. Press **Save/Copy**, scroll to the Save Song screen, select a location and press **Enter**.

The following parameters are also saved with the Song. Set these parameters, then save the song again if you wish. The “Event Source” option in the Song Edit menu (page 113) determines whether song or pattern events will be used in the song.

- Initial Tempo
- Volume for 16 channels
- Pan for 16 channels
- Mix Output setup for 16 channels
- Arp channel status (*off/on/preset/master*) for 16 channels
- Master FX setup
- Event Source



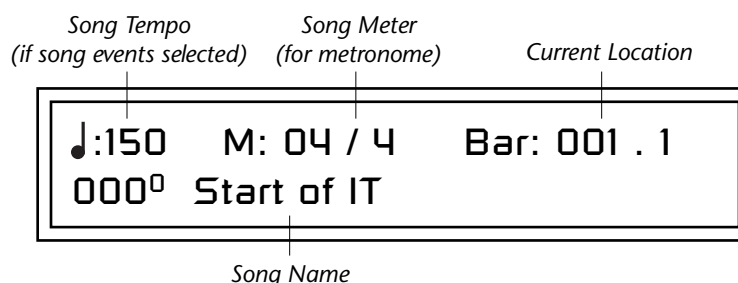
The 16 tracks of a song can be assigned to either the A or B channels using the “Song Channel Assign” function on page 123.

Realtime Song Recording

Realtime Song Recording lays down a single track which may contain multichannel: note, program change and controller data (but no SysEx). Realtime data will retain its recorded channel information so you can lay in multichannel note and controller information. Multiple channel information received over MIDI will also be recorded.

► To Record a Song in Realtime mode

1. Press the **Song** mode button. The screen shown below appears.

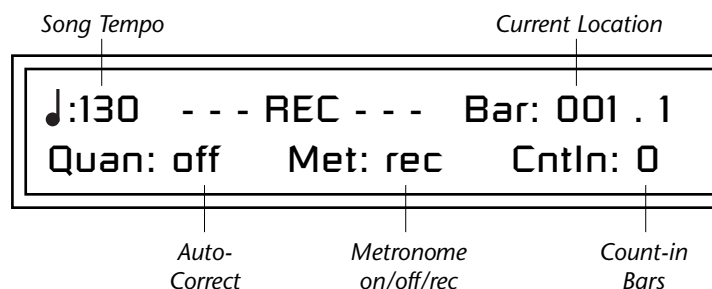


To Quick-Select a MIDI

Channel:

1. Press and hold **Tap**.
2. Press the **Track Enable/Mute** button corresponding to the MIDI channel you wish to select.

2. Select a Blank song to begin recording using the data entry control.
3. Press the **Record** button once to select Realtime Record mode. The Realtime record LED illuminates and the screen shown below appears. If you have already step recorded any pattern inserts, their numbers will appear on the lower line of the display.
4. Set the metronome to **On** or **Rec** if you want a timing reference.



5. Press the **Play** button to begin realtime recording. As in Pattern Record Mode, the Record button can be pressed at any time to disable recording. Similarly, the Play button can be pressed while recording to affect a "record-pause" mode.

To Erase Specific Notes:

6. Press the **Erase** button in Realtime Record mode and **hold down the keyboard note** you wish to erase. The note will be erased when it comes around in the pattern.



Too much controller information can clog the sequencer causing sluggish performance and sloppy timing. Use the “Thin Events” function (page 116) to reduce the amount of controller data in the song.



Use the “Erase cc# Events” function (page 117) to erase controller data from the song.

► To Overdub Realtime Controller Data over Patterns

This may be the most common way to use Realtime Song mode. After arranging your song using step record mode, you can mix and embellish your song by recording continuous controllers over the top. You might also want to add additional musical lines over your patterns.

1. Start by recording and saving a song by following the instructions on page 106.

Volume Mixing

2. Press **Song Edit** and scroll to the **Event Source** page.
3. Move the cursor to the lower line and select “volume: song events only”.
4. Press **Song Edit** again to exit the menu.
5. Select **Volume** knob mode by repeatedly pressing the Controller Function Select button (page 39).
6. Select **Mix View** mode if you wish to view the volume settings.
7. Press the **Stop** button twice to make sure the song starts at the beginning.
8. Press the **Record** button in Song mode to get ready to record. The Play button LED will be flashing.
9. Press the **Play** button to begin recording. The controller knobs now adjust the volumes of all 16 tracks.
10. Press **Stop** when you’re finished recording.

Realtime Panning

11. Select **Pan Knob** mode by pressing the Controller Function Select button.
12. Select **Mix View** mode by pressing the Mix button (if it’s not already selected).
13. Turn the data entry control clockwise to select **Ch Pan** view.
14. Press the **Stop** button twice to make sure the song starts at the beginning.
15. Press the **Record** button in Song mode to get ready to record. The Play button LED will be flashing.
16. Press the **Play** button to begin recording. The controller knobs now adjust the pan positions of all 16 tracks.
17. Press **Stop** when you’re finished recording.

Recording Quick Edits

The Quick Edit knobs always record on the Basic Channel (*the channel currently displayed in the Preset View screen*).

18. Select **Quick Edit** mode by pressing the Controller Function Select button.
19. Select the channel with the preset you wish to Quick Edit.

20. Practice your knob movements before recording by playing back the song and twisting the knobs.
21. When you're ready to record, press **Record**, then **Play**, then perform the knob movements.

► **Erasing Controller Data**

1. The **Erase Events** function (page 117) can be used to erase controller data.
2. Find the realtime controller # of the knob you wish to erase in the **Controllers** menu.
(Volume is always cc#7, and Pan is always cc#10. The numbers of the 16 controller knobs can vary.)
3. Press the **Song Edit** button.
4. Scroll to **Erase Events** and move the cursor to the lower line of the display.
5. **Select the realtime controller** number from step 2.
6. Press **Enter** to erase the controller data.

Song Edit Menu

Song Name

The Song Edit menu allows you to name and edit songs as well as control which controller data will be used when the song is played.

The Song Edit button is DISABLED unless you are in Song Mode.

An XL-7 Song is a one track sequence of any length. Pattern Play events will typically be recorded into a song so that specific patterns will begin playing at specific bar locations (only one pattern can play at a time). Note-on/off, controller and program change information can also be recorded into the Song track.

Songs can be named with up to 16 characters. Position the cursor under the character location and use the data entry control to change the character.

SONG NAME
Blue Beats

Event Source

This function determines how certain controls programmed into the pattern will be used in the song.

Event Source is a playback filter. Realtime Song data will be recorded regardless of the Event Source settings, but it might be confusing if you don't hear what you just recorded. Therefore, it's always a good idea to check the Event Source settings before recording realtime song data.

- Tempo
- Preset (program change)
- Volume
- Pan
- Mix
- Arp
- Master Effects (FX)

For each type of control listed above, you can choose one of these options:

- **Song Events Only** Uses song events; ignores pattern events
- **1st Pattern Only** Uses events from the 1st pattern; ignores song events
- **All Patterns** Uses the events programmed into each pattern
- **Song & Patterns** Uses both song and pattern events

The song and pattern option makes the song track extremely flexible because the song track can be used for volume mixing, realtime control or lead lines over a traditional pattern-based song structure. The song and pattern option also allows presets to be selected correctly when using channels 1B-16B for song events.



When you save a sequence (song or pattern) it picks up the current settings and saves them at the head of the track.

Setting Meter (Time Signature)

► To Set the Event Sources for a Song

1. Select the **Song** you wish to edit in Song mode.
2. Press the **Song Edit** button.
3. Scroll to the **Event Source** screen shown below using the data entry control.

EVENT SOURCE	
tempo:	song events only

4. Select: **Song Events Only**, **First Pattern Only**, **All Patterns**, or **Song & Patterns** for each event type.
5. Press the **Song Edit** button again to exit the module.

XL-7 allows you to set almost any conceivable time signature. The numerator (indicating number of beats in a measure) can be set from 1 to 99. The denominator (indicating the rhythmic value of each beat) can be set to 1, 2, 4, 8, 16, 32, or 64. The time signature can be changed at any time before or after recording.

The meter setting affects the bar:beat display, the pattern length, metronome accent, and the grid recording display.

For more information about Time Signatures, see page 335.

► To Set the Time Signature

1. Select the **song** in which you want to record in Song mode.
2. Press the **Song Edit** button. The Song Edit menu screen displays the menu page most recently selected since powering up XL-7.
3. Scroll to the **Meter** screen using the data entry control. The meter setting will probably show the 04/4 default time signature.

METER	METRANOME	VALUE
04 / 4	off	1/8

4. Press the right cursor button once to move the cursor underneath the numerator field.
5. Set the **time signature numerator** value using the data entry control.
6. Press the right cursor button again to move the cursor underneath the denominator field.
7. Set the **time signature denominator** value using the data entry control.
8. Press the **Song Edit** button again to exit Song Edit mode.

Metronome



Play the pattern to listen to the Metronome while you set the Value.

The metronome is a timing aid when recording or playing back songs and can be set to a wide variety of different beats. The metronome produces an accented click on the first beat of each measure and a softer click on other beats. The metronome beat options are listed on page 76.

The metronome setting is NOT saved with the Song.

► To Set the Metronome

1. Press the **Song Edit** button. The Pattern Edit menu screen displays the menu page most recently selected since powering up XL-7.
2. Scroll to the **Metronome** screen using the data entry control.

METER	METRONOME	VALUE
04 / 4	off	1/8

3. Move the cursor underneath the **Metronome** field and turn the metronome to **On**, **Off** or **Rec** using the data entry control.
 - **Off** - the metronome doesn't play.
 - **On** - the metronome plays during recording and playback.
 - **Rec** - the metronome only plays while recording.
4. Move the cursor underneath the **Value** field and set the metronome beat value using the data entry control.

Quantize

The timing of note events can be changed after a song has been recorded. Quantize moves all the note start times in the track to fall on (or closer to) the specified time values. See "Quantize" on page 79 for more information about quantization.

Note: This filter quantizes note data recorded in Realtime Song mode. It does NOT affect the notes in Patterns.

► To Quantize Note Events in a Song

1. Select the song.
2. Press the **Song Edit** button.
3. Scroll to the **Quantize** screen using the data entry control.

QUANTIZE	Resolution: 16
Amount: 75%	Swing: 50%

4. Set up the **Quantize parameters** as desired. The Home/Enter LED will be flashing once the cursor is moved to one of the editable fields.
5. Press **Enter** to Quantize or add Swing. Press any other button to **Cancel**.

Scale/Shift Start Times

See "Scale/Shift Start Times" on page 81.

Scale/Shift Duration

See "Scale/Shift Duration" on page 82.

Thin Events

Event thinning is usually performed to reduce the amount of extraneous controller data and thus reduce the memory size and microprocessor load. This filter reduces the number of events in a musical fashion. The setting represents the smallest change that will be kept. See page 83 for more information. The filter also keeps change in direction values.

Note: This filter thins note and controller data recorded in Realtime Song mode. It does NOT affect Pattern data.

The following types of events can be thinned:

- Tempo
- Poly Aftertouch
- Channel Aftertouch
- Pitch Wheel (Touchstrip)
- Any Continuous Controller (1-95)

► To Thin Events from a Song

1. Select the **song** you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the **Thin Events** screen shown below using the data entry control.


THIN EVENTS

chan aftertouch Amt: 40


4. Select the **type of event** you want thinned, then set the **amount** of thinning. The Home/Enter LED will be flashing once the cursor is moved to one of the editable fields.
5. Press **Enter**. Select a key range for thinning. The default setting is all keys.

SELECT KEY RANGE

Key Range: C-2 to: G8



Low Key



High Key

Erase Events

6. Press **Enter** to thin events. Press any other button to **Cancel** the operation.

Specific types of events can be completely erased from a song.

Note: This filter erases event data recorded in Realtime Song mode. It does NOT affect Pattern data.

Events that can be Erased

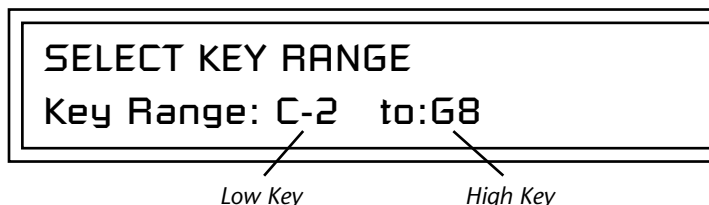
Notes	Tempo
Program Changes	Poly Aftertouch
SysEx Data	Channel Aftertouch
Meter	Pitch Wheel (Touchstrip)
Any Continuous Controller (1-95)	

► To Erase Events from a Song

1. Select the **song** you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the **Erase Events** screen shown below using the data entry control.



4. Select the **type of events** you want erased. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Press **Enter**. Move the cursor to the lower line to select a key range for erasure. The default setting is all keys.



6. Press **Enter** to erase the events. Press any other button to **Cancel** the operation.

Transpose

All notes in a song can be transposed up or down from -127 to +127 semitones. For example with a setting of +7, all notes in the song would be transposed up a perfect fifth.

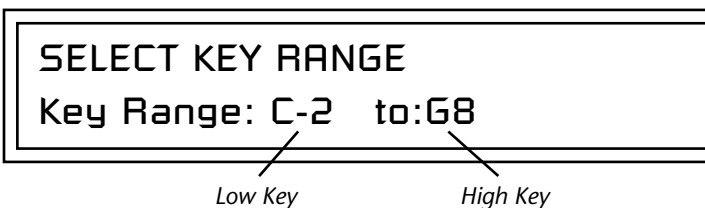
Note: This filter transposes note data recorded in Realtime Song mode. It does NOT affect notes recorded into Patterns.

► To Transpose Notes in a Song

1. Select the **song** you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the Transpose screen using the data entry control.



4. Select the **amount of transposition** you want. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Press **Enter**. Move the cursor to the lower line to select a key range to be transposed. The default setting is all keys.



6. Press **Enter** to transpose the pattern. Press any other button to **Cancel** the operation.

Scale/Shift Velocity


This filter allows you to either scale (multiply by a value) or Scale (add a value to) the velocity values of notes in a song. The Scale function is performed before the Shift value is added.

- Scale -** Multiplies all note-on velocities by a percentage from 0% to 125%. Scaling by 100% would leave all velocity values untouched. Scaling by 50% would cut all velocity values in half.
- Shift -** Adds or subtracts a specific velocity value (-127 to +127) to every note-on event in the song.

Note: This filter scales velocity data recorded in Realtime Song mode. It does NOT affect the velocity values of Pattern data.

► To Scale or Shift Velocity

1. Select the song you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the **Scale/Shift Velocity** screen shown below using the data entry control.

 **Tip:** To set all notes to a particular value, set Scale to 0%, (this zeros the value) then set Shift to the desired duration.

SCALE/SHIFT VELOCITY

Scale: 87% Shift: +0

4. Select the **amount of velocity scaling or shift**. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Press **Enter**. Move the cursor to the lower line to select a key range to be velocity scaled or shifted. The default setting is all keys.

SELECT KEY RANGE

Key Range: C-2 to: G8

Low Key
High Key

6. Press **Enter** to change velocity in the song. Press any other button to **Cancel** the operation.

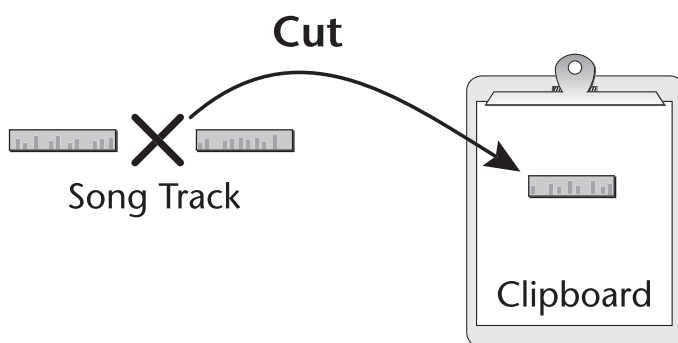
Cut Track to Clipboard



Cut track can be used as a way to erase a track.

A section of the a track can be cut or copied and held on a digital “clipboard” so that it can be pasted into another location in the track. The clipboard contents will be held until replaced with another cut or copy operation, or the power to XL-7is turned off. Cutting a section from a track will leave a blank space in the Song.

Pattern Play events are NOT affected by the cut operation. Pattern play events must be edited using Step Record.



The cut section is placed on the clipboard leaving a blank space in the song track where the data was cut out.

► To Cut a Section of the Song Track

1. Select the song you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the **Cut Track to Clipboard** screen shown below using the data entry control.



The Track Number cannot be changed in a Song since there is only one track.

CUT TRACK TO CLIPBOARD

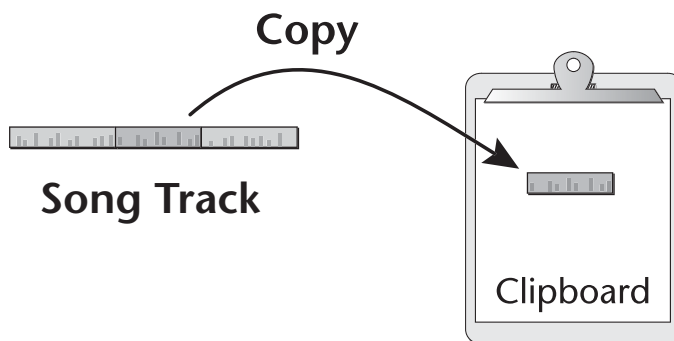
Track: 1 Bar:04 Len:07

4. Select the **Start Bar** and the **Length** (in bars) to be cut. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Press **Enter** to cut the track. Press any other menu button to **Cancel** the operation.

Copy Track to Clipboard

A section of a track can be copied and held on a digital “clipboard” so that it can be pasted into another location on the song track. This function makes a digital copy of the track and places it on the clipboard, where it will be held until it is replaced with another cut or copy operation, or the power to XL-7 is turned off. The copied *Paste* functions.

Pattern Play events are NOT affected by the copy operation. Pattern play events must be edited using Step Record.



The copied section is placed on the clipboard leaving the song track intact and untouched.

► To Copy a Track

1. Select the **pattern** you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Copy Track to Clipboard** screen shown below using the data entry control.




The Track Number cannot be changed in a Song since there is only one track.

COPY TRACK TO CLIPBOARD
Track: 1 Bar:06 Len:07

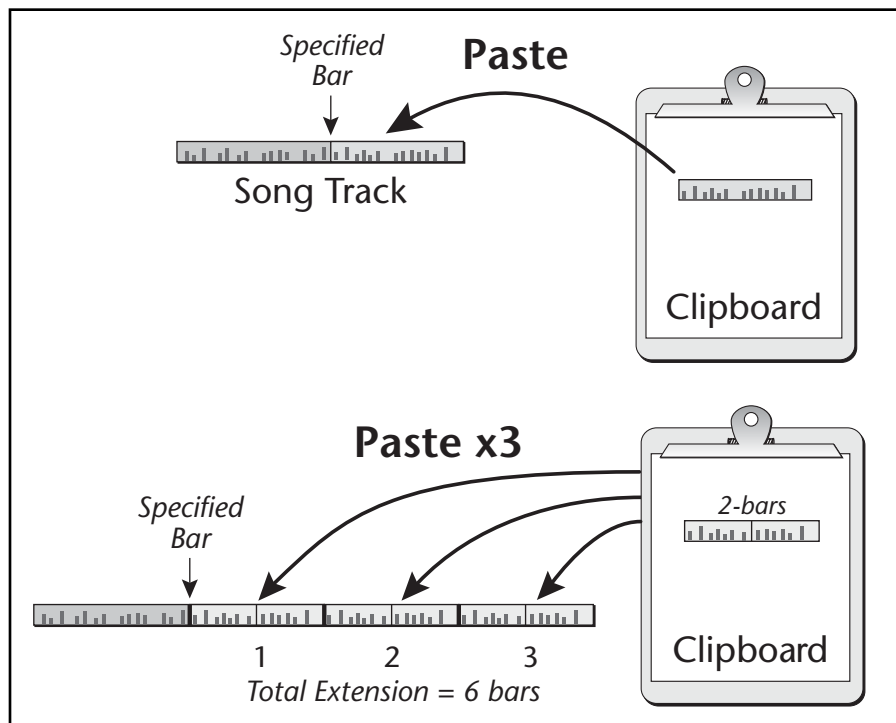
4. Select the **Start Bar** and the **Length** (in bars) to be copied. The Home/Enter LED will be flashing once the cursor is moved to the lower line of the display.
5. Press **Enter** to copy the track. Press any other menu button to **Cancel** the operation.

Paste Clipboard to Track

 Tracks can be freely cut, copied and pasted between songs and patterns.

Once a track or track section has been cut or copied to the clipboard, it can be pasted into another location on the song track from 1 to 99 times. The Paste operation *Merges* the clipboard data with the data on the destination track at the selected bar position. This feature allows you to “bounce down” multiple tracks to a single multichannel track. *See below.*

Pattern Play events are NOT affected by the Paste operation. Pattern play events must be edited using Step Record.





► To Paste the Clipboard into a Track

1. Select the pattern you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Paste Clipboard to Track** screen shown below using the data entry control.

PASTE CLIPBOARD TO TRACK

Track: 1 At Bar:06 X:1

 The Track Number cannot be changed in a Song since there is only one track.

 You will not hear the results of the Paste operation until the sequence cycles around. (Hint: Press RTZ)

4. Select the **bar** where the clipboard contents will be pasted.
5. Select the **number of times** you want the clipboard data pasted.
6. Press **Enter** to paste the data. Press any other menu button to **Cancel** the operation.

Song Channel Assign



Important Note:

Program change messages are NOT transmitted externally if the destination is set to Both. To transmit program changes to external MIDI devices, set the destination to External (EXT).



The Channel Assign screen “rechannelizes” track data to play on the selected channel. If you want to playback multi-channel data, set the track to “MultiA” or “MultiB”.

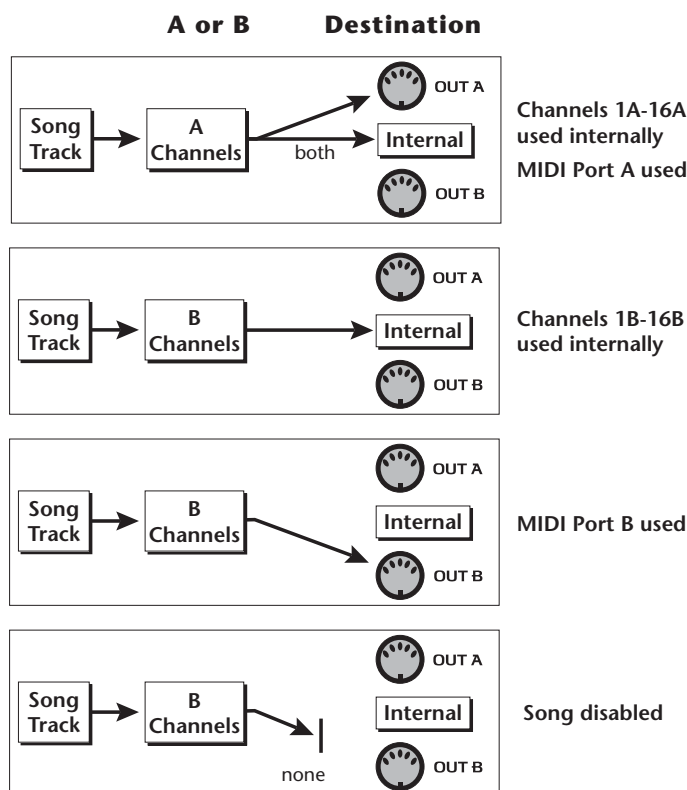
This screen allows you to assign the song track to channels 1A-16A, or 1B-16B, or to MIDI Out port A or B. The song track can be routed to: internal MIDI channels (either A or B), the external MIDI ports, both, or none. Multi A is routed to MIDI port A and Multi B is routed to MIDI port B, if “ext” or “both” is selected as a destination. Selecting “None” disables playback.

T01 CHANNEL ASSIGN

Channel: MultiA Dest: both

► To Assign the Song Track to the A or B channels

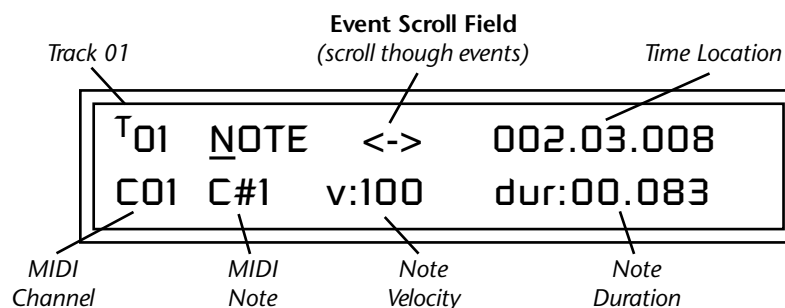
1. Press the Song Edit button.
2. Scroll to the **Song Channel Assign** screen shown above using the Data Entry control.
3. Select **MultiA** if you want the a multi-channel song track to go to channels 1A-16A or MIDI port A. Select **MultiB** if you want a multi-channel song track to go to channels 1B-16B or MIDI port B.
4. Select the desired **destination** for the track (internal channels, external MIDI channels, both, or none).
5. Press the **Song Edit** button again to exit the module.



Note List Editor

Individual MIDI notes in the song can be edited, inserted or deleted from this screen. **Place the cursor underneath the “Event Scroll Field” shown below and turn the data entry control to navigate through events.**

- Hold the **Enter** button and turn the **data entry control** to scroll through events when the cursor is on any other field.

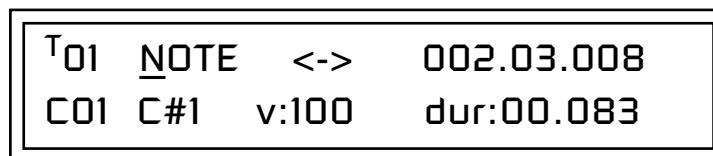


- **Erase** button - - - - Erases the currently selected event.
- **Repeat** button - - - - Duplicates the currently selected note, allowing you to edit and create a new note.
 - 1) **Press Repeat.**
 - 2) **Change the time, channel, or MIDI note.**


Note: You cannot have two events with the exact same time and data in a song. XL-7 will delete any duplicate events as soon as you increment the event or exit the screen.

► To Edit a MIDI Note

1. **Select the song** you wish to edit.
2. Press the **Song Edit** button.
3. Scroll to the **Note List Editor** screen shown below using the data entry control.
4. Press the **Enter** button as prompted by the display to begin editing.



5. Press the **right Cursor** button to move the cursor underneath the Event Scroll Field (<->).
6. Turn the **data entry control** to scroll through the event list and locate the event you want to edit.
7. Move the cursor to the data field you want to edit and make changes using the data entry control.
8. Press the **Song Edit** button to exit the Song Edit module.

 You can edit notes and note velocity by playing the keyboard.

Event List Editor

Continuous controller, pitch wheel, mono pressure, poly pressure, track mutes and program change MIDI messages can be edited, inserted or deleted using this menu. **Place the cursor underneath the “Event Scroll Field” shown below and turn the data entry control to navigate through events.**

The event list editor also allows you access to the *Conductor Track* which sets the tempo and meter for the pattern.

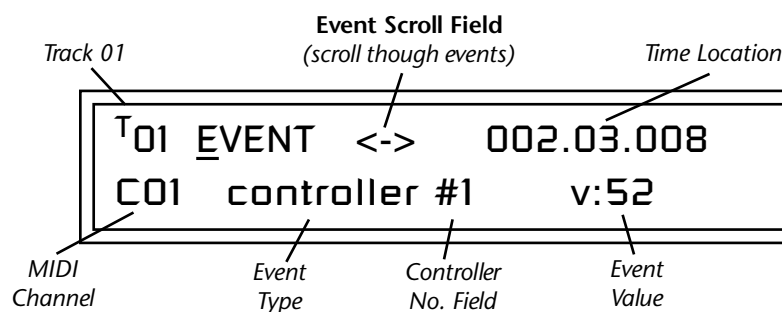
Hold the **Enter** button and turn the **data entry control** to scroll through events when the cursor is on any other field.

- **Erase** button - - - - Erases the currently selected event.
- **Repeat** button - - - - Duplicates the currently selected event, allowing you to edit and create a new event.
 - 1) **Press Repeat.**
 - 2) **Change the time, channel, or MIDI event.**
- **Note:** You cannot have two events with the exact same time and data in a pattern. XL-7 will delete any duplicate events as soon as you increment the event or exit the screen.

Continuous Controller Edit

Continuous controller numbers 1-95 can be edited. Continuous controllers and Channel Pressure messages may range in value from 0-127.

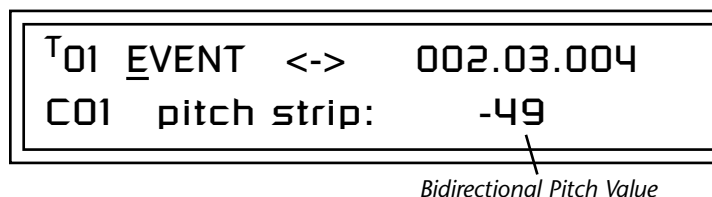
Continuous Controller Screen



Pitch Strip Edit

PitchStrip messages are bidirectional and may range in value from -8192 to +8191.

Pitch Strip Screen



Poly Pressure Edit

Polyphonic pressure messages are assigned on a per note basis and have range of 0-127. XL-7 can generate polyphonic pressure messages, but it cannot receive them.

Poly Pressure Screen

T01	EVENT	<->	002.03.004
C01	polypress:	C1	62

MIDI Note
Poly Pressure Value

Program Change Edit

Program change numbers from 0-127, and on any bank number, can be inserted, deleted or edited in this screen. If you do not select bank numbers (off), the program change will be sent to the currently selected bank. See "Bank Select Commands" on page 198.

Program Change Screen

T01	EVENT	<->	003.02.026
C01	prog: 10	m:off	l:off

Program Change Number
Bank Number MSB cc:0
Bank Number LSB cc:32

► To Edit a MIDI Event

1. Select the pattern you wish to edit.
2. Press the **Pattern Edit** button.
3. Scroll to the **Event List Editor** screen shown below using the data entry control.
4. Press the **Enter** button as prompted by the display to begin editing.

T01	EVENT	<->	002.03.008
	event: mute		Trk:02

5. Press the **right Cursor** button to move the cursor underneath the **Event Scroll Field** (<->).

6. Turn the **data entry control** to scroll through the event list and locate the event you want to edit.
7. Move the cursor to the data field you want to edit and make changes using the data entry control.
8. Press the **Pattern Edit** button to exit the Pattern Edit module.

Revert to Saved Song

This screen allows you to discard any edits made to the song and restore the last saved version. This is not the same as an “Undo” function since Revert permanently discards any edits you have made since saving. This function removes the asterisk in the display that appears after you’ve edited the song.

REVERT TO SAVED SONG
000⁰ Patterns 0-9

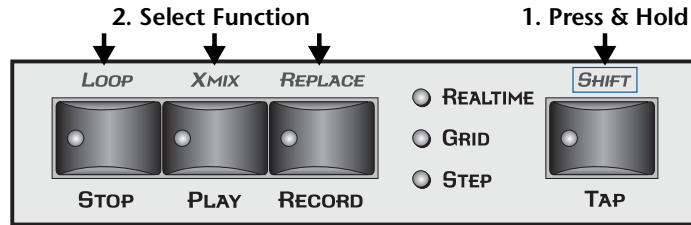
Live Performance Features

XMix



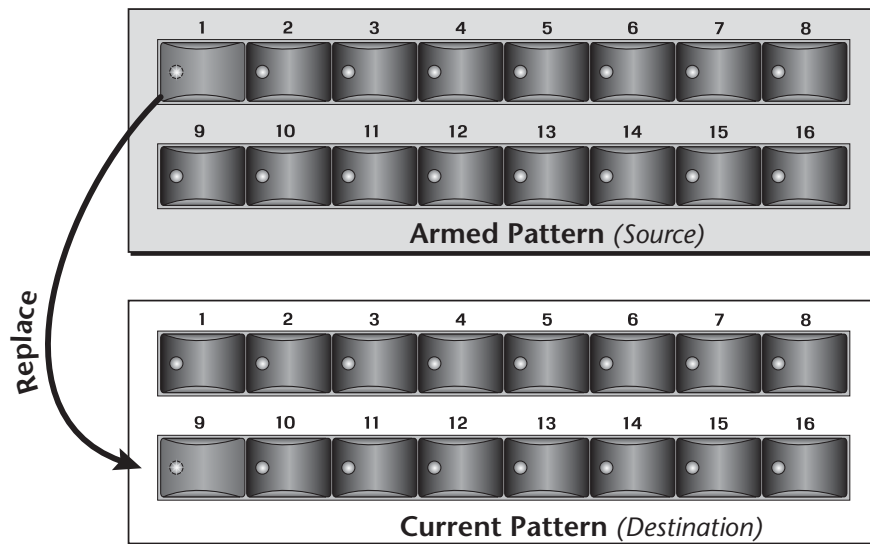
The Source pattern must be loaded, which generally takes about half a second, before new tracks can be replaced. The Source Pattern is loaded when the "Select Dest Track" screen appears.

This section details some of the "power-user" features of XL-7 designed for playing and modifying patterns in a live situation.



The **Tap-Tempo** key functions as a **Shift Key** to access the new features.

This great feature allows you to replace tracks of the currently playing pattern with tracks from any other pattern. It's designed both for performance use and as a quick way to experimentally swap tracks. Tracks can be replaced with data from any other track. If you're happy with the results, you can save the current pattern to any location using the Save/Copy function.



XMix lets you replace tracks in the currently playing pattern with tracks from any other pattern while the pattern is playing.

► To Replace Tracks using XMix

1. Play a pattern.
2. Press and hold **Tap**, then press **Play**. The display changes to:

XMIX Select Source Patrn
DestPat: 022⁰ SrcPat: 022⁰

3. Select the **Source Pattern** using the data entry control. (*This is the pattern you want to copy tracks from.*)
4. Press **Enter** to lock in your Source Pattern selection. The display changes to:

XMIX Select Dest Track
DestPat: 022⁰ SrcPat: 025⁰

5. The track enable LEDs will be lit on tracks which have recorded data. Muted tracks will be flashing. **Select the track** you want to replace by pressing its track button. The display changes to:

XMIX Select Source Track
DestPat: 022⁰ SrcPat: 025⁰

6. The track enable LEDs will be flashing on any tracks with recorded data. **Select the new track** you want by pressing its track button. The old track in the destination pattern will instantly be replaced with the new track from the source pattern.



XMix Quick Reference

1. **Hold Tap** and hit **Play**.
 2. Select the **Source Pattern**.
 3. Select the **Dest. Track**.
 4. Select the **Source Track**.
- Press **Play** to Exit XMix.

To Change the Mute Settings while in XMix mode:

7. The Track Enable/Mute LED is normally off while in XMix mode. Press the **Track Enable/Mute** button (lighting the LED) to switch the buttons back into mute select mode. Press the button again to go back into XMix track select mode.

To Replace Another Track

8. Notice that the display is back to the one shown in step four. To replace another track, simply select the next one you want replaced. Then select the source track and it's done!

To Select Another Source Pattern

9. Turn the data entry control to select another source pattern. The display changes to read **Select Source Pattern**. Select a new source pattern, then press **Enter** to lock it in.
10. Select the Destination Track, then the Source Track. Done.

To Exit XMix Mode:

11. Press the **Play** button.

To Save the New Pattern

- The Save/Copy LED is flashing. Press the **Save/Copy** button to jump to the Save Pattern screen.

Using the Repeat Button for Live Performance

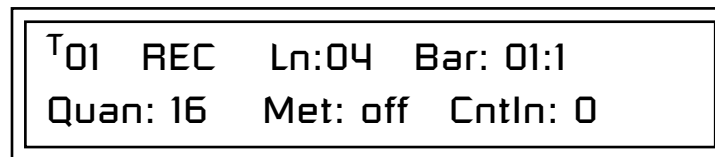


Using the Repeat button, even in play mode, causes the current pattern to be dirtied (asterisk showing). Although nothing is actually recorded in the current pattern, this could cause an unsaved pattern to be wiped out.

The repeat button is functional during playback. The quantization value, accessible from the record or record paused screen determines the repeat rate. Note that this is NOT the quantization setting located in the pattern and song edit menus. **Repeat does not function when the sequencer is stopped or paused or when the current track is muted.** In addition, any screen or mode that overrides the repeat button such as list edit precludes using realtime repeat.

► To Use the Repeat Button during Pattern or Song Playback

1. From song or pattern mode press the **Record** button. The following screen appears:



2. Select the desired quantization (repeat) value.
 3. Press **Stop** to exit record mode.
 4. Select the desired pattern or song.
 5. Press **Play**.
 6. Press the **Repeat** button illuminating the LED.
- **Play the pads or keyboard.** Notes will repeat at the selected quantization rate.

Mute Hold

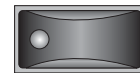
Track mutes can be held from pattern to pattern by holding the Tap button while pressing Enter so select the next pattern. This live performance feature allows you to keep the song at the same level of complexity when changing patterns.

While the Pattern is Playing:



TAP

Hold **TAP** & hit **ENTER** to hold the Mute settings.

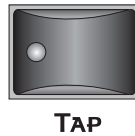


HOME/ENTER

► To Use the Mute Hold feature while a Pattern is Playing

1. Play a pattern.
2. Change the track mutes as desired.
3. Select a new pattern using the data entry control.
4. Hold the **Tap** button while pressing **Enter**.
5. The track mute settings of the previous pattern will remain in effect.

While the Pattern is Stopped:



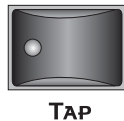
Hold **TAP** while selecting a new Pattern with the **Data Entry Control** to hold the Mute settings.



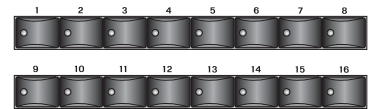
► To Use Mute Hold while a Pattern is Stopped

1. Select a pattern.
2. Change the track mutes as desired.
3. Hold the **Tap** button and select a new pattern using the data entry control.
4. The track mute settings of the previous pattern will remain in effect.

Direct Pattern Access:



Hold **TAP** while selecting a new Pattern with the **Trigger Buttons** to hold the Mute settings.



► To Use Mute Hold in conjunction with Direct Pattern Access

1. Follow the instructions on page 141 to set up direct pattern access.
2. Select a pattern.
3. Change the track mutes as desired.
4. Hold the **Tap** button while selecting a new pattern using the trigger buttons. (*Triggers must be selected in the Command Function section.*)
5. The track mute settings of the previous pattern will remain in effect.

Loop Section

See “Loop Section” on page 77.


Restart Pattern Fire Key

See “Restart/Pattern Fire Key” on page 57.

Pattern Change Tempo Hold

See “Pattern Change Tempo Hold” on page 162.

Event Timing

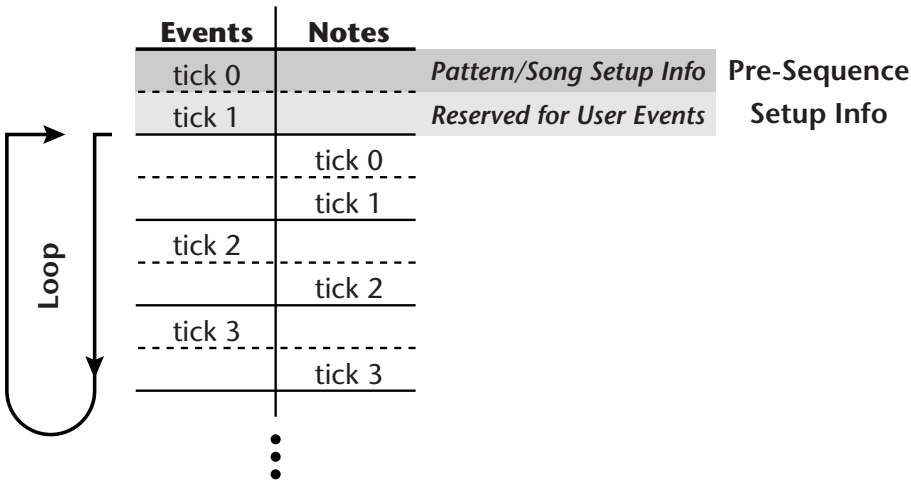
 Events at Tick 0 are only editable if the track is set to "Ext". You can only remove or edit data from this location. This is allowed so that you can remove unwanted data going to external synths.

The following information is intended for advanced users. If you are just getting started with XL-7 you can skip this section for now.

Songs and patterns both contain *pre-sequence setup* information that is loaded just before a song or sequence plays. This pre-sequence information is not reloaded when a pattern loops. Reloading this setup information each time a pattern looped would cause data clogging and possible timing errors in the sequence.

- The first two ticks (0 & 1) are reserved for pre-sequence setup information. Tick 0 is reserved for the internal pre-sequence setup information. **Tick 1 is used to place your own pre-sequence setup information so that it won't loop and cause timing errors.**
- Events (controller data, program changes, sysex, etc.) are played before Notes, even if they are located on the same numbered Tick. This is done so that volume changes and other programming information will be in place when the notes turn on.

When a track is set to "ext" (external transmit only), you will be allowed to see the tick 0 spot for EVENTS. This allows you to remove any pre-sequence setup data (which is stored at Tick 0) left over from when the track may have been internal or both.



This chart shows how notes and other MIDI events are recorded at the beginning of a pattern or song.

Notes are played after other MIDI events. Ticks 0 and 1 are reserved for *pre-sequence setup* information which does not loop. Beginning at tick 2 of the pattern or song, information is recorded normally (events first, then notes).

Track Priority

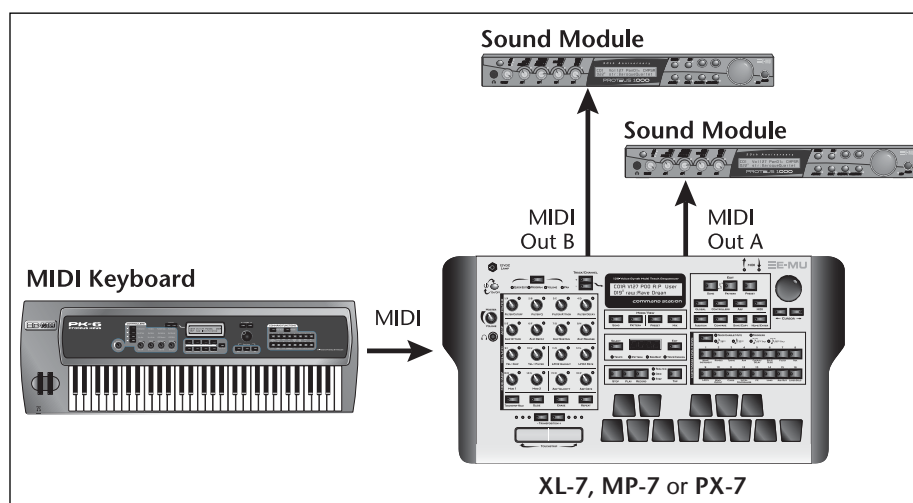
The XL-7sequencer handles lower numbered tracks first. Therefore, you should put your most timing-critical data on low numbered tracks. Normally this will not be important since the sequencer timing is so good, but if you create very dense sequences, this information might be useful.

Applications

Using the Internal Sequencer with an External MIDI Keyboard

These examples may help you with some common setups. When you have a working setup, it's a good idea to save and name the Multisetup to preserve your work.

In this setup, an external MIDI keyboard transmitting on a single MIDI channel is used to record into the internal sequencer. This demonstrates the new Rechannelize Input feature which frees you from changing the MIDI channel of your controller keyboard.



If Channel Assign in the song/pattern edit menu is set to **external** or **both**, you'll get duplicate MIDI data if steps 2 & 3 in the setup are not set to Off.

► Setup the Following Controls:

1. RECHANNELIZE INPUT (MIDI) - always
2. KEYBOARD OUTPUTS MIDI (MIDI) - don't transmit
3. KNOBS OUTPUT MIDI (MIDI) - don't transmit
4. MERGE MIDI IN TO OUT (MIDI) - Out A: off, Out B: off
5. LOCAL CONTROL (Controllers) - on
6. Save and Name the Multisetup. (Global)

Optional Steps:

7. TRIGGERS (Controllers) - Seq
(If you want to record them into the sequencer.)
8. PROGRAMMABLE KNOBS (Controllers) - Seq
(If you want to record them into the sequencer.)

► **To Record a Sequence:**

1. Select an empty pattern or song.
2. Press **Preset View** and select a preset for your first track.
3. Press **Record**, then setup the Quantize, Metronome and Length parameters.
4. Press **Play** to begin recording. Recording begins after the count-in period (if any). If you're recording into a Pattern it will loop when it reaches the end of its length.

To Record another Track

5. Press the **Track** button to the left of the LCD to increment the track number.
6. Press **Preset View** and select a preset for the next track.
7. Press the **Stop** button twice to return to the beginning of the song or pattern.
8. Press **Record**, then **Play** to begin recording.
9. Repeat steps 5 through 8 to continue laying down tracks.

► **Optional: Recording Tracks to control an External Sound Module**

The diagram on page 133 shows two external sound modules connected. The channel assignment screen controls the routing of sequencer tracks to internal and external MIDI channels.

1. Set CHANNEL ASSIGN (*Song/Pattern Edit*) - Destination - ext



2. Set the MIDI channel as desired for the external sound module. Channels 01A-16A go to the "A" MIDI port; channels 01B-16B go to the "B" MIDI port.

*How to Record the
Audition Riffs*

We've had many requests for info on how to do this and so here it is.

1. Start with a new **blank pattern** and set the pattern **length**.
2. Connect **MIDI OutA** to **MIDI In** using a standard MIDI cable.
3. Press the **Preset View** and **Audition** buttons.
4. Select the **Preset** and **Audition Riff** you want to record.
5. Turn off **Audition** and press the **Pattern View** button.
6. Press the **Record** button once to get ready for Realtime recording.
7. Select **First Note Recording** in the Count In field. The number will change to a quarter note.
8. Press the **Audition** button. Recording will begin.
9. Press **Stop** at the end of the pattern length.

Controllers Menu

The Controllers menu contains functions related to the keypad, knobs or trigger buttons of XL-7. For example, the programmable knobs and triggers are programmed in this menu. All Controllers menu data is saved with the Multisetup. See page 148 for more information about Multisetups.

► To enable the Controllers menu

Press the Controllers button, lighting the LED. The Controllers Menu screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.

► To select a new screen

Press the Home/Enter button or press the Cursor button repeatedly until the cursor is below the screen title heading. Rotate the data entry control to select another screen.

► To modify a parameter

Press either Cursor button repeatedly (or hold down the right cursor button while turning the data entry control) until the cursor is below the desired parameter value. Rotate the data entry control to change the value.

► To return to the previously selected Mode/View screen

Press the Controllers button, turning off the LED.

Realtime Control Functions


Keyboard Transpose

This section describes how set up the Realtime Controllers on XL-7. Realtime Controllers are performance controls such as the controller knobs, velocity-sensitive keypads, and trigger buttons.

This option allows you to offset the transposition of the rubber keypads in semitone intervals. This allows you to easily play in different keys with the one octave keypad and lets you access different groups of instruments in a drum map. The transpose range is ± 36 semitones.

KEYBOARD TRANSPOSE
+00 semitones


Keyboard Channel

 in Quick Edit mode the front panel knobs only control the "Basic Channel".

This option allows you to select which channel is controlled by the Keypads, front panel knobs, and Touchstrip. You can select any of the 32 channels or "Basic". The "Basic" channel is the normal connection. With Basic selected, the Keypads and knobs always control the preset showing in the Preset View screen.

KEYBOARD CHANNEL
Channel: Basic

Aftertouch Curves

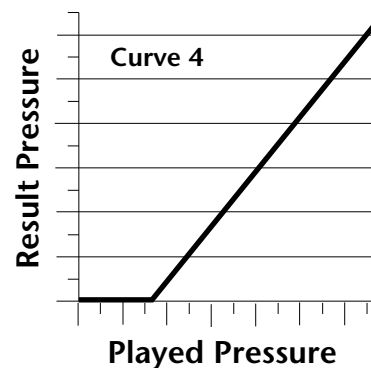
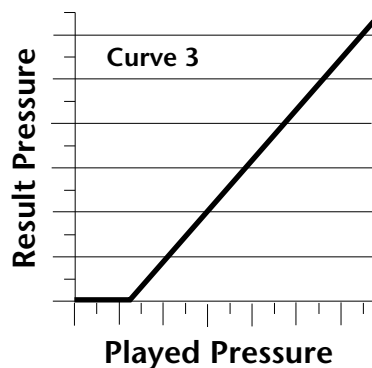
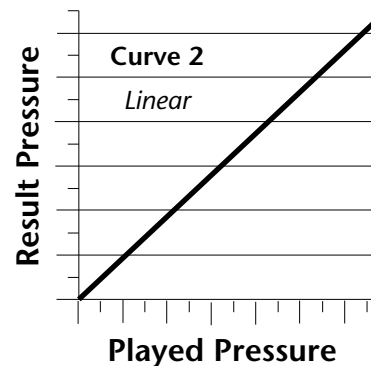
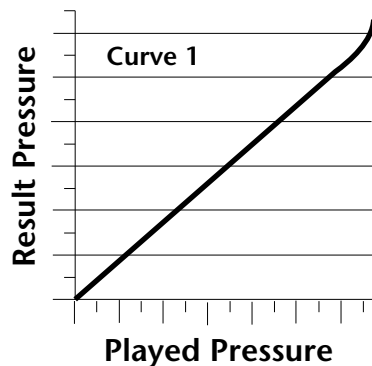
 Aftertouch is called "Pressure" in the Preset Edit, Cords menu. Pressure must be programmed in the Cords section for Aftertouch to have any effect on the sound. See page 230 for more information about PatchCords.

XL-7's internal voices do not use the poly aftertouch data, even though it can be transmitted out over MIDI.

AFTERTOUCH CURVES
channel: 1 poly: off

► To Change the Aftertouch Curve:

1. Press the **Controllers** button.
2. Scroll to the **Aftertouch Curves** screen using the data entry control.
3. Move the cursor to the channel field and **select curve 1-4 or off**.
4. Press the **Controllers** button again to leave the menu.

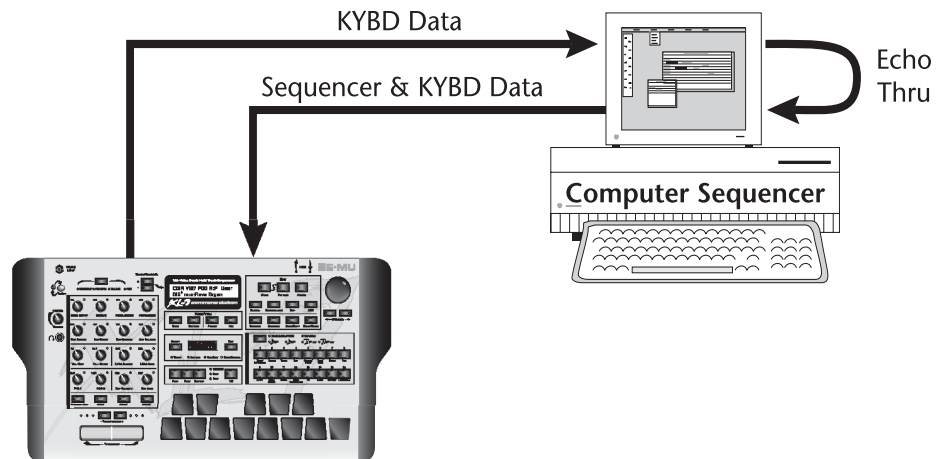


Local Control On/Off

Local Control is used to disconnect the keypad and controllers (knobs, touchstrip, footswitches) from the sound generating section. Even though disconnected from the internal synthesizer, the keypad and controllers are still transmitted over MIDI. Local Control is normally turned Off when recording into an external MIDI sequencer (set sequencer to Echo Thru). Played data and recorded data are merged in the computer sequencer and then sent back to the module. This feature can also be used if you want to control another MIDI sound generator from the rubber keypads without playing internal sounds.

LOCAL CONTROL	CHANGE
on	ignored

MIDI local control mode change messages can either be accepted or ignored depending on the setting of the change field. With this set to "ignored", an incoming command to turn local control on or off would be ignored.



Turning Local Control Off allows you to use the Echo Thru feature on your sequencer while sequencing. In conjunction with Echo Thru, Local Control Off allows you to record into the external sequencer and hear the correct sounds whether you are recording or playing back the sequence.

The two footswitch jacks on XL-7's rear panel can be programmed to perform a variety of functions. The footswitch jacks are designed to accept momentary footswitches which connect the tip and ring. XL-7 senses either normally-on or normally-off switches on power-up.

Each footswitch can be independently programmed. The following functions can be controlled via the footswitches.

FOOTSWITCH JACK FUNCTION

1: MIDI FtSw 2: Tap Tempo

- MIDI Footswitch** In this mode the footswitch is routed to the Patch-Cord in the Preset Edit, Cords menu. (See pages 230 and 238.) It is also transmitted out on the Foot-switch Controller number as programmed in the Controllers menu. (See page 145.)
- Play/Stop** Pressing the footswitch once activates the **Play** button on the front panel. Pressing the footswitch again activates the front panel **Stop** button.
- Play** Pressing the footswitch activates the **Play** button on the front panel. This works well in combination with the following function.

Trigger Buttons Function



See "Trigger Mode Quick Select" on page 142 for another way to select trigger modes.

- **Stop/RTZ** Pressing the footswitch activates the front panel **Stop** button. Pressing the footswitch again invokes the **Return-to-Zero** function.
- **Punch I/O** When the sequencer is playing, the footswitch will activate the **Record** button in order to punch-in to record mode. Pressing the footswitch again will punch-out of record.
When the sequencer is stopped, repeatedly pressing the footswitch cycles through the three record modes: realtime, grid & step record.
- **Tap Tempo** Pressing the footswitch activates the front panel **Tap** button, allowing you to tap in the current tempo with your foot.
- **Channel +** Pressing the footswitch increments the MIDI channel number.
- **Channel -** Pressing the footswitch decrements the MIDI channel number.
- **Sequence +** Pressing the footswitch increments the current pattern or song number. The next pattern will begin playing when the current pattern ends.
- **Sequence -** Pressing the footswitch decrements the current pattern or song number. The next pattern will begin playing when the current pattern ends.


This option selects the function of the front panel "Triggers" button. The "Triggers" button can be used to **Play Beats Parts**, to **Play Note Events** or to **Select Patterns**.


- **Play Beats Parts** In this mode and when the Triggers button is selected, the sixteen command buttons turn Beats parts on and off.
- **Play Note Events** In this mode and when the Triggers button is selected, the sixteen command buttons work like keyboard notes. Each button can be assigned to any MIDI note, on any MIDI Channel (01-16), with any velocity (0-127), and can be set to be latched or momentarily on.
- **Select Patterns** In this mode and when the Triggers button is selected, pressing one of the Trigger buttons in pattern select mode causes the programmed pattern to be "armed" to play next. The armed trigger button LED will flash and the pattern will begin playing at the next loop. The trigger button LED will be solidly illuminated while the selected pattern is playing.


TRIGGER BUTTONS FUNCTION

Play Note Events

Trigger Buttons

 Use the Trigger Button Key Velocity to adjust the volume of Beats relative to volume of the Pattern or Song.

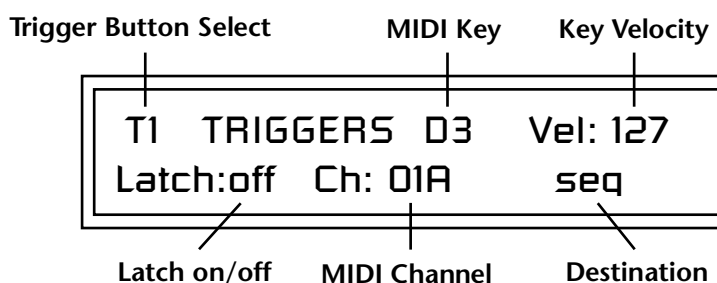
 Trigger button presses can be recorded into patterns and songs.

 Latched buttons are especially useful for triggering arpeggiated presets.

Select Triggers mode by pressing the mode select button so that the “Triggers” LED is illuminated. Now the 16 buttons work like keyboard notes. Each of the 16 buttons can be assigned to any MIDI note, on any MIDI Channel (01A-16B), with any velocity (0-127), and can be set to be latched or momentarily on. Latched notes will hold until the button is pressed again. Latched notes will be indicated by the LEDs. Each trigger can also be routed to: the internal synth engine, to the MIDI ports, both internal and MIDI, or to the sequencer input.

Simply move the cursor from the “TRIGGERS” field and play a note to enter the MIDI key and velocity. Pressing a Trigger Button anytime while in this screen automatically selects that trigger button for programming!

See the block diagram showing “Triggers & Programmable Knobs” on page 339 for detailed information about the actual routing path.



► To Setup the Trigger Buttons to trigger MIDI Notes:

1. Press the Controllers button. Its LED will illuminate.
2. Turn the data entry control to select the “TRIGGERS” screen.
3. Use the left/right cursor controls to select the fields shown above.
4. Select the MIDI key, the MIDI channel, the Velocity, Latch on/off and destination for each of the 16 trigger buttons.
5. Save the Multisetup if you want to save these settings. See page 149.

► To Play the Trigger Buttons:

1. Press the Mode button so that the Triggers LED illuminates.
2. Play the Trigger buttons.

Triggers Pattern Select

You can select one of 16 patterns using the Trigger buttons. Pressing one of the trigger buttons in pattern select mode causes the programmed pattern to be armed. The armed trigger button LED will flash. The armed pattern will begin playing at the next loop. The trigger button LED will be solidly illuminated while the selected pattern is playing.

This feature can be put to good use in combination with the “Restart Pattern Fire Key” described on page 57.

Trigger buttons are programmed by choosing the **Select Patterns** option in the “Trigger Buttons Function” mode in the Controllers menu.

TRIGGER BUTTONS FUNCTION

Select Patterns

This screen in the Controllers menu allows you to select a pattern for each of the 16 buttons.

One set of assignments (16 triggers to 16 patterns) will be saved per multisetup.

► To Program the Trigger Buttons to Select Patterns:

1. Press the Controllers button. Its LED will illuminate.
2. Turn the data entry control to select the **Triggers Pattern Select** screen.
3. Use the left/right cursor controls to select fields and select a pattern for each of the 16 trigger buttons.
4. Save the Multisetup if you wish to save these settings.

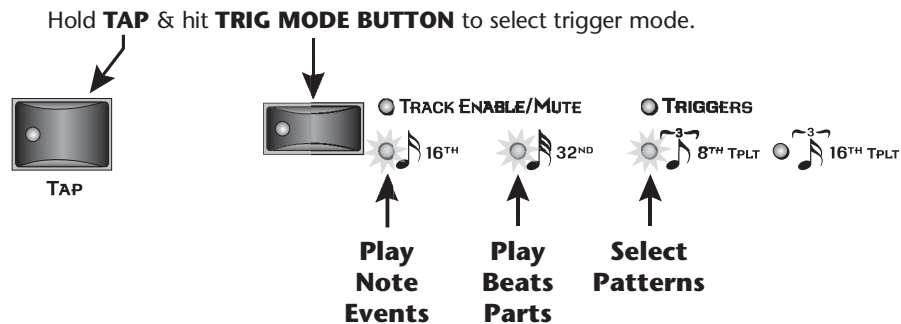
► To Select Patterns Using the Trigger Buttons:

1. Press the Controllers button. Its LED will illuminate.
2. Turn the data entry control to select the **Trigger Buttons Function** screen.
3. Move the cursor to the lower line, set the selection to **Select Patterns**.
4. Press **Enter**.
5. Press the **Mode** button so that the **Triggers** LED illuminates.
6. Press the **Trigger Buttons** to select patterns.

Trigger Mode Quick Select

The three trigger button modes: Play Note Events, Play Beats Parts, Select Patterns, can be selected without having to go into the Controller menu. The Tap Tempo button again functions as a shift-key in combination with the Trigger Mode button.


Repeatedly pressing the Trigger Mode button rotates through the three trigger button modes. One of the three LEDs shown below will illuminate while the Trigger Mode button is depressed to indicate the selected mode.



► To Quick Select the Trigger Mode

1. Press and Hold the Tap button.
2. Press the Trigger Mode button. One of the three LEDs shown above will illuminate, indicating the selected trigger mode.
3. Press the Trigger Mode button repeatedly to rotate through the three modes.


Programmable Knobs

 This cool feature allows your XL-7 to function as a MIDI Continuous Control center for other MIDI gear in your system. Just set up the programmable knobs as desired, then name and save the Multisetup.

If this parameter is set to “Ext,” or “Both,” the system sends MIDI controller messages when you turn the Controller knobs. If set to External, the knobs do NOT control internal synth parameters and only used as external MIDI controllers. When the programmable knobs are routed to “Seq” they can be recorded into the internal sequencer.

Each knob can be programmed to send on any MIDI channel (01A-16B) and on any continuous controller number from 1-95 The “Controller Function Select” button (page 39) must be set to “Program” in order to transmit. The knobs only generate a message when you move a knob to a new value. The Controller Knob LEDs always remain off in this mode.

See the block diagram showing “Triggers & Programmable Knobs” on page 339 for detailed information about the actual routing path.

 Turning a knob while in this screen automatically selects that knob for programming!

► To Program the Programmable Knobs

1. Press the Controllers button. Its LED will illuminate.
2. Turn the data entry control to select the “Programmable Knobs” screen.

Knob # —

K1	PROGRAMMABLE KNOBS		
Ctrl: 22	Ch: 01A	Ext	
CC#	MIDI Chan	Int/Ext/Both/Seq	

3. Use the left/right cursor controls to select the fields.
4. Select the MIDI Continuous Controller number, the MIDI channel, and Internal/External/Both/Sequencer for each of the 16 knobs.
5. Save the Multisetup if you want to save these settings. See page 149.

“Quick-Edit” changes the initial controller setting in the preset whenever you move a Control Knob. This parameter selects whether or not the front panel Controller Knobs are used to Quick-Edit the currently selected preset. See “Real-time Controller Knobs” on page 39 in the Operations chapter for more details.

KNOBS PRESET QUICK-EDIT
disabled

*Knob Preset
Quick-Edit*

*Real-time Controller
Assignment*

Use these three pages to assign sixteen real-time control sources. Each MIDI Controller is assigned a letter (A - P). The front panel Controller Knobs and sixteen MIDI controller numbers share the A-P controller routings. **These screens let you select which MIDI real-time controllers numbers will be received (from 1 to 31 and from 64 to 95) and which controller numbers will be transmitted over MIDI if the front panel controls are turned.** The PatchCord routing and amount in the Preset Edit menu determine what effect the controller has on each preset. Real-time controllers are shown in the PatchCord menu as MIDI A through MIDI P.

The Real-time Controller assignment also specifies which controller numbers are transmitted when the “Knobs MIDI Out” is enabled (see “Knobs Output MIDI” on page 164).



Tip: XL-7 factory presets have certain synth parameters assigned to each controller letter and so these are "Global" controller assignments.

For example, assigning a MIDI controller to "A" in this screen would let you control filter Fc for all the factory presets. See "Front Panel Knob Functions" on page 311.

REALTIME CONTROLLER #

A: 74 B: 71 C: 25 D: 26

REALTIME CONTROLLER #

E: 73 F: 75 G: 85 H: 72

REALTIME CONTROLLER #

I: 78 J: 77 K: 27 L: 28

REALTIME CONTROLLER #

M: 01 N: 03 O: 82 P: 83

Note: Controllers 7 and 10 are already assigned to Volume and Pan for each MIDI channel. Controllers 91 & 93 are the standard controller numbers for reverb and chorus send amounts, but are not assigned.

Following are a few of the standardized MIDI Controller numbers as defined by the MIDI manufacturers association. The controllers shown in **Bold** are automatically routed to the destination (volume & pan) or have their own PatchCord source. Others, such as Portamento Time, can be routed using a PatchCord to have the desired effect.

1 - Modulation Wheel
2 - Breath Controller
3 - Aftertouch
4 - Foot Pedal
5 - Portamento Time
6 - Data Entry

7 - Volume
8 - Balance
9 - Undefined
10 - Pan
11 - Expression

MIDI Footswitch Assign

Like the MIDI Controllers, you can assign three MIDI footswitches to MIDI footswitch numbers. Footswitches numbers are from 64-79. Destinations for the footswitch controllers are programmed in the PatchCord section of the Preset Edit menu. The rear panel footswitches 1 & 2 are connected to footswitch controllers 1 & 2 in this screen. Pressing a footswitch transmits on the MIDI controller number programmed here. Footswitch 3 routes incoming MIDI footswitch data to the PatchCord section of XL-7.

FOOTSWITCH CONTROLLER #		
1: 64	2: 65	3: 66

Tempo Controller

This function allows a MIDI controller to change the Base Tempo of the Master Clock. The Master Clock is used by the sequencer, arpeggiators, clock divisor PatchCords, tempo-based envelopes and synced LFOs. (See “Clock Modulation” on page 178.) You can assign any controller number from 0-31, mono key pressure, or the Touchstrip to change the Global Tempo.

A different controller can be used to change the tempo up or down. The Touchstrip can be assigned to both the up and down parameters to vary the tempo up and down from a single controller. If any other controller is assigned to both the up and down parameters, XL-7 redefines the center of the controller’s range as zero (so it acts like a pitch wheel).

MIDI Controller values are added to the Base Tempo with a range of ± 64 . When the controller is set to “off” the tempo returns to its original setting. Controllers are only recognized on the selected MIDI channel, unless XL-7 is in Omni mode, in which case all channels are accepted. This control has no effect when using an external clock.

TEMPO CONTROLLER#	CHAN
Up: 03 Down: 09	16B



Global Menu



Warning: Global Menu changes are automatically saved when you exit the menu. If the power is turned off before you exit the menu any changes you have made will be lost.

The Global menu contains functions that affect the overall operation of XL-7. For example, changing the Master Tune parameter changes the tuning of all the presets, not just the one currently displayed.

► To enable the Global menu

Press the Global button, lighting the LED. The Global Menu screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.

► To select a new screen

Press the Home/Enter button or press the Cursor button repeatedly until the cursor is below the screen title heading. Rotate the data entry control to select another screen.


► To modify a parameter

Press either Cursor button repeatedly (or hold down the right cursor button while turning the data entry control) until the cursor is below the desired parameter value. Rotate the data entry control to change the value.

► To return to the previously selected screen

Press the Global button, turning off the LED.

Multisetups

 The XL-7 automatically loads **Multisetup 00** on power up. Use this location to store your default settings.

Multisetup Ideas:

- Load live performance settings.
- Load programmable knob setting for external MIDI gear.
- Call up presets, vol & pan when using an external keyboard or sequencer.

Restoring Multisetups

A Multisetup is a group of parameters that you might associate with a particular performance setup or song. It is like a “snapshot” of the current configuration of the XL-7. There are 64 setups numbered 0-63. All the Multisetups are user programmable except 63, the factory setup.

A Multisetup includes ALL the following parameters:

- Preset/Volume/Pan/Arp assignments for each of the 32 MIDI channels.
- Multisetup Name
- ALL Controllers menu parameters
- ALL Global Menu parameters, *except...*
User Key Tuning Tables
- ALL Arp Menu parameters, *except...*
User Arp Patterns
- ALL MIDI Menu parameters, *except...*
MIDI Program Change->Preset Map

When a Multisetup is selected, it overwrites the current Preset/Vol/Pan/Arp selections on all MIDI channels. It also overwrites the Controllers, Global, Arp, and MIDI menu parameters (with the exceptions noted above).

If you make changes to any of these menus, XL-7 will retain the changes, even if power is turned off. They are of course, overwritten when you restore a Multisetup.

XL-7 contains 64 Multisetup locations. These are all User locations except location 63, which is a factory defined Multisetup.

Multisetups can be restored using a MIDI Bank Select command.

Select: cc00 = 80, cc32 = 00, (dec) then send a **Program Change** command corresponding to the Multisetup you wish to select.

RESTORE MULTISSETUP

003 Jazzercide

► To Restore (Select) a Multisetup:

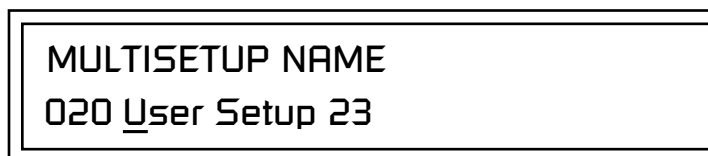
1. From the Global menu, scroll to the **Restore Multisetup** screen using the data entry control. The menu page most recently selected since powering up XL-7 will be displayed. The cursor appears below the first character of the screen heading on line one.

Multisetup Name

2. Press either **cursor** button to move the cursor to the bottom line of the screen.
3. Now, use the **data entry control** to select a Multisetup. The Enter LED will be flashing.
4. Press the **Enter** button to load the selected Multisetup.

Multisetups can be named to make it easier to remember their purpose.

1. Scroll to the “Setup Name” screen (shown below) using the **data entry control**.

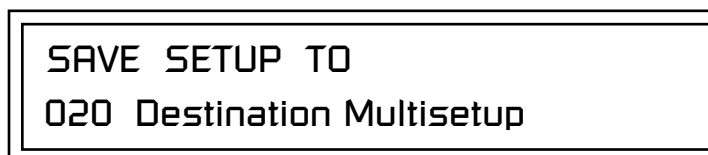


2. Press either **cursor** button to move the cursor to the bottom line of the screen.
3. Change the characters using the **data entry control**. Change the cursor position using the cursor buttons.
4. Press **Enter** or move the cursor to the top line when you're finished naming the multisetup.

Saving Multisetups

► To Save a Multisetup:

1. Set the Preset, Volume, Pan and Arp settings (in Preset View mode) for all channels. Set the Global, MIDI, and Controllers menu parameters the way you want them.
2. Press the **Global** button, then scroll to the “Save Setup” screen (shown below) using the **data entry control**.



3. Press either **cursor** button to move the cursor to the bottom line of the screen.
4. Now, use the **data entry control** to select the destination location. The Enter LED will be flashing.
5. Press the **Enter** button to save the Multisetup.

Defining Global Parameters

Transpose/Tune

Global setup parameters affect overall performance, range, and global effects. This section describes the Global parameters and how to define them.

The Transpose parameter transposes the key of all presets, in semitone intervals. The transpose range is ± 24 semitones.

Master Tune adjusts the fine tuning of all presets so that you can tune XL-7 to other instruments. The master tuning range is ± 1 semitone in 1/64th semitone increments (1.56 cents). A master tune setting of “+00” indicates that XL-7 is perfectly tuned to concert pitch (A=440 Hz).

MASTER TRANSPOSE	TUNE
+00 semitones	+00

Bend Range

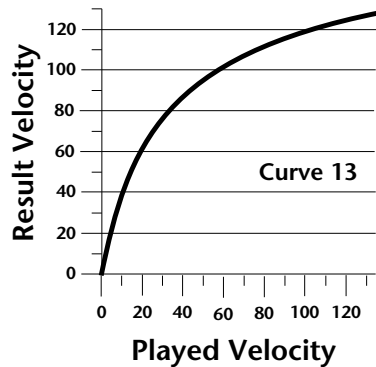
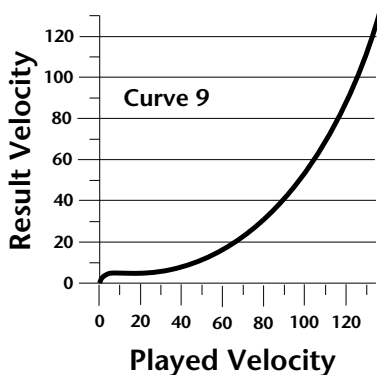
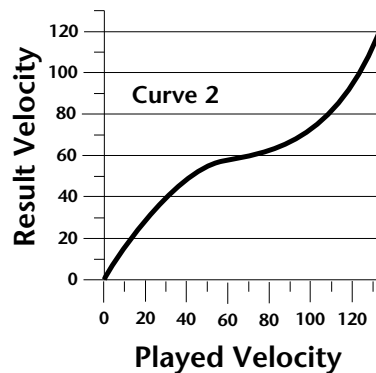
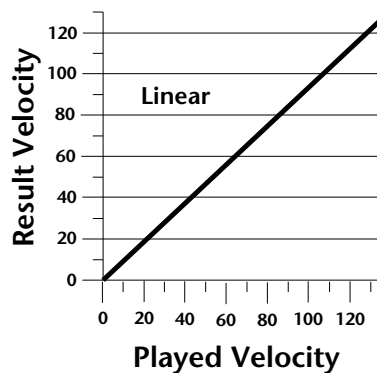
The Master Bend Range parameter sets the range of the touchstrip or pitch wheel if you have a MIDI keyboard connected. This affects only presets that have their individual Pitch Bend range (defined in the Preset Edit menu) set to Master. *See page 233.* The maximum pitch bend range is ± 12 semitones or one octave in each direction.

MASTER BEND RANGE
+/- 7 semitones

Velocity Curve

Incoming velocity data or keypad velocity can be altered by one of thirteen velocity curves. These specially designed curves allow you to customize the dynamic feel of the pads to your individual playing style, or to better adapt XL-7 to an external MIDI controller. You can select one of thirteen global velocity curves or to leave the data unaltered (linear).

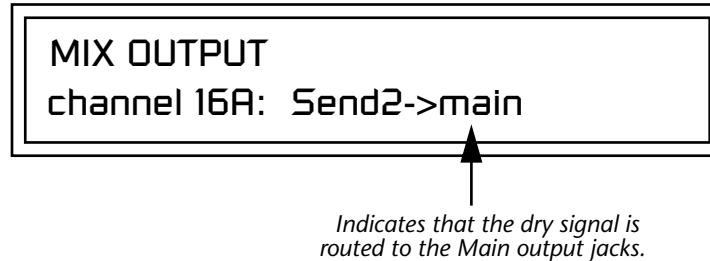
MASTER VELOCITY CURVE 13



For a complete list of all available velocity curves, see “Velocity Curves” on page 332 of the Appendix.

Mix Output

The Mix Output parameter allows you to override the routing assignments made in each preset and instead assign the outputs according to MIDI channel. For each of the 32 MIDI channels, you can select Send 1-4, or Preset. When Preset is selected, the output assignment defined in the Preset Edit menu is used.



The **Output Routing** field (pointed to by the arrow) reflects the true routing of Send 2 or Send 3 to either:

1) the effects processor input or... 2) the rear panel submix jacks.

Since the Sub 1 output is NOT being used, the signal is routed through the effects processors, then on to the main outputs. If a plug were inserted into one of the Sub 1 jacks the destination field would read "Sub1" and the dry signal would be routed directly to the Sub 1 outputs on the back panel.



Send Routings

Send 1 - Main Outputs

Send 2 - Subout 1 or Main Outs

Send 3 - Subout 2 or Main Outs

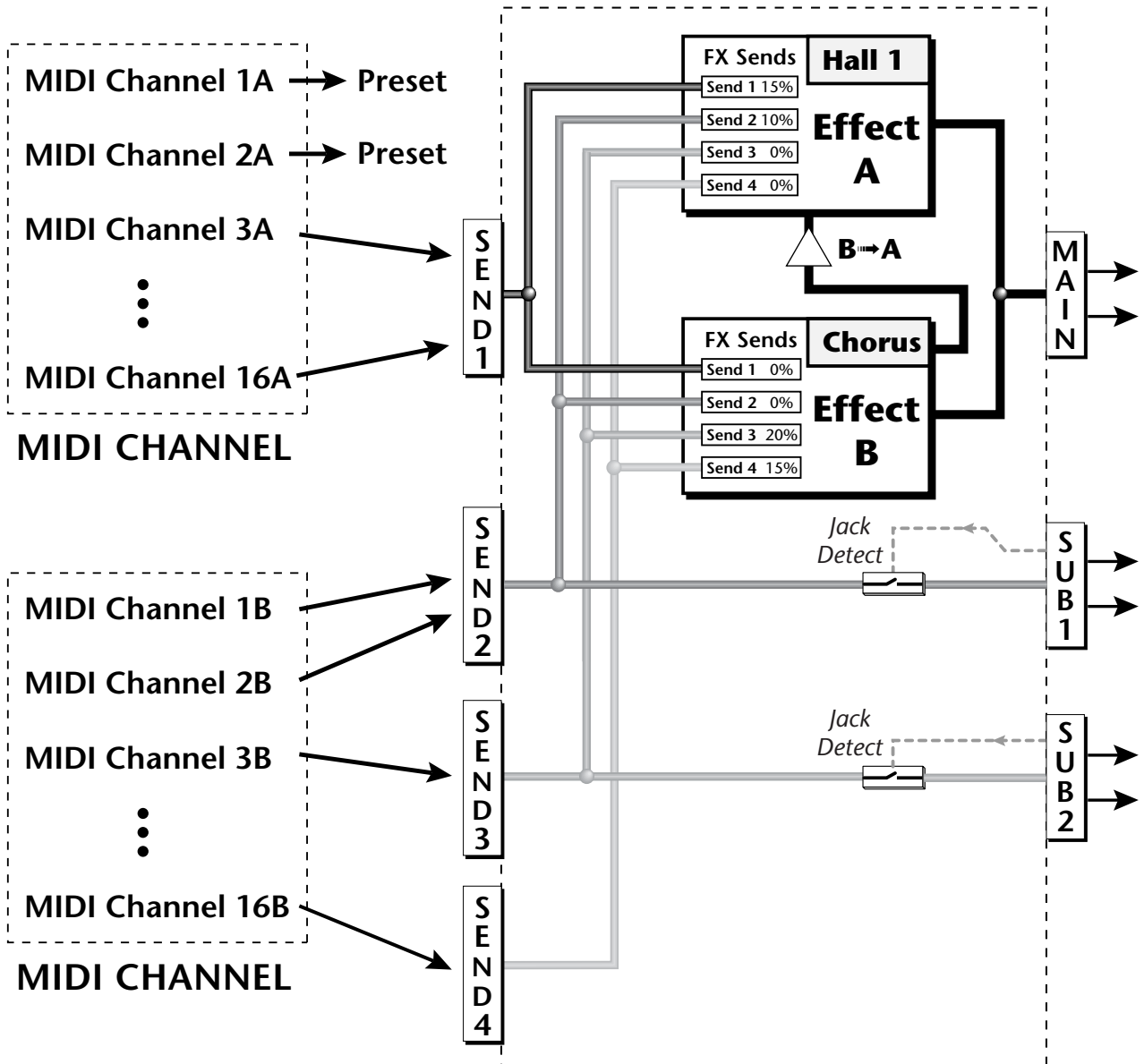
Send 4 - Main Outputs

The Sends function as effect processor inputs (effect sends). Send 2 and Send 3 are also used to route sounds to the Sub 1 and 2 outputs on the back panel. When a plug is inserted into the associated Submix jack on the back panel, **the Dry portion of the Send is disconnected** from the effects processor and the signal is routed directly to the output jack. **The Arrow points to the actual output routing.** If you don't want the wet portion of the signal in the main mix, turn down the Send Level. *The entire Send is disconnected from the Effects Processors even if only one plug is inserted into the Submix jack.*

The four Effect Sends allow you to get the most out of the two effect processors. For example, with Effect B set to an echo algorithm, you could route one MIDI channel to Send 3 and set the effect amount to 80%. Another MIDI channel could be routed to Send 4 with an effect amount of only 5%. This is almost like having two different effects!

The Mix Output function is also useful when sequencing since it lets you route specific MIDI channels (and thus sequencer tracks) to specific Sub outputs (on the back panel) where there they can be processed with EQ or other outboard effects.

OUTPUT SECTION & EFFECTS PROCESSORS



Sends 2 and 3 can be routed to the effects processors or to rear panel submix jacks. When a plug is inserted into a Submix jack, the dry portion of the Send is disconnected from the effects processor and is routed **directly** to the Submix output jacks.

Master Effects

The digital effect processors can be programmed as part of the preset (using the Preset Edit menu) so that effects will change along with the preset. However, there are only two effect processors, and so you cannot have a different effect on each preset when in Multi mode.

The Master Effects settings assign the effect processors “globally” for all presets to provide a way to use the effects in Multi mode. Detailed information is presented in the Effects chapter (see Effects on page 273).

Effects Mode

The FX Mode page enables or bypasses the effects. When the FX Mode is set to “bypass,” the effects are turned off on a global scale. This includes Effects programmed in the preset.

FX MODE
enabled

Effects Multi Mode Control

The routing scheme for the two stereo effects processors provides a lot of versatility. When in multi mode, you can “use master settings” which applies the Master effects settings to all 32 MIDI channels.

FX MULTIMODE CONTROL
use master settings

If you want more control, you can use the “channel” setting which applies the effects settings of the preset on a specified channel to all the other channels. Changing the preset on the specified channel changes the effect.

FX MULTIMODE CONTROL
preset on channel 1

If you are in Omni or Poly modes this parameter is disabled and the message in parentheses explains that XL-7 is currently in Omni mode.

FX MULTIMODE CONTROL
(using Omni mode)

Master FXA Algorithm

This function selects the type of effect used for the “A” effect. The following effect types are available.

MASTER FXA ALGORITHM Room 1

A Effect Types

- | | |
|---------------------|-----------------------|
| 1. Room 1 | 23. BBall Court |
| 2. Room 2 | 24. Gymnasium |
| 3. Room 3 | 25. Cavern |
| 4. Hall 1 | 26. Concert 9 |
| 5. Hall 2 | 27. Concert 10 Pan |
| 6. Plate | 28. Reverse Gate |
| 7. Delay | 29. Gate 2 |
| 8. Panning Delay | 30. Gate Pan |
| 9. Multitap 1 | 31. Concert 11 |
| 10. Multitap Pan | 32. Medium Concert |
| 11. 3 Tap | 33. Large Concert |
| 12. 3 Tap Pan | 34. Large Concert Pan |
| 13. Soft Room | 35. Canyon |
| 14. Warm Room | 36. DelayVerb 1 |
| 15. Perfect Room | 37. DelayVerb 2 |
| 16. Tiled Room | 38. DelayVerb 3 |
| 17. Hard Plate | 39. DelayVerb 4 Pan |
| 18. Warm Hall | 40. DelayVerb 5 Pan |
| 19. Spacious Hall | 41. DelayVerb 6 |
| 20. Bright Hall | 42. DelayVerb 7 |
| 21. Bright Hall Pan | 43. DelayVerb 8 |
| 22. Bright Plate | 44. DelayVerb 9 |

*FXA Parameters:
Decay/HF Damping
FxB -> FxA*

This page lets you define the parameters of the selected Effects algorithm. Use this page to setup the effect decay, high frequency damping amount and to route “B” effects through the “A” effects. See “Effect Parameters” on page 275 for more details.

FXA	DECAY	HFDAMP	FxB>FxA
	040	096	001

FXA Send Amounts

These parameters set the effects amounts for each of the four stereo effects busses. See “Master Effects” on page 278 for detailed information.

FXA SEND AMOUNTS	1:100%
2: 50%	3: 10% 4: 0%

*Master FxB
Algorithm*

This parameter selects the type of effect used for the “B” effect. The following effect types are available.

MASTER FxB ALGORITHM
Chorus 1

B Effect Types

- | | |
|----------------|------------------------|
| 1. Chorus 1 | 17. Ensemble |
| 2. Chorus 2 | 18. Delay |
| 3. Chorus 3 | 19. Delay Stereo |
| 4. Chorus 4 | 20. Delay Stereo 2 |
| 5. Chorus 5 | 21. Panning Delay |
| 6. Doubling | 22. Delay Chorus |
| 7. Slapback | 23. Pan Delay Chorus 1 |
| 8. Flange 1 | 24. Pan Delay Chorus 2 |
| 9. Flange 2 | 25. Dual Tap 1/3 |
| 10. Flange 3 | 26. Dual Tap 1/4 |
| 11. Flange 4 | 27. Vibrato |
| 12. Flange 5 | 28. Distortion 1 |
| 13. Flange 6 | 29. Distortion 2 |
| 14. Flange 7 | 30. Distorted Flange |
| 15. Big Chorus | 31. Distorted Chorus |
| 16. Symphonic | 32. Distorted Double |

FXB Parameters: Feedback/LFO Rate Delay Time

The FXB parameters setup the characteristics of the effect. Use this page to define the feedback amount, the LFO rate and delay amount for the selected type “B” effect. See “Effect Parameters” on page 275 for details.

FXB	FEEDBK	LFORATE	DELAY
	000	003	0

FXB Send Amounts

These parameters set the effects amounts for each of the four stereo effects busses. See the Effects chapter for detailed information.

FXB SEND AMOUNTS	1:100%
2: 50%	3: 10% 4: 0%

Miscellaneous Parameters

Edit All Layers Enable

This function allows you to turn the Edit All Layers feature on or off. “Edit All Layers” is an Edit menu feature which allows you to select all layers (the letter “A” appears in the layer field) in order to edit all four layers simultaneously. Because this feature can be confusing to the beginning programmer, it can be disabled here in the Global menu.

EDIT ALL LAYERS
enabled

User Key Tuning

User Key Tuning lets you create and modify 12 user definable tuning tables. The initial frequency of every key can be individually tuned, facilitating the creation of alternate or microtonal scales.

Using the cursor keys and the data entry control, select the user table number, the key name, the coarse tuning and the fine tuning. The key name is variable from C-2 to G8. Coarse Tuning is variable from 0 to 127 semitones. The fine tuning is variable from 00 to 63 in increments of 1/64 of a semitone (approx. 1.56 cents). For each preset, the specific tuning table is selected in the Preset Edit menu. See page 241.



The user key tuning can be used to tune individual percussion instruments.

USER KEY TUNING **Table: 1**
Key: C1 **Crs: 036** **Fine: 00**

Output Format

The Output Format parameter sets the digital audio output format. The available formats are S/PDIF, and AES pro. If you are using the digital output, choose either S/PDIF or AES pro to match the format of the receiving device.

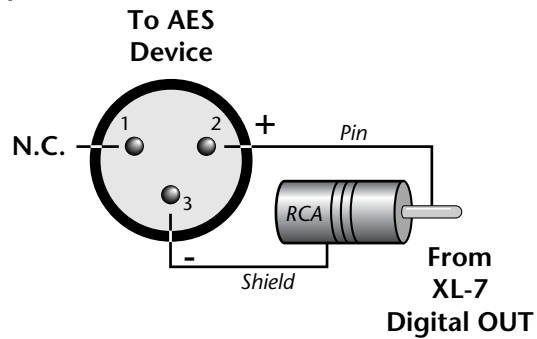
OUTPUT FORMAT
S/PDIF



DON'T CHEAP OUT!

Always use high quality cable for digital audio connections.

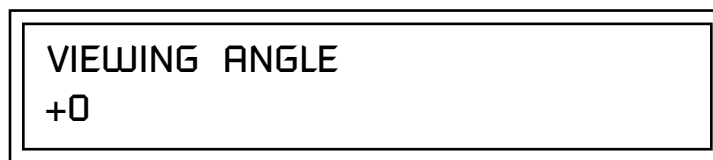
Although the S/PDIF digital output can transmit AES Pro format, you'll need an adapter cable for the electrical connections. The diagram below shows how an adapter cable for AES pro should be wired.



If you use an adapter cable to connect the S/PDIF digital audio output to AES gear, make sure to use high quality, low capacitance cable.

**Screen Viewing
Angle**

This function changes the viewing angle of the display so that you can read it easily from either above or below the unit. The angle is adjustable from +7 to -8. Positive values will make the display easier to read when viewed from above. Negative values make the display easier to read from below.





MIDI Menu



Warning: MIDI Menu changes are automatically saved when you exit the menu. If the power is turned off before you exit the menu any changes you have made will be lost.

Most of the parameters in XL-7 that relate to MIDI are contained within this menu. You can merge MIDI data, change the continuous controller assignments, turn program changes off or on, and lots more.

MIDI menu settings are saved with the current Multimap.

► To enable the MIDI menu

Press the MIDI button, lighting the LED. The MIDI Menu screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.

► To select a new screen

Press the Home/Enter button or press the Cursor button repeatedly until the cursor is below the screen title heading. Rotate the data entry control to select another screen.

► To modify a parameter

Press either Cursor button repeatedly (or hold down the right cursor button while turning the data entry control) until the cursor is below the desired parameter value. Rotate the data entry control to change the value.

► To return to the previously selected Mode/View screen

Press the MIDI button, turning off the LED.

Base Tempo

XL-7 contains an internal Master Clock which runs the sequencer, arpeggiators, synchronizes the LFOs when in tempo-based mode, controls the times of tempo-based envelopes, and can be used as a modulation source in the PatchCords section.

You'll notice that there are two tempo values shown in the display.

- **Base Tempo** - This is the base tempo setting before being modified by the Tempo Controller (if engaged). See "Tempo Controller" on page 145.
- **(Current Tempo)** - **This is the actual tempo!** The current tempo is equal to the base tempo modulated by the MIDI controller specified in the Tempo Controller screen. If no MIDI Tempo controller message has been received since the last Base Tempo change, the Current Tempo will be equal to the Base Tempo.

The LED to the right of the button blinks at the current tempo rate.

► To Change the Base Tempo

1. Move the cursor to the lower line of the display.
2. Adjust the Base Tempo using the data entry control.

BASE TEMPO (0 = MidiClk)
120 bpm (current: 182)

3. **To Tap Tempo** - Tap the Tap button at least three times. Keep tapping to continuously update the tempo on each tap. The tap tempo range is 25-300 bpm. The Base Tempo values range from 1 through 300 beats per minute (BPM).


► To Use an External MIDI Clock:

1. Move the cursor to the lower line of the display.
2. Turn the data entry control all the way counter-clockwise and select "ext" to use an external MIDI clock source.


This option determines if the tempo should change when you change patterns on playback. This feature is designed for performing live.

CHAINED PATTERNS
change to a new tempo

1. If set to "keep constant tempo", the tempo will be set by the first pattern played. If set to "change to a new tempo" the tempo settings programmed into each pattern will be used on playback.

 You can also tap tempo using a footswitch. See page 138.

Pattern Change Tempo Hold

 In software versions, below 2.0, the Tempo did NOT change when you changed patterns.

Rechannelize Input

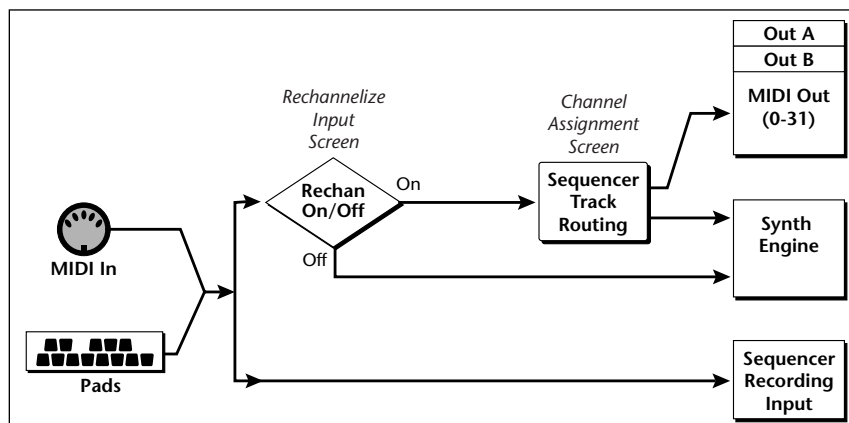
This feature makes it easier to record to the internal sequencer using an external keyboard. **Rechannelize Input changes the channel of incoming MIDI data according to the settings in the Channel Assignment screen.** To record multiple tracks, you simply change the track number and preset. You don't have to change the channel number of your external MIDI controller.

Rechannelize Input can be set to **Off**, **Always** or **On Record**. When set to **On Record**, the input will only be rechannalized when the Record LED is illuminated (Record or Record-Pause mode). This allows normal MIDI channel routing except when recording, when the channel data will be changed to match the current track.

RECHANNELIZE INPUT
To Track Dest: always

► Using Rechannelize Input to Record from a MIDI Keyboard:

1. Select an empty pattern.
2. Set Rechannelize Input to **Always**.
3. **Select a preset for Channel 1 (C01A)** from the Preset View screen.
(Note that your MIDI keyboard always plays the preset assigned to the channel shown in the display.)
4. **Turn Preset View Off** to show the pattern screen again.
5. **Press Record**, then set the Pattern Length, Quantize & Metronome.
6. **Press Play** to begin recording.
7. Press **Stop** when finished. (*Press Stop twice to Return to Zero.*)
8. **Select a preset for Channel 2 (C02A)** from the Preset View screen.
Notice that the keyboard now plays the new preset.
9. Press **Record**, then **Play** to begin recording.
10. Continue to record tracks.



Keyboard Outputs MIDI

This option allows you select whether or not the keypad, touchstrip, and footswitch data is transmitted on MIDI output port A or B. When this option is set to: “don’t transmit”, the keypads, touchstrip, and footswitch only control the “current” preset. (*The current preset is the one currently showing in the Preset View window*). Touchstrip data is transmitted as the Pitch Wheel controller. Footswitches are transmitted on the MIDI CC numbers defined for Footswitch 1 & 2 in the Controllers menu.

KEYBOARD OUTPUTS MIDI
transmit

Knobs Output MIDI

This function allows you to select whether or not knob data is transmitted. The knobs transmit on the controller numbers defined by the Real-time Controller Assign parameter (See page 143).

KNOBS MIDI OUT
don't transmit

Transmit MIDI Clock

This option enables or disables the transmission of MIDI clock from the MIDI out port. When XL-7 is running on its own internal clock (page 162) it transmits 24 MIDI clocks per quarter note. When XL-7 is slaved to an external MIDI clock, it mirrors the incoming clock data.

TRANSMIT MIDI CLOCK
off

External Song Start/Stop

This feature lets the sequencer receive or ignore incoming MIDI Song Start (0xFA), Continue (0xFB), Stop (0xFC) and Song Position Pointer (0xF2) messages.

EXTERNAL SONG START/STOP
accepted

To use the instrument as a MIDI sound module with an external sequencer, set this control to “ignored.” In this setting the internal sequencer won’t start up every time your computer sequencer sends a start command.

If you’re using an external MIDI controller to start and stop the internal sequencer, set this control to “accepted.”

Merge MIDI In to MIDI Out

MIDI data received at the MIDI In port can be merged with outgoing MIDI data at either, or both of the two MIDI out ports. This allows you to connect a MIDI keyboard to XL-7 and control both the XL-7 and any other external synthesizers down the line.

MERGE MIDI IN TO OUT
Out A: off Out B: on

MIDI In Channels

This menu allows MIDI data received at the MIDI input port to control either the internal “A” or “B” channels. With this switch set to “B”, you could play an external MIDI keyboard on channels 1B-16B while channels 1A-16A remain dedicated to the internal sequencer.

MIDI IN CHANNELS
0 to 16: A

MIDI Enable

MIDI Enable lets you turn each MIDI channel on and off independently when in Multi mode. This feature is helpful when you have other devices connected to the same MIDI line and do not want the XL-7 unit to respond to the MIDI channels reserved for the other devices.

MIDI ENABLE
channel 01A: On

Because the MIDI Enable function only makes sense if you are in Multi mode, XL-7 disables this feature when in Omni or Poly mode.

In Multi
Mode

MIDI ENABLE
channel 16B: On

In Omni
Mode


MIDI ENABLE
(using Omni mode)


Receive Program Change

Use this function to instruct XL-7 to utilize or ignore incoming MIDI preset changes or Bank Select commands for each channel. Use the cursor buttons to select the channel number field, then use the data entry control to select a channel number. Use the cursor button again to select the On/Off field and the data entry control to change the value.

RECEIVE PROGRAM CHANGE
channel 01A : on

MIDI Program
Change -> Preset

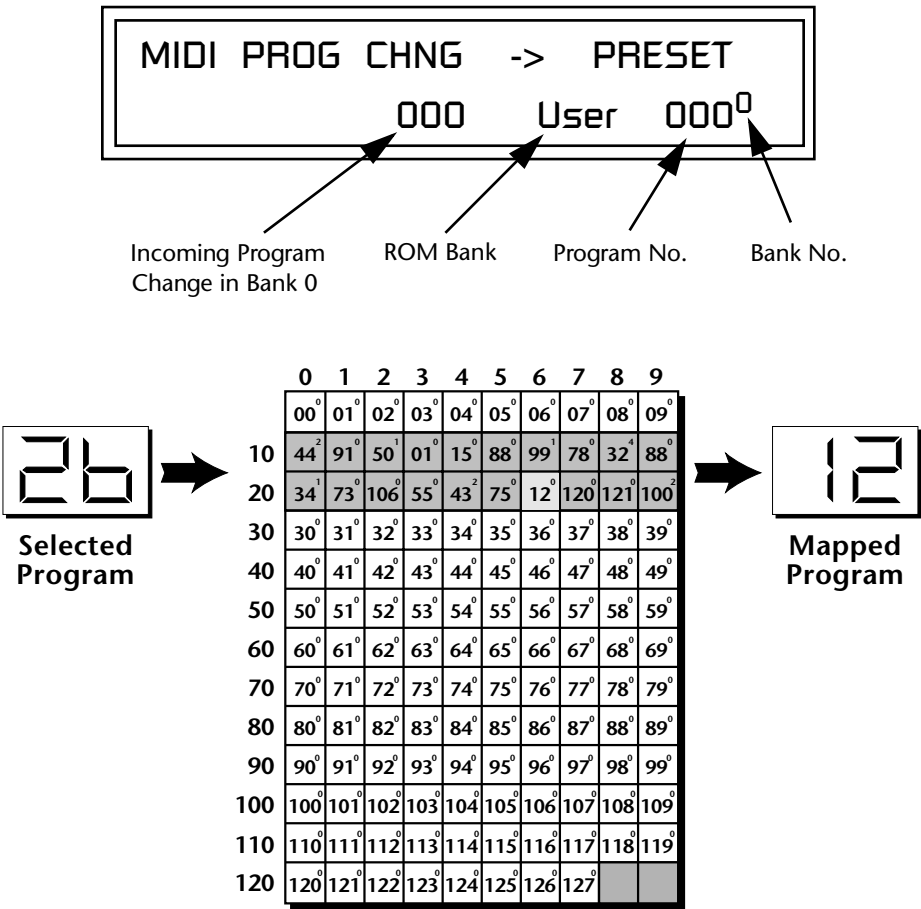
 The Program->Preset
Change only works for program
changes received in Bank 0.

 Programs and presets are
the same thing. "Preset" is the
E-MU term for MIDI Program.

You can also remap incoming MIDI program changes to a different numbered preset. This is a handy feature when your master keyboard cannot send a bank change or you want to reorder preset numbers. Any preset can be mapped to any incoming MIDI program change number.

For example, you could set up the Program -> Preset map to call up preset #12 whenever XL-7 receives MIDI program change #26.

The four fields shown below are editable.



In this chart, program changes 10-29 have been remapped to new preset numbers. All other presets are selected normally.

MIDI SysEx ID



WARNING: When transferring SysEx data from one XL-7 to another, the ID numbers of both units must be the same.

This page defines the MIDI system exclusive (SysEx) device ID number. The SysEx ID lets an external programming unit to distinguish between multiple XL-7 units connected to the same preset editor. In this case each unit must have a unique SysEx ID number.

MIDI SYSEX ID
000

MIDI SysEx Packet Delay

The MIDI SysEx Packet Delay command lets you specify the amount of delay between MIDI SysEx packets going out of XL-7 so that your computer sequencer can record this large chunk of data over a longer period of time. On playback from the sequencer, the SysEx data will be fed more slowly into XL-7 so that the its input buffer does not overflow, causing an error. Many sequencers allow you to "Time Stamp" SysEx data as it is recorded. This is the preferred mode for recording SysEx data.

The packet delay range is from 0 through 8000 milliseconds. A delay value of zero allows full speed MIDI transfer. If you are experiencing data transmission errors, try increasing the delay value until the problem disappears.

MIDI SYSEX PACKET DELAY
300 milliseconds

Send MIDI System Exclusive Data

This command transmits MIDI System Exclusive (SysEx) data to the MIDI Out port of XL-7. The MIDI data can be sent to a computer, sequencer or to another XL-7. When transferring data between two XL-7s be sure both units have the same SysEx ID number! Using the cursor key and the data entry control, select the type of MIDI data you want to transmit. Following are descriptions of the types of MIDI data that can be transmitted.

Current Multisetup


Transmits all parameters in the Global menu except Tuning Tables, Program/Preset Map and Viewing Angle. Transmits the entire Controllers menu.


Program /Preset Map

Transmits the MIDI Program -> Preset Map.

Tuning Tables

Transmits all 12 user User Tuning Tables.

 The Preset, Volume, and Pan information for all 32 channels is included when the Multi mode Map settings are transmitted or received.

 **WARNING:** When transferring SysEx data from one XL-7 to another, the ID numbers of both units must match.

Multimode Map

Transmits the following parameters:

- Multimode Basic Channel
- Multimode Effects Control Channel
- Multimode Tempo Control Channel

and for each MIDI Channel...

- Preset, Volume, & Pan
- Mix Output
- Multimode Channel Enable
- Multimode Bank Map
- Multimode Receive Program Change

Bank 0 User Presets

Transmits all the user defined presets in Bank 0.

Bank 1 User Presets

Transmits all the user defined presets in Bank 1.

Bank 2 User Presets

Transmits all the user defined presets in Bank 2.

Bank 3 User Presets

Transmits all the user defined presets in Bank 3.

Any Individual Preset

Transmits only the selected preset.

The Enter LED will be flashing. Press the Enter button to confirm the operation. To receive MIDI data, simply send the MIDI data into XL-7 from another XL-7 or from a computer/sequencer.

SEND MIDI SYSEX DATA
bank 1 user presets

► To Record MIDI SysEx Data into an External Sequencer:

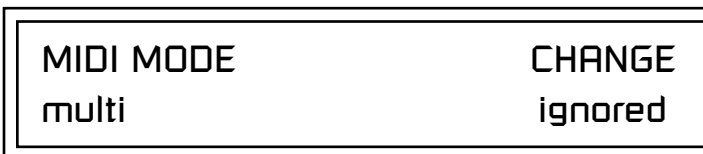
1. Setup the sequencer to receive system exclusive data.
2. Place the sequencer into record mode, then Send MIDI Data.

► To Receive MIDI SysEx Data from an External Sequencer:

Simply play back the sequence containing the SysEx data into XL-7.

MIDI Mode

MIDI Mode selects one of the three MIDI modes: Omni, Poly or Multi.



The **MIDI Mode Change** parameter specifies whether mode changes made through an external MIDI controller are accepted or ignored.

The MIDI modes are as follows:

Omni

Responds to note information on all MIDI channels and plays the preset currently displayed in the main screen.

Poly

Responds only to note information received on the currently selected MIDI channel (on the preset selection screen) and plays that channel's associated preset.

Multi

Responds to data on any combination of MIDI channels and plays the specific preset associated with each of the MIDI channels. You must select multi mode for multitimbral operation.

Programming Basics

This chapter explains how XL-7 sounds are constructed and contains important background information on how to create your own custom presets.

Your initial involvement with XL-7 will most likely be using the existing presets and selecting MIDI channels. While the factory presets are very good, there are some things you will probably want to change eventually, perhaps the LFO speed, the filter frequency or the attack time. You may also want to make your own custom presets using complex modulation routings. This instrument will do far more than you can imagine and whole new classes of sound are just waiting for you to discover them.

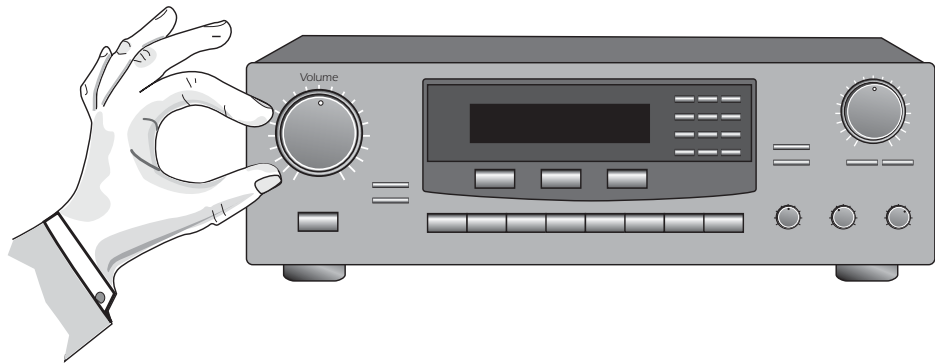
Each preset can consist of up to four instrument layers. Each of the four layers can be placed anywhere on the keyboard and can be crossfaded or switched according to key position, velocity, or by using a real-time control such as a wheel, slider, pedal, LFO or envelope generator. A preset can also be “linked” with up to 2 more presets creating additional layering or splits.

XL-7 has an extensive modulation implementation using two multi-wave LFO's (Low Frequency Oscillators), three multi-stage envelope generators and the ability to respond to multiple MIDI controllers. You can simultaneously route any combination of these control sources to multiple destinations.

There are 512 user locations (User Banks 0-3) available to store your own creations or edited factory presets. It's easy and fun to edit or create your own unique presets.

Modulation

To modulate means to dynamically change a parameter, whether it be the volume (amplitude modulation), the pitch (frequency modulation), and so on. Turning the volume control on your home stereo rapidly back and forth is an example of amplitude modulation. To modulate something we need a modulation source and a modulation destination. In this case, the source is your hand turning the knob, and the destination is the volume control. If we had a device that could turn the volume control automatically, we would call that device a modulation source.



Turning the volume control back and forth on your home stereo is an example of Amplitude Modulation.

XL-7 is designed so that each of the variable parameters, such as the volume, has an initial setting which is changed by a modulation source. Therefore in the case of volume, we have an initial volume that we can change or modulate with a modulation source.

Two main kinds of modulation sources on XL-7 are *Envelope Generators* and *Low Frequency Oscillators*. In the example above, an envelope generator could be routed to automatically turn the volume control as programmed by the envelope. Or, a low frequency oscillator could be routed to turn the volume up and down in a repeating fashion.

Positive modulation adds to the initial amount. Negative modulation subtracts from the initial amount.

Summing Nodes

All the modulation inputs on XL-7 are summing nodes. This means that you can connect as many modulation sources as you want to an input (*such as Pitch or AmpVol*). Modulation sources are simply added algebraically—connecting two knobs one set to -100 and the other set to +100 yields a net value of zero.

Modulation Sources



Tip: Try routing *Key Glide* to *Filter Frequency* if you want the filter to smoothly follow pitch in solo mode. Routing *Key Glide* to *Pan* creates another interesting effect.

Modulation sources include *Envelope Generators*, *Performance Controllers* and *Low Frequency Oscillators*. In the previous example, an envelope generator was routed to automatically turn the volume control as programmed by the envelope, or, a low frequency oscillator could be routed to turn the volume control up and down in a repeating fashion. The following is a list of the modulation sources used in XL-7.

Keyboard Key

Which key is pressed. Sometimes referred to as, “Keyboard Tracking”.

Key Velocity

How fast the key is pressed.

Release Velocity

How fast the key is released.

Gate

High if the key is pressed, low when the key is released.

Key Glide

A smoothly changing control source based on the Glide Rate and the interval between the last two notes played.

Pitch (Touchstrip) and Mod Controllers

Synthesizer pitch bend and modulation controllers.

Keyboard Pressure (mono aftertouch)

Key Pressure applied after the keypad is initially pressed.

Pedal

A continuously variable pedal controller.

Miscellaneous Controllers A -P

Any type of MIDI continuous controller data.

Low Frequency Oscillators (2 per layer)

Generate repeating waves.

Envelope Generators (3 per layer)

Generate a programmable “contour” which changes over time when a key is pressed.

Noise & Random Generators

Generate spectrums of noise and random signals.

Footswitches

Change a parameter when the switch is pressed.

Clock Divisor

The master tempo clock can be divided and used as a modulation source.

Random Sources

Random modulation sources can be used when you want the timbre of the sound to be “animated” in a random or non-consistent manner.

- **Key Random 1 & 2** generate different random values for each layer which do not change during the note.
- The **White & Pink Noise** Generators produce varying random values. Both white and pink noise sources are low frequency noise designed for control purposes. Either noise source can be filtered even more by passing it through a lag processor.
- The **Crossfade Random** function generates the same random value for all layers in a preset. This source is designed to be used for cross-fading and cross-switching layers, although you may find other uses.

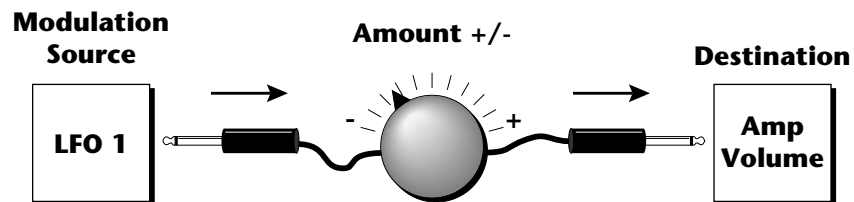
Modulation PatchCords



The controller Knobs assignments printed on the front panel are the system defaults. You can change any of these assignments using the Real-time Controller Assignment page in the MIDI menu (see page 166 for details).

When setting up modulation with the XL-7, you define a modulation source and a modulation destination. Then, you connect the source to the destination using “PatchCords.” XL-7’s PatchCords are connected in the software. XL-7 has 24 general purpose PatchCords for each layer.

You can connect the modulation sources in almost any possible way to the modulation destinations. You can even modulate other modulators. Each PatchCord also has an amount parameter which determines “how much” modulation is applied to the destination. The modulation amount can be positive or negative. Negative values invert the modulation source.



Envelope Generators



If two adjacent segments have the same level in a “time-based” envelope, the segment will be skipped. Adjacent segments must have different levels for the rate control to work.



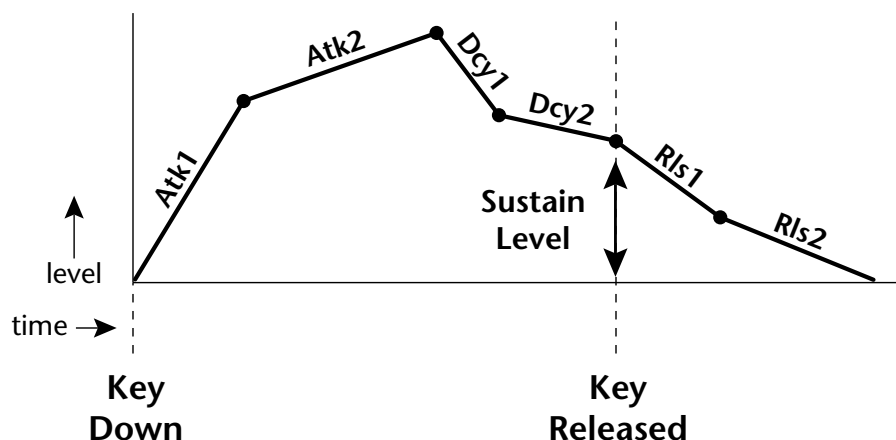
ADSR mode: To create a standard ADSR envelope: Set *Atk1*, *Atk2* & *Dcy1* Level to 100, *Rls 1* & *2* level to 0, and *Atk2*, *Dcy1*, *Rls2* Rates to 0. Program *Atk1*, *Dcy2* and *Rls1* segments as you wish. See page 303.



By routing the Auxiliary or Filter Envelopes to control the pitch (*PatchCords*) you can easily hear the shape of the envelopes you are creating.

An envelope can be described as a “contour” which is used to shape the sound over time in a pre-programmed manner. There are three envelope generators per layer and all of them are the rate/level type.

This is how the rate/level (*time based*) envelopes work: When a key is pressed, envelope starts from zero and moves toward the Attack 1 Level at the Attack 1 Rate. As soon as it reaches this first level, it immediately begins the next phase and moves toward the Attack 2 level at the Attack 2 rate. As long as the key is held down, the envelope continues on through the Decay 1 and Decay 2 stages. If the key is still held when the envelope reaches the end of Decay 2, it simply waits there for you to release the key. When you release the key, the envelope continues into the Release 1 and Release 2 stages, stopping at the end of the Release 2 stage. XL-7’s envelope generators provide great flexibility for programming both complex and simple envelopes.

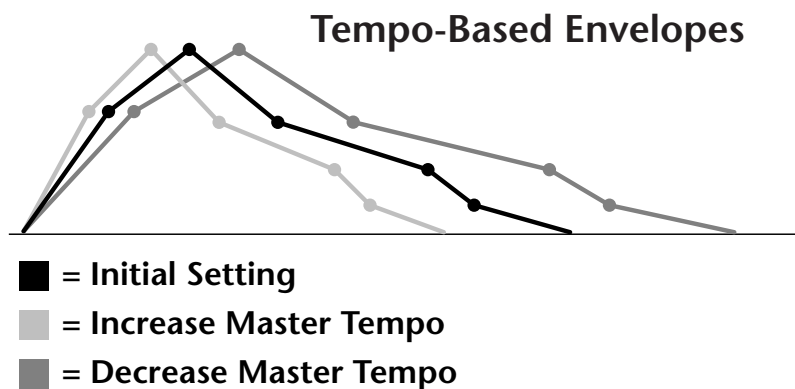


All three envelope generators have the six stages described above. The Volume Envelope generator controls the volume of the voice over time. The Filter Envelope generator is a general purpose envelope most often used to control the filter frequency. Unlike the Volume Envelope, however, the Filter Envelope can have a negative level value as well as a positive level. There is also an Auxiliary Envelope generator which is a general purpose envelope. The Auxiliary Envelope is identical to the Filter Envelope and can have negative as well as positive levels. You can adjust the time of each stage to create myriad envelope shapes, which in turn shape the sound over time.

- Volume envelopes contour the way the volume of a sound changes over time determining how we perceive that sound. For example, a bell struck with a hammer is instantly at full volume, then slowly dies away. A bowed violin sound fades in more slowly and dies away slowly. Using XL-7’s Volume Envelope, you can simulate the different types of natural instrument volume envelopes by programming them appropriately.


Tempo-based Envelopes

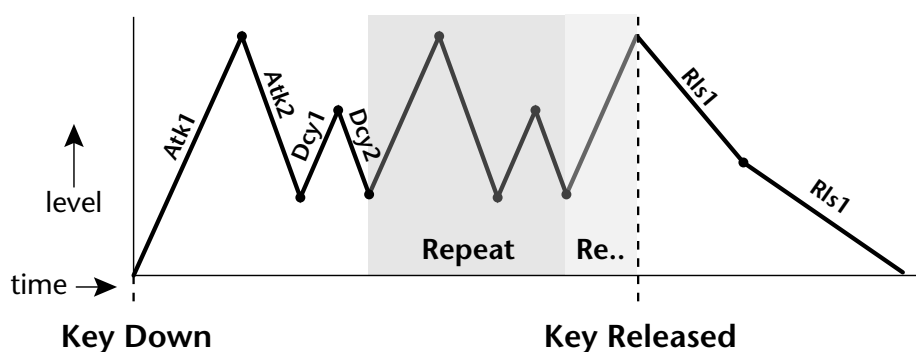
Tempo-based envelopes are based on *Time* which is controlled by the Master Tempo (located in the Global menu). The Master Tempo rate scales the time of the Tempo-based envelope segments. The Master Tempo can also be derived from an external MIDI clock to synchronize the envelope times with external sequencer or arpeggiator tempo changes. See page 162.



Envelope Repeat

The Envelope Generators can also be made to repeat. When the envelope repeat function is On, the Attack (1&2) and Decay (1&2) stages will continue to repeat as long as the key is held. As soon as the key is released, the envelope continues through its normal Release stages (1 & 2).

 Only the Filter and Auxiliary Envelopes have the repeating feature.



The diagram above shows how the looping envelopes work. When the key is pressed the envelope goes through its regular Attack 1, Attack 2, Decay 1 and Decay 2 stages. In non-looping mode, the envelope would hold at the end of the Decay 2 stage until the key was released. In looping mode however, it jumps back to the Attack 1 stage and repeats the first four stages. It continues to loop through these four stages until the key is released where it immediately jumps to the Release 1 stage.

Low Frequency Oscillators (LFOs)

LFO Tricks & Tips:

- The Random LFO wave is truly random and is different for each voice and layer.
- The Pattern (Pat) waveforms will sound the same on different layers and voices.
- Sine + Noise is very useful for simulating trumpet and flute vibrato.

★ When routing Hemi-quaver to Pitch:

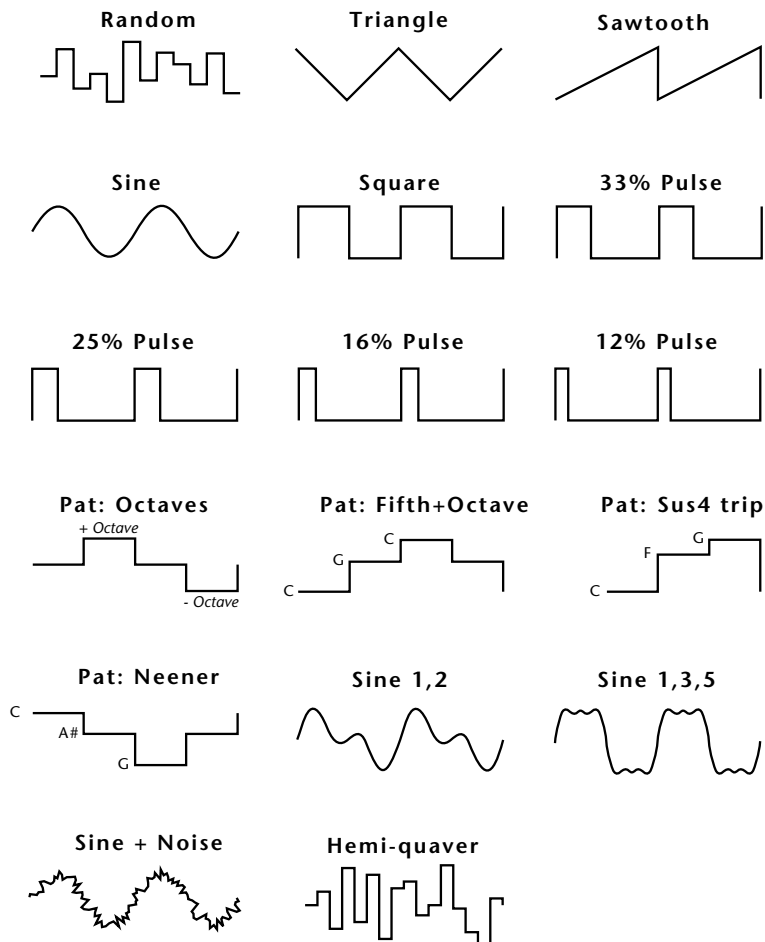
+38 = major scale
-38 = phrygian scale
+76 = whole tone scale
(+38) + (+76) = diminished (two cords)
odd amount = S+H sound

Note: References to musical intervals in the pattern LFO shapes are with the LFO routed to pitch and a PatchCord amount of +38.



Try combining the Pattern LFOs, or controlling the amount of one with another, or combining them with the clock divisors.

A Low Frequency Oscillator or LFO is simply a wave which repeats at a slow rate. The XL-7 has two multi-wave LFOs for each channel. The LFO waveforms are shown in the following illustration.

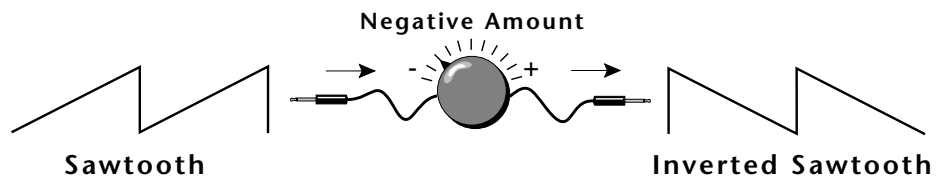


By examining the diagram of the LFO waveforms, you can see how an LFO affects a modulation destination. The shape of the waveform determines the result. Suppose we are modulating the pitch of an instrument. The sine wave looks smooth, and changes the pitch smoothly. The square wave changes abruptly and abruptly changes from one pitch to another. The sawtooth wave increases smoothly, then changes back abruptly. The sound's pitch follows the same course. Controlling the pitch of an instrument is an easy way to hear the effects of the LFO waves.


Like the Auxiliary Envelope, LFOs can be routed to control any real-time function such as Pitch, Filter, Panning, or Volume. A common use for the LFO is to control the pitch of the sound (LFO -> Pitch). This effect is called vibrato and is an important performance effect. Many presets use this routing with the modulation wheel controlling "how much" LFO modulation is applied. Another common effect, Tremolo, is created by controlling the volume of a sound with the LFO (LFO -> Volume).


You might use the LFOs to add a slight bit of animation to the sound by routing the LFO to control the filter. For this effect, set the LFO “amount” low for a subtle effect.

When a PatchCord amount is a negative value, the LFO shape is inverted. For example, inverting the sawtooth wave produces a wave that increases abruptly, then smoothly glides down. *(Since the inverted sawtooth wave is now negative, adding DC with a cord amount of +100 will make it positive again. See page 186 for information on how to use a DC Cord.)*



Clock Modulation

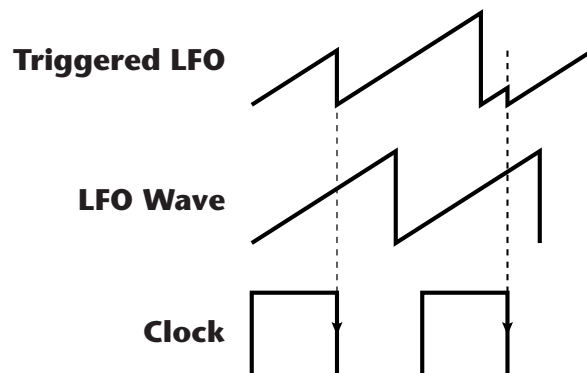
 Envelopes are triggered on the positive going edge of the clock. LFOs are triggered on the negative going edge of the clock.

 The tempo of the master clock is set in the Global menu.

You can use the Master Clock as a modulation source, to trigger the Filter or Auxiliary Envelope generators, trigger Sample Start, synchronize the LFOs, or directly as a square wave modulation source. The Clock source is available in eight divisions (octal whole note, quad whole note, double whole note, whole note, half note, quarter note, eighth note, sixteenth note). You can use the different rates separately or in conjunction to create complex “synchro-sonic” rhythm patterns. You can also use a MIDI Clock as the Master Clock to synchronize to an external MIDI device such as a drum machine or sequencer. *(See Master Tempo in the Global menu.)*

Clocks are routed exactly like the other modulations sources using the PatchCords. The PatchCord Amount MUST be positive (+) for the clock to pass. By modulating the PatchCord Amount, you can route the divided clocks using real-time controllers or other modulation sources.

When an LFO is triggered by a clock, the LFO wave resets to zero every time the clock wave goes low. If the LFO rate is close to the clock rate, the LFO virtually synchronizes with the clock. If the two rates are far apart, the waveform of the LFO will be mildly or radically altered.



LFO Trigger causes the LFO to reset each time the clock waveform goes low.

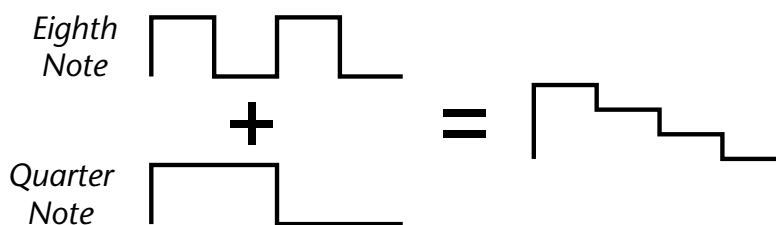


LFO Synced to 1/4 Note Clock

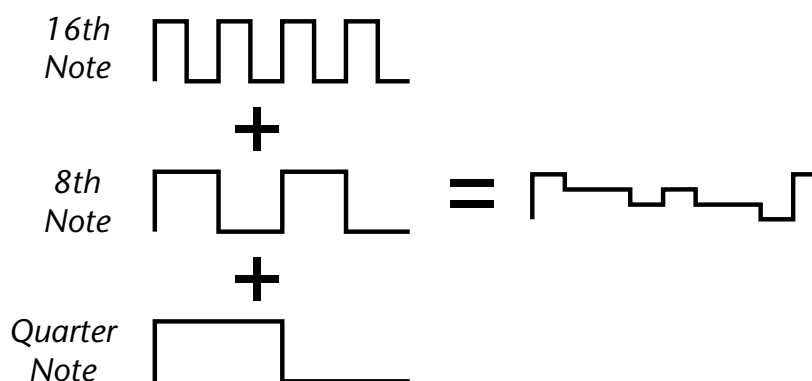
LFOs can also be perfectly synchronized with the clock at any of 25 note divisions. This allows you to create very cool “synchro-sonic” effects that work perfectly at any tempo. Choosing one of the note divisors in the LFO rate screen selects the synced LFO function.

There are many possibilities for clock modulation and retrigger. For example, you can create a repeating six segment curve of any shape by triggering the Filter or Auxiliary Envelope generators with the clock. A few other possibilities are listed below.

- Turn different voice layers on and off using different clock divisors.
- Switch between Auxiliary and Filter Envelope retriggering using a slider or footswitch.
- Retrigg LFOs or Envelopes using noise or other LFOs to create random or semi random effects.
- Alter the LFO waveform by modulating the rate of a triggered LFO.
- Route multiple clocks with different divisors to the same destination (such as pitch) to create complex patterns. (*Hint: Adjust the PatchCord Amounts.*)



Adding these two clocks together in equal amounts produces a staircase waveform.




Adding multiple clocks with unequal amounts produces complex repeating patterns.

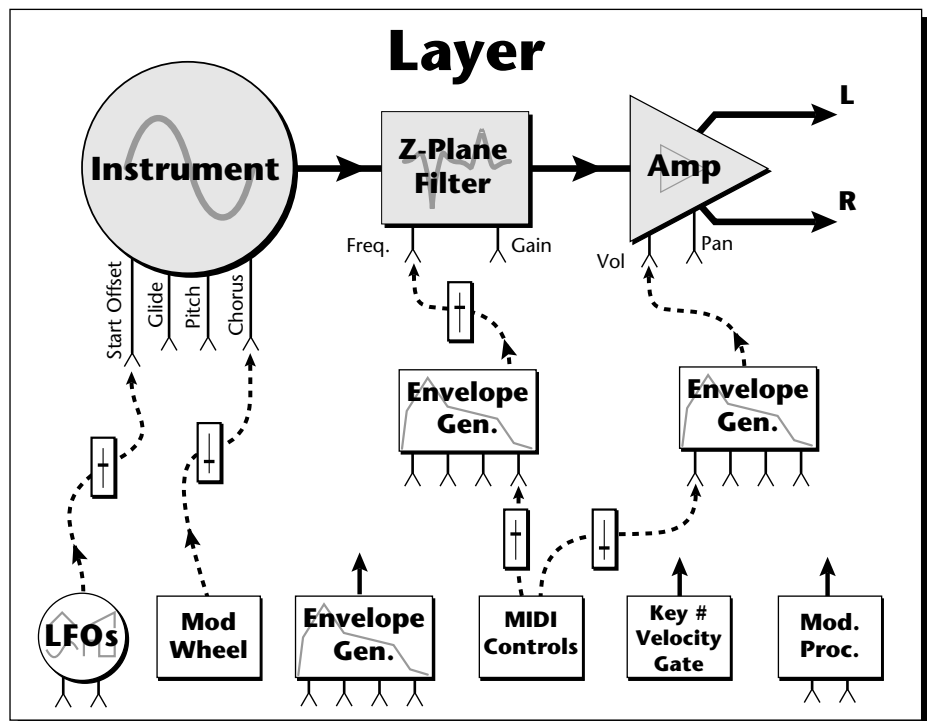
Modulation Destinations

The PatchCords section of the Preset Edit menu is where you connect sources to destinations. Each PatchCord has an amount associated with it which controls how much modulation is applied.

L1	PATCHCORD	#01
ModWhl	-> RTXfade	+036

The PatchCords screen above and the diagram below show how modulation sources are connected to destinations. The modulation sources can control any of the destinations in the layer.

 All the modulation destinations are summing nodes. This means that you can connect as many modulation sources as you want to a destination. Modulation sources are simply added algebraically — connecting two sources, one with a value of -100 and the other with a value of +100 yields a net value of zero.



- Note-on modulation sources, such as key, velocity and gate output a single value at note-on time. Realtime modulation sources such as LFOs, envelope generators and modulation wheels output continuously changing values.

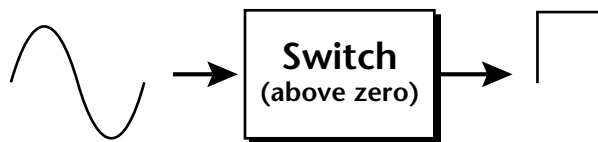
The possible modulation routings are completely flexible as shown in the diagram above. Multiple sources can control the same destination, or a single source can control multiple destinations.

Modulation Processors

Modulation processors are devices which can modify modulation sources such as LFOs and envelope generators before they are applied to a destination. Modulation processors let you create patches and do tricks which would not be possible otherwise. These modulation processors are independently programmable on each of the four layers.

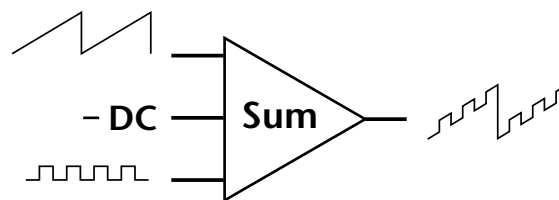
Switch

Outputs a digital “1” when the input is greater than “0”.



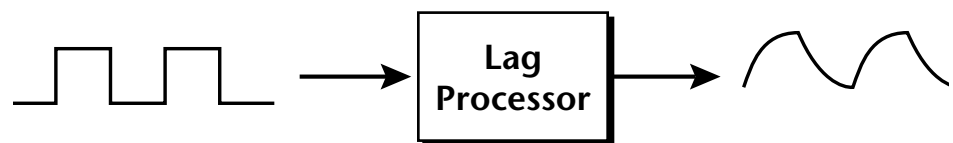
Summing Amp

Lets you add several modulation signals together before applying them to a destination. This processor can save PatchCords when routing the output to multiple destinations.



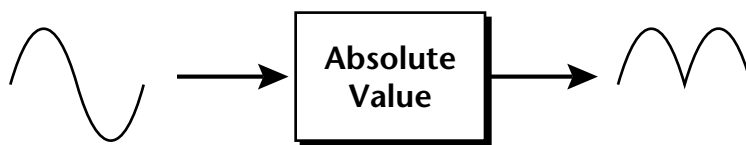
Lag Processors

Slows down rapid changes in the input signal. The output “lags” behind the input at a pre-programmed rate. There are two lag processors, Lag 0 and Lag 1. Lag 1 has a longer lag time than Lag 0.



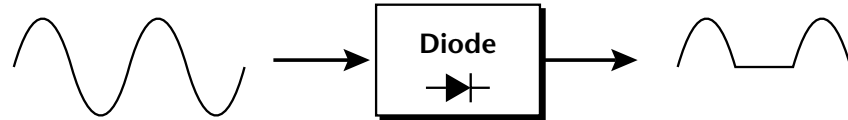
Absolute Value

This function inverts negative input values and outputs only positive values. This device is also called a full wave rectifier.



Diode

The diode blocks negative input values, passing only positive values.



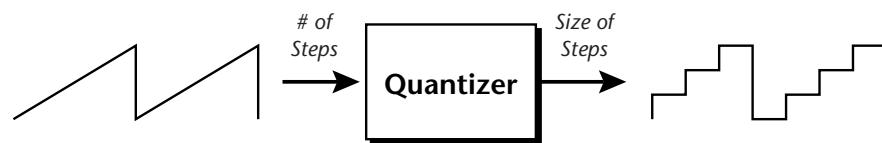
Flip-Flop

The output of this processor alternates between a digital “1” and digital “0” each time the input goes positive from zero or a negative value. With an LFO input, the output will be a square wave of half the input frequency.



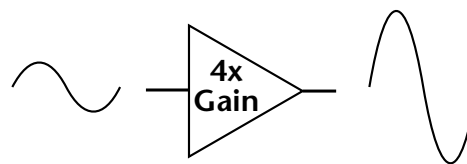
Quantizer

With the input PatchCord set to 100%, the output value is limited to 16 discrete values. The value of the input PatchCord controls the number of steps. The value of the output PatchCord controls the size of the steps.



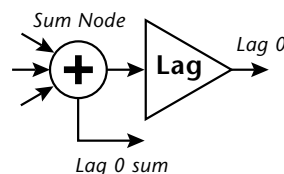
4x Gain


This processor amplifies the modulation source by a factor of 4.




Lag Inputs

The Lag processors can be used as 2 additional summing amps. Lag0sum and Lag1sum are modulation sources which equal the sum of PatchCords connected to the Lag in destination. The summing amp is located before the lag processor as shown in the following illustration.



 The value of a digital “1” is equal to the PatchCord amount.

 Summing Amps can be useful in complicated patches where you want to control a combination of modulation signals with a single patchcord.

Preset Modulation Processors



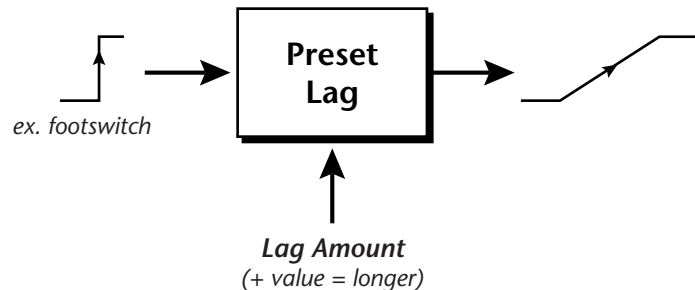
Preset Modulation Processors start working as soon as the preset is selected. The Layer Modulation Processors take effect only when a key is pressed.

There are also two “Preset Level” modulation processors located in the “Preset Patchcords” screen of the Edit menu. It is important to understand that although the preset processors *originate* at the *Preset Level PatchCords*, their output is used in the *Layer PatchCords*.

Preset Lag

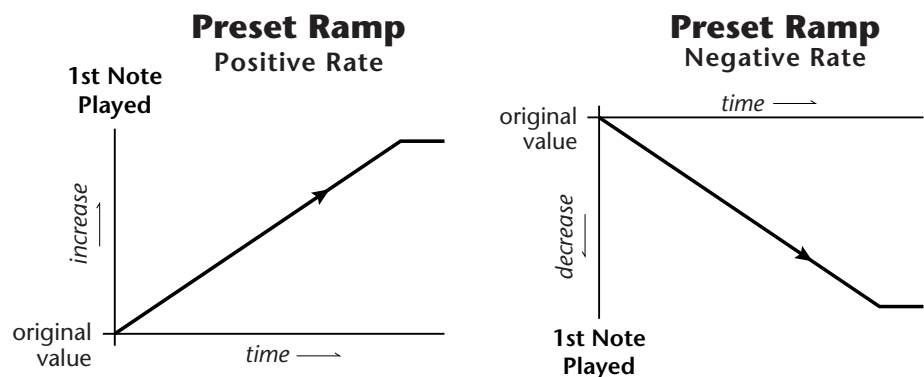
Like the Layer Lag processors (*described on page 181*) the Preset Lag slows down rapid changes in the input signal. The output “lags” behind the input at a pre-programmed rate. Unlike the layer level lag processors, the *preset lag* takes effect as soon as the preset is selected. In contrast, the layer level lag processors begin acting only after a keyboard key has been depressed. The Preset Lag also has a *Lag Amount* input which controls the lag time. Positive lag amounts increase the lag time. A MIDI controller (*front panel knob*) is commonly used to control lag amount.

The preset lag can be used to “spin-up” and “spin-down” an LFO which controls some other effect, perhaps left/right panning, pitch, or the filter. A MIDI footswitch could be used as the input to the lag which acts to slow down the instantaneous change of the switch. The slowly changing output value is then routed using a layer patchcord to crossfade between layers or change the speed of an LFO.



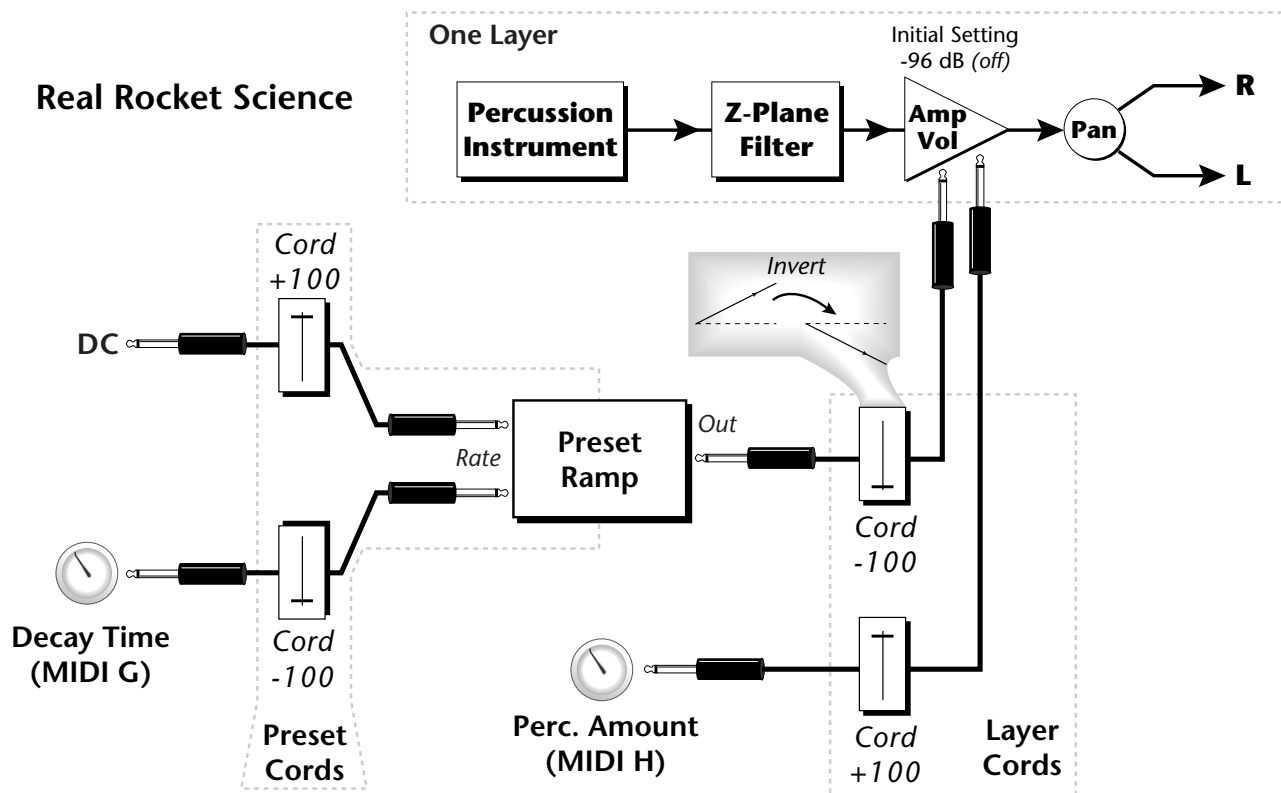
Preset Ramp


This processor generates a positive or negative going slope whenever the **first** key is depressed on the MIDI channel.



The preset ramp instantly resets when all notes have been released and the next *first key* on the MIDI channel is pressed. The Ramp Rate polarity (+ or -) determines if the ramp will be positive or negative going. The value of the ramp rate sets the increment. Large values produce fast ramps and small values produce slow ramps. Multiple inputs can be connected to the ramp rate (just like all the other destinations in XL-7).

The patch below shows an application for the Preset Ramp which generates an adjustable decay envelope **ONLY** on the first note played to bring in the sound from another layer. Instead of routing the output to the Amp Volume you could just as easily route it to control Pitch, LFO Speed or any other destination you can think of. Study this patch if you want to learn a few new tricks using the patchcords.



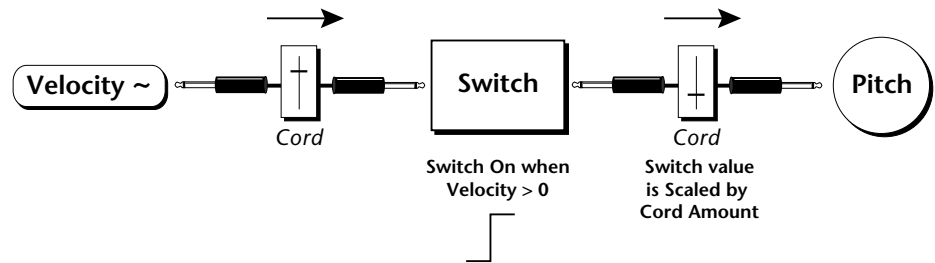
 The combination of the DC & Perc. Decay Time Cords has the effect of reversing the Percussion Decay Time knob. The decay time increases as the knob is turned up.

1. DC - Sets initial ramp Fast-Positive (+100)
2. Decay Knob - Inverted value slows ramp as the knob value is increased.
3. Ramp Out Cord - Inverts Ramp slope (downward).
4. Amp Vol - Initial setting is Off (-96dB). Ramp cannot overcome this negative bias.
5. Perc. Amt - When this knob is turned up, the positive bias on the Amp is restored so that so that the Ramp can now affect Amp Volume.
6. Volume Envelope - Fast Attack, Full Sustain, No Release

Using the Modulation Processors

Modulation processors are inserted into a modulation routing as shown in the following diagram.

The modular analog synthesizers of yesteryear were incredibly flexible, partly because processing devices could be connected in any order. Modulation processors are designed according to this modular concept. They can be linked and used in a wide variety of ways limited only by your imagination. Consider the following example:



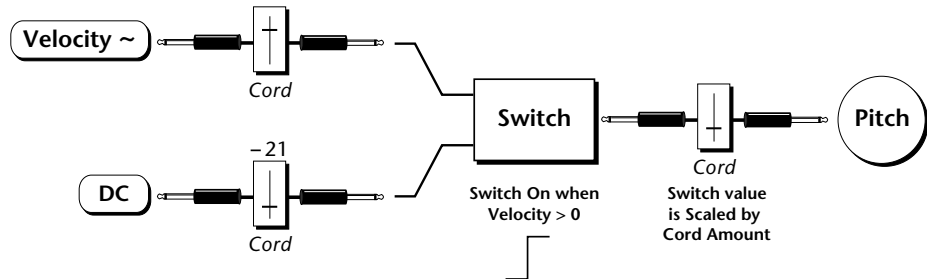
The patch illustrated above is programmed by setting the PatchCord screens as shown below.

L1 PATCHCORD	#01
Vel+- -> Switch	+100

L1 PATCHCORD	#02
Switch -> Pitch	+022

This particular modulation shifts the overall pitch up a fifth when the key velocity exceeds 64. Velocities below 64 play at normal pitch. Notes with velocities of 64 and above are raised a perfect fifth. The Velocity “~” source scales the played velocity around zero. In other words, low velocities (below 64) will have negative values and high velocities (64 and above) will be positive. A velocity of 64 would be zero. The Switch module only outputs a “1” if the input value is greater than zero. This digital “1” value can be scaled through the attenuator on the PatchCord to raise or lower the pitch by any amount. In this case, a scaling value of +22 raises the pitch by a perfect fifth. The amount of the PatchCord on the input to the switch is unimportant because ANY velocity value equal or greater than 64 will flip the switch. If the input PatchCord amount were a negative value however, the action of the velocity would be reversed and velocities less than 64 would raise the pitch and velocities equal or greater than 64 would play the original pitch.

But what if you want the velocity switch point to be something other than 64? Thanks to modulation processors, it can be done. Here's how.



Connect the DC level to the input of the switch along with the velocity value. Note that more than one modulation source can be applied to the input of a processor.

DC offset adds a fixed value based on the PatchCord Amount setting. If applied to the switch along with the velocity, it changes the velocity value required to trip the switch. By setting the DC amount to a negative amount, higher velocity values are required to trip the switch. Setting the DC value to a positive value would bring the velocity switch point down. The PatchCord screens for this patch are shown below.

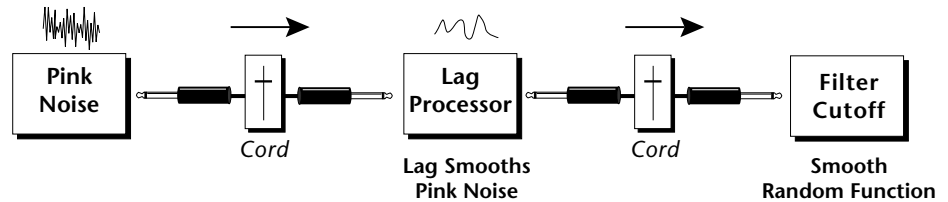
L1 PATCHCORD	#01
Vel+- -> Switch	+100

L1 PATCHCORD	#02
DC -> Switch	-021

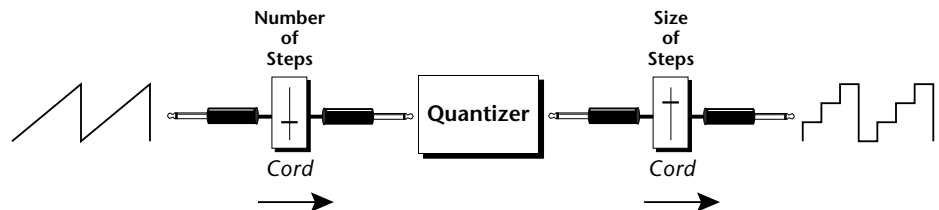
L1 PATCHCORD	#03
Switch -> Pitch	+022

More Examples

To derive a smooth random function you could route the Pink Noise generator through one of the Lag Processors. A smooth random wave is useful in small amounts to add a degree of natural variation to timbre when routed to filter cutoff. Normal pink noise is low pass filtered audio frequency noise with a 3 dB/octave slope to give equal energy per octave. XL-7 pink noise is actually more like very low frequency filtered noise, but it is perfect for use as a random control source.



The **Quantizer** can generate interesting whole-tone scales when envelope generators or LFOs are routed to the input. The quantizer turns a smoothly changing input signal into a series of steps. By routing the output of the quantizer to Pitch and adjusting the PatchCord amounts, you can control both the number of steps and the pitch interval of each step.





The input PatchCord amount controls how many steps will be generated. With a sawtooth wave (LFO+) feeding the input and the PatchCord amount set to 100%, sixteen steps are generated. The output PatchCord amount controls the size (or interval) of the steps.

Try setting up the following patch exactly as shown below using your favorite preset as a starting point.

L1	LF01	SHAPE	SYNC
		sawtooth	key sync

L1	LF01	RATE	DELAY	VAR
		0.35Hz	000	000

 The 4x Amp can be used to get more steps or increase the interval of the Quantizer.

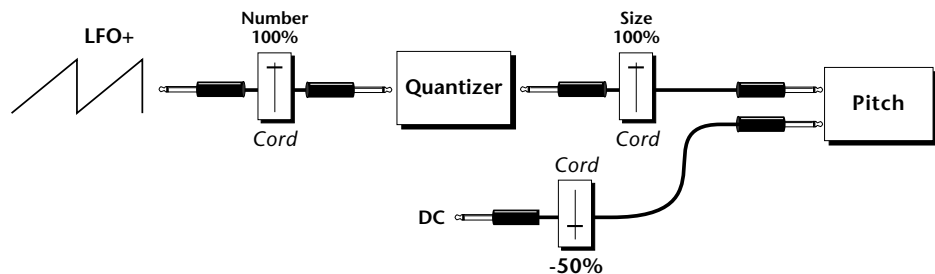
 Experiment with this patch by connecting other sources and destinations to the Quantizer.

L1	PATCHCORD	#01
LFO1+	-> Quantize	+030

L1	PATCHCORD	#02
Quantize	-> Pitch	+100

L1	PATCHCORD	#03
DC	-> Pitch	-050

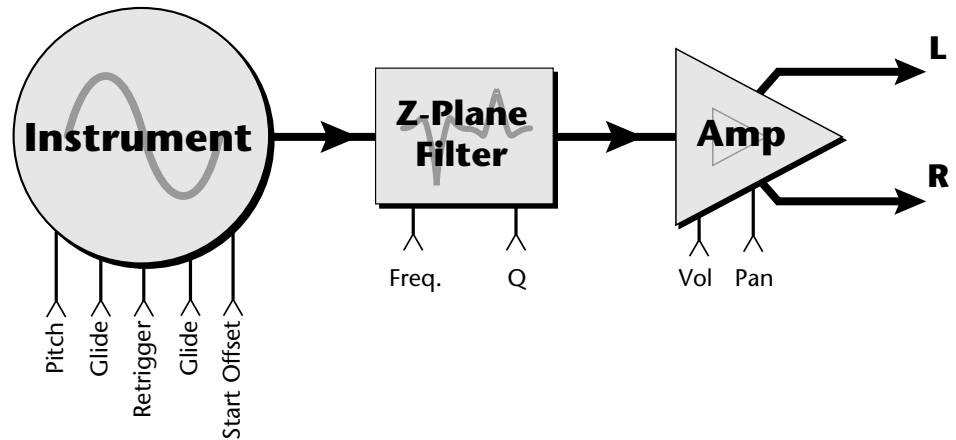
This patch generates an ascending arpeggio every time a key is pressed. A diagram of the patch is shown below. The patch is very straightforward except for the DC offset which was added to bring the pitch down into tune. (Sometimes you have to fix a problem, but using the mod processors there's usually a way around it to achieve the desired result.)



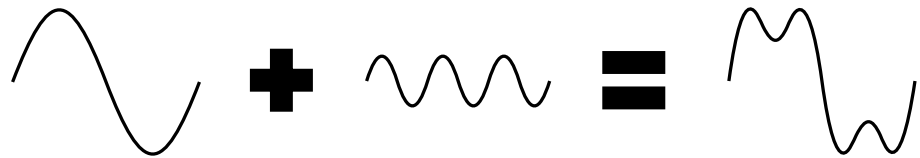
You can start to see some of the possibilities (and there are many). Whenever you find yourself wishing for some esoteric type of control, take a minute to think and see if there is a way to achieve the desired result using the modulation processors.

Dynamic Filters

The block diagram of the XL-7's signal path is shown below.

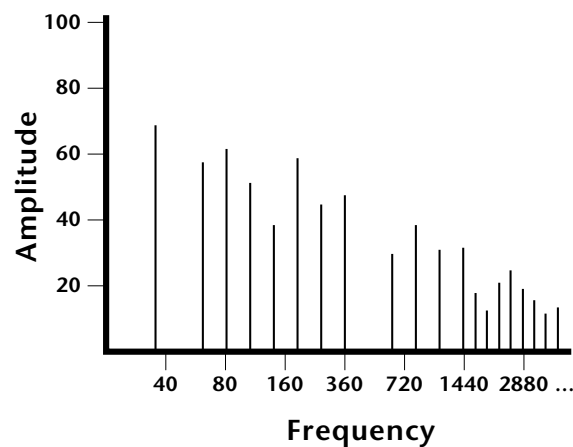


To understand how a filter works, we need to understand what makes up a sound wave. A sine wave is the simplest form of sound wave. Any waveform, except a sine wave, can be analyzed as a mix of sine waves at specific frequencies and amplitudes.



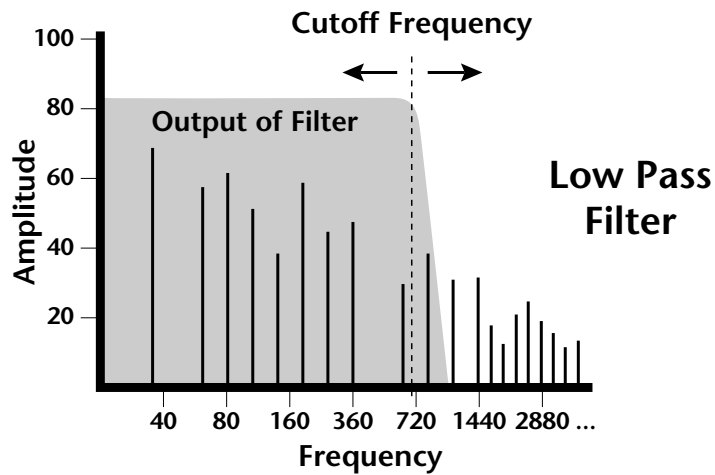
Any waveform can be analyzed as a mixture of sine waves.

One way to represent complex waveforms is to use a chart with frequency on one axis and amplitude on the other. Each vertical line of the chart represents one sine wave at a specific amplitude and frequency.

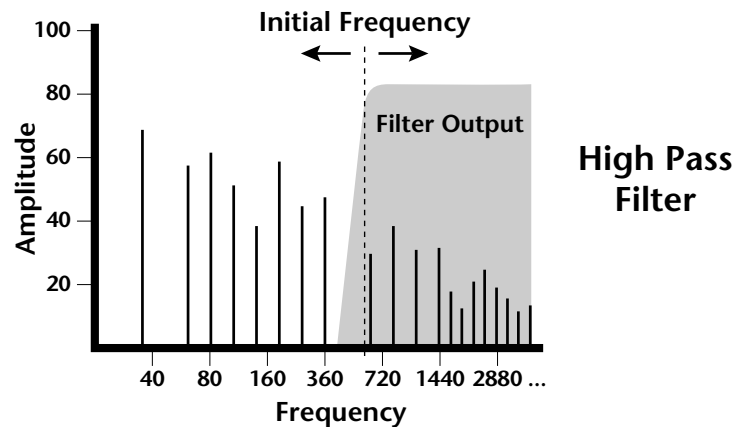


What is a Filter?

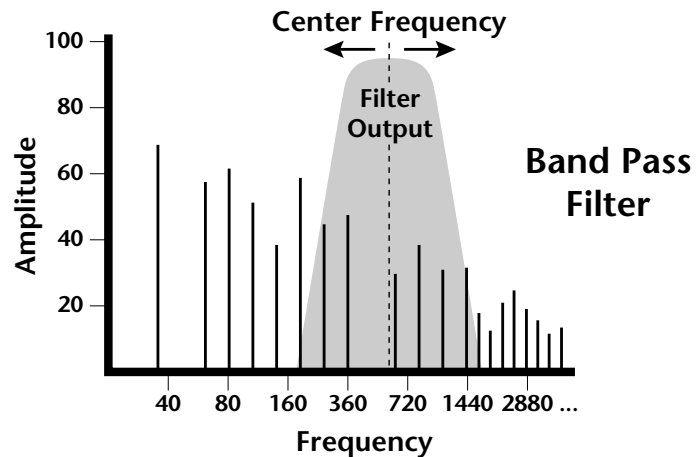
Most sounds are complex waves containing many sine waves of various amplitudes and frequencies. A **filter** is a device which allows us to **remove certain components of a sound depending on its frequency**. For example, a *low-pass filter* lets the low frequencies pass and removes only the high frequencies as illustrated in the following diagram.



A filter that lets only the high frequencies pass is called a *high-pass filter* as illustrated in the following diagram.

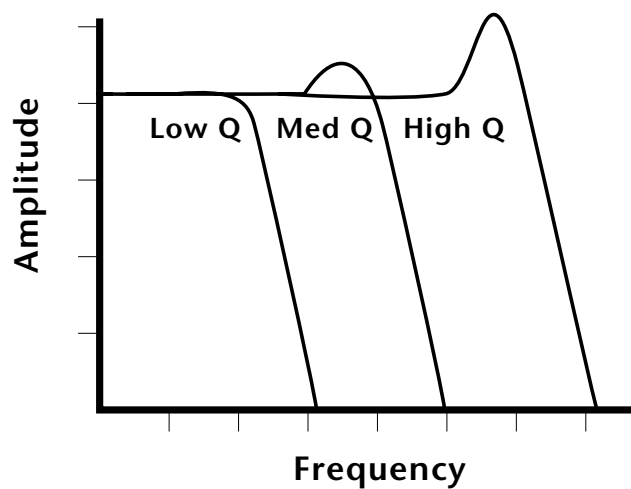


A filter which only lets a certain band of frequencies pass is called a *band-pass filter*.



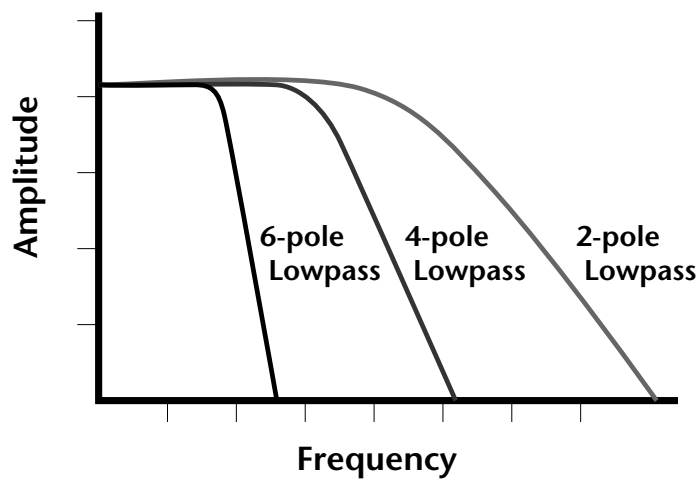
A *notch filter* is just the opposite of a band-pass filter and is used to eliminate a narrow band of frequencies.

Another control found on traditional filters is called Q or resonance. A lowpass filter with a high Q emphasizes the frequencies around the cutoff frequency. The following chart shows how different amounts of Q affect the low-pass filter response. In terms of sound, frequencies around the cutoff tend to “ring” or resonate with high Q settings. If a filter with high Q is slowly swept back and forth, various overtones are “picked out” of the sound and amplified as the resonant peak sweeps over them. Bells and gongs are real world examples of sounds which have a high Q.



Another characteristic of a filter is the number of poles it contains. Traditional synthesizer filters were usually either 2-pole or 4-pole filters. The XL-7 has selectable 2, 4, and 6-pole low-pass filters. The number of poles in a filter describes the steepness of its slope. The more poles, the steeper the filter's slope and the stronger the filtering action. The tone controls on your home stereo are probably one-pole or two-pole filters. Parametric equalizers are usually either two-pole or three-pole filters.

In terms of vintage synthesizers, Moog and ARP synthesizers used 4-pole filters, Oberheim and E-mu synthesizers were famous for their 2-pole filter sound.



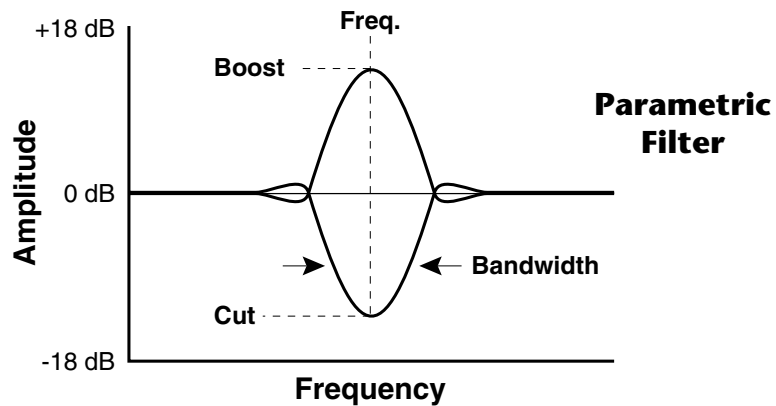
Using a filter, we have a way to control the harmonic content of a sound. As it turns out, even a simple low-pass filter can simulate the response of many natural sounds.

For example, when a piano string is struck by its hammer, there are initially a lot of high frequencies present. If the same note is played softer, there are fewer high frequencies generated by the string. We can simulate this effect by routing keyboard velocity to control the low-pass filter. The result is expressive, natural control over the sound.

If you use an envelope generator to control the cutoff frequency of a filter, the frequency content can be varied dynamically over the course of the note. This adds animation to the sound as well as simulates the response of many natural instruments.

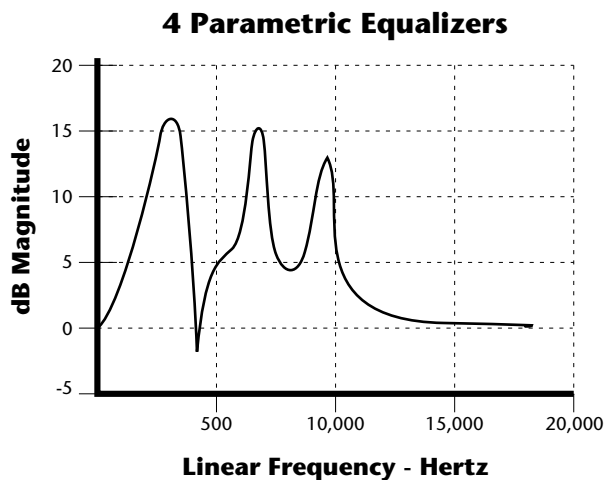
Parametric Filters

A more complex type of filter is called a parametric filter or *Swept EQ*. A parametric filter allows control over three basic parameters of the filter. The three parameters are: *Bandwidth*, *Frequency* and *Gain*. The Bandwidth allows you to select the width of the range of frequencies to be boosted or cut, the Frequency defines the center frequency of the bandwidth, and the Gain parameter either boosts or cuts the frequencies within the selected band by a specified amount. Frequencies not included in the selected band are left unaltered. This is different from a band-pass filter which attenuates (reduces) frequencies outside the selected band.



The parametric filter is quite flexible. Any range of frequencies can be either amplified or attenuated. Several parametric sections are often cascaded in order to create complex filter response curves.

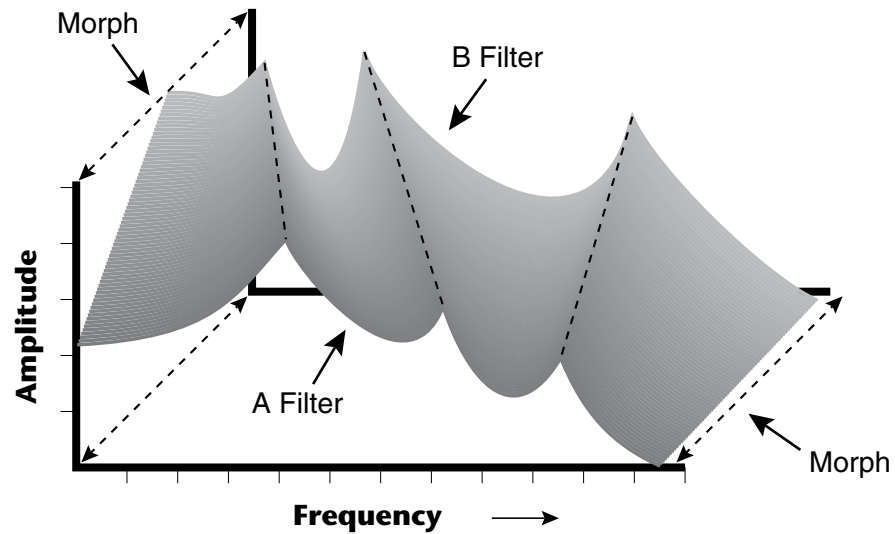
If four parametric filter sections were cascaded, it would be possible to create the following complex filter response.



Many natural instruments have complex resonances which are based on their soundboard or tube size. The resonance shown above would be impossible to create using a normal synthesizer filter.

The Z-Plane Filter

A Z-plane filter is a filter which can change its function over time. In a Z-plane filter, we start with two complex filter types and interpolate between them using a single parameter. See the following diagram.



The Z-plane filter has the unique ability to change its function over time.

Filters A and B represent two different complex filters or “frames.” Changing a single parameter, the Morph, changes many complex filter parameters simultaneously. Following along the Morph axis you can see that the filter response smoothly interpolates between the two filters. This is the essence of the Z-plane filter. Through the use of interpolation, many complex parameters are condensed into one manageable entity.

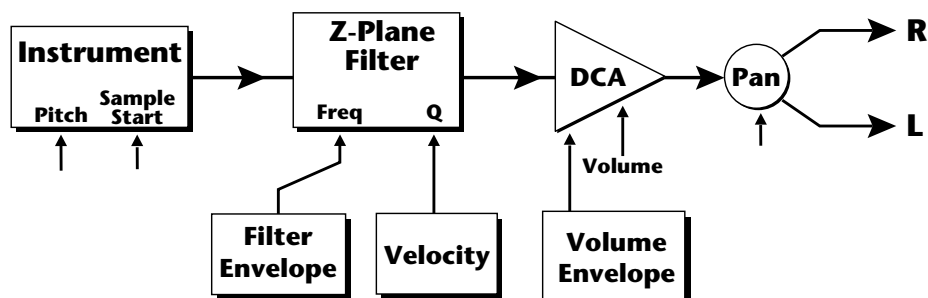
Consider, as an example, the human vocal tract, which is a type of complex filter or resonator. There are dozens of different muscles controlling the shape of the vocal tract. When speaking, however, we don't think of the muscles, we just remember how it feels to form the vowels. A vowel is really a configuration of many muscles, but we consider it a single object. In changing from one vowel to another, we don't need to consider the frequencies of the resonant peaks. You remember the shape of your mouth for each sound and interpolate between them.

This Z-plane filter sweep can be controlled by an envelope generator, an LFO, modulation wheels or pedals, keyboard velocity, key pressure, and so on. In fact, any of the modulation sources can control the Z-plane filter.

Because creating the complex filtering is difficult and very time consuming, we have created 50 different filters and installed them permanently in ROM for your use. You simply select and use the filters in a manner similar to choosing an instrument. Because there are so many types of instruments and filters to choose from, the number of possible permutations is staggering.

Signal Flow

Going back to the Signal Path diagram for a single channel we can reexamine the complete signal path.



Instrument

This is the sampled sound wave. The pitch of the instrument can be modulated by any modulation source. The sample start point can be changed only at the time the note is played.

Z-Plane Filter

The Z-Plane Filter is used to shape the harmonic content of an instrument. The filter envelope is commonly used to shape the harmonic content dynamically over time but the filter frequency can be modulated by any source. The Q parameter can be modulated only at note-on time. There are 50 types of filters available. See “XL-7 Filter Types” on page 221 for a complete list of the filters.

Digitally Controlled Amplifier (DCA)

Together with the Volume Envelope, the DCA is used to shape the volume contour of a sound. The DCA can be controlled by any modulation source. Velocity is often used as a modulation source for the DCA so that the harder you play, the louder the sound becomes.

Pan

Adjusts the balance of sound to the left and right channels. Pan can be modulated by any modulation source.

MIDI Channels & Real-time Controls

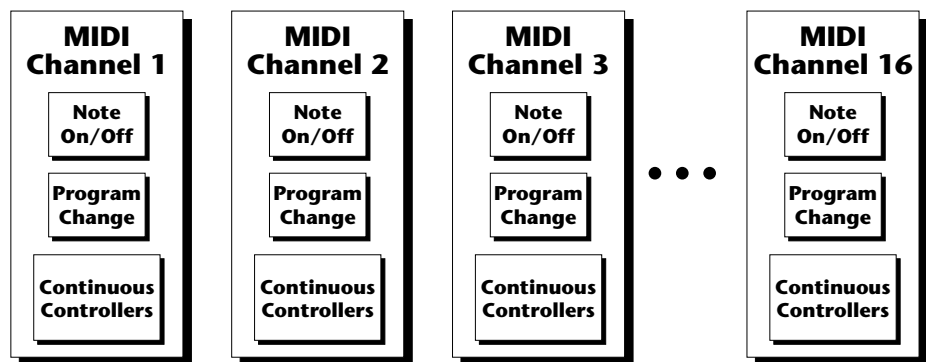


The following MIDI controls are automatically routed in XL-7:

Pitch Wheel	pwh
Modulation Wheel	01
Aftertouch	03
Pedal	04
Volume	07
Pan	10
Expression	11

The MIDI real-time controllers may seem confusing at first, but they are really very simple once you understand them. You already know that there are 16 MIDI channels per MIDI cable. Each MIDI channel uses three basic types of messages; note on/off, preset changes, and continuous controller messages. The rubber keypads, in addition to telling XL-7 which note was played, can also send aftertouch real-time control information, which simply means control occurring in real-time or “live.” Real-time control sources include such things as controller knobs, pitch wheels or touchstrips, modulation wheels, control pedals and aftertouch. These are used to add more expression or control.

The front panel control knobs send out real-time controller information on separate continuous controller numbers. There is a set of 95 continuous controller numbers for each MIDI channel. Some continuous controllers, such as modulation wheel, volume, and pan have standardized numbers. For example, volume is usually sent on continuous controller #7. The front panel controller knobs on are pre-programmed to control the XL-7.



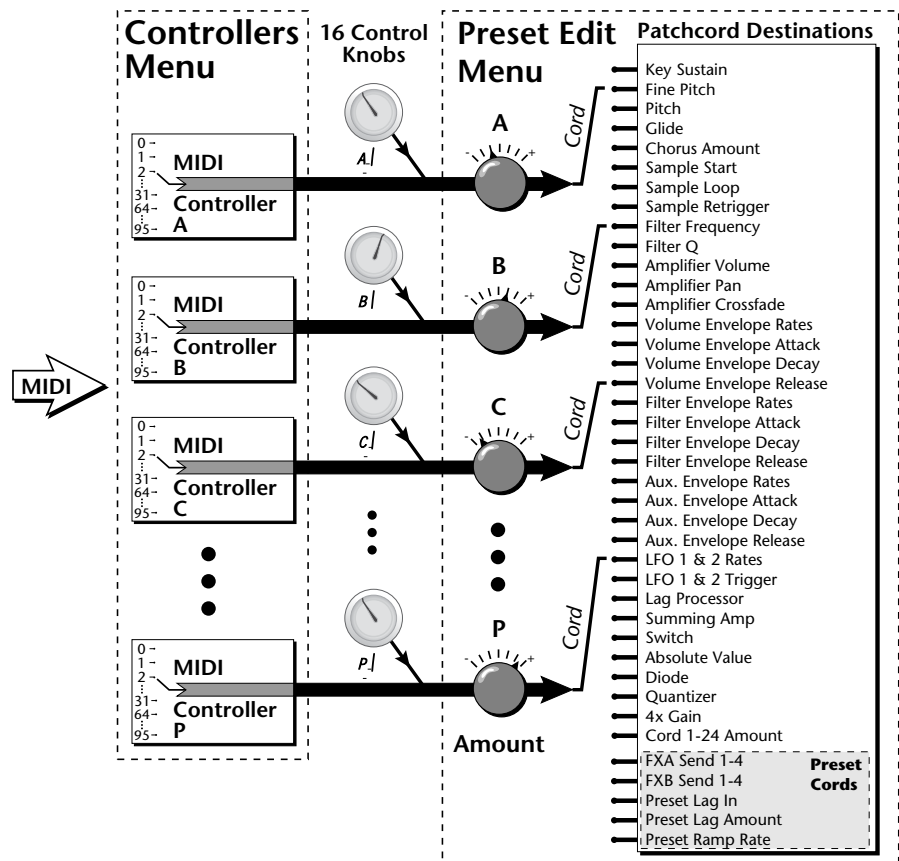
Any MIDI controller can be routed to any modulation destination. First, you have to know which controller numbers your keyboard transmits. Most modern MIDI keyboards let you select a controller number for each control on the keyboard. For example, it may let you select a number from 0-31 for the data slider. The realtime controller numbers that the keyboard transmits must match the numbers XL-7 is receiving, otherwise nothing will happen when you move the controls.

Suppose you wanted to send the four data sliders on your master keyboard. XL-7 can handle up to 16 MIDI controllers (A-P) of your choosing. “MIDI A-P” are simply names for the internal connections that link external MIDI continuous controllers to the PatchCord section of XL-7. There are two parts to the connection. First, MIDI controller numbers are assigned to the letters A-P in the Controllers menu. Next, the letters A-P are connected to synthesizer control parameters in the PatchCord section of the Preset Edit menu. The PatchCord Amount scales the amount of each controller by a positive or negative value.

The factory presets have the MIDI A-P controls connected to standard synthesizer functions (marked on the front panel). By choosing any four of

the 16 standard functions, the four sliders on your keyboard will work the same on every preset. The chart below shows how this might work if your keyboard transmitted the slider settings on MIDI controllers 21-24.

Control	MIDI Controller #	Routing	Standard Function
Slider 1	74	A	Controls Filter Frequency
Slider 2	71	B	Controls Filter Resonance
Slider 3	25	C	Controls Filter Attack
Slider 4	26	D	Controls Filter Decay



MIDI A-P are internal connections which simultaneously carry front panel controller knob data and MIDI continuous controller data.

The 16 controller knobs on the XL-7 front panel work just like MIDI real-time controllers. The controller knobs are permanently assigned to controllers A-P. The front panel knob (A-P) and incoming MIDI controller messages assigned to that letter, both control the same parameter that you select in the PatchCord screen.

Bank Select Commands



When you press the Audition button, the Bank Select MSB and LSB are displayed on the top line of the display.

When the original MIDI specification was developed, no synthesizer had more than 40 preset locations. At that time being able to select up to 128 presets didn't seem like much of a limitation. So it was that the original MIDI specification provided for the selection of up to 128 presets.

Musicians wanted *MORE* presets and so the MIDI specification was later amended to include **Bank Select Commands**. It was decided that Bank Select Commands would use Continuous Controllers 0 and 32 to allow the selection of up to 16,384 banks of 128 presets (over two million presets).

Because Bank Selects are implemented using Continuous Controllers, the Bank Selections can be made *per channel*. (This is getting better and better.) For each MIDI channel, you can select any of 16,384 banks and then one of the 128 presets in the bank. Of course no synthesizer has 16,384 banks (yet), but hey, it's nice to know it's possible (for that really BIG project).

Continuous Controller (CC) 0 is the MSB (most significant byte) and CC 32 is the LSB (least significant byte). Normally you send both the MSB and LSB controllers to implement a bank change.

XL-7 remembers the MSB and the LSB that were last sent (or last changed from the front panel). For example, if you have already set the Bank MSB to 04, you need only send the LSB to change banks within the XL-7 sound set. See the MIDI Bank Select chart below.

The selected bank remains selected until you change it (either via MIDI or by changing the bank from the front panel). Standard MIDI Program Change commands select from 128 presets within the selected bank.

MIDI BANK SELECT			
	MSB	LSB	
	cc00	cc32	
USER	00	00	Bank 0
USER	00	01	Bank 1
USER	00	02	Bank 2
USER	00	03	Bank 3
XL-7	14	00	Bank 0
XL-7	14	01	Bank 1
XL-7	14	02	Bank 2
XL-7	14	03	Bank 3

Stereo Mix Outputs

This feature is useful for adding signal processing (EQ, reverb, etc.) of individual sounds prior to final mixdown.

The routing can be performed according to MIDI channel from the Mix Output screen in the Global menu. Simply assign each channel to the desired output.

**Global
Menu**

MIX OUTPUT
channel 01: Send 2

To route a particular preset to a Send, first go to the Mix Output screen in the Global menu and set the MIDI channel to “Preset”.

**Global
Menu**

MIX OUTPUT
channel 01: Preset

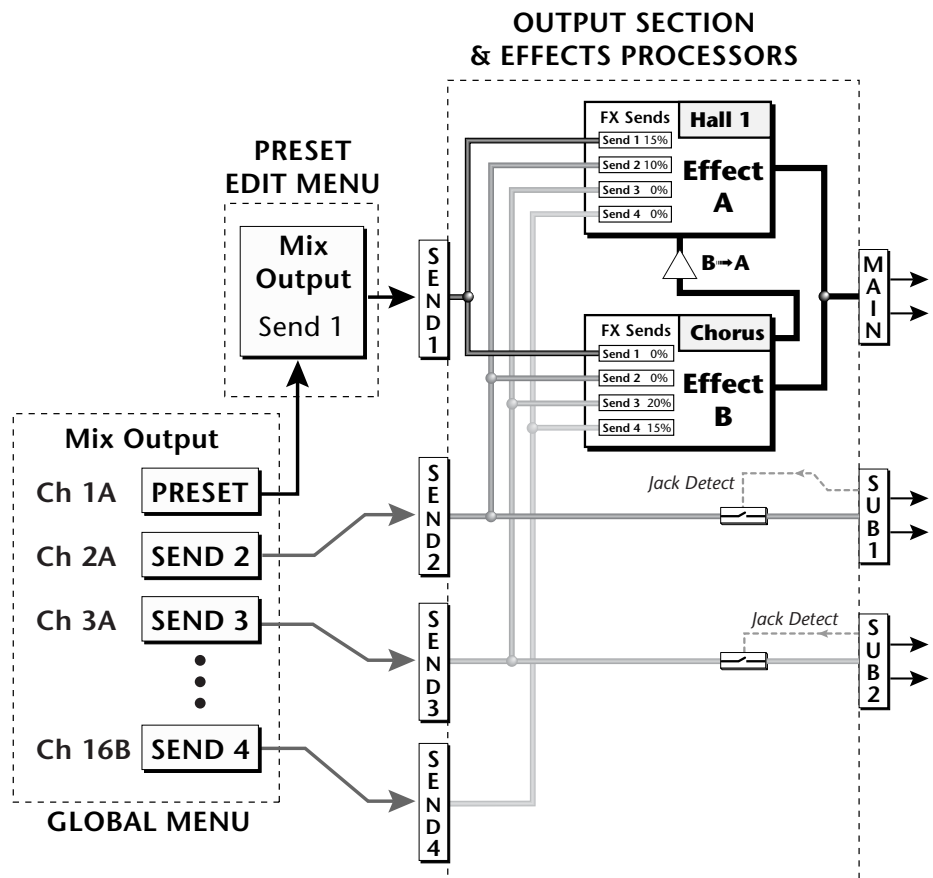
Next set the Mix Output routing in the preset to the desired output (for each layer). Yes, you can send each layer to a different send if you want.

**Preset Edit
Menu**

L1 MIX OUTPUT
Send 2

By sending different amounts of presets to the effects, subtle or striking effects can be achieved using the two effect processors. This feature allows you to get the most out of two effects since you can have eight different mixes.

For more information, refer to the diagram on the following page or, See “Mix Output” on page 152.



The Mix Output screen in the **Global** menu assigns each MIDI channel to a Send (1-4) or to "Preset".

The Mix Output screen in the **Preset Edit** menu is ONLY used if the Global Mix Output is set to "Preset". Otherwise the Preset Edit menu Mix Output settings are ignored.

Preset Edit Menu



While the Preset Edit menu is activated, all incoming MIDI preset changes on the selected channel are ignored.



If there is no "A" option in the Layer field, you must enable the "Edit All Layers" function in the Global Menu (page 158).

The Preset Edit Menu contains four layers of preset parameters that you can modify and then save as preset information in one of the user preset locations. There are four instrument layers in the Preset Edit menu. See the illustration on page 202 for a description of the Preset Layer model.

► To Access the Preset Edit Menu

Press the Preset Edit button, lighting the LED. The Preset Edit Menu screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.

► To Scroll through Layers

Place the cursor below the layer field. Rotate the data entry control to select a layer (1-4).

You can also select **All Layers** by choosing "A" in the layer field. When All Layers is selected, the existing parameter value for any field will be displayed if the values of all four layers are equal. If the values of all four layers are NOT equal, the value of layer 1 will be displayed with flashing characters. If you change the parameter value, all layers will assume the new value and the display will stop flashing.

► To Scroll through Pages

Whenever you are in the Preset Edit menu, the sixteen command buttons function as "jump" buttons to various screens in the Preset Edit menu, which are labelled below each button. Pressing a jump button instantly takes you to the first screen in the selected category. Pressing the button again takes you to the second screen in the category and so on. Repeated pressing will rotate you back to the first screen in the category.

You can also change pages by placing the cursor below the page title field. This will automatically be done when you press the Home/Enter button. Rotate the data entry control to scroll through the pages.

► To Change a Parameter

Place the cursor below the parameter field. Rotate the data entry control to change the parameter value.

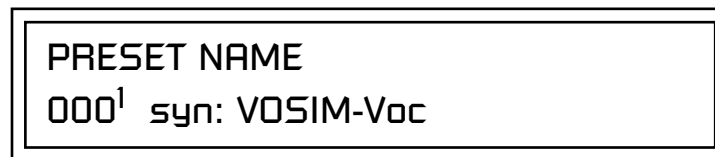
Preset Name



You can also select characters using the keypads or MIDI keyboard.

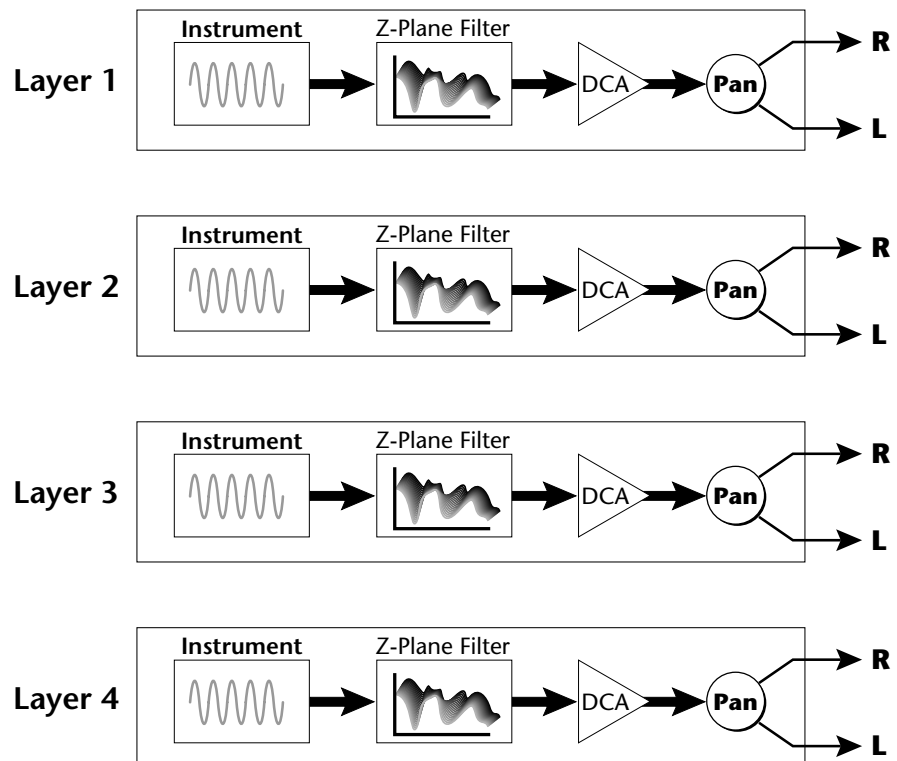
The Preset names consists of two parts: a 3 letter preset category and a 12 letter preset name. Position the cursor under the character location and use the data entry control to change the character.

The preset category is used in conjunction with the Sound Navigator feature. Using the Sound Navigator, a category is selected and the presets in that category are listed in alphabetical order. Creating categories makes it easier to find specific sounds when you need them. For more information on Sound Navigator, see Sound Navigator in Chapter 2: Operations.



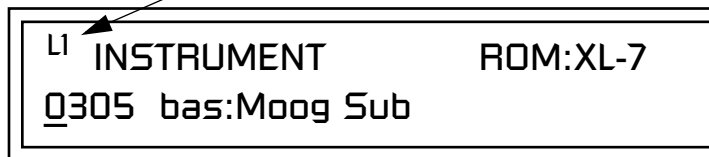
Four Layer Architecture

XL-7 provides a 4 layer instrument structure. Each layer is a complete synthesizer voice with 50 filter types, over 64 modulation sources, more than 64 modulation destinations and 24 patchcords to connect everything together. In addition, the four layers can be crossfaded or switched by key position, velocity or any real-time modulation source.



Selecting Layers

In most of the Preset Edit screens, the selected layer is shown in the upper left corner of the display. Layers 1-4 or All can be selected by positioning the cursor on this field and using the data entry control to change the layer. In the screen shown below, Layer 1 is selected.



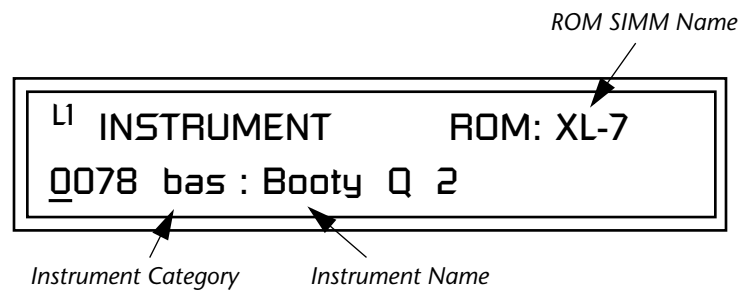
When “All Layers” (A) is selected, the existing parameter value for any field will be displayed if all layers are equal. If the layer parameter values are NOT equal, the value of Layer 1 will be displayed with flashing characters. If you move the data entry control all values will be equal to this new value and the parameter value will no longer flash.

Defining Layer Parameters

Selecting an Instrument

The Preset Edit menu parameters define the four layers and include the instrument assigned to the layer, the ranges of the layer, tuning, envelopes, filters, and patch cords. These parameters are defined for each layer on an individual basis (based on the currently selected layer). See “Common Preset Parameters” on page 234 for global preset settings.

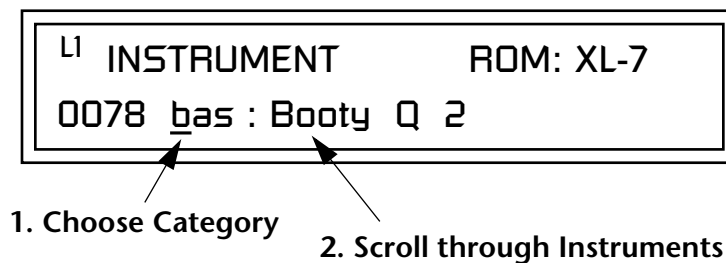
The Instrument parameter defines which of the available instrument sounds is played by the current layer.



To select an instrument for the selected layer(s), move the cursor to the bottom line of the display and change the instrument using the data entry control.

Sound Navigator

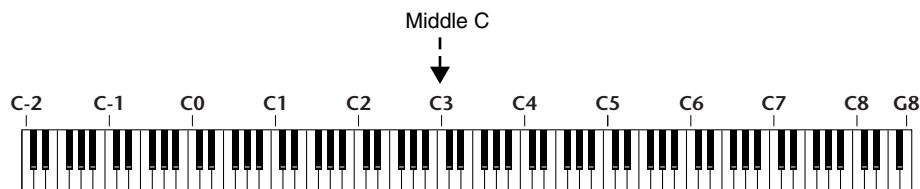
Sound Navigator also works to help select Instruments although the category names are predefined. When the cursor is on the Instrument Category field, turning the data entry control selects different instrument categories. The Name Field will change to show the first instrument in each category. Move the cursor to the instrument name to select instruments in the selected category.



Selecting Categories of Instruments using Sound Navigator.

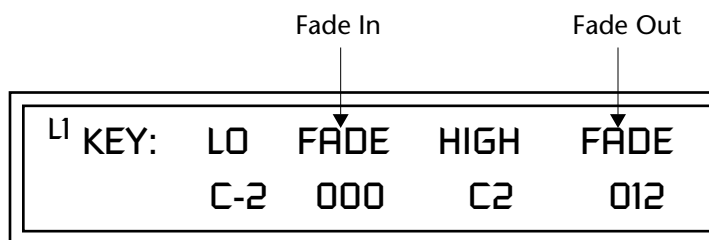
Defining Key Range

The Key parameter defines the range on the keyboard used by the current layer. The Key range is from C-2 through G8.

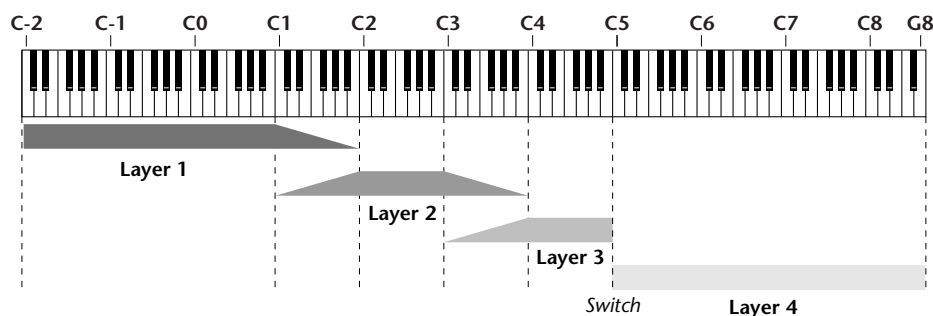


To define the range, set the low key value and the high key value.

You can select key numbers by simply pressing the desired keyboard key when the cursor is positioned on the low or high key field in the display.



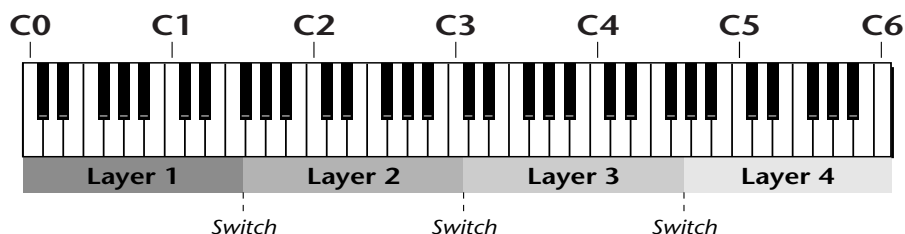
Layers can be crossfaded according to key position by adjusting the Low and High Fade parameters. The first Fade field determines how many semitones it takes the layer to Fade In from the low key. The second Fade field determines how many semitones it takes the layer to Fade Out to the high key. The screen shot above and the diagram below show Layer 1 being faded out over a one octave range.



With a High Fade value of zero (as in layer 3 of the diagram), the layer simply switches off at the high key.

► To Switch Layers According to Key Position

The Key Range parameter allows you to create a “split” keyboard with up to four sounds adjacent to each other on the keyboard. This is shown in the diagram below.



Just assign the low and high key range for each of the four layers with Fade set to zero. Set the Low and High Keys so they don’t overlap other layers.



You can select key numbers by simply pressing the desired keyboard key when the cursor is positioned on the low or high key field in the display.

L1	KEY:	LO	FADE	HIGH	FADE
		<u>C</u> 0	000	F1	000

L2	KEY:	LO	FADE	HIGH	FADE
		<u>F</u> #1	000	C3	000

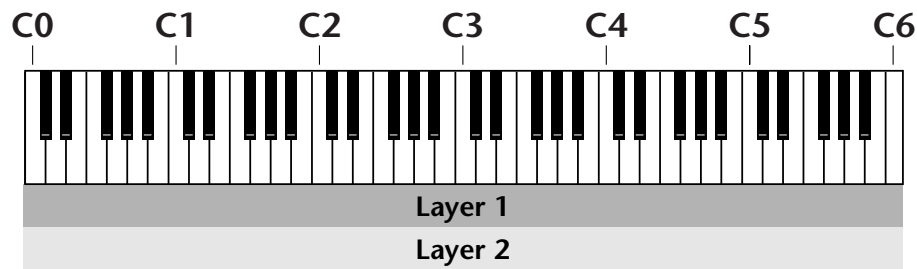
L3	KEY:	LO	FADE	HIGH	FADE
		<u>C</u> #3	000	F#4	000

L4	KEY:	LO	FADE	HIGH	FADE
		<u>G</u> 4	000	C6	000

If two layers do overlap, both will play as shown in the next example.

► To Stack Layers

If the ranges of two or more Layers overlap it is called *stacking layers*. All Layers assigned to a key sound when the key is played. This is shown in the following diagram. It's very easy to stack layers. Simply duplicate the key ranges for any layers you want to stack.



L ¹	KEY:	LO	FADE	HIGH	FADE
		<u>C</u> 0	000	C6	000

L ²	KEY:	LO	FADE	HIGH	FADE
		<u>C</u> 0	000	C6	000

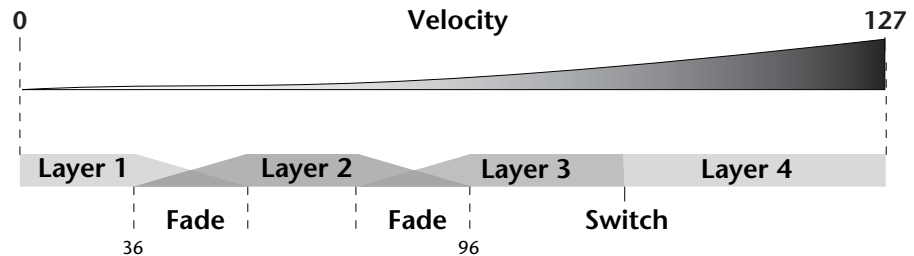
Defining the Velocity
Crossfade Range

Velocity is a measure of how hard the key is pressed. Velocity Range lets you control the volume of the layers using velocity. Using this function you can crossfade or cross-switch between layers according to how hard you play the keyboard.

Set the velocity range of the layer by defining the high and low velocity values. Values range from 0 (off) to 127 (hardest).

L ²	VEL:	LO	FADE	HIGH	FADE
		<u>3</u> 6	012	96	012

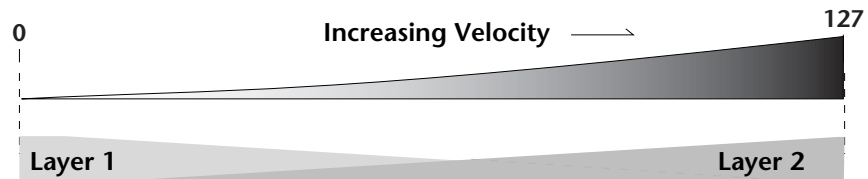
The Fade fields define the velocity crossfade range for the currently selected layer. The first Fade field defines the Fade In range for the low velocity value. The second defines the Fade Out range for the high velocity value.



With soft playing, Layer 1 sounds. As you play harder, Layer 1 gradually fades out and Layer 2 fades in. When the keyboard is played hard, Layer 3 plays.

► To Set Up a Velocity Crossfade Between Layers

Set the velocity fades so that layer 1 fades out with higher key velocity, while layer 2 fades in. At a velocity of 64, the two sounds are equal volume. You may want to adjust the fade in and fade out points to achieve a natural sounding crossfade. These parameters vary depending on the sounds.



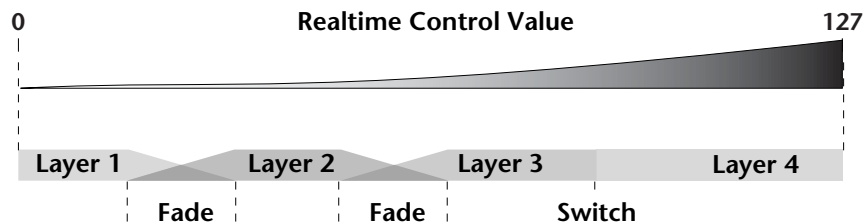
L1	VEL:	LO	FADE	HIGH	FADE
		000	000	127	127

L2	VEL:	LO	FADE	HIGH	FADE
		000	127	127	000

Defining the
Real-time Crossfade
Range

The Real-time Crossfade window lets you control the volume of the four layers using a real-time controller such as a front panel knob, a pedal or an LFO or Envelope generator. The controller is defined by the PatchCord parameter (see “PatchCords” on page 230).

The Fade fields define the crossfade range in velocity for the currently selected layer. The first Fade field defines the Fade In amount for the low Real-time Control value. The second defines the Fade Out amount for the high Real-time Control value. The Fade value range is from 0 to 127.



After the Ranges and Fades have been adjusted for each layer in the Real-time Crossfade screen, you must assign a real-time controller to RTXfade (Real-time Crossfade) on each Layer in the PatchCord screen. Set the PatchCord Amounts to +100.

► To Set Up a Real-time Crossfade Between Two Layers

As the real-time control (knob, pedal, LFO, etc.) is increased, Layer 1 fades out as Layer 2 fades in. This example only uses two of the possible four layers. Refer to the screen diagrams below.

L1	RT:	LO	FADE	HIGH	FADE
		000	000	127	127

L2	RT:	LO	FADE	HIGH	FADE
		000	127	127	000

1. Select a preset.
2. Press the **Preset Edit** button to access the Preset Edit menu.
3. Go to the **Instrument** page and select instruments for Layers 1 and 2.

4. Press **Enter**, then use the data entry control to advance to the **Real-time Crossfade** page.
5. Define the High and Low range of each Layer. In this example the entire range of 0-127 is used.
6. Define the Fades for each Layer. This is just an initial setting. The Range and Fade parameters may have to be adjusted later to get a smooth crossfade.
7. Press **Home/Enter** and use the data entry control to advance to the **PatchCord** page. Select Layer 1.
8. Select the modulation source for the crossfade (knob, pedal, LFO, Envelope) and set the destination to RTXfade. Set the Cord Amount to +100.
9. **Select Layer 2.** Select the same source and destination for the crossfade and set the Cord Amount to +127.

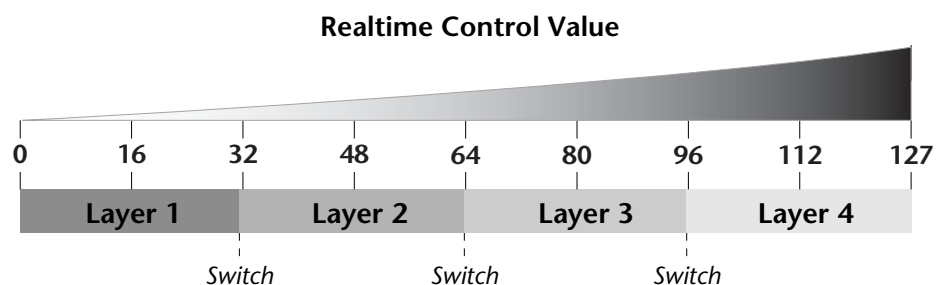
L1	PATCHCORD	#01
MidiA	-> RTXfade	+100

10. **Play the keyboard** while adjusting the real-time controller. Go back to the Real-time Crossfade screens to fine tune the crossfade if necessary. Decreasing the fade size will narrow the region where both layers are sounding.

► To Randomly Cross-Switch Between Four Layers

In certain situations, you may want to switch between several layers randomly. **Crossfade Random** is a modulation source specifically designed to handle this situation. Unlike the other random sources, Crossfade Random generates one random number for all layers each time a key is pressed.

To set up a four layer Cross-Switch, simply assign each of the four layers to a different Real-time Crossfade range, then assign XfdRnd to RTXfade in the PatchCords for each layer.



1. Press the **Preset Edit** button to access the Preset Edit menu.
2. Go to the **Instrument** screen and select Instruments for Layers 1 through 4.
3. Press **Enter**, then use the data entry control to advance to the **Real-time Crossfade** page.

L1	RT:	LO	FADE	HIGH	FADE
		000	000	<u>0</u> 31	000

L2	RT:	LO	FADE	HIGH	FADE
		<u>0</u> 32	000	063	000

L3	RT:	LO	FADE	HIGH	FADE
		<u>0</u> 64	000	095	000

L4	RT:	LO	FADE	HIGH	FADE
		09 <u>6</u>	000	127	000

4. Define the High and Low range of each Layer as shown above.
5. Press **Home/Enter** and use the data entry control to advance to the **PatchCord** page. Select Layer 1.
6. Select **XfdRnd** as the modulation source and **RTXfade** as the destination. Set the **Cord Amount** to +100.
7. Repeat step 6 for the remaining three layers.

Transposing the Instrument

L1	PATCHCORD	#01
	XfdRand -> RTXfade	+100

- That's it! Now set each Layer up the way you want. Try radically different instruments, filter settings, or tunings. Or you can make each layer just slightly different for a more natural effect. Try adjusting the Fades or overlapping the ranges if you want more than one layer to play at once.

The Transpose parameter lets you transpose the key of the current layer's Instrument. Transpose works by shifting the keyboard position in semitone intervals relative to middle C. Use this parameter to transpose different layers apart by semitone intervals. For example, by transposing one layer by +7 semitones, it will track other layers at a perfect fifth interval.



The transposition range varies for each instrument. The software limiters have been removed in order to provide extreme transpositions. The upper and lower transposition range is now limited by the original pitch, the sample rate of the instrument's sample and the G-chip interpolation hardware.

L1	TRANPOSE
	+36 semitones

Tuning

The Tuning parameter changes the pitch of the key in semitone and 1/64 semitone intervals.

L1 <u>T</u> UNING	
Coarse: +36	Fine: +63

Use the Coarse field to shift the tuning by semitone intervals. Use the Fine field to shift tuning by 1/64 semitones (or 1.56 cents) intervals.

Background: Transpose vs. Coarse Tuning

Transpose works by shifting the keyboard assignment of the Instrument (as if you were sliding the keyboard up and down with the Instrument remaining in the same position). Coarse Tuning keeps the instrument placement on the keyboard and actually tunes the samples up using a digital process called interpolation. Use Course Tuning on drum instruments to change the pitch while keeping sample placement constant. Coarse Tuning can also be useful to slightly change the timbre of the instrument.

Amplifier

This parameter sets the initial volume and pan position of the current layer. These values can be changed using any Real-time Controller set up in the PatchCords. The value range for the volume is from -96 dB to +10 dB. 0 dB is the default setting. Routinely turning the volume up to +10 dB is not recommended because it doesn't allow other modulation sources to increase the volume further.

L1 <u>A</u> mplifier	
Volume: +10dB	Pan: 48L

This field determines the initial Pan value for the current layer. The value range for Pan is from 64L to 0 (left) and 0 to 63R (right). Pan adjusts the volume into the left and right output channels relative to the Pan setting in the main Preset Select screen (see "Channel Pan" on page 48). So, if you, for example, set the Pan value in the Preset Select screen to 64L and set this Pan value to 63R, the actual pan amount would be 0 as these two pan parameters are relative to each other.

Volume Envelope



Factory Mode is useful for Instruments containing multiple drums, since each drum can have its own envelope settings.

A factory drum kit envelope actually contains a separate envelope for every voice on every key instead of a single global envelope.



If two adjacent segments have the same level in a "time-based" envelope, the segment will be skipped. Adjacent segments must have different levels for the rate control to work.

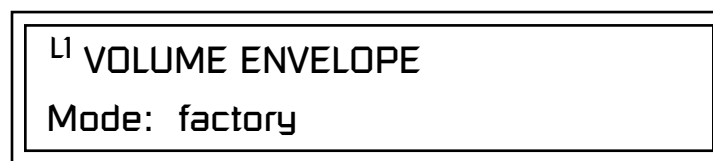
An envelope can be described as a "contour" which is used to shape the sound over time. The *Volume Envelope* controls the volume of the sound in the current layer over time. The way the volume of a sound evolves has a profound effect on how we perceive the sound.

Each instrument has its own Factory preset Volume Envelope setting. The Volume Envelope allows you to program your own envelope settings.

Selecting the Mode

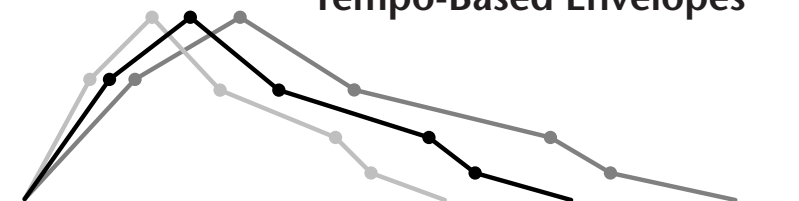
The Mode field determines whether the layer will use the instrument's default envelope (Factory) or use the user-programmed Volume Envelope. There are three mode options and repeat.

- **Factory:** Uses the factory preset envelope contained in each instrument. If you select the "Factory" mode, the Volume Envelope parameters are disabled and the factory defined settings are used instead.




- **Time-based:** Defines the Volume Envelope rates from 0 to 127 (approximately 1 ms to 160 seconds). The Master clock has no affect on time-based rates.
- **Tempo-based:** The Volume Envelope times vary based on the master tempo setting. Note values are displayed instead of a number when the time corresponds to an exact note value. Tempo-based envelopes are useful when using external sequencers and arpeggiators because the envelope rates compress and expand according to the Master Tempo setting, keeping the envelopes in sync with the sequence or arpeggio.

Tempo-Based Envelopes



- = Initial Setting
- = Increase Master Tempo
- = Decrease Master Tempo

Tempo-based envelope rates change according to the Master Tempo rate.

 See the Programming Basics section of this manual for detailed information about how the Envelopes work.

Defining the Volume Envelope


The Volume Envelope controls the volume of the layer over time. The Volume Envelope has six stages to the contour: Attack 1, Attack 2, Decay 1, Decay 2, Release 1 and Release 2. When a key is pressed, the Envelope goes through the first four stages. If you continue to hold down the key, the envelope holds at the Decay 2 level. When the key is released, the envelope continues through the Release stages ending at the Release 2 level.

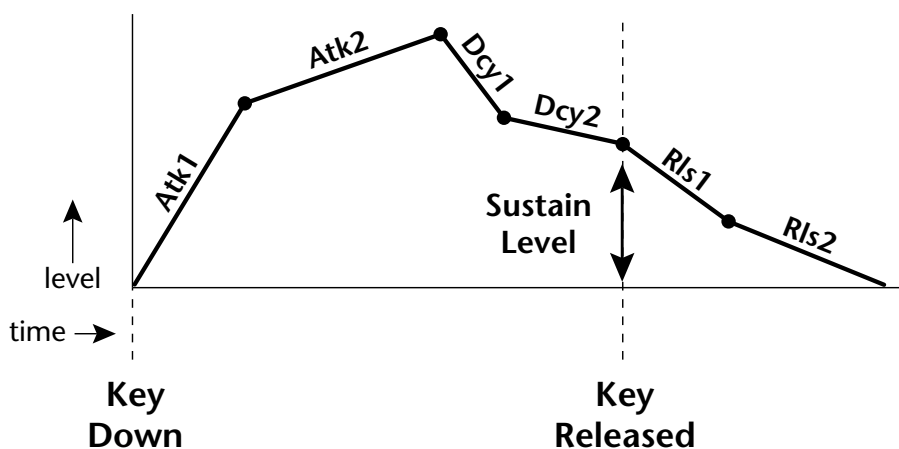
L1	VOL ENV	RATE	LEVEL
	<u>A</u> ttack 1	84	100%

As soon as the Attack 1 level is reached, the Attack 2 phase begins. When the Attack 2 Level is reached, the Decay 1 phase begins. When the key is released, the envelope immediately jumps to the Release 1 stage, then the Release 2 stage finally ending at the Release 2 level.

If you have selected the factory mode, the Volume Envelope parameter screen looks like the following illustration.

L1	VOL ENV	RATE	LEVEL
	(using factory envelope)		

 If the Release 2 level is set at a value other than zero, the note will continue to sound after the key is released. This might be useful for drone effects, but the channel won't stop sounding until all channels are used up.



On the Volume Envelope, levels can only be set to positive values. The value range is from 0 to +100.

Chorusing the Layer



WARNING: Because it works by doubling instruments, Chorusing halves the number of notes you can play.

Chorusing “thickens” the sound by doubling the sound in stereo and then detuning it. Every layer with chorus turned on uses twice the polyphony for that layer.

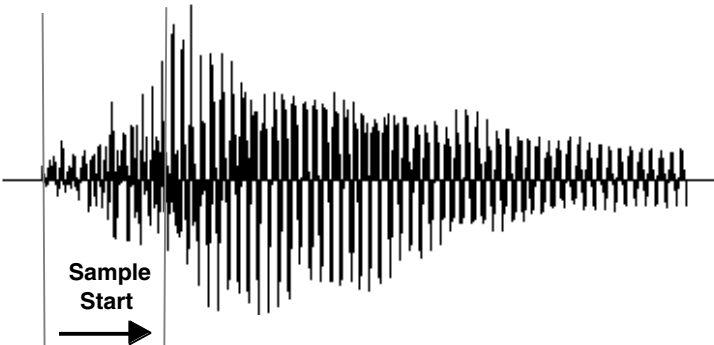
L1 CHORUS	WIDTH
off	100%

The first field in this screen turns Chorus On or Off and allows you to adjust the amount of detuning (1 to 100%). The *Width* parameter controls the stereo spread. 0% reduces the chorus to mono and 100% provides the most stereo separation.

Sound Start Offset, Delay & Key-up Layer

Sound Start sets where the instrument begins playing when you hit a key. Setting the Start Offset amount to “0” plays the sample from the beginning. Higher values move the Sample Start Point further into the sample toward the end. There is also a PatchCord source which can be used to change the Sound Start point at note-on time.

L1 SOUND	START	DELAY
	127	0

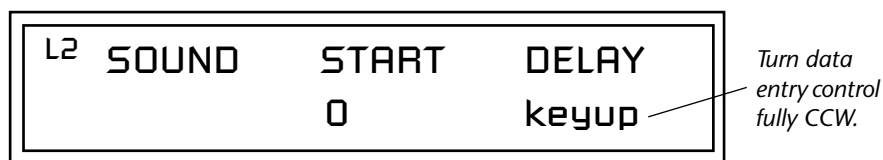


Controlling the Sound Start using Key Velocity (< Amt -) brings in the attack of the wave only when you play hard. This is especially effective with percussion instruments.

Delay defines the time between when you hit a key (note-on) and the onset of the current layer’s note and the start of the envelopes (if applicable). Delay values below zero are *Tempo-based* values, meaning the time is based on the Master Tempo setting. Note values are displayed by adjusting the Delay Time value below zero. The sound will be delayed by the selected note value based on the master clock.

Key Up Layer - The synthesizer layers can be programmed to play when a key is *Released* instead of when it is pressed. This feature has a multitude of applications, including the simulation of key-up sounds of a harpsichord or piano damper pedal noise. You can also create complex sounds with a different instrument on the release. The volume of a key-up layer could be controlled using a pedal or wheel to articulate controllable guitar squeaks or other sounds.

The envelopes play through all six stages on a key-up layer, except that there is no sustain. The key sustain is ignored so that the sound won't just keep sustaining forever when a key is released, but otherwise the envelopes operate normally. Depending on the Key-up sound, you may have to adjust the envelope settings for the desired response. If you can't hear the key-up layer, it usually means that the Decay 2 Rate is too short.



Key up layers interact with the sustain cord destination. For example, if a note is played with the sustain pedal held, the release layer will sound when the sustain pedal is released.

The Key-up feature cannot be used together with Solo mode. If solo mode is selected, the key-up trigger action will be disabled. The Key-up feature CAN be used in conjunction with Assign Group, Mono if you want to limit the polyphony of the key-up channel to a single channel. This is especially useful when simulating damper pedal sounds.

The Key-up layer responds to Key-down velocity just like a normal layer. This is done to facilitate layering with a Key-down layer. (i.e. when the Key-down layer is softer, the Key-up layer will also be softer.)

► To Program a Key-Up Layer

1. Select a preset and press the **Preset Edit** button.
2. Scroll to the Instrument screen and select a sound for your Key-up layer. *(For example, program Layer 1 to be your primary sound and Layer 2 your key-up sound.)*
3. Scroll to the Sound Start screen shown above using the data entry control.
4. Select the layer of your key-up sound.
5. Move the cursor to the Delay field and turn the data entry control counter-clockwise until the display changes to read "key-up" as shown above.
6. Play the keyboard or keypads. You should now hear your key-up sound when you release the key.

Non-Transpose Mode

This function turns keyboard transposition On or Off for the current layer. With Nontranspose “on,” the keyboard will not control the pitch of the instrument. This is a useful function for drones, attack “chiffs,” or other sound effects which you may not want to track the keyboard.

L1 NONTRANSPOSE
off

Solo Mode

Provides the playing action of a monophonic instrument such as a lead synthesizer by preventing more than one note from sounding at once. There are eight different solo modes provided. Try setting up different layers with different solo mode and glide rates or combine solo mode with polyphonic playing modes.

L1 SOLO MODE
synth (low)



In order to define a monophonic glide (see the Portamento parameter), you must be in Solo mode.

The Solo modes are:

Multiple Trigger: Last note priority. No key-up action. Retriggers envelopes and samples when a key is pressed.

Melody (last): Last note priority. No key-up action.

First solo note: Envelopes start at Attack segment from zero. Samples start at the beginning.

If previous note is releasing: Envelopes start at Attack segment, but from current level. Samples start at the beginning.

When playing “Legato”: Envelopes continue from current segment and level. Samples start at the loop or the beginning if unlooped.

Melody (low): Same as Melody (last), but with low note priority. Newly played keys which are higher than the lowest solo key held do not sound.

Melody (high): Same as Melody (last), but with high note priority. Newly played keys which are lower than the highest solo key held do not sound.

Synth (last): Similar to Melody (last) but this mode has key-up action. When you release the currently sounding solo key while holding other keys down, the highest held solo key sounds in a Legato fashion.

Assign Group

Synth (low): Same as Synth (last) but with low note priority. When you release the currently sounding solo key while holding other keys down, the lowest held solo key sounds in a Legato fashion (MiniMoog).

Synth (high): Same as Synth (last) but with high note priority. When you release the currently sounding solo key while holding other keys down, the highest held solo key sounds in a Legato fashion.

Fingered Glide: Same as Synth (last), except that Glide is disabled when playing Staccato, enabled when playing Legato.

Use the Assign Group parameter to assign a certain number of channels to each layer. By assigning all voices in the preset to assign groups, important parts are protected from being “stolen” by more recently played keys. Or you can assign a voice, such as an open high hat, to a mono channel so it is cancelled by a closed high hat on the same mono channel. Layers rotate within their assigned “bin” of channels, not interfering with other bins.



The modes are:

Poly All: Notes are played polyphonically with dynamic channel assignment using all 64 channels.

Poly 16 A-B: Two bins of 16 channels each. Notes are played polyphonically with dynamic channel assignment using no more than 16 channels.

Poly 8 A-D: Four bins of 8 channels each. Notes are played polyphonically with dynamic channel assignment using no more than 8 channels each.

Poly 4 A-D: Four bins of 4 channels each. Notes are played polyphonically with dynamic channel assignment using no more than 4 channels each.

Poly 2 A-D: Four bins of 2 channels each. Notes are played polyphonically with dynamic channel assignment using no more than 2 channels each.

Mono A-I: Nine monophonic channels. Any layers assigned to the same letter interrupt each other without affecting other layers.

Glide

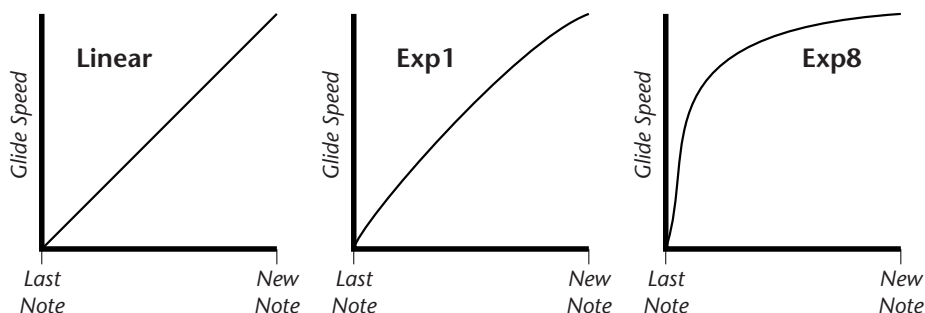
Glide creates a smooth transition from one note to the next instead of the normal instantaneous change in pitch when a new key is pressed. This effect is commonly heard on slide guitars, synthesizers and violins.

L1 GLIDE RATE	CURVE
0.000 sec/oct	linear

The front panel **Glide Button** LED comes on when the any layer of the current preset has a glide rate greater than 0.000 seconds (regardless of if a PatchCord is connected or not). Pressing the button turns the LED and glide off. Pressing the front panel glide button when all layers are set to a glide of 0.000 turns glide on with a rate of 0.142 seconds/octave.

The **Glide Rate** parameter defines the time it takes to glide to the new pitch (the larger the value, the slower the glide rate) The glide rate value range is from 0 through 32.738 seconds (zero means off).

The **Glide Curve** describes how the glide accelerates as it slides between notes. Because of the ear's non-linear response to pitch, a linear glide sounds slow at the beginning and speeds up toward the end. Exponential curves actually sound smoother and more linear. Eight exponential curves are provided. Choose one that suits your style.



Glide can be either polyphonic or monophonic depending of the state of *Solo Mode*.

► To Set up a Glide Rate Knob:

1. Set at least one layer to the minimum setting of 0.002 sec/oct. (This forces the Glide LED to come on.)
2. Connect the MIDI controller of your choice to Glide Rate on the layers you'd like to glide. Adjust the Cord Amount for the desired range.
3. Disconnect the MIDI controller from whatever else it was connected to before you started mucking about.
4. The Glide button turns Glide on/off and the knob controls the rate.

Z-Plane Filters

A filter is a device which changes the output of a signal (sound) by removing certain elements of the signal based on the frequency and amplitude. The “Order” of a filter defines the number of filter elements it contains. The more elements, the more complex the filter.

XL-7 contains 50 different types of E-MU’s celebrated Z-plane filters. In addition to the standard Low pass, High pass and Band pass filters, XL-7 contains Swept Octave Equalizers, Phasers, Flangers, Vocal Formant Filters, and digital models of classic synthesizer filters.

In the filter chart below you will notice that the “Order” of the filters varies from 2 to 12 order. Higher order filters have more sections and can produce more complex formants. XL-7 can produce 128 filters of up to 6th order or 64 filters of 12th order complexity. Therefore, if you decided to use all 12th order filters, XL-7 would be limited to 64 voices.

XL-7 Filter Types

This screen allows you to choose the type of filter for the current layer.

L1	FILTER	Ord	Type
	Phazer 2 E4	6	PHA

Filter Types	
LPF	Low-pass filter
PHA	Phaser
HPF	High-pass filter
FLG	Flanger
BPF	Band-pass filter
VOW	Vowel/ formant
EQ+	EQ boost
EQ-	EQ cut
SFX	Special Effect

Filter Name	Order	Type	Description
Smooth	02	LPF	Typical OB type low-pass filter with a shallow 12 dB/octave slope.
Classic	04	LPF	4-pole low-pass filter, the standard filter on classic analog synths. 24 dB/octave rolloff.
Steeper	06	LPF	6-pole low-pass filter which has a steeper slope than a 4-pole low-pass filter. 36 dB/octave rolloff!
MegaSweepz	12	LPF	“Loud” LPF with a hard Q. Tweeters beware!
EarlyRizer	12	LPF	Classic analog sweeping with hot Q and Lo-end.
Millennium	12	LPF	Aggressive low-pass filter. Q gives you a variety of spiky tonal peaks.
KlubKlassik	12	LPF	Responsive low-pass filter sweep with a wide spectrum of Q sounds
BassBox-303	12	LPF	Pumped up lows with TB-like squelchy Q factor.
Shallow	02	HPF	2-pole high-pass filter. 12 dB/octave slope.
Deeper	04	HPF	Classic 4-pole high-pass filter. Cutoff sweep progressively cuts 4th Order High-pass.
Band-pass1	02	BPF	Band-pass filter with 6 dB/octave rolloff on either side of the passband and Q control.
Band-pass2	04	BPF	Band-pass filter with 12 dB/octave rolloff on either side of the passband and Q control.

Filter Name	Order	Type	Description
ContraBand	06	BPF	A novel band-pass filter where the frequency peaks and dips midway in the frequency range.
Swept1>1oct	06	EQ+	Parametric filter with 24 dB of boost or cut and a one octave bandwidth.
Swept2>1oct	06	EQ+	Parametric filter with 24 dB of boost or cut. The bandwidth of the filter is two octaves wide at the low end of the audio spectrum, gradually changing to one octave wide at the upper end.
Swept3>1oct	06	EQ+	Parametric filter with 24 dB of boost or cut. The bandwidth of the filter is three octaves wide at the low end of the audio spectrum, gradually changing to one octave wide at the upper end.
DJAlkaline	12	EQ+	Band accentuating filter, Q shifts “ring” frequency.
AceOfBass	12	EQ+	Bass-boost to bass-cut morph
TB-OrNot-TB	12	EQ+	Great Bassline “Processor.”
BolandBass	12	EQ+	Constant bass boost with mid-tone Q control.
BassTracer	12	EQ+	Low Q boosts bass. Try sawtooth or square waveform with Q set to 115.
RogueHertz	12	EQ+	Bass with mid-range boost and smooth Q. Sweep cutoff with Q at 127.
RazorBlades	12	EQ-	Cuts a series of frequency bands. Q selects different bands.
RadioCraze	12	EQ-	Band limited for a cheap radio-like EQ
AahAyEeh	06	VOW	Vowel formant filter which sweeps from “Ah” sound, through “Ay” sound to “Ee” sound at maximum frequency setting. Q varies the apparent size of the mouth cavity.
Ooh-To-Aah	06	VOW	Vowel formant filter which sweeps from “Oo” sound, through “Oh” sound to “Ah” sound at maximum frequency setting. Q varies the apparent size of mouth cavity.
MultiQVox	12	VOW	Multi-Formant, Map Q To velocity.
Ooh-To-Eee	12	VOW	Oooh to Eeee formant morph.
TalkingHedz	12	VOW	“Oui” morphing filter. Q adds peaks.
Eeh-To-Aah	12	VOW	“E” to “Ah” formant movement. Q accentuates “peakiness.”
UbuOrator	12	VOW	Aah-Uuh vowel with no Q. Raise Q for throaty vocals.
DeepBouche	12	VOW	French vowels! “Ou-Est” vowel at low Q.
PhazeShift1	06	PHA	Recreates a comb filter effect typical of phase shifters. Frequency moves position of notches. Q varies the depth of the notches.

Filter Name	Order	Type	Description
PhazeShift2	06	PHA	Comb filter with slightly different notch frequency moving the frequency of notches. Q varies the depth of the notches.
FreakShifta	12	PHA	Phasey movement. Try major 6 interval and maximum Q.
CruzPusher	12	PHA	Accentuates harmonics at high Q. Try with a sawtooth LFO.
FlangerLite	06	FLG	Contains three notches. Frequency moves frequency and spacing of notches. Q increases flanging depth.
AngelzHairz	12	FLG	Smooth sweep flanger. Good with vox waves. eg. I094, Q =60
DreamWeava	12	FLG	Directional Flanger. Poles shift down at low Q and up at high Q.
MeatyGizmo	12	REZ	Filter inverts at mid-Q.
DeadRinger	12	REZ	Permanent “Ringy” Q response. Many Q variations.
ZoomPeaks	12	REZ	High resonance nasal filter.
AcidRavage	12	REZ	Great analog Q response. Wide tonal range. Try with a sawtooth LFO.
BassOMatic	12	REZ	Low boost for basslines. Q goes to distortion at the maximum level.
LucifersQ	12	REZ	Violent mid Q filter! Take care with Q values 40-90.
ToothComb	12	REZ	Highly resonant harmonic peaks shift in unison. Try mid Q.
EarBender	12	WAH	Midway between wah & vowel. Strong mid-boost. Nasty at high Q settings.
FuzziFace	12	DST	Nasty clipped distortion. Q functions as mid-frequency tone control.
BlissBatz	06	SFX	Bat phaser from the Emulator 4.
KlangKling	12	SFX	Ringling Flange filter. Q “tunes” the ring frequency.

Filter Parameters

The Freq and Q parameters control various elements of the filter depending on the type of filter used. See the table in the *Filter Types* section for details about what the Freq and Q fields control in each filter.

LI FILTER

Freq: 255

Q: 019

Filter Envelope

The Filter Envelope is normally used to control the filter frequency and has six stages. Unlike the Volume Envelope, the Filter Envelope must be patched to the Filter Frequency using a PatchCord. In this respect, it can be thought of as a general purpose envelope generator which is normally patched to control the filter. The Filter Envelope Levels can be negative as well as positive.

There are three mode options:

- **Time-based:** Defines the Filter Envelope rates from 0 to 127 (approximately 1 ms to 160 seconds). The Master clock has no affect on time-based rates.

L1	FILT ENV	RATE	LEVEL
	Attack 1	<u>8</u> 4	100%

- **Tempo-based:** The Filter Envelope times vary based on the master tempo setting and are displayed in values such as 1, 2, 3, etc. Note values are displayed instead of a number when the time corresponds to an exact note value. Tempo-based envelopes are useful when using arpeggiators and sequencers because the envelope rates compress and expand according to the Master Tempo setting, keeping the envelopes in sync with the music. See the illustration on page 176.

L1	FILT ENV	RATE	LEVEL
	Attack 1	<u>1</u> /4	100%

- **Envelope Repeat:** The Envelope Generators can also be made to repeat. When the envelope repeat function is On, the Attack (1&2) and Decay (1&2) stages will continue to repeat as long as the key is held. As soon as the key is released, the envelope continues through its normal Release stages (1 & 2). For more information see page 176.

► To Turn on Envelope Repeat:

1. Move the cursor until it is underneath the Mode field as shown below.

L1	FILTER ENVELOPE
	<u>M</u> ode: time-based

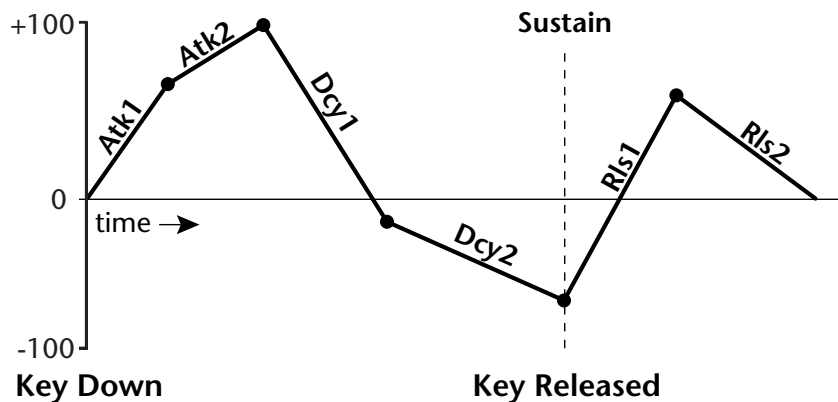
2. Turn the data entry control clockwise. The lower line changes to:

L1 FILTER ENVELOPE
Repeat: off

3. Move the cursor underneath the on/off field, then turn the data entry control clockwise so that Repeat is On.

Defining the Filter Envelope

The Filter Envelope controls the filter frequency of the layer over time. The Envelope has six stages to the contour: Attack 1, Attack 2, Decay 1, Decay 2, Release 1 and Release 2. When a key is pressed, the Envelope goes through the first four stages. If the key continues to be held, the envelope holds at the Decay 2 level. When the key is released, the envelope immediately jumps to the Release 1 stage, then the Release 2 stage finally ending at the Release 2 level.



See the Programming Basics section of this manual for detailed information about how the Envelopes work.

The default PatchCord settings connect the Filter Envelope to Filter Frequency but the envelope can be routed to any real-time control destination using a PatchCord.

Auxiliary Envelope

The Auxiliary Envelope is a supplementary general purpose envelope that can be routed to any real-time control destination in the PatchCords. It is identical to the filter envelope generator. See “Filter Envelope” on page 224 for full details.

Low Frequency Oscillators (LFOs)

A Low Frequency Oscillator or LFO, is simply a wave that repeats at a slow speed. XL-7 has two LFOs per layer identified on the display as LFO1 and LFO2.

An LFO can be routed to any real-time control destination using a PatchCord. LFOs have a myriad of uses, some of which probably haven't been thought of yet. The following examples show a few common uses.

- Control the pitch of the sound (LFO -> Pitch). This effect is called "vibrato" and is an important performance tool. Many presets use this routing with the modulation wheel controlling "how much" modulation is applied.
- Create a "tremolo" effect by routing the LFO to control the volume (LFO -> AmpVolume).
- Add a bit of animation to the sound by routing the LFO to control the filter. Set the PatchCord amount low for a subtle effect.

The LFOs have five parameters: Shape, Sync, Rate, Delay and Variation.

Shape

LFO waveforms have different shapes. The shape of the waveform determines the effect of the LFO. LFOs have traditionally been used to add vibrato or repeating movement to a sound. These new shapes offer a lot of new programming possibilities.

L1	LFO1	SHAPE	SYNC
		sawtooth	<u>key</u> sync

If you modulate the pitch of an instrument, it's easy to visualize the shape of the waveform. For example, the sine wave has a smooth, rolling shape that changes the pitch smoothly. The square waveform changes between two pitches abruptly. A sawtooth waveform increases the pitch smoothly, then abruptly changes back down. The available waveforms are shown on the following page.

LFO Tricks & Tips:

- The Random LFO wave is truly random and is different for each voice and layer.
- The Pattern (Pat) waveforms will sound the same on different layers and voices.
- Sine + Noise is very useful for simulating trumpet and flute vibrato.

★ When routing Hemi-quaver to Pitch:

+38 = major scale

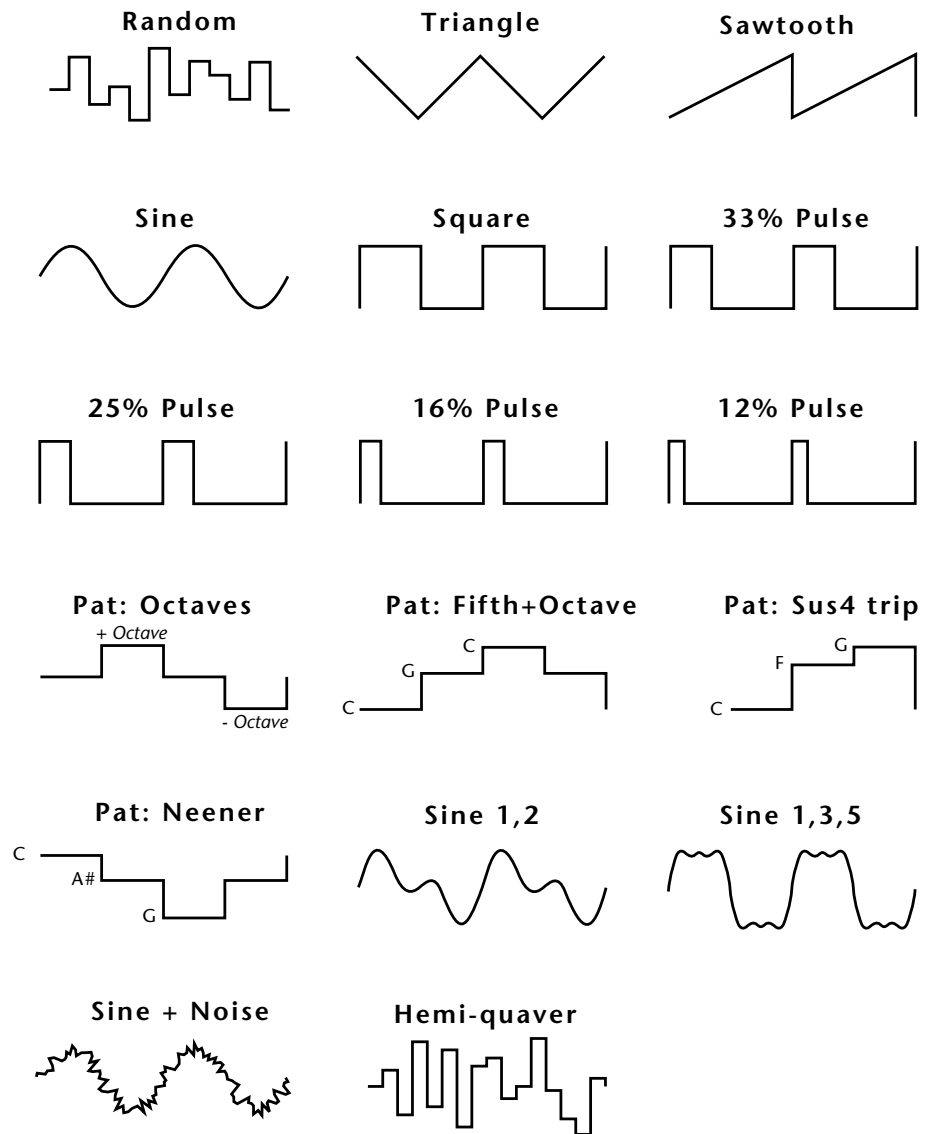
-38 = phrygian scale

+76 = whole tone scale

(+38) + (+76) = diminished (two cords)

odd amount = S+H sound

Note: References to musical intervals in the pattern LFO shapes are with the LFO routed to pitch and a PatchCord amount of +38.



Sync

The Sync field specifies whether the LFO is synchronized to a key stroke or is Free Running. Key Sync starts the LFO wave at the beginning of its cycle each time you press a key on the controller. In Free Run mode, the LFO wave begins at a random point in its cycle each time you press a key on the controller.

Rate

The Rate field determines the LFO speed in absolute frequency rate values or tempo-based note values. All values equal to or greater than zero specify absolute frequency values from 0.08 Hz to 18.14 Hz.



LFO Synced to 1/4 Note Clock

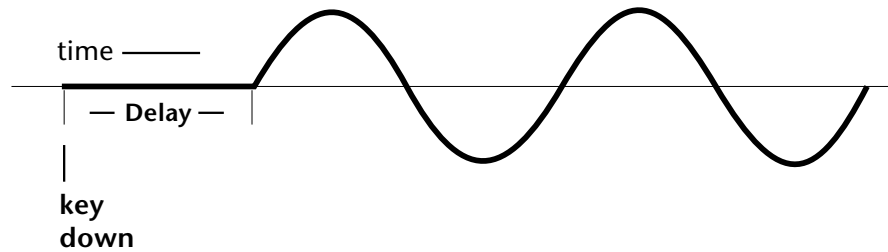
Values less than zero specify tempo-based rates. If you modulate the rate of a tempo-based LFO, the rates will jump between the tempo-based note values with each PatchCord increment of "1". As an example: if the LFO rate was set to 8/1 and you patched the Mod Wheel to control rate with a PatchCord amount of +1, turning the Mod Wheel to maximum would change the LFO rate to 4/1d. Refer to the chart below.

L1	LFO1	RATE	DELAY	VAR
		<u>0</u> .08Hz	60	020

Tempo-based Rates (based on Master Tempo)	Display
octal whole note	8/1
dotted quad whole note	4/1d
octal whole note triplet	8/1t
quad whole note	4/1
dotted double whole note	2/1d
quad whole note triplet	4/1t
double whole note	2/1
dotted whole note	1/1d
double note triplet	2/1t
whole note	1/1
dotted half note	1/2d
whole note triplet	1/1t
half note	1/2
dotted quarter note	1/4d
half note triplet	1/2t
quarter note	1/4
dotted 8th note	1/8d
quarter note triplet	1/4t
8th note	1/8
dotted 16th note	1/16d
8th note triplet	1/8t
16th note	1/16
dotted 32nd note	1/32d
16th note triplet	1/16t
32nd Note	1/32

Delay

The Delay parameter defines the amount of time between hitting a key on the controller and the onset of the LFO modulation. Delay can be used to simulate an effect often used by acoustic instrument players where the vibrato is brought in only after the initial note pitch is established. The following illustration demonstrates how delay works.



All Delay values equal to or greater than zero specify absolute time rates from 0 to 127. Values less than zero specify Tempo-based mode. Refer to the previous table for times and tempo-based rates.

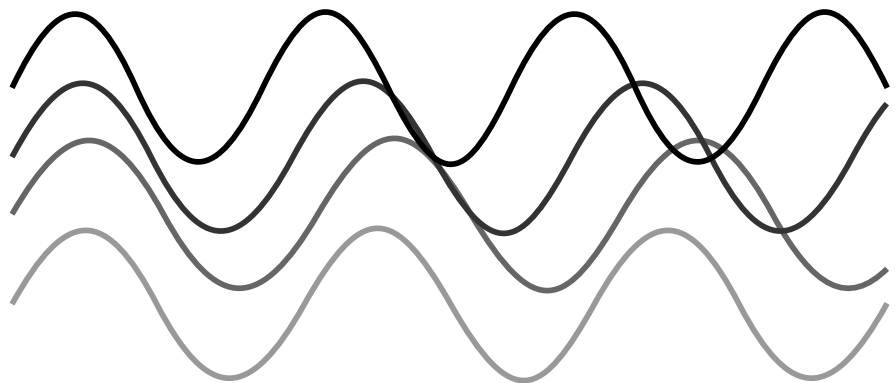
Variation

LFO Variation sets the amount of random variation of the LFO each time you press a key on the controller. This creates a chorus or ensemble effect since each note played has a slightly different modulation rate. The higher the value entered, the greater the note to note variation in the LFO.

The Variation value range is from 0 through 100.



Variation is disabled when a Tempo-Based LFO is selected.

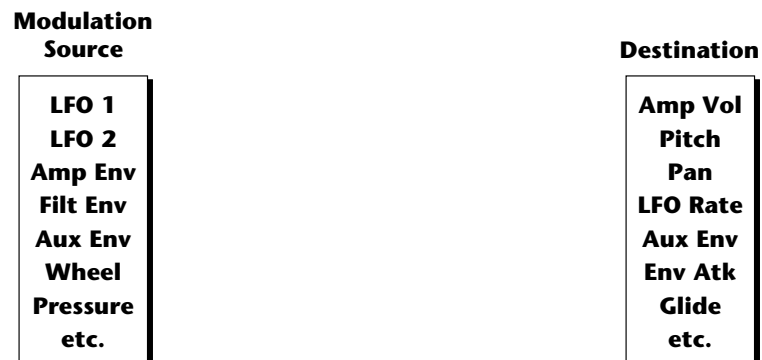
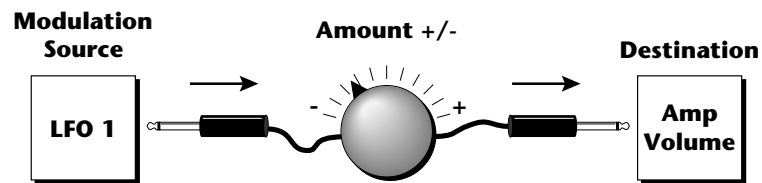


LFO variation changes the rate of each note to create an “ensemble” effect.

PatchCords

PatchCords tie everything together by connecting modulation sources to destinations. Each PatchCord has its own *Amount* control which can be positive or negative (negative amounts invert the signal). In addition, the PatchCord amounts themselves can be controlled by any modulation source. XL-7 provides 24 patches for each layer.

There are three permanently connected control routings: volume envelope to amplifier, pitch wheel to pitch and key to pitch. All other connections must be made using the PatchCords.



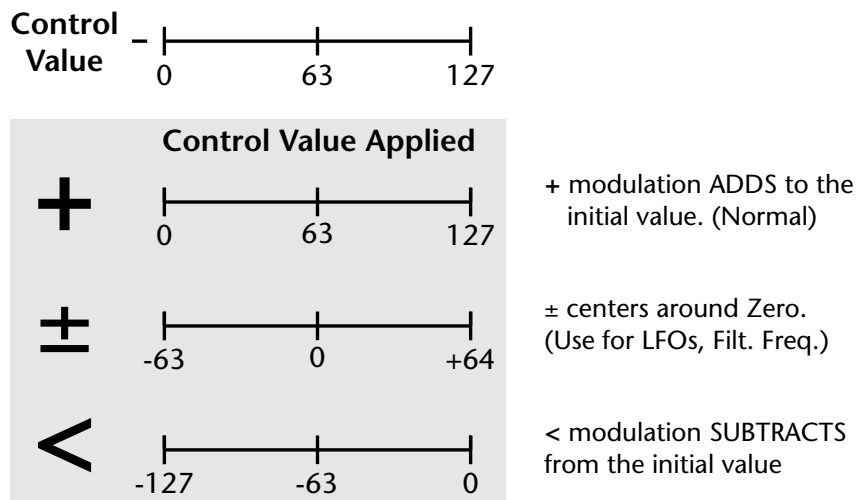
Each patch has an amount field which determines how much modulation is applied to the destination. The modulation amount can be positive or negative. Negative values invert the input. The amount value range is from -100 to +100.

L1	PATCHCORD	#01
<u>R</u> lsVel	-> AmpVol	+100

L1	PATCHCORD	#24
<u>K</u> ey+	-> FiltRes	-27

Modulator Polarity

You will notice that some of the modulation sources have symbols following their names. For example, there are three Velocity modulation sources, Vel +, Vel \pm , and Vel <.



"+" Modulation: Uses only the positive half of the range, adding to the current value. For example, if the filter frequency were set to 100 and you patched Vel+ to the filter, the filter frequency would increase from 100 as velocity was applied.

" \pm " Modulation: Uses both sides (full) range and both adding and subtracting from the current value. For example, if the filter frequency were set to 100 and you patched Vel \pm to the filter, the filter frequency would decrease from 100 with key velocities of 63 or less and increase from 100 with key velocities of 64 and above. Therefore with medium velocity, the Filter frequency is approximately where you set it at 100.

An LFO \pm works the same way; on the positive half of the cycle it increases the initial amount and on the negative half of the cycle it decreases the initial amount. With a \pm modulation source, a value of 64 equals 0.

"<" Modulation: Uses only the negative half of the range, subtracting from the current value. For example, if the Amplifier Volume were set to +3 dB and you patched Vel < to AmpVol, the volume would be at +3 dB only when maximum key velocity were applied. Lower key velocities would scale back the volume. In general, < modulation is the proper choice when modulating Volume.

Here is a list of all layer modulation sources and destinations in XL-7.

Important! *The Touchstrip is programmed from the PitchWhl modulation source.*

Note: *Flip-Flop Footswitches 1 & 2 remain in their last condition when a new preset is selected.*

Flip-Flop Footswitch 3 resets to the Off condition whenever a new preset is selected.

Note: *The Envelope Sustain parameter controls the Decay 2 Level segment of the envelope generator.*

Modulation Sources:

Off
Key (+, ±)
Velocity (+, ±, <)
RlsVel (Release Velocity)
Gate
Pressure (Aftertouch)
PitchWhl (Pitch Wheel, TouchStrip)
ModWhl (Modulation Wheel)
Pedal
MIDI Volume (Controller 7)
MIDI Pan (Controller 10)
MIDI Expression (Controller 11)
MIDI A-P
PLagOut (Preset Lag Out)
PRampOut (Preset Ramp Out)
FootSw1 - 3 (Foot Switch 1-3)
FootFF (Flip-Flop Foot Switch 1 -3)
Key Glide
VolEnv +, ±, < (Volume Envelope)
FilEnv +, ±, < (Filter Envelope)
AuxEnv +, ±, < (Auxiliary Envelope)
LFO 1 & 2 (+, ±)
White (White Noise)
Pink (Pink Noise)
XfdRand (Crossfade Random)
KeyRand 1 & 2 (Key Random)
Lag 0 sum (summing amp out)
Lag 1 sum (summing amp out)
Lag 0 & 1 (Lag Processor)
Clk Divisors (Octal, Quad, Double Whole, Whole, Half, Qtr, 8th, 16th)
DC (DC Offset)
Summing Amp
Switch
Absolute Value
Diode
Flip-Flop
Quantizer
4x Gain

Modulation Destinations

Off
KeySust (Key Sustain)
FinePtch (Fine Pitch)
Pitch
Glide
ChrsAmt (Chorus Amount)
'SStart (Sample Start) -note-on)
SLoop (Sample Loop)
SRetrig (Sample Retrigger)
FiltFreq (Filter Frequency)
'FiltRes (Filter Resonance -note-on)
AmpVol (Amplifier Volume)
AmpPan (Amplifier Pan)
RTXfade (Real-time Crossfade)
VEnvRts (Volume Envelope Rates -all)
VEnvAtk (Volume Envelope Attack)
VEnvDcy (Volume Envelope Decay)
VEnvSus (Volume Envelope Sustain)
VEnvRls (Volume Envelope Release)
FEnvRts (Filter Envelope Rates -all)
FEnvAtk (Filter Envelope Attack)
FEnvDcy (Filter Envelope Decay)
FEnvSus (Filter Envelope Sustain)
FEnvRls (Filter Envelope Release)
FEnvTrig (Filter Envelope Trigger)
AEnvRts (Auxiliary Envelope Rates -all)
AEnvAtk (Auxiliary Envelope Attack)
AEnvDcy (Auxiliary Envelope Decay)
AEnvSus (Auxiliary Envelope Sustain)
AEnvRls (Auxiliary Envelope Release)

AEnvTrig (Auxiliary Envelope Trigger)
LFO 1 & 2 Rate
LFO 1 & 2 Trigger
Lag Processor In 0 & 1
Sum (Summing Amp)
Switch
Abs (Absolute Value)
Diode
Quantize
Flip-Flop
Gain 4x
Cord 1-24 Amount

Pitch Bend Range

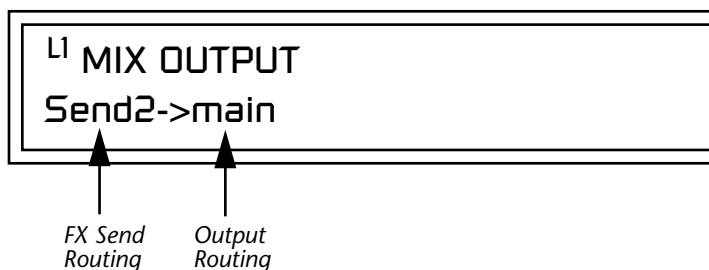
Specifies the Pitch Wheel range in semitones for the current layer. Pitch Wheel is a standard synthesizer control which is transmitted as a MIDI continuous controller message used (normally) to bend the pitch up and down.

The PitchBend range is from 0 to ± 12 semitones or "Master." A setting of "0" turns the pitch wheel Off for the current layer. The Master setting uses the Pitch Bend range defined in the *Global menu*.



Mix Output

This feature allows you to program the Effect Send as a part of the preset. Note that for this feature to work, the Mix Output setting in the Global menu MUST be set to "Preset" on the selected MIDI channel. If you want to define output routing by MIDI channel, set it up using the Mix Output page in the Global menu. See "Mix Output" on page 152 for more information.



The Sends function as effect processor inputs (effect sends). The Output Routing field shows the true routing of the Sends to the Main output.

► To Control the Mix Output from the Preset:

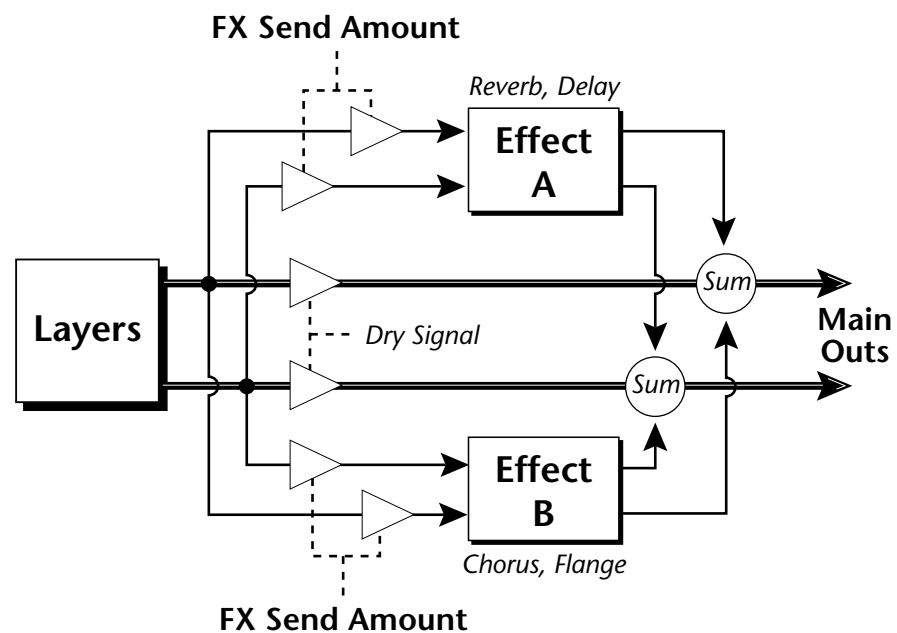
1. Move the cursor until it is underneath the Layer field and change the Layer using the data entry control.
2. Move the cursor until it is underneath the FX Send Routing field and change the Send (1-4) using the data entry control.
3. Locate the MIX OUTPUT screen in the Global menu.
4. Set the MIDI channel you are using to "use preset".

Common Preset Parameters

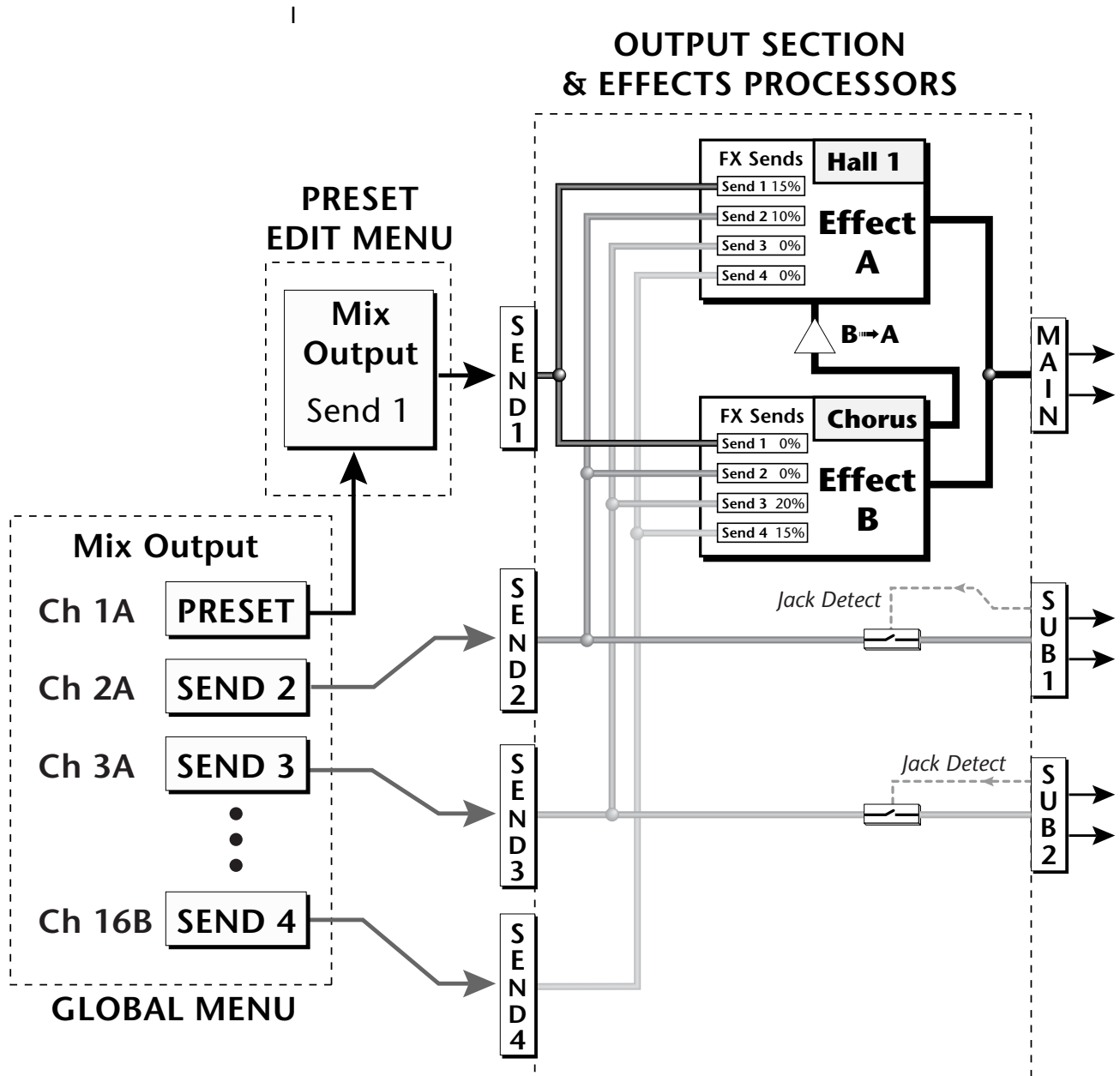
Preset Effects

This section of the Preset Edit menu chapter describes parameters that affect all layers in the preset.

XL-7 has two stereo effects processors. When playing presets one at a time, the two processors can be programmed as part of the preset. The diagram below shows how the effects are integrated into the signal path using a parallel effects send/return model, similar to a mixing console.



Refer to the Effects chapter for additional information and instructions for setting up both the Preset Effects and the Master Effects.



The Mix Output setting in the Global Menu determines if the Preset's Mix Output routing will be used. This allows the Sends to be programmed by either **MIDI Channel** or by **Preset**, whichever you prefer.

FXA Algorithm

This screen selects the effect type for Effect Processor A. The “A” effects consist of different reverb types and digital delays. Move the cursor to the lower line of the display and select the effect you want.

FXA ALGORITHM
Lg Concert Pan

A Effect Types

- | | |
|---------------------|-----------------------|
| 1. Room 1 | 23. BBall Court |
| 2. Room 2 | 24. Gymnasium |
| 3. Room 3 | 25. Cavern |
| 4. Hall 1 | 26. Concert 9 |
| 5. Hall 2 | 27. Concert 10 Pan |
| 6. Plate | 28. Reverse Gate |
| 7. Delay | 29. Gate 2 |
| 8. Panning Delay | 30. Gate Pan |
| 9. Multitap 1 | 31. Concert 11 |
| 10. Multitap Pan | 32. Medium Concert |
| 11. 3 Tap | 33. Large Concert |
| 12. 3 Tap Pan | 34. Large Concert Pan |
| 13. Soft Room | 35. Canyon |
| 14. Warm Room | 36. DelayVerb 1 |
| 15. Perfect Room | 37. DelayVerb 2 |
| 16. Tiled Room | 38. DelayVerb 3 |
| 17. Hard Plate | 39. DelayVerb 4 Pan |
| 18. Warm Hall | 40. DelayVerb 5 Pan |
| 19. Spacious Hall | 41. DelayVerb 6 |
| 20. Bright Hall | 42. DelayVerb 7 |
| 21. Bright Hall Pan | 43. DelayVerb 8 |
| 22. Bright Plate | 44. DelayVerb 9 |

FXA Parameters

The FXA parameters are Decay, High Frequency Damping, and the FxB to FxA send. **Decay** sets the length of time it takes an effect to fade out. **HF Damping** causes the high frequency energy to fade away more quickly during the reverb decay. **FxB to FxA** controls the amount of the “B” effect sent through effect “A”. This allows you to place the two effects in series and create setups such as “distortion through reverb” among others. Please refer to the Effects chapter for more information about the effects.

FXA	DECAY	HFDAMP	FxB>FxA
	048	064	000

FXA Send Amounts

These parameters set the effects amounts for each of the four stereo effects busses.

FXA SEND AMOUNTS		1:100%
2: 50%	3: 10%	4: 0%

FXB Algorithm

This screen selects the effect type for Effect Processor A. Move the cursor to the lower line of the display and select the effect you want.

FXB ALGORITHM
Panning Delay

B Effect Types

- | | | |
|--------------|--------------------|-----------------------|
| 1. Chorus 1 | 12. Flange 5 | 23. PanDelay Chorus 1 |
| 2. Chorus 2 | 13. Flange 6 | 24. PanDelay Chorus 2 |
| 3. Chorus 3 | 14. Flange 7 | 25. Dual Tap 1/3 |
| 4. Chorus 4 | 15. Big Chorus | 26. Dual Tap 1/4 |
| 5. Chorus 5 | 16. Symphonic | 27. Vibrato |
| 6. Doubling | 17. Ensemble | 28. Distortion 1 |
| 7. Slapback | 18. Delay | 29. Distortion 2 |
| 8. Flange 1 | 19. Delay Stereo | 30. Distorted Flange |
| 9. Flange 2 | 20. Delay Stereo 2 | 31. Distorted Chorus |
| 10. Flange 3 | 21. Panning Delay | 32. Distorted Double |
| 11. Flange 4 | 22. Delay Chorus | |

FXB Parameters

The FXB parameters are Feedback, LFO Rate and Delay. **Feedback** sends the output of the effect back into the input. This creates multiple echoes on a delay effect and intensifies a chorus or flange effect. **LFO Rate** allows you to change the speed of the modulation oscillator for flange and chorus effects. **Delay** sets the length of the delay line. This affects the time between echoes, or the tone of flange effects.

FXB	FEEDBK	LFORATE	DELAY
	032	003	200ms

FXB Send Amounts

These parameters set the effects amounts for the four stereo effects busses.

FXB SEND AMOUNTS			1:100%
2: 50%	3: 10%	4: 0%	

Preset Patchcords

Preset PatchCords give you real-time control of global parameters. The effect processors are a powerful synthesis tool and this feature lets you control and use them in exciting new ways. For example, you can dynamically adjust the effects mix during a sequence or live performance.

There are many exciting performance possibilities using Preset PatchCords to control Arpeggiator parameters and Effects Sends. The front panel knobs 15 & 16 are usually connected to Arp parameters in factory presets marked "arp:" Be sure to try out these controls



To crossfade between effects.

- 1) Set FXA Send 1 to 100%.
- 2) Set FXB Send 1 to 0%.
- 3) Set FX Cord #1 to FXA Send 1 at -100.
- 4) Set FX Cord #2 to FXB Send 1 at +100.

Increasing the controller amount will crossfade from FXA to FXB.

There are 12 Preset PatchCords per preset with a source, a destination and an amount control. The amount can be set from -100 to +100. The Preset PatchCord controls are **added** to the FX Send Amounts set in the Global or Preset Edit menus. In other words, multiple sources connected to destinations are **summed**.

PRESET CORDS			#01
Pedal	->	FXBSend2	+100

Modulation Sources:

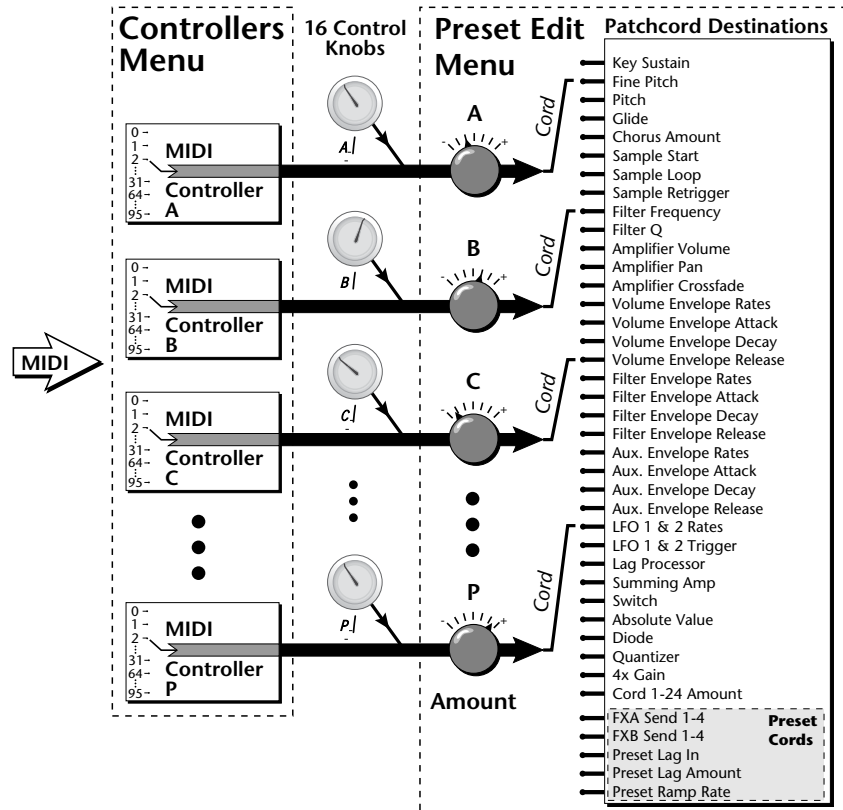
Off
PitchWhl (Pitch Wheel)
ModWhl (Modulation Wheel)
Pedal
MIDI Volume (Controller 7)
MIDI Pan (Controller 10)
MIDI A-L
Footswitch 1
Flip-Flop Footswitch 1
Footswitch 2
Flip-Flop Footswitch 2
Footswitch 3
Flip-Flop Footswitch 3
DC

Modulation Destinations

Off
Effect A Send 1
Effect A Send 2
Effect A Send 3
Effect A Send 4
Effect B Send 1
Effect B Send 2
Effect B Send 3
Effect B Send 4
Preset Lag In
Preset Lag Amount
Preset Ramp Rate
Arp Resolution
Arp Extension
Arp Velocity
Arp Gate
Arp Interval
Beats Velocity, Group 1-4
Beats Transpose (Xps) Group 1-4
Beats Busy
Beats Variation

Initial Controller Amount

This parameter sets the initial value of MIDI controllers A-P when the preset is first selected. The front panel Control Knobs can be thought of as front panel MIDI controllers because in the XL-7, they are treated just as if they originated from an external MIDI device. Refer to the following diagram. There are 4 Initial Controller Amount screens (A-D, E-H, I-L, M-P).



External MIDI controller numbers are assigned to the Letters A-P in the Controllers menu. The Initial Controller Amount value is sent to the PatchCord destination when the Preset is first selected. If you move the Control Knob, then that value replaces the initial value. If MIDI controller data is received it will similarly replace the knob or initial setting.

INITIAL CONTROLLER AMT			
A:017	B:112	C:127	D: off

The Initial controller amounts can be set from 000-127 or they can be turned Off. If set to Off, the current controller value is used when the preset is first selected. Setting the Initial Amount to "off" uses the values from the previously selected preset.


Keyboard Tuning

In addition to the standard equally divided octave tuning, XL-7 contains twelve factory programmed tunings and 12 user-definable tunings. The Keyboard Tuning parameter selects which tuning is used by the current preset. The User Tuning tables are defined in the Global menu.

The factory Keyboard Tuning tables are described in the following table.

Tuning Tables	Description
Equal Temperament	Standard Western tuning 12 equally spaced notes per octave.
Just C	Just intonation. Based on small interval ratios. Sweet and pure, non-beating intervals.
Vallotti	Valotti & Young non-equal temperament. Similar to 12 tone equal temperament. Each key has a different character for a given scale.
19-Tone	19 tone equal temperament. 19 notes per octave. Difficult to play, but works well with a sequencer.
Gamelan	5 tone Slendro and 7 tone Pelog. (Javanese.) Pelog are white keys, Slendro are black keys. Exotic tunings of Gamelan flavor.
Just C2	Allows you to play the following chords in the key of C: C, E, F, G, A, B, C#m, D#m, Em, F#m, G#m, Am, Bm
Just C-minor	Allows you to play the following chords in the key of C: C, E, F, G, A, B, Em, Am, Bm, C#m, D#m, G#m
Just C3	Allows you to play the following chords in the key of C: C, D, F, Bb, C#m, Dm, Em, F#m, G#m, Am
Werkmeister III	A "well" temperament developed in the 17th century. Although you can play in all keys, each key sounds slightly different.
Kirnberger	Another well temperament developed by Johann Philipp Kirnberger where no pitch is more than 12 cents off from equal temperament.
Scarlatti	A variant of Meantone tuning which was used from the 15th to 18th centuries.
Repeating Octave	Middle C octave is repeated up and down the keyboard. Link with a preset in equal temperament to form unusual inversions up and down the keyboard.
User 1-12	Define your own tuning tables (<i>Global menu</i>).

Refer to "User Key Tuning" on page 158 in the Global Menu chapter for instructions on how to define your own Keyboard Tunings.

 XL-7 implements the MIDI Tuning Dump protocol which allows you to create tuning tables on your personal computer and download them via MIDI. There are several computer applications available on the internet which let you create and download tuning tables via MIDI.

The Just C Tuning Tables

Well Tempered and Just were standard keyboard tunings up until the 20th-century when the current “equal tempered” scale became prevalent. In an equal tempered scale, the octave is equally divided into 12 parts. In Just or Well Tempered scales, the 12 notes are separately tuned to produce pure chords. However, in Just tunings you are limited to playing certain chords and if you play the wrong chord it may sound very BAD!

XL-7 allows you to modulate between keys by providing you 12 user tuning tables. Tuning tables can be changed as you play using a program change (create several presets with the same sound and different tuning tables), by MIDI SysEx command (using a programmable MIDI footswitch or other device), or using a continuous controller (link 2 presets and crossfade between them using a controller).

The Just C2, Just C min, Just C3 Tuning Tables

These new tuning tables take the concept of just intonation a step beyond previous E-MU products. Fully explaining the mysteries of just intonation is beyond the scope of this manual, but the subject is covered exhaustively in Hermann Helmholtz's On the Sensations of Tone, available at most libraries and bookstores.

The new tables are called Just C2, Just C3, and Just C Minor. Try playing in the key of C/Cm using each table. You'll quickly discover both the wonders and the frustrations of just intonation! In Just C, for example, you'll find that the chords C, Em, F, G, and Am sound beautiful. If you hold one of these chords, you'll hear no “beating”. After playing for a few minutes, switch back to Equal Temperament for a rude awakening!

At this point you might wonder why anyone would use Equal Temperament to begin with. For the answer to that question, play a D, Dmi, or Bb chord! The intervallic ratios that make the C & G chords sound so pure make the D chord sound horribly out of tune. That's why we had to include Just C3. In this tuning, D, Dmi and Bb sound in tune, but the G chord will sound wrong.

Each of the 4 tables allows you to play a different group of common chords in just intonation. Sadly, there is no single 12 note tuning that will allow all of the common chords to be in tune, and of course that's why they invented the equal temperament tuning system that we use today.

Just C

Play these chords: C, E, F, G, A, Cm, C#m, Em, F#m, Gm, Am

Just C2

Play these chords: C, E, F, G, A, B, C#m, D#m, Em, G#m, Am, Bm

Just C2 minor

Play these chords: C, D^b, D, E^b, G, A^b, Cm, Em, Fm, Gm

Just C3

Play these chords: C, D, F, B^b, C#m, Dm, Em, F#m, G#m, Am

Preset Links

You can link presets to other presets to create layering or keyboard splits. The current preset can be linked with up to two other presets (Links 1 & 2). Each linked preset can be assigned to a specific range in order to create keyboard splits or can be assigned a velocity range to switch links according to key velocity. In addition, you can specify Volume, Pan, Transpose and Delay settings for each Link. The modulation parameters specified in each preset remain in effect for each preset in the link.

LINK 1 Preset	XL-7
000 ² Preset Name	

LINK 1	KEY	VEL
RANGE	C-2 G8	000-127

LINK 1	VOLUME	PAN
	+0dB	00

LINK 1	TRANSPOSE	DELAY
	+00	0

Links provide an easy way to create new sounds by combining the existing presets. Or, you can create your own custom stacked presets with up to 12 layers! We're talking LARGE sounds here. Of course Links can also be used when you just want to stack up two sounds.

As an example, let's stack two presets to create a big sound. Start with a preset you like, then go into the Links screen and start scrolling through the preset list while you play to hear both presets together. When you find a winner, simply Save the preset and you're finished!

- You can "Split" the keyboard up to 12 ways by using combinations of the Layers and Links.
- By adjusting the Velocity for the link, you can bring in the link by playing hard.
- Transposing the Link can radically change the sound.
- The delay parameter lets you create surprise effects, echoes or cascades of sound as you continue to hold the keys.

Preset Tempo Offset

This function allows you to double or halve the Master Tempo as it applies to this preset. When playing or sequencing several presets in Multimode, the Master Tempo may be too fast or slow for one preset. Using this feature, you can adjust the tempo for the misbehaving preset. The Tempo Offset can use the **current tempo** or be set to **half** or **twice** the current tempo.

TEMPO OFFSET
use current tempo x 2

Audition Riff Selection



Listening to the Riffs is a quick way to learn the sounds in XL-7. If a preset has hidden tricks or controllers, these will be shown off in the Riff.

A Riff is a short pre-recorded musical phrase which can be anything from a single note to a full 16-track sequence. This function allows you to assign a Riff to a Preset. The Preset Riff will be used when the front panel Audition button is pressed.

The Riffs themselves cannot be modified.

AUDITION SELECTION
Plays:KEY-MiddleC

Play Solo Layers

When constructing multilayer sounds it is often useful to turn off one or more of the layers so you can hear what you're doing! This feature allows you to temporarily solo individual layers or listen to them in any combination. This screen differs from the other Preset Edit screens in that it is NOT saved with the preset. The values reset each time you exit the Preset Edit menu.

Solo is activated by setting any layer to On (On = the layer is being Soloed). Any layers set to **On will play** and any layers set to **Off will be muted**. If all layers are set to Off, then Solo mode ends and all layers play normally. When you exit the Preset Edit menu, all layers play normally.

PLAY SOLO LAYERS
1: off 2: off 3: off 4: off

Arpeggiator/Beats Menu

XL-7 can run up to 32 simultaneously synced arpeggiators, each with a different preset sound. The arpeggiators can either play one of 7 chord arpeggios or can be set to play a pattern, which is a stored sequence of notes. Combined with sequencer, the number of musical permutations is staggering!

Beats mode (page 261) allows you to trigger, latch and unlatch synced loops and grooves from separate keys on your keyboard. Simply select a bts: preset and play the 16 trigger keys to bring specific *Parts* in and out. This is *Macro-Music!*

► To enable the Arpeggiator/Beats menu

Press the Arp button, lighting the LED. The Arp screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.

► To select a new screen

Press the Home/Enter button or press the Cursor button repeatedly until the cursor is below the screen title heading on the top line of the display. Rotate the data entry control to select another screen.

► To modify a parameter

Press either Cursor button repeatedly (or hold down the right cursor button while turning the data entry control) until the cursor is below the desired parameter value. Rotate the data entry control to change the value.

► To access a submenu

The Master Arpeggiator screens have submenus which are accessed by pressing the cursor buttons to move the cursor to the lower left corner of the display. Select the submenu function using the data entry control.

► To save Arpeggiator parameters

Press the Save/Copy button and scroll to "Save Setup To". Select a Setup number and press Enter. See "Saving Multisetups" on page 149.

► To return to the previously selected Mode/View screen

Press the Arp button, turning off the LED.



Arp parameters are automatically saved to the current multisetup when you exit the menu, but you may wish to save to another location.

If another Multisetup is "Restored" any unsaved changes will be lost if you haven't saved the Multisetup.

Arpeggiators

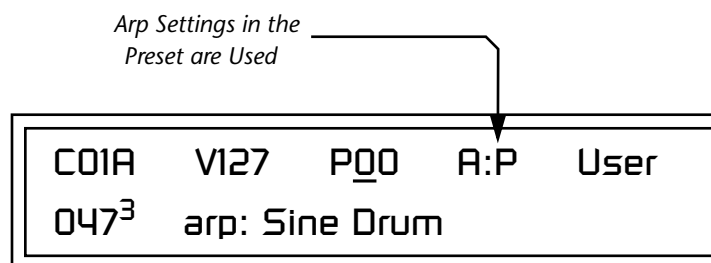


SAVE your Arp setups
and name them using the "Save
Setup To" function located in the
Global menu. See "Saving
Multisetups" on page 149.

An arpeggiator moves a pattern of notes sequentially over a range of the keyboard. XL-7 has the unique ability to play a different arpeggiator on each MIDI channel!

Arpeggiator settings can be defined as part of the preset (using the Arp parameters in the Preset Edit menu), or globally in the Master Arpeggiator menu. The preset and master arpeggiators have the same parameters which we define in this chapter.

The Arp field in the main screen defines which arpeggiator settings will be used. "M" uses the master Arpeggiator settings and on/off status (as defined in the Master Arpeggiator menu). "P" uses the preset's arpeggiator settings and on/off status (as defined in the Preset menu). Choosing "On" uses the preset's arpeggiator settings regardless of whether or not it is turned on in the Edit menu and Off turns off the arpeggiator regardless of the settings and status specified in either menu.



All arpeggiators share XL-7's master clock and its current setting. The master clock can be XL-7's internal clock or an external MIDI clock (page 162). Although the arpeggiators use the master clock setting, the tempo divisor can be unique for each arpeggiator setup.

Arpeggiator modes include up, up/down, forward assign, backward assign, forward/backward assign and random as well as play *Patterns*. Patterns are pre-recorded sequences of notes and rests. All key-on notes play the pattern. For example, if you play a chord, all the notes in the chord play the pattern in harmony. XL-7 contains 200 factory patterns and 100 user definable patterns.

Arp Controllers

The Arpeggiators can be controlled using the front panel real-time controllers or external MIDI continuous controllers. Controllers are patched to Arps via the Preset PatchCords located in the Preset Edit menu. See “Preset Patchcords” on page 238. The following Preset PatchCord destinations control the Arpeggiators.

Arpeggiator Resolution (ArpRes)

This control changes the Arpeggiator Note Value, which defines the length of the notes when playing arpeggiated chords. It *adds* to the note value set in the Arpeggiator Note Value screen. See “Note Value” on page 249.

Arpeggiator Extension (ArpExt)

This control changes the Arpeggiator Extension Count. It *adds* to the extension count programmed in the Arpeggiator Note Value screen. See “Extension Count” on page 251.

Arpeggiator Velocity (ArpVel)

This control changes the Arpeggiator Velocity Value. It *scales* the velocity value set in the Arpeggiator Note Value screen. See “Velocity” on page 250.

Arpeggiator Gate (ArpGate)

This control changes the Arpeggiator Gate Time. It *adds* to the gate time set in the Arpeggiator Gate Time screen. See “Gate Time” on page 250.

Arpeggiator Interval (ArpIntvl)

This control modulates the Arpeggiator Extension Interval. It *adds* to the extension programmed in the Arpeggiator Extension Interval screen. See “Extension Interval” on page 251.

Master Arpeggiator Parameters

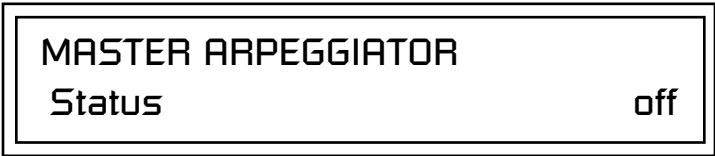
The Master Arpeggiator is defined in the Arp menu. The Arpeggiator mode selected on the main Preset view screen (A:M or A:P) determines whether the Master arpeggiator or the Preset menu arpeggiator settings are used.

► To Access the Master Arpeggiator Parameters

1. Press the **Arp** menu button lighting the LED. The Arpeggiator menu screen displays the menu page most recently selected since powering up XL-7. The cursor appears below the first character of the screen heading on line one.
2. Use the right **cursor** button to advance the cursor to the first field in the bottom line of the screen.
3. Now, use the **data entry control** to access the various Master Arpeggiator parameters.
4. **Save** your Arpeggiator settings using the “Save Setup” function on the Save/Copy menu.

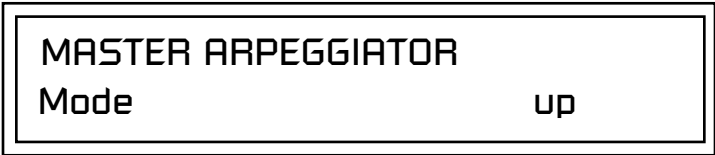
Status

The Status parameter turns the Master Arpeggiator on and off. The Channel Arpeggiator setting in the main screen overrides this setting. For example, if you set the Arpeggiator in the main screen to “off,” and turn it “on” here, it still will not play.



Mode

The Mode parameter determines the direction or pattern mode of the arpeggiated notes.



The eight arpeggiator modes are:

- **Up** Held notes arpeggiate continuously from lowest to highest pitch.
- **Down** Held notes arpeggiate continuously from highest to lowest pitch.
- **Up/Down** Held notes arpeggiate continuously from lowest to highest pitch, then from highest to lowest, then repeat this cycle.
- **Fwd Assign** Held notes arpeggiate continuously in the order in which the keys were pressed.
- **Bkwd Assign** Held notes arpeggiate continuously in the reverse order in which the keys were pressed.
- **Fwd/Bkwd** Held notes arpeggiate continuously in the order in which the keys were pressed, then arpeggiate in the reverse order that they were pressed. The cycle is then repeated.
- **Random** Held notes arpeggiate continuously in a random fashion.
- **Pattern** Held notes play the selected pattern (see “Pattern” on page 249 for details).


Note Value

The Note Value determines the duration of each note played. This parameter is used in non-pattern mode only.

MASTER ARPEGGIATOR

Note Value

1/8 dot

 Note value has no effect when the mode is set to "pattern."

Following is a list of possible Note Values and the relative number of clocks used for each.

Note Value	MIDI Clock
Double Whole Note	192
Dotted Whole Note.....	144
Double Note Triplet	128
Whole Note	96
Dotted Half Note.....	72
Whole Note Triplet	64
Half Note	48
Dotted Quarter Note	36
Half Note Triplet	32
Quarter Note	24
Dotted Eighth Note.....	18
Quarter Note Triplet.....	16
8th Note	12
Dotted 16th Note	9
8th Note Triplet.....	8
16th Note	6
Dotted 32nd Note	4.5
16th Note Triplet.....	4
32nd Note	3

Arpeggiator Pattern Speed

The Arpeggiator Pattern Speed parameter lets you change the playback rate of Patterns by 1/4x, 1/2x, 1x (normal), 2x or 4x normal speed.

Pattern

This field lets you choose the pattern used when the arpeggiator Mode is set to "Pattern." There are 200 factory programmed patterns and you can create an additional 100 user definable patterns (see "Editing a User Arpeggiator Pattern" on page 257).

MASTER ARPEGGIATOR

Pattern 99¹ Pattern Name

Velocity

The Velocity parameter determines the velocity at which each note arpeggiates. Velocity can be defined by the velocity value specified (from 1 through 127), or by the actual velocity of the played note (played). Bear in mind that velocity values do not have an effect on the sound unless the preset is programmed to respond to velocity.

MASTER ARPEGGIATOR

Velocity

played


Gate Time

The Gate Time parameter works together with the Note Value parameter. Just as Note Value defines the length of a note, the Gate Time sets the percentage of the Note Value time played. This can have a dramatic effect on the sound depending on how the envelope generators are programmed.

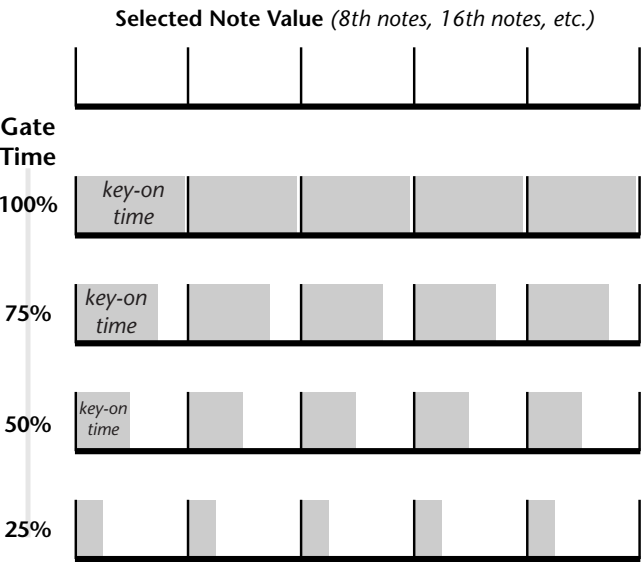
MASTER ARPEGGIATOR

Gate

100%

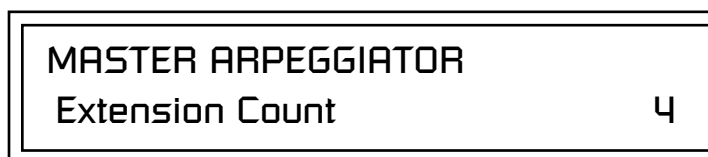
 The **note-on** time is used for the start-of-time when calculating note durations. See “Duration” on page 253.

With a Gate Time setting of 100% the note is held on until the next note starts. The envelope generators never advance to the Release stages. With a Gate Time setting of 50%, the note is released halfway through the note cycle and the envelope generators proceed to their release stages until the next note occurs. Refer to the following illustration.

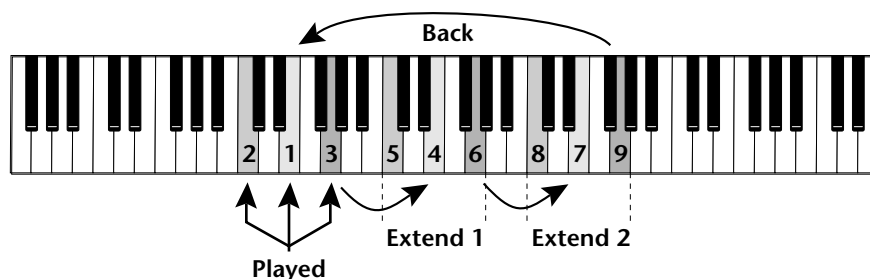


Extension Count

The Extension Count parameter specifies how many times the Extension Interval is carried out. With an Extension Count of 0, the arpeggio plays only the notes pressed. With an Extension Count of 1, the arpeggio plays the notes pressed, then plays the same notes (in the same order), transposed by the Extension Interval amount. The cycle is then repeated.



For example, with the Extension Interval set to 12 (an octave) and an Extension Count of 2, and with the Arpeggiator Mode set to Fwd Assign, if you played E2, then C2, then G2, the arpeggiated sequence would consist of: E2, C2, G2, then E3, C3, G3, and then E4, C4, G4. The Extension Count values range from 0 through 15. Refer to the following illustration.



Extension Interval

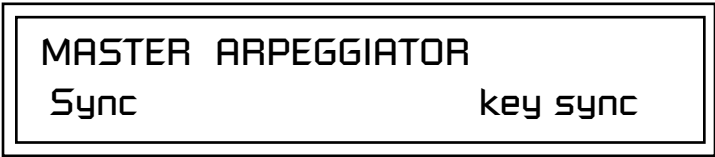
The Extension Interval specifies the additional intervals played when you press a key. For example, suppose you played C2 with an Interval of 7 (a Major 5th), Up mode, and an Extension Count of 2. The arpeggio alternates between C2 and G2.

The Extension Interval values range from 1 through 16.

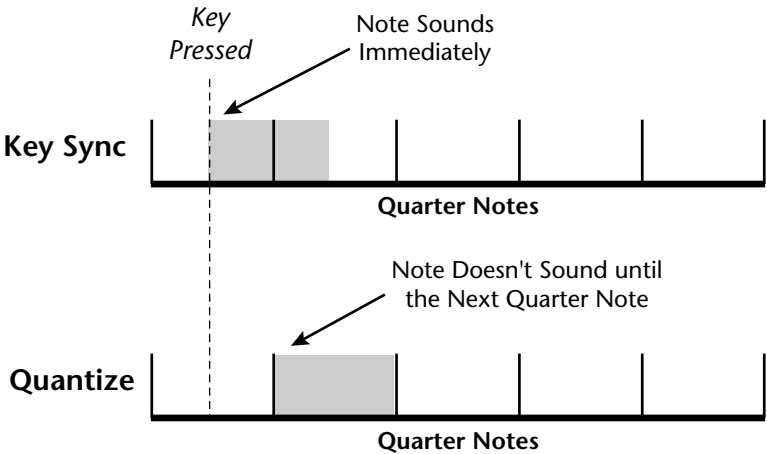


Sync

The Sync parameter defines when a note is played in relation to when the key is pressed. When set to “Key Sync”, the note sounds the instant a key is pressed. When set to “Quantized”, the note does not sound until the next occurrence of the selected note value.



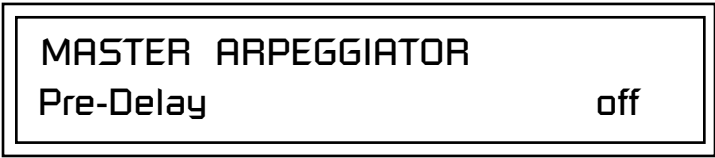
The following diagram illustrates how Key Sync and Quantize work.



Pre-Delay

The Pre-Delay value determines how long the arpeggiator is delayed before becoming active after the first “note-on.” During the pre-delay period, notes are played normally (as if the arpeggiator was off). After the pre-delay period has elapsed, the arpeggiator kicks in. Once you release all the keys on the controller, the pre-delay starts over with the next note-on. In combination with the Duration parameter, Pre-Delay lets you create many more variations in the arpeggio patterns. *Please refer to the diagram on page 254.*

You can play the preset normally as long as you don’t hold the notes longer than the Pre-Delay. If you do, the arpeggiator starts in. When used in conjunction with multiple arpeggiators, Pre-Delay allows you to offset the time between the different patterns.



Duration

This parameter defines how long the arpeggiator plays before stopping. The Duration is specified in note values. Therefore if an arpeggio were running at a 16th *Note Value* and the Duration were set to a whole note, the arpeggiator would play 16 steps before stopping. After the duration has elapsed, the arpeggiator remains inactive until the key is released. If Duration is set to Off, the arpeggio repeats as long as the notes are held (Infinite Duration).

MASTER ARPEGGIATOR

Duration

1 / 1d

Duration can be used to modify the patterns and increase the possible pattern combinations and variations. Because this parameter limits the length of arpeggiator play time, it can change the arpeggio pattern when the Duration is less than the length of the arpeggio. You can set the arpeggio to repeat continuously using the *Recycle* function described below.

Post-Delay

This parameter is only relevant when both the “Duration” and “Recycle” parameters are not in the “Off” state. The Post-Delay value determines how long the arpeggiator is delayed after the Duration period. *Please refer to the diagram on page 254.* During the post-delay period, notes are played normally (as if the arpeggiator was off). After the post-delay period has elapsed, the arpeggiator either jumps to the beginning of the Pre-Delay period or to the beginning of the Duration period depending on the Recycle setting.

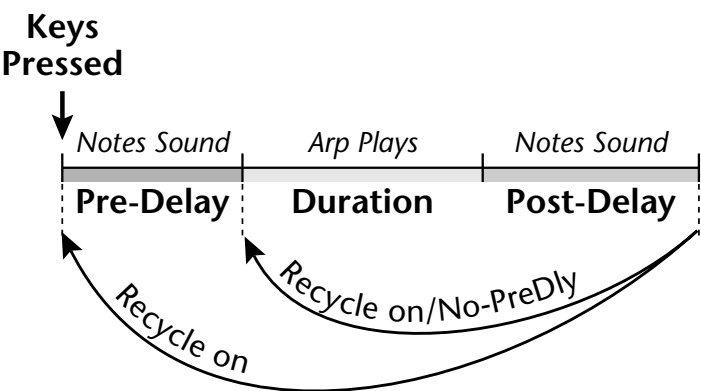
If the arpeggiator is playing an extension when the Duration expires, the notes in the extension will continue to sound during the Post-Delay (*and Pre-Delay if on*). On the next pass through the Duration period, the extension continues where it left off.

Post-Delay increases the number of possible variations in the beat and allows the recycle loop to be set to an exact measure of time.

MASTER ARPEGGIATOR

Post-Delay

off



Recycle

Recycle enables the pattern or arpeggio to repeat. This parameter works together with the *Duration* and *Pre/Post Delay* parameters to allow the loop to be set to an exact measure of time. The “on/No-PreDelay” option bypasses the predelay period. With Recycle turned Off, the pattern or arpeggio stops at the end of the Post-Delay period.

MASTER ARPEGGIATOR	
Recycle	on/No-PreDly

Keyboard Thru

When enabled, Keyboard Thru merges the sustained played notes with the the arpeggiated notes. With a sustained preset, this can produce the effect of two parts playing at once.

MASTER ARPEGGIATOR	
Keyboard Thru	off

Latch

With Latch mode On, any notes you play remain on until you press them again. Latched notes can also be halted by turning Latch off in this screen, or by turning off the Arpeggiator for the channel in the main screen.

MASTER ARPEGGIATOR	
Latch	on

Use the Key Range parameter to set the keyboard range for the arpeggiator. Notes inside the range will arpeggiate while notes outside the specified range will not arpeggiate. Use the Extensions parameters to exceed the upper boundary of the Key Range (see the information about Extensions beginning on page 251).

MASTER ARPEGGIATOR

Key Range

C-2->G8

Move the cursor under the first key and use the data entry control to define the lowest key to be arpeggiated. Move the cursor under the second key value and use the data entry control to define the highest key to be arpeggiated.

Arp/Riff MIDI Out

This screen allows you to set whether or not arpeggiator and/or riff data is transmitted out the MIDI ports for all channels with arps on. The options are: don't transmit, transmit arps, transmit riff, or transmit both.

ARP / RIFF MIDI OUT

transmit arps



The arpeggiators are contained within the preset which is why a "dummy" preset must be used.

► To Transmit Arpeggiator Data to another MIDI Device:

1. Set Arp/Riff MIDI Out (above) to **Transmit Arps** or **Transmit Both**.
2. Select an **arp:** preset.
3. If you don't want the internal XL-7 preset to sound, create a "dummy" preset with no instruments selected and the arpeggiator turned on. **Name** and **Save** this preset.
4. Connect MIDI Out to MIDI In on your external MIDI synth. (*Channels 1A-16A go out the MIDI A port. Channels 1B-16B go out the MIDI B port.*)
5. Go into the MIDI menu and turn "**Rechannelize Input**" **Off**. This prevents double notes from sounding on the sustained pads.
6. **Name** and **Save** the **Multisetup** if you want to keep the setup.

MIDI Song Start



If you are using the internal sequencer, it's probably best to leave this parameter set to "resync arps & riffs".

The arpeggiator, beats and the sequencer are all synchronized to the same clock (internal or MIDI). Although the arp or beats notes are synced to the clock, they may still be out of sync with the downbeat or first note of the sequence. This feature allows the arps, beats or both, to "resync" to the first beat of the sequence when the sequencer is started. This feature also works when receiving MIDI Song Start from an external source.

As an example, suppose you are playing the arps live as an intro to your song. When you press play, the sequencer immediately starts, but your arp pattern will probably not be on the beat with the sequence. With resync on, the arps stay in perfect sync with the first beat of the sequence.

MIDI SONG START
resyncs arps & beats

Send MIDI System Exclusive Data



Send data as you would a regular sequence. Sending data in one huge chunk may clog the MIDI input buffer on XL-7.

Transmits the Arpeggiator Patterns via the MIDI out port as MIDI System Exclusive data to another XL-7 or to a computer/sequencer for backup. Using the cursor key and the data entry control, select the MIDI data you want to transmit. See *Send MIDI System Exclusive Data* in the Master chapter for additional details about recording SysEx.

User Patterns

Transmits all the User patterns.


00⁰ to 99⁰

Transmits only the individual pattern you have selected.

SEND MIDI SYSEX DATA
All User Arp Patterns

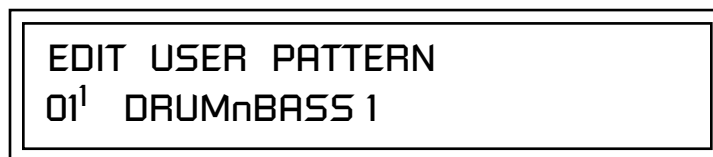
Editing a User Arpeggiator Pattern

Bank 0 = User Patterns
Bank 1 = Factory Patterns
Bank 2 = Factory Patterns

 Before editing a Pattern, select Master Arpeggiator (M) in the main screen and set the Arpeggiator to the Pattern you are editing. This lets you hear the Pattern as you edit it.

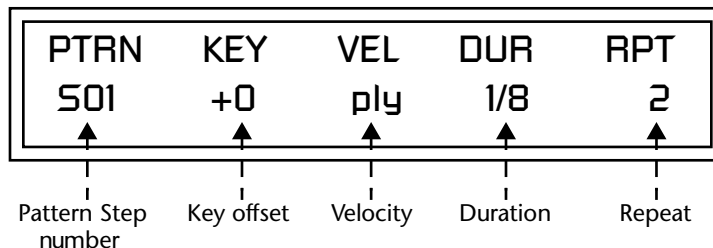
XL-7 lets you create and edit your own arpeggiator patterns. Using the Edit User Pattern menu, you can create up to 100 user patterns and each pattern can be up to 32 steps in length.

When you edit a pattern, you are writing directly into memory—no Save command is required (however you must exit the Arp module). This is different from the Edit menu where you must Save a preset before it will be overwritten. If you want to modify an existing pattern and keep the original, you must first COPY the pattern you want to edit to another location using the function in the Save/Copy menu (See page 292). Refer to the instructions below and the following parameter descriptions to create your own patterns.



► To Select the Pattern to Edit

1. From the Edit User Pattern screen shown above, move the cursor to the bottom line and **select the pattern** you want to edit. The Enter LED begins flashing. Press **Enter** to move back to the Home position.
2. Select the **next screen** in the list, "User Pattern Edit". This is where you edit the currently selected pattern.



3. Move the cursor to the **lower line** of the display. For each step, you can select: key, velocity, duration, and number of repeats.

Pattern Step Number

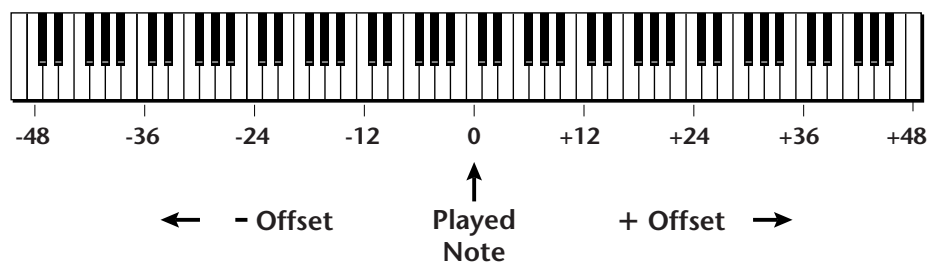
You can set up to 32 steps for each arpeggiator pattern. This field selects which step you will be editing from 1 to 32.

Key

This parameter defines what happens during the current step. The Key parameter can do one of five different operations. Following is a description of each of the key functions and how to use them.

Key Offset

This parameter defines not the actual note of the arpeggiator playback, but instead specifies the amount of offset, in semitones, from the original note played. You can set a Key Offset from -48 to +48 for each step. For example, if you play a “C” on the keyboard with the Key Offset amount for the first step set to “+1,” the first step in the pattern will be “C#.”

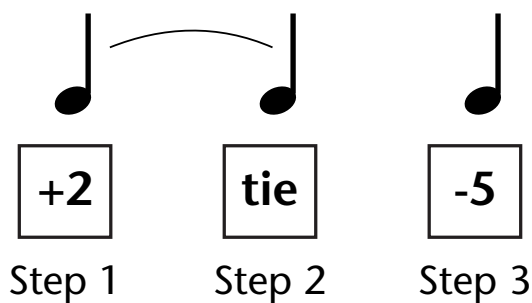


Tie

This function *extends* the duration of notes beyond the values given in the duration field by “tying” notes together. You can tie together any number of consecutive steps.



IMPORTANT: The Gate function in the arpeggiator *MUST* be set to 100% when using the tie function, otherwise the tied note is retriggered instead of extended.



Rest

Instead of playing a note, you can define the step as a Rest. The Duration parameter specifies the length of the rest. Rests can be tied together to form longer rests.

Skip

This command simply removes the step from the pattern. The Skip feature makes it easy to remove an unwanted step without rearranging the entire pattern. You’ll be happy to know that the velocity, duration and repeat parameters are remembered if you decide to put the step back later.

End

This command signals the end of the pattern. Any steps programmed after the step containing the End command are ignored.

Velocity

Each note in the pattern plays using either a preset velocity value (from 1 through 127), or using the actual velocity of the played note (ply).

Note: Velocity values will not have an effect on the sound unless velocity is programmed to do something in the preset.

Duration

This parameter sets the length of time for the current step, defined as a note value, based on the Master Tempo. The selectable note durations are described below.

1/32	32nd Note	1/2t	Half Note Triplet
1/16t	16th Note Triplet	1/4d	Dotted Quarter Note
1/32d	Dotted 32nd Note	1/2	Half Note
1/16	16th Note	1/1d	Dotted Whole Note
1/8t	8th Note Triplet	1/1t	Whole Note Triplet
1/16d	Dotted 16th Note	1/2d	Dotted Half Note
1/8	8th Note	1/1	Whole Note
1/4t	Quarter Note Triplet	2/1t	Double Whole Note Triplet
1/8d	Dotted Eighth Note	2/1	Double Whole Note
1/4	Quarter Note		

Repeat

Each step can be played from 1 to 32 times. A repeat setting of “1” indicates the step will be played one time (not repeated one time or played twice).

► To Edit a User Pattern

1. The first field in the Edit User Pattern field defines the pattern's step number. Start with the pattern Step 01.
2. Define the Key Offset, Velocity, Duration and Repeat values.
3. Repeat steps 1 and 2 until you have setup the desired number of steps in the pattern.
4. Set the Key Offset to “End” on the last step in the pattern.

User Pattern Name

The User Pattern Name page lets you enter a name for any User Arpeggiator Pattern.

<u>P</u> TRN	KEY	VEL	DUR	RPT
S01	+0	ply	1/8	2

► To Name a User Pattern

1. From the Pattern Edit screen shown above, position the cursor under the **PTRN** field.
2. Turn the **data entry control** clockwise. The following screen appears.

<u>U</u> SER PATTERN NAME
00 ⁰ Mod Sycle

3. Move the cursor to the bottom line and **edit the Pattern** name using the data entry control and Cursor keys.
4. Move the cursor to the “**Home**” position (shown above) by pressing the **Home/Enter** button.
5. Turn the **data entry control** counter-clockwise one click to return to the Pattern Edit screen.
6. Turn the **data entry control** counterclockwise multiple clicks to jump back to the main Arpeggiator menu screen.

Multichannel Arpeggiating

Presets with the arpeggiator assigned will play when they receive MIDI note-on data from the keypad, internal sequencer or external MIDI source.

Please refer to the instructions on page 28 to learn one way to perform using multiple arpeggiators.

Beats



Remember to **SAVE** your preset once you assign a **BTS** or **KIT** riff.

Beats is a another independent, 16-track play-only sequencer optimized for live performance and groove creation. **BTS** riffs, which are permanently stored in sound ROM, are special multi-part Audition Riffs. (See pages 24, 38 & 244.) By playing keyboard or trigger keys you trigger, latch and unlatch different parts of these synced loops and grooves. Any preset can be selected and used by assigning a **BTS** riff (or **KIT** riff) in the Preset Edit menu.

► Here's how it works:

1. **Select a bts: preset, ...or assign a BTS riff** to one of the percussion presets in the Preset Edit Menu. **KIT** riffs also have several tracks.
2. Set the "Trigger Buttons Function" in the Controllers menu to **Play Beats Parts**.
3. **Select Triggers** in the Command Functions section.
4. Each of the Beats Parts is assigned to a trigger key. Bring each part in or out by pressing that key. Keys can also be Latched (*press the key once to turn the part on, press it again to turn the part off*). Other control keys allow you to Mute All Parts, Clear All Parts, and Start & Stop the beat. For **BTS** Riffs the 16 parts are arranged in the following manner:

Main Groove	Alt. Groove	Perc / Fills	Instr/Wild
1. Kick1	5. Kick2	9. Perc3/Fill1	13. Inst1/Wild1
2. Snare1	6. Snare2	10. Perc4/Fill2	14. Inst2/Wild2
3. Hihat1	7. Hihat2	11. Perc5/Fill3	15. Inst3/Wild3
4. Perc1	8. Perc2	12. Perc6/Fill4	16. Inst4/Wild4

For each Beats Riff, you have 2 Grooves, 4 Fills which correspond to the four parts of the Main and Alternate groove, and 4 Instrument parts. By adding and removing parts, you control the complexity of the groove.

Each part can also be scaled by *Key Velocity*, allowing you to fade parts in and out (if velocity is routed to volume) as you play, or can be *Transposed* over a six octave range. Each part can be assigned to any one of four *Groups*, which allow multiple parts to be triggered from a single key. You can only access Groups using the keyboard trigger keys. See the Factory Setup diagram on the next page.

The factory **BTS** riffs range from 4-16 bars long, using 4 to 16 tracks each. Normally you'll use the Command Function buttons to bring parts in and out. Beat Parts can also be assigned to groups so that multiple parts can be triggered from a single key press. The Group Triggers, Clear Parts, Trigger Hold and Mute keys are only accessible via MIDI or the keypads.

Trigger layouts are saved with the Multisetup. The Factory Multisetup (63) has all the Beats controls assigned to the keyboard as shown in the diagram on the following page. These MIDI note numbers have been placed below the lowest key on the keyboard so as not to interfere with normal playing. Setting the Beats Keys Offset function (page 269) to +48 will allow you to access these hidden control keys.



Beats (bts:) Riffs are special 16-part audition riffs made especially for use with Beats mode. **KIT** riffs may have four or five parts.

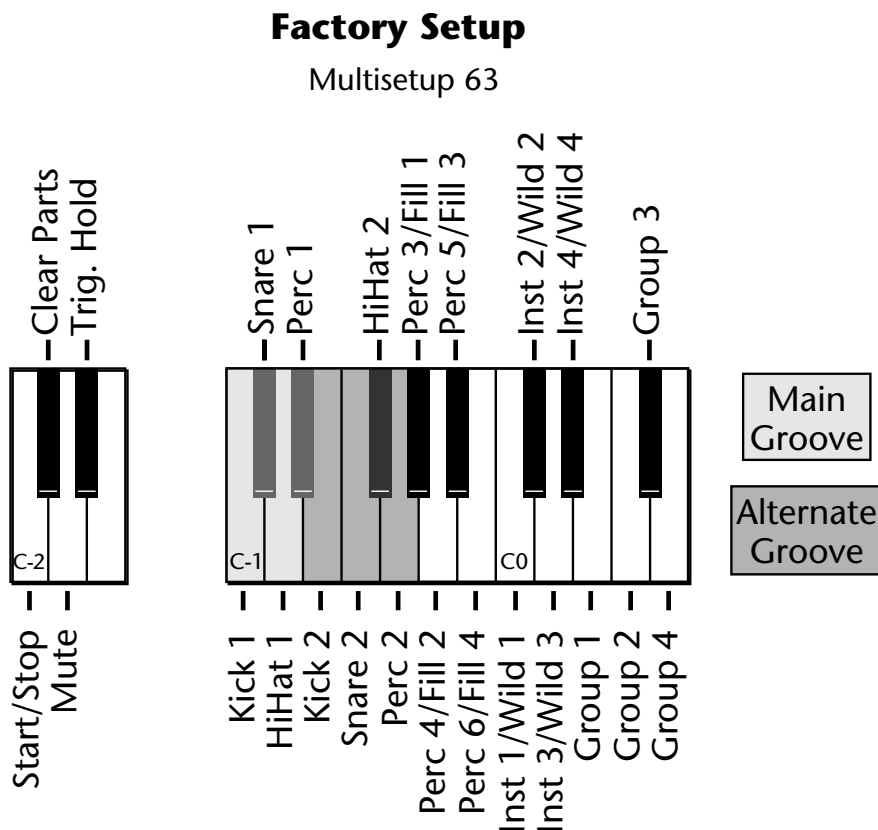
Other riffs usually have only one part recorded.



By assigning Trigger Buttons to the keyboard Beats Layout Keys, you can trigger Beats and MIDI notes using the Trigger buttons.



By assigning Trigger Buttons to the keyboard Beats layout keys shown at right, you can trigger Beats and MIDI notes at the same time using the Trigger buttons.



The chart above shows the Factory Multisetup assignment of each Part, the 4 Groups and the Control Keys. These assignments can be modified to suit your personal preference, then saved in one of the Multisetup locations.



Starting Beats mode with the Start/Stop key allows you to start the sequencer rolling silently. Then you can bring Parts in and out using the "Busy" control.



If Mute is set to 1-bar, the Part mutes for 1 bar then un-mutes.

• Start/Stop Trigger

Starts the beat sequencer from the beginning of the sequence. When latched, pressing once starts and pressing again stops. When unlatched, the sequence runs as long as the key is held. Once the Beats sequencer is started, it continues to run even if no triggers are active.

Start/Stop doesn't clear latched parts when it stops the sequencer. Any trigger played after stopping will not only start the sequencer and play that trigger's part, but also play all previously latched parts.

• Clear Parts

Clears any enabled parts. This control provides a quick and easy way to shut off all latched Parts. Latch mode has no effect on this key.


• Mute

Mutes all Parts while held, but the Beats sequencer continues running.

• Trig Hold

When this key is held, all other Trigger Keys behave as if they were in Latch mode.

Beats Mode

 The Basic Channel is the MIDI channel currently displayed in the Main Screen.

The Beats sequencer plays as long as any Beats triggers are active. Beats riffs can also be **Restarted** using a MIDI Song Start command even if the Beats channel is not currently selected. The Audition LED illuminates whenever the Beats sequencer is running (even if no Parts are playing).

Pressing the Audition button or starting a Demo causes the Beats sequencer to stop. Pressing the Audition button plays the riff assigned to the preset. BTS and KIT riffs have multiple parts. Other riffs usually have one part.

All Arp/Beats parameters are saved with the Multisetup.

This screen turns Beats mode on and has several other features which allow flexible control over Beats mode. There are several status modes that determine when Beats will be turned on and which Riff will be used.

Beats and BEAT Triggers can be set to different MIDI channels. This allows you to perform on two MIDI channels at once with a keyboard that only transmits on a single MIDI channel.

BEATS MODE	Status: P
BtsCh: Basic	TrigCh:Basic

Status

- **Off** Beats mode off.
- **On** Beats mode on. The Riff assigned in the preset is used.
- **P** Beats mode is turned on *ONLY* if the Riff assigned in the preset is a "bts:" riff. The Riff assigned in the preset is used. (Default setting)
- **M** Beats mode on. The Master Riff is used (Arp/Beats menu).

BEATS MODE	Status: P
BtsCh: Basic	TrigCh:Basic

Beats Channel (BtsCh)

- **01-16** Selects the MIDI channel on which Beats play.
- **Basic** Beats play on the MIDI channel displayed in the Main Screen.

Trigger Channel (TrigCh)

- **01-16** Selects the MIDI channel on which Trigger Keys will be active.
- **Basic** Sets the Trigger Keys to the MIDI channel displayed on the Main Screen.



The “Trigger Buttons Function” (page 139) changes the 16 trigger buttons into “Beats Part Mute” buttons.



You can create your own Beats presets by assigning a **BTS** riff in the Preset Edit menu.

- If you don’t select a preset with a **BTS** or **KIT** riff assigned, only the first trigger key may work.

- Riffs marked “**BTS**” have 16 parts. **KIT** riffs usually have 4 parts.

► Beats Setup:

Set the Trigger Buttons to Beats Mode

1. Press the **Controllers** button on the front panel.
2. Turn the **data entry control** clockwise until you find the “TRIGGER BUTTONS FUNCTION” screen.
3. Set the lower line of the display to read, “Play Beats Parts”.
4. Press the **Controllers** button on the front panel again to exit the menu.

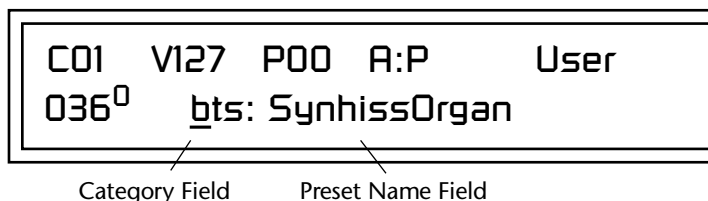
Set the Trigger Buttons to be Triggers

5. Press the **Triggers** button in the Command Functions section of the front panel. OK, now you’re ready to start playing Beats.

► Playing Beats:

Selecting Beats Presets (see sidebar)

1. Press the **right cursor button** twice so that the cursor is located beneath the **Category** field.



2. Turn the **data entry control** until **bts:** is shown in the Category field.
3. Press the **right cursor button** so that the cursor is underneath the **Preset Name** field.
4. Now turning the **data entry control** selects ONLY **bts:** presets!

Play Beats

5. Press any of the sixteen front panel **Trigger Buttons**. Notice that each button brings in a specific part. The chart below shows which buttons control which part in **bts:** presets.

Main Groove	Alt. Groove	Perc / Fills	Instr/Wild
1. Kick1	5. Kick2	9. Perc3/Fill1	13. Inst1/Wild1
2. Snare1	6. Snare2	10. Perc4/Fill2	14. Inst2/Wild2
3. Hihat1	7. Hihat2	11. Perc5/Fill3	15. Inst3/Wild3
4. Perc1	8. Perc2	12. Perc6/Fill4	16. Inst4/Wild4

6. Also notice that the Audition LED comes on when Beats begin playing. Beats are simply multitrack Audition Riffs. You can use the **Audition** button to turn Beats on and off.
7. Try out a few different **bts:** presets.

Get Busy!

The Controller knobs can be programmed to control Beats. Check it out!

8. Scroll to the **Preset PatchCords** screen in the **Preset Edit** menu. The screen below appears.

PRESET PATCHCORDS		#01
Midi 0	-> ArpVel	+100

9. Move the cursor under the Cord destination and change it to **BtsVari**. Exit the Preset Edit menu.
10. Turn controller **Knob 15 /O** with a Beats Riff playing. This knob now controls the *Beats Variation* parameter. Beats Variation changes which parts are playing without changing the number of parts. This makes it easy to try out different combinations of Beat Parts.
11. Try hooking controller knobs up to other Beats controls such as *Beats Busy*. See “Beats Controllers” on page 266 for more information.

► To Play Beats on a different MIDI channel:

Beats can be assigned to a certain MIDI channel while you play the keyboard on another channel. *(Make sure you have Beats mode set up correctly as described in “Beats Setup” on page 264.)*

1. Press the **Arp** button and turn the data entry control until the screen shown below appears.

BEATS MODE	Status: P
BtsCh: Basic	TrigCh:Basic

2. Set the Beats Channel (BtsCh) to **01**.
3. Select any **bts:** preset on channel 1 *(main screen)*.
4. Press any of the sixteen **Beats buttons** to start your Beat playing. *(Do NOT start Beats by pressing the Audition button.)*
5. Press the + **Channel** button to the left of the LCD to select **channel 2**.
6. Select a preset to jam along with the Beat.
7. The Trigger Keys now play Beats and the other keys play the preset on channel 2.
8. The Audition button can be used to turn the Beat off. *(If you try to use it to turn Beats on while on channel 2, the Riff on channel 2 will play.)*



Wrong FX? In *Omni mode*, the FX assigned to channel 2 will be used. In *Multi mode*, the Master FX settings will be used.

Beats Controllers

Beats can be controlled using the front panel real-time controllers or external MIDI continuous controllers. **Controllers are patched to Beats via the Preset PatchCords located in the Edit menu.** The following Preset PatchCord destinations control Beats.

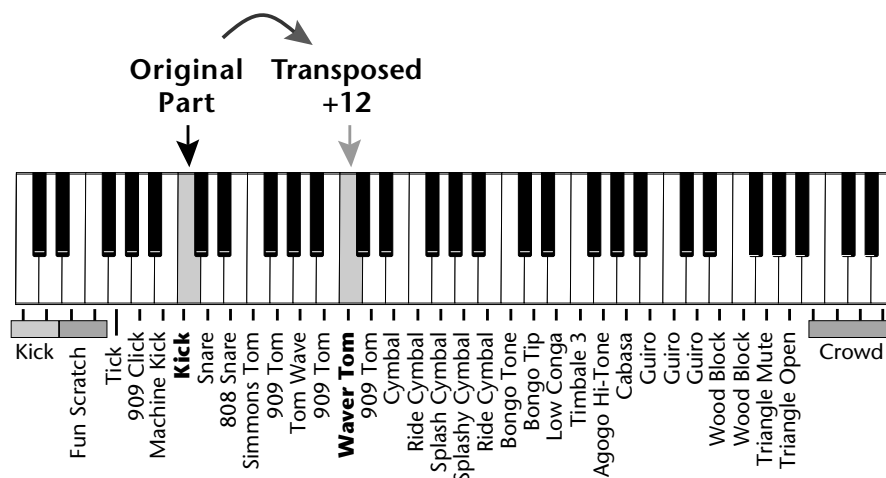
Beat Velocity Group 1-4 (BtsVelG1 -> BtsVelG4)

Parts assigned to one of the four Beats groups can have their velocity scaled by the controller input. Since most “bts” presets have velocity controlling volume, this control can be used to mix the relative levels of the Groups.

Beats velocity works as a percent *addition*. An input value of 0 (or no Cord) means change the velocity by 0%. A full scale modulation setting of 100% in the PatchCord adds 100% to the velocity value $100\% + 100\% = 200\%$. A PatchCord setting of -100% *subtracts* 100% from the velocity (making it 0). Beat velocity scalings are reset with a preset change.

Beat Xpose Group 1-4 (BtsXpsG1 -> BtsXpsG4)


Parts assigned to one of the four Beats groups are transposed by the controller input. Transpose works by shifting the keyboard position and not by changing the tuning of individual notes. Therefore, on a Beats presets (bts), where different instruments are assigned to each key, Transpose has the effect of changing the instrument used by a particular part. This control ADDS to the Part Transpose set in the Beats Transpose screen (page 270). Beat transpose offsets are reset with a preset change.





Beat Busy (BtsBusy)

This destination determines which parts are enabled. Beat Busy will accept either positive or negative values.

- **Positive values** *Add* parts to whatever parts are triggered
- **Negative values** *Remove* parts that are triggered.

 **Hot Tip!** A PatchCord amount of 50% is enough to drive Beat Busy to the maximum setting.

 **Hot Tip!**
Bidirectional Mod Knob:
Set Controller M to BtsBusy with a Cord amount of +100, then add a DC bias to BtsBusy with a Cord amount of -50. The controller knob now adds or subtracts "Busyness".

 **Cool Tip!** Connecting Key Pressure to Beat Busy at 50% increases BEAT complexity the harder you press.

Suppose the pitch wheel (which can output both positive and negative values) were connected to Beat Busy and four Key Triggers are down. As the pitch wheel is moved from center to fully up, the remaining parts will be enabled until the pitch wheel is fully up and all parts are playing. Moving the pitch wheel from center to fully down, the four triggered parts are sequentially removed until at the most negative position of the wheel, no parts are playing.

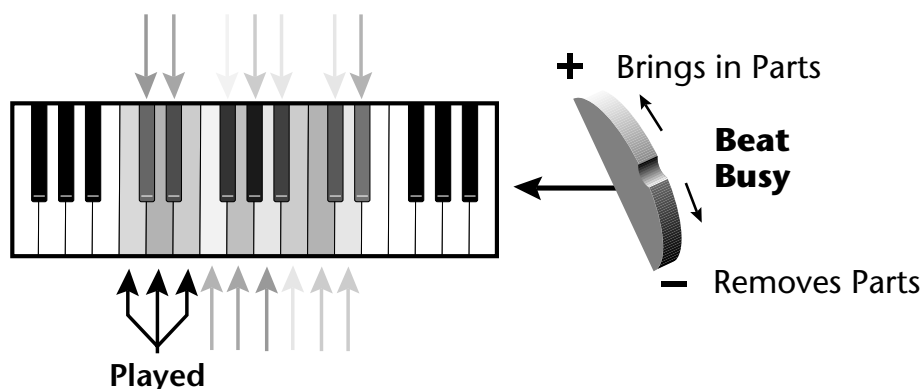
The Busy control acts on the Beats condition whenever the control is changed. Playing more triggers without changing the Busy control simply adds them until the Busy control is changed again, at which point it will possibly add or subtract parts as needed.

The interaction between the Busy control, Triggers, Part Velocity and Group Velocity can get complicated, but works according to this simple rule:

WHICHEVER CONTROL WAS LAST CHANGED TAKES OVER

When interacting with the Group Velocity scale control, the Busy control ignores group velocity even when it is set to zero, enabling and disabling parts as necessary. If the Group Velocity is changed *after* the Busy control, it takes control, scaling parts as it deems necessary.

The Busy control *does* take the Part velocity into account when adding and subtracting parts. If a part has a velocity of 0%, it is removed from the list of parts that the Busy control adds or subtracts. Therefore, you can use the Part Velocity control to remove parts you don't want to hear.



Positive controller values bring in new Parts and negative controller values remove Parts that are latched or held. In this example, the Pitch Wheel is connected to Beat Busy since it outputs negative as well as positive values.

Beat Variation (BtsVari)

Beat Variation varies which Parts are brought in and out using the Beat Busy control. Increasing this control mixes up the order in which Parts are brought in and out, thus providing even more permutations to the Beat.

Beats Keys/Trigger Layout



Save your Beats Keys Layouts and all other Arp/Beats parameters using "Save Setup" function in the Global menu.

This screen assigns the 16 Beats Triggers to keyboard notes on the Beats channel. For each Part, Group and Control Key you can select the following options:

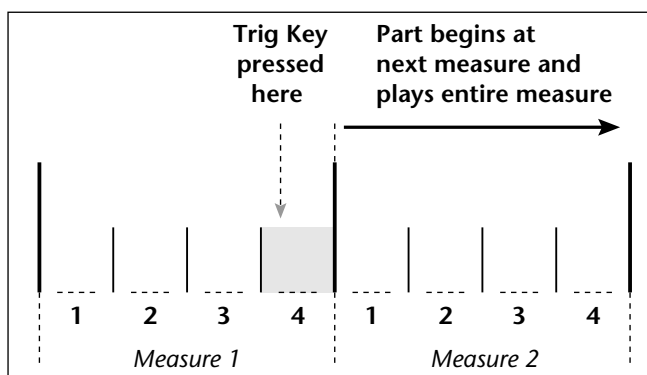
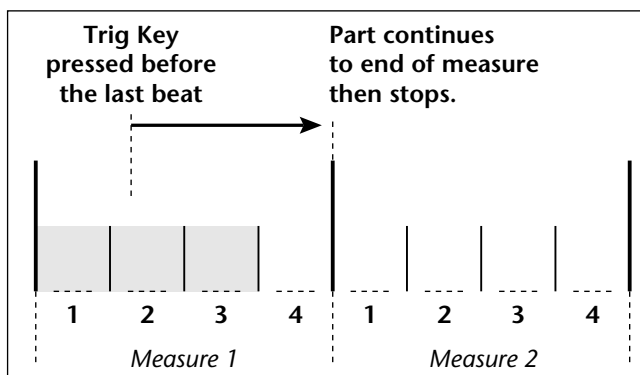
- **Key** Selects which keyboard key triggers the Part
- **Latch** The first key press turns the Part on, the next turns it off.
- **Unlatch** The Part plays only while the key is held.
- **1-bar** The Part plays for one bar then stops.

BEATS KEYS LAYOUT

Part 1 Key: C1 unlatch

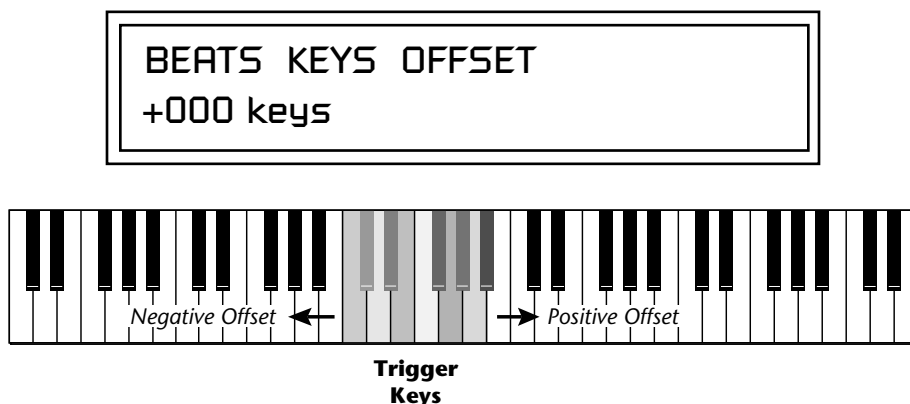
1-Bar Trigger Option

The 1-bar option requires a bit of explanation. When a trigger key is pressed before the last beat of the measure, the part will continue playing until the end of the measure. If the Trigger Key is pressed after the last beat of the measure, the part waits until the next measure before playing. Then it plays for the entire measure and stops. The time signature and the measure bounds are determined by the particular Beats Riff you are playing.




Beats Keys Offset

This function slides the Beats Trigger keys (*assigned in the previous screen*) up and down the keyboard. This makes it easy to change the keyboard location of the trigger keys without having to re-assign each key. A positive offset moves the group of triggers up the keyboard by the designated number of keys. Negative offsets move the trigger group lower on the keyboard.



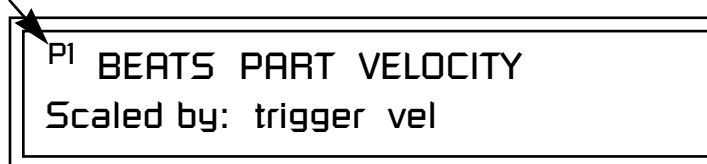
Beats Keys Offset slides the entire group of beats triggers up or down the keyboard.

Beats Part Velocity

 Use Beats Part Velocity to adjust the volume of Beats relative to volume of the Pattern or Song.

Each note of a Beats Riff can have its recorded velocity scaled by a value (from 0 to 120%) of the recorded velocity or the actual played velocity of the trigger key can be used (trigger vel). For example, if a note's velocity is 80, scaling by 110% will increase the note's velocity to 88. This feature allows you to control the mix of the different parts in advance or "on-the-fly" as you play. If a part's velocity is set to 0%, that part will be removed from the mix.

Select Part



► To Set the Velocity for each Part:

1. Press the left cursor button to move the cursor under the Part field.
2. Select the Part number using the Data Entry Control. Parts 1-16 can be selected. (*All parts, shown as an "A", can be edited at once if "Edit All Layers" is enabled in the Master menu.*)
3. Move the cursor to the bottom line using the cursor keys and adjust the Velocity Scaling percentage using the Data Entry Control.
4. Repeat steps 1 through 3 for all the Parts you wish to adjust.
5. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.

Beats Part Transpose

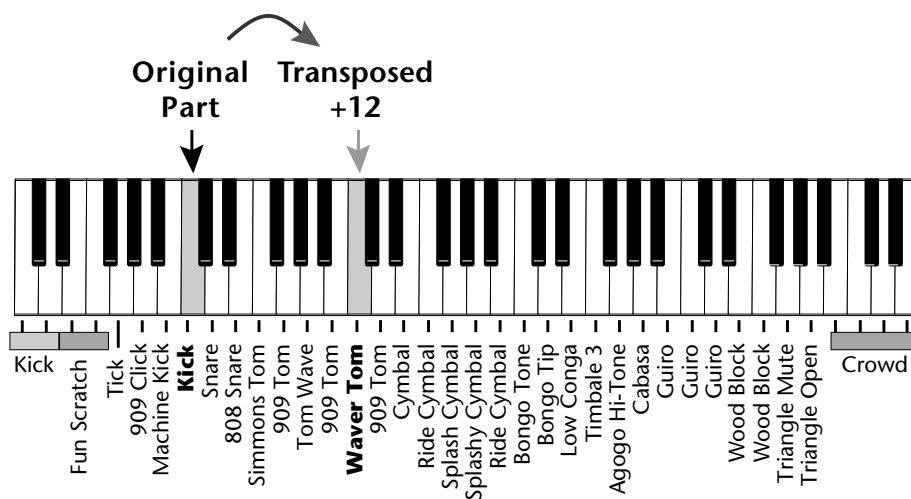
Each Part of a Beat Riff can be transposed up to 36 semitones up or down. Transpose works by shifting the keyboard position and not by changing the tuning of individual notes. Therefore, on a Beats preset (bts:), where different instruments are assigned to each key, **Transpose has the effect of changing the instrument used by a particular part.** On a preset where a single sound covers the entire keyboard, Transpose will actually transpose the sound.

Select Part



► To set the Transposition for each Part:

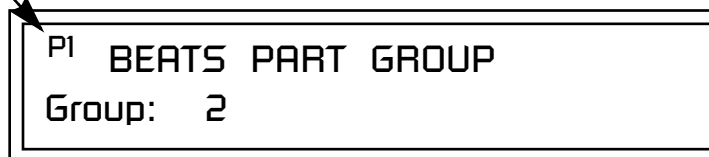
1. Press the left cursor button to move the cursor under the Part field.
2. Select the Part number using the Data Entry Control. Parts 1-16 can be selected. *(All parts, shown as an "A", can be edited at once if "Edit All Layers" is enabled in the Master menu.)*
3. Move the cursor to the bottom line using the cursor keys and adjust the Transposition in semitones using the Data Entry Control.
4. Repeat steps 1 through 3 for all the Parts you wish to adjust.
5. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.



Beats Part Group

This screen is where you assign Parts to one of the four Groups. By grouping, you can play multiple parts with a single key. A part can be in one and only one group, or in no groups.

Select Part



P1 BEATS PART GROUP
Group: 2



All Parts assigned to a Group will stop playing when the Group key is triggered, then untriggered even if the individual Parts in the Group are latched.

► To Assign a Part to a Group:

1. Press the left cursor button to move the cursor under the Part field.
2. Select the Part number using the Data Entry Control. Parts 1-16 can be selected. (All parts, shown as an "A", can be edited at once if "Edit All Layers" is enabled in the Master menu.)
3. Move the cursor to the bottom line using the cursor keys and select the Group (1-4 or none) using the Data Entry Control.
4. Repeat steps 1 through 3 for all the Parts you wish to assign.
5. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.

Master Riff

The Master Riff is selected from this screen. The Master Riff is used when Master (M) is selected for Beats in Beats mode enable screen.



MASTER RIFF XL-7
Plays: TranzAmbient 1

► To Assign the Master Riff:

1. Use the cursor buttons to move the cursor to the lower line of the display.
2. Select the desired Riff using the Data Entry Control. (Beats Riffs are identified by the **bts:** prefix.)
3. If there is more than one ROM in your unit you can select Riffs from any ROM set. Move the cursor under the ROM ID and select using the Data Entry Control.
4. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.

Riff Tempo

This setting determines whether **Riff Tempo** (the tempo stored with each Riff) or the **Current Tempo** (the Base Tempo from the Master Clock) will be used for Beats. Use “Current Tempo” if you want to synchronize Beats with the Pattern/Song sequencer.

To control the Riff Tempo from MIDI clock, set Riff Tempo to “use current tempo” and Base Tempo to “use MIDI”.



RIFF TEMPO
use riff tempo

► To Set the Riff Tempo Mode:

1. Use the cursor buttons to move the cursor to the lower line of the display.
2. Select “use riff tempo” or “use current tempo” using the Data Entry Control.
3. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.

Riff Controllers

Riffs contain preprogrammed real-time control information. This function allows you to turn these controllers On or Off for the Riffs. This control affects Audition Riffs as well as Beats Riffs.



RIFF CONTROLLERS
use riff controllers

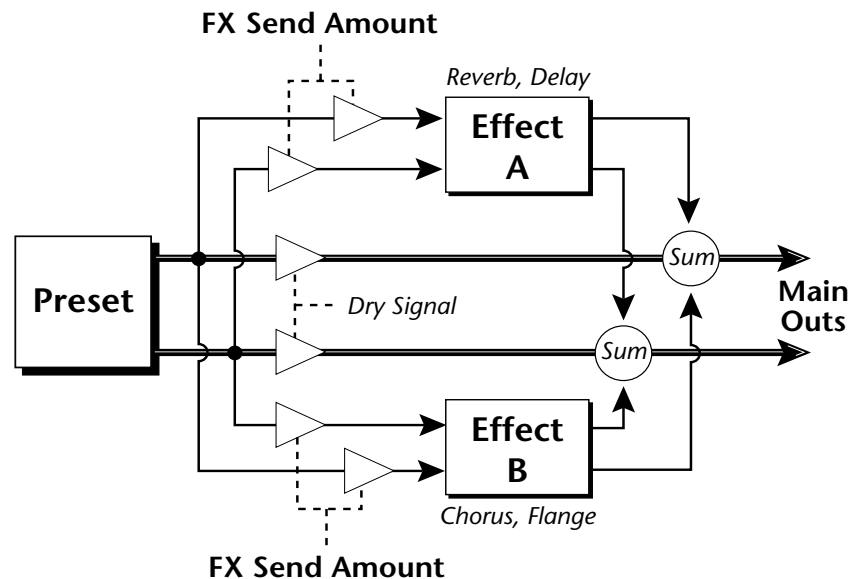
► To Turn Riff Controllers On or Off:

1. Use the cursor buttons to move the cursor to the lower line of the display.
2. Select “use riff controllers” or “ignore riff controllers” using the Data Entry Control.
3. Press the Enter/Home button or use the cursor keys to move the cursor back to the screen heading.

Effects

Effects Overview

XL-7 has two stereo effects processors. When playing presets one at a time, the two processors can be programmed as part of the preset. When the MIDI Mode is set to “multi,” the XL-7 uses a global effects assignment (Master Effects). The diagram below shows how the effects are integrated into the signal path using a parallel effects send/return model, similar to a mixing console.



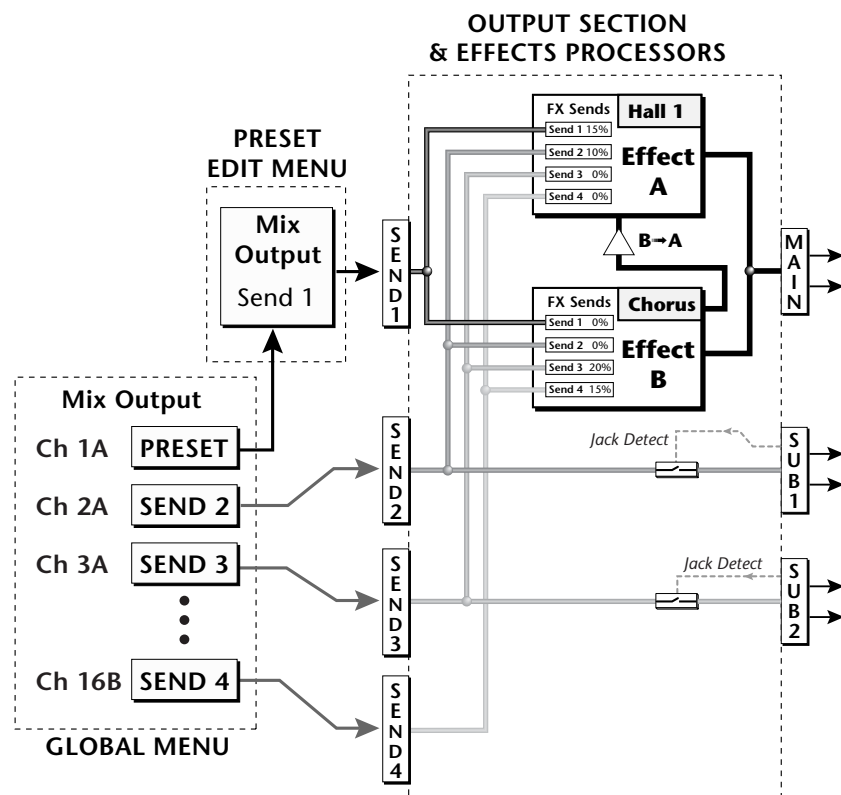
The Effects Sends

On a mixing console you can control the amount of signal each channel sends to the effect bus. This allows each channel to be placed in a slightly different “sonic space” which creates an airy, open sound.

XL-7 uses this basic concept, but works in a slightly different manner. There are four effects busses: Send1-Send4. Each preset or each MIDI channel (you determine which), can be directed to one of the four busses. Each effect processor has four Send Amounts which allow you to set the wet/dry mix on each of the four busses going into the effect. A setting of 0% is completely dry (no effect). A setting of 50% contains an equal mix of affected and normal (dry) signal.

Send 2 and Send 3 are also used to route sounds to the Sub 1 and 2 outputs on the back panel. When a plug is inserted into the associated Submix jack on the back panel, the Dry portion of the Send is disconnected from the effects processor and the Dry signal is routed directly to the output jack. **The Arrow (->) in the display points to the actual output routing.** *The Dry Send is disconnected from the Effects Processors even if only one plug is inserted into a Submix pair.*

The Effects Send is programmed for each layer in the Preset Edit menu. These routings can be overruled in the Global menu *Mix Output* screen by changing the submix setting from “preset”, which uses the preset routing, to Send1-Send4. In the diagram below, MIDI channel 1A is programmed to obey the preset routing which in this case is Send 1.



Individual layers or entire MIDI channels can be routed to any of the four busses.

The four Effect Sends allow you to get the most out of the two effect processors. For example, with Effect B set to an echo algorithm, you could route one MIDI channel to Send 3 and set the effect amount to 80%. Another MIDI channel could be routed to Send 4 with an effect amount of only 5%. This is almost like having two different effects!

The Mix Output function is also useful when sequencing since it lets you route specific MIDI channels (and thus sequencer tracks) to specific Sub outputs (on the back panel) where they can be processed with EQ or other outboard effects.

Effect Types

A Effect Types

Room 1-3
Hall 1 & 2
Plate
Delay
Panning Delay
Multitap 1
Multitap Pan
3 Tap
3 Tap Pan
Soft Room
Warm Room
Perfect Room
Tiled Room
Hard Plate
Warm Hall
Spacious Hall
Bright Hall
Bright Hall Pan
Bright Plate
BBall Court
Gymnasium
Cavern
Concert 9
Concert 10 Pan
Reverse Gate
Gate 2
Gate Pan
Concert 11

Medium Concert
Large Concert
Large Concert Pan
Canyon
DelayVerb 1-3
DelayVerb 4-5 Pan
DelayVerb 6-9

B Effect Types

Chorus 1-5
Doubling
Slapback
Flange 1-7
Big Chorus
Symphonic
Ensemble
Delay
Delay Stereo
Delay Stereo 2
Panning Delay
Delay Chorus
Pan Delay Chorus 1 & 2
Dual Tap 1/3
Dual Tap 1/4
Vibrato
Distortion 1 & 2
Distorted Flange
Distorted Chorus
Distorted Double

Effect Parameters

“A” Effect types contain Reverb and Delay effects. “B” Effect types contain Chorus, Flange and Distortion effects. There are 44 “A” effects and 32 “B” effects. In addition to the effect type, there are user adjustable parameters for each effect. The “A” effects have programmable Decay and High Frequency Damping. The “B” effects have user programmable Feedback, LFO Rate, and Delay Time.

Decay

The Decay parameter is used when setting “A” type effects. Decay sets the length of time it takes an effect to fade out. When setting up reverb effects, Decay controls the room size and the reflectivity of the room. For larger room sizes and greater reflectivity, set the Decay value higher. When setting up delay effects, the Decay parameter controls how many echoes are produced or how long the echoes last. The greater the value, the more echoes and longer lengths of time. The Decay value range is from 0 through 90.

High Frequency Damping

The HF Damping parameter is used when setting “A” type effects. High Frequency energy tends to fade away first as a sound is dissipated in a room. the HF Damping parameter adjusts the amount of damping applied to the signal’s high frequency elements which, in turn, changes the characteristics of the room. Rooms with smooth, hard surfaces are more reflective and have less high frequency damping. Rooms filled with sound absorbing materials, such as curtains or people, have more high frequency damping. The value range for High Frequency Damping is from 0 through 127.

Feedback

The Feedback parameter is used when setting “B” type effects. The Chorus and Flange effects have a controllable feedback loop after the delay element. Feeding back a small amount of the signal intensifies the effect by creating multiple cancellations or images. Higher feedback values increase the amount of the Feedback loop. The Feedback value range is from 0 to 127.

LFO Rate

The LFO Rate parameter is used when setting “B” type effects. Both Chorus and Flange effects use a Low Frequency Oscillator (LFO) to animate the effect. LFO applied to a chorus effect creates the slight changes necessary for a realistic choral effect. Applied to a flanger effect, the LFO moves the comb filter notches and adds animation to the sound. The LFO Rate value range is from 0 to 127.

Delay

Flanging, chorus and echoes are all based on a delay line where the signal is delayed by some time period and then mixed back with the unaltered signal. This parameter specifies the how much time passes before you hear the delayed signal. On some effects, this value cannot be changed. In this case, the field contains a dash. The Delay value range is from 0ms to 635ms.

Synchronize the delay time to the master clock by setting the delay time below zero. The delay time can be set to any of the standard clock divisors (listed on page 249) in order to lock the echoes to the beat of the song.



Tempo-synced delay can cause a “zipper” noise if the tempo is changing while the sound is playing.

Effects Programmed in the Preset



Tip: The factory presets have their own custom effects settings. To hear these effects, set the MIDI mode to Poly or Omni mode. Remember to switch back to Multi mode for sequencing.

Effects are normally programmed as part of the preset allowing you to have a different effect for each. This section describes how to program and modify XL-7's preset effects.

► To Program the Effects as Part of the Preset:

1. Press the Preset Edit button. The LED illuminates and the Preset Edit screen appears.
2. Use the data entry control to select the FXA Algorithm screen.

FXA ALGORITHM
Lg Concert Pan

3. Select an Effect. Do not select the "Master Effect" setting or the global effects set up in the Global menu will be used instead of the Preset Effect settings.
4. Use the data entry control to select the FXA parameter screen.

FXA	DECAY	HFDAMP	FxB>FxA
	90	127	127

The FxB -> FxA parameter lets you route the B effect through the A effect. See "Effect B Into Effect A" on page 282.

5. Set the other effect parameters to your preference. Refer to the information in the last section for detailed descriptions of these parameters.
6. Use the data entry control to select the FXB Algorithm screen.

FXB ALGORITHM
Distorted Flange

7. Select an Effect. Do not select the "Master Effect" setting or the global effects set up in the Global menu will be used instead of the Preset Effect settings.
8. Use the data entry control to select the FXB parameter screen.

FXB	FEEDBK	LFORATE	DELAY
	127	127	635ms

9. Set the other effect parameters to your preference. Refer to the information in the last section for detailed descriptions of these parameters.
10. Save the preset. The programmed effects setting will be saved along with the preset.

Master Effects

When playing single presets, the effects are normally programmed as part of the preset. In Multimode, and when selecting effects via the sequencer, the Master effects are used, since there are only two effect processors to serve 32 MIDI channels.

You might also want the effects to be programmed on a global basis when in Omni or Poly modes. You could choose your favorite reverb, for example, and have it applied to any preset you select.

► To Program the Master Effects

1. Press the Global menu button. The LED illuminates and the Global screen appears.
2. Use the data entry control to select the FXA Algorithm screen.

FXA ALGORITHM
Lg Concert Pan

3. Select an Effect.
4. Use the data entry control to select the FXA parameter screen.

FXA	DECAY	HFDAMP	FxB>FxA
	90	127	127

The FxB -> FxA parameter lets you route the B effect through the A effect. See "Effect B Into Effect A" on page 282.

5. Set the other effect parameters to your preference. Refer to the information in the last section for detailed descriptions of these parameters.
6. Use the data entry control to select the FXB Algorithm screen.

FXB ALGORITHM
Distorted Flange

7. Select an Effect.
8. Use the data entry control to select the FXB parameter screen.

FXB	FEEDBK	LFORATE	DELAY
	127	127	145ms

9. Set the other effect parameters to your preference. Refer to the information in the last section for detailed descriptions of these parameters.
10. Press the Preset Edit menu button. The LED illuminates and the Preset Edit menu displays the last screen used.
11. Use the data entry control to access the FXA Algorithm page and select "Master Effect A."



The MIDI mode (MIDI Menu) must be set to Omni or Poly mode in order to select the effects in the preset.

FXA ALGORITHM
Master Effect A

12. Repeat step 11 for the FXB Algorithm
13. Save the preset. The Master effects routing will be saved along with the preset.

Effects Mode

This control provides a true bypass of the effects engine. Bypass is a useful feature if you are using external effects at the mixing console and want to turn the effects off for all presets.

► To Bypass the Effects:

1. Press the Global menu button. The LED lights and the last Global parameter screen used is displayed.
2. Use the data entry control to select the Effects Mode screen.

FX MODE
enabled

3. Use the cursor button to advance the cursor to the bottom line in the screen.
4. Use the data entry control to change the value.
5. Press the Enter key to save the settings.

The Effects Mode values are “enabled” and “bypassed.” Enabling the Effects Mode turns on effects. Selecting “bypassed” turns off the effects.

Flexible Effects Control

The effects processor controls are very flexible. The effects can be controlled in three different ways to suit your personal preference and to adapt to different situations.

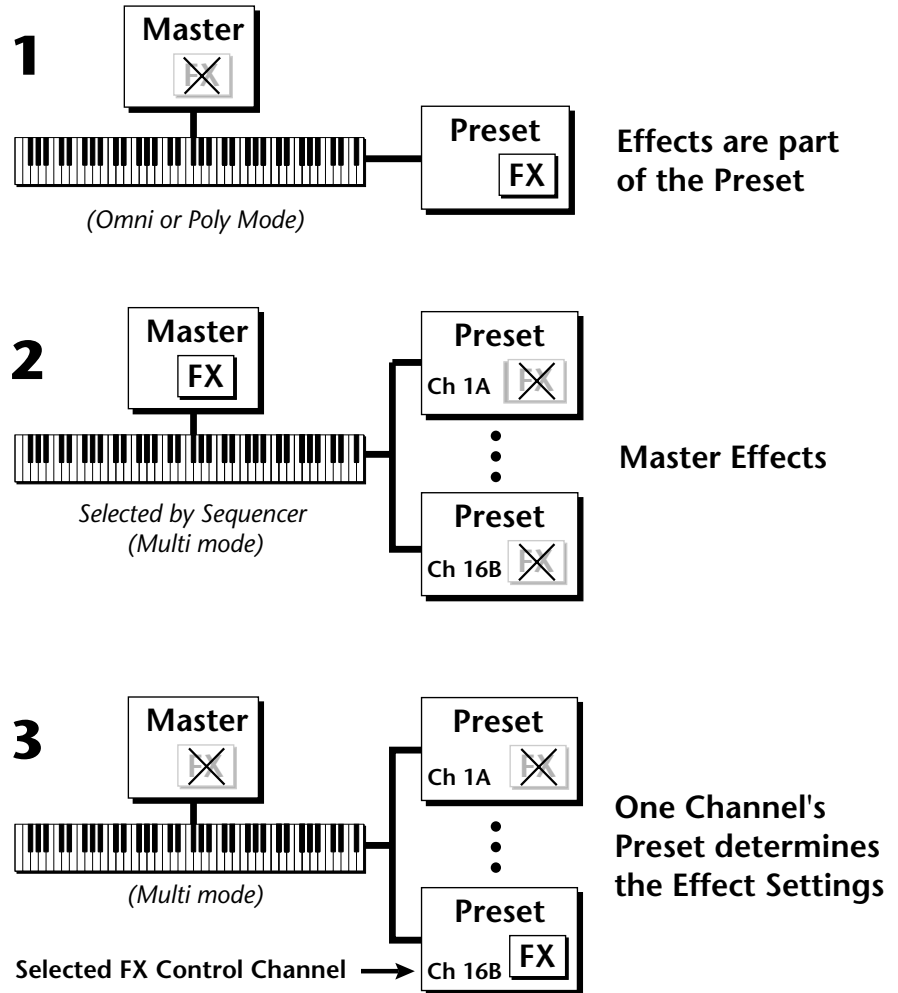
When in Omni or Poly mode, effects are normally programmed as part of the preset. In Multi mode, the two effects processors can be controlled using the Master settings or by using the effects settings of a preset on a specific MIDI channel. Effects can be programmed in the following ways:



You can create special “Effects Presets” which are assigned to the FX Multi mode Control channel, then use standard MIDI Program Change commands to switch effects during sequence playback.

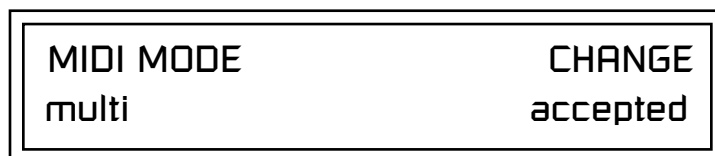
1. **Programmed as part of the preset when playing single presets (Omni or Poly Modes).**
2. **Programmed from the Master Effects Section when playing either single presets (preset Effect Type set to “Master”) or when in Multi Mode. This is the typical mode when using the sequencer because the master effects settings are saved with each pattern.**
3. **Programmed from the designated control preset when in Multi Mode.**

Refer to the following diagram for a look at how effects are programmed.



► **To Program the Effects Globally for all Presets in Multi Mode:**

1. Press the MIDI menu button. The LED illuminates and the MIDI menu screen appears.
2. Use the data entry control to select the MIDI mode page. Choose "multi" for the mode.





The Master effects are selected by the sequencer. If you want the sequencer to set the effects, set Multimode Control to "Use Master Settings".

3. Move the cursor to the Multi mode Effects Control page using the data entry control.



4. Set the Effect Control channel to *use master settings* using the data entry control.
5. Press the Enter key to save the settings and return to the main screen.

Using the Effects Channel Settings in Multi Mode

In Multi mode, the two effects processors can be controlled from the Master Effects settings or they can follow the effects settings of the preset on a special MIDI channel. The effect settings on this special channel will be applied to all the other MIDI channels. This allows the effects to be changed during a sequence simply by changing the preset on a specified MIDI channel.

► To Program the Effects by Channel Number in Multi Mode

1. Press the MIDI menu button. The LED illuminates and the MIDI menu screen appears.
2. Use the data entry control to select the MIDI mode page. Choose "multi" for the mode.
3. Move the cursor to the Multi mode Effects Control field using the data entry control
4. Set the Effect Control to "preset on Channel #" (where # is replaced by the actual channel number from 1A through 16B) using the data entry control.
5. Press Enter to save the settings and return to the main screen.

Effect B Into Effect A

The output of effects processor B can be routed into effects processor A. This connects the effects in series instead of their normal parallel configuration. Two effects connected in series sound very different than the same two effects in parallel. For example, a chorus patched through reverb can turn a bland string section into a lush wall of sound. The B →A amount can also be controlled for even more flexibility.

► To Send the Output of Effect B through Effect A:

In this example, 100% of Effect B will be sent into Effect A.

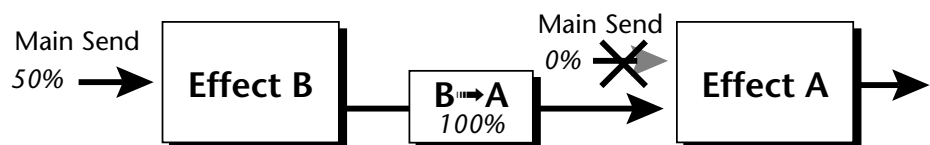
1. Access the FXA parameter screen (in either the Global or Preset Edit menus) that contains the FXB →FXA parameter.

FXA	DECAY	HFDAMP	FxB>FxA
	127	127	127

- Set this amount to 127. Press the cursor button to return the cursor to the top line in the display.
- Use the data entry control to select the FXA submix routing parameter screen.

FXA SEND AMOUNTS		1: 10%
2: 20%	3: 30%	4: 40%

- Press the cursor buttons to advance the cursor to the Main field.
- Set the Main send amount to any amount other than zero.
- Press the cursor button again to return the cursor to the FXA title. Use the data entry control to advance to the FXB Algorithm page.
- Select an effect.
- Advance to the FXB submix routing page and set the Main FXB send percentage to zero.
- Play the keyboard and you should hear the B Effect running through Effect A. This patch is shown below.

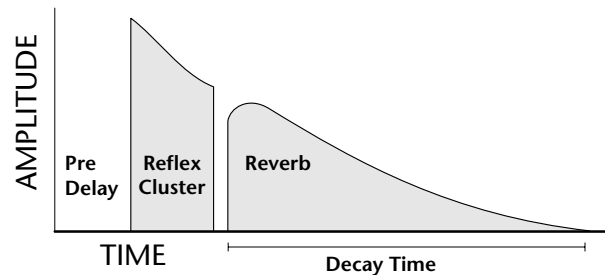


General Effect Descriptions

Reverb

Reverberation is a simulation of a natural space such as a room or hall. The reverb algorithms in XL-7 simulate various halls, rooms and reverberation plates. In addition, there are several other reverb effects such as Gated Reverbs, Multi Tap (early reflections), Delay and Panning effects. There are two adjustable parameters on the reverb effects - Decay Time and High Frequency Damping.

Decay time defines the time it takes for the reflected sound from the room to decay or die away. The diagram below shows a generalized reverberation envelope.



After an initial pre-delay period, the echoes from the closest walls or ceiling are heard. These first echoes, or the early reflection cluster, vary greatly depending on the type of room. Roughly 20 milliseconds after the early reflection cluster, the actual reverberation begins and decays according to the time set by the Decay Time parameter.

High frequency energy tends to fade away first as a sound is dissipated in a room. The High Frequency Damping parameter allows you adjust the amount of high frequency damping and thus change the characteristics of the room. Rooms with smooth, hard surfaces are more reflective and have less high frequency damping. Rooms filled with sound absorbing materials such as curtains or people have more high frequency damping.

General Descriptions of the Reverb Types

Room: Programs simulate small rooms with high frequency absorption caused by drapes and furniture.

Plates: Simulates plate type reverbs with their tight, dense, early reflections and sharp reverb buildup.

Hall: Presets recreate the open, spacious ambience of large concert halls.

Gated Reverbs: Add ambience only while the original signal is still sounding. As soon as the signal falls below a threshold, reverb is cut off.

Delay: Programs can be used to create echo and doubling effects.

Multi Tap: Programs consist of the reflection cluster only without the reverb decay.

Chorus

The function of a chorus device is to thicken the sound or to make one voice sound like many. This effect is usually created by mixing one or more delayed versions of the signal with the original. The delay times used are too short to be perceived as an echo, but long enough so that comb filtering does not occur. In addition, the delay time is varied via a low frequency oscillator to simulate the random differences which occur when multiple instruments are playing together. A slight amount of feedback improves the effect by creating multiple images of the sound as it recirculates again and again.

All the choruses are true stereo using two separate delay lines controlled by a single set of controls. The delay times are slightly different for each channel and the LFO phase is inverted on one channel to help contribute to the overall chorus effect. The LFO Rate and Depth settings are critical to achieving a realistic effect, with faster LFO rates generally requiring less LFO amount and vice-versa.

Doubling

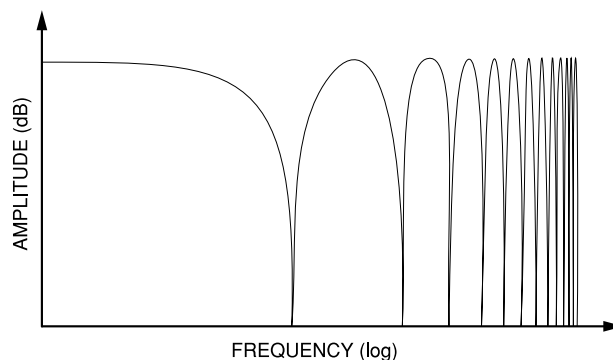
When a copy of a sound delayed by about 26 milliseconds is added back to the original, two audio images are perceived by your brain. When the delayed image is slightly varied or modulated, the illusion of two voices is created.

Slapback

Slapback is a single short echo in the range of 50-60 milliseconds. A sound delayed by this length of time is perceived as a discrete and separate image which is useful for a thickening effect or as a pre-delay for reverb simulating a hard, reflective surface such a gymnasium wall.

Stereo Flanger

A flanger consists of a short audio delay line whose output is mixed together with the original signal. Mixing the delayed and original signals results in multiple frequency cancellations called a comb filter. Since the flanger is a type of filter, it works best with harmonically rich sounds.



This is the frequency response of a Comb Filter.

Flanging was originally created using two tape recorders playing identical recordings. By exactly synchronizing the two decks and then slowing the speed of one by grasping the tape reel flanges, the flanging effect was born.

The XL-7 flanger is a stereo device consisting of two separate delay lines controlled by a single set of controls. A Low Frequency Oscillator (LFO) varies this initial delay setting, changing the frequency of the notches and adding animation to the sound. LFO Rate controls the rate of change and LFO Depth controls how much the LFO changes the delay.

The Feedback control sends some of the delayed signal through the delay line again. When feedback is used the comb filter notches are deepened.

Delay

Delay is an effect which can be used for doubling, reverb pre-delay, or echoes.

Delay Time is variable from 0-635 mS and controls the time between echoes. Feedback and determines how long the echoes continue sounding. "Infinite" delay effects are also possible without the risk of runaway.

Stereo Delay

Similar to delay except that the delay line outputs a stereo signal from the mono input. The two output signals are a few milliseconds apart to create a stereo image. The delay times are variable from 0-635 mS.

Panning Delay

A panning delay is similar to the normal delay lines except that the echoes bounce back and forth between the two stereo speakers.

Dual Tap

These are delay lines where the signal is "tapped off" at two unevenly spaced locations. When feedback is used, multiple complex echoes are produced. The fraction in some of the algorithm names (i.e. 1/3, 1/4) refers to the time ratio between the taps.

Vibrato

Basically, this a delay line modulated by an LFO, but with none of the original signal added in. The LFO modulation creates a Doppler shift and a resultant cyclical pitch shift. The vibrato created in this manner sounds very different than vibrato created by frequency modulating the sample.

Distortion

Distortion uses a technique called "soft-clipping" to create additional harmonics in the signal. As the level increases, the top of the waveform becomes somewhat squared. As the level increases further, it transforms into a true square wave.



Soft clipping gradually squares the edges of the waveform as the amplitude is increased.

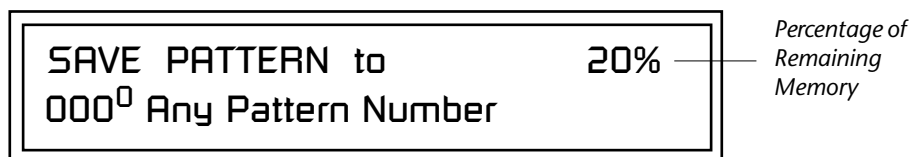
Save/Copy Menu

Save Pattern

The Save/Copy button is used to save changes to a pattern, song, preset, copy data between presets, randomize presets and to move other types of data. The menu is context-sensitive and will start at the appropriate save screen. If multiple items need to be saved, then the screens have the following priority: pattern, song, preset. Use the data entry control to navigate to other pages that support copying information.

Changes made to the current pattern are not made permanent until the pattern is saved. The upper right corner of the display shows the percent of memory available for saving patterns. When the display reads 0%, you are out of memory and will not be able to save until you have erased other data from the sequencer.

When a pattern (or song) has been edited and needs to be saved, an asterisk (*) appears in the display. The asterisk and your edits remain on the edited pattern even if you change patterns. Edits are only erased by saving the pattern, editing another pattern, invoking the “Revert To Saved” feature (page 105), or turning the unit off.



Examine interesting presets to learn how they work using the Edit menu.

► To Save a Sequencer Pattern

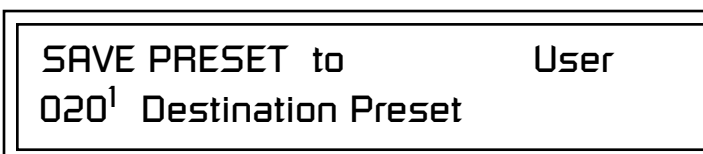
1. With the Mode/View selector in “pattern” mode, **select the pattern** you want to save.
2. Press the **Save/Copy** menu button.
3. Move the cursor to the bottom line on the display and select a **destination pattern location**.
4. Press **Enter** when you have made your selection. *The Enter LED is flashing indicating that XL-7 is waiting for your response.*
5. The Sequencer Pattern is now saved into the chosen location.

Saving a Preset



Each time you change a preset parameter, an asterisk appears in the preset name and the Save/Copy button LED illuminates reminding you to save your work.

Any time you make a change to a preset, either using the Preset Edit menu or by changing the Controller Knobs in Quick Edit mode, you must save the preset in order for the change to become permanent. When you save a preset it erases any existing preset information in that location. Make sure that the destination location does not contain preset information you want to keep.



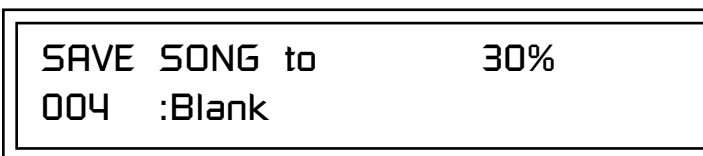
► To Save a Preset

1. Press the **Save/Copy** menu button.
2. **Move the cursor** to the bottom line on the display.
3. **Select** the new preset location using the data entry control.
4. Press the **Home/Enter** button.

Saving a Song

Changes made to the current song are not made permanent until the song is saved.

When a song (or pattern) has been edited and needs to be saved, an asterisk (*) appears in the display. The asterisk and your edits remain on the edited song even if you change songs. Edits are only erased by saving the song, editing another song, invoking the “Revert To Saved” feature (page 127), or turning the unit off.



► To Save a Song

1. Press the **Save/Copy** menu button.
2. Move the cursor to the bottom line of the display.
3. Use the data entry control to select the new location for the song. The Enter LED will be flashing.
4. Press Enter when you have made your selection. The display will momentarily flash “Saving Song”, and the song will be saved.


Copying Information

Copy Preset

The Copy operations let you copy information from any preset or layer to any other preset or layer. To use the copy command, first select the preset or layer to which you want to copy (the destination location). Then, from the copy screen, select the preset or layer you want to copy to the currently selected location (the source location). Using the copy commands you can copy preset, layer, PatchCord and arpeggiator information.

The Copy Preset command lets you copy all of the preset information from one location into the preset of the current location. The preset information in the source location (the preset location from which you want to copy) is not deleted from the original location, just copied to the destination location.

COPY PRESET from XL-7
009³ pad: Dreamer

 All the Sound Navigator features work when using the Copy functions.

► To Copy a Preset

1. **Select the Preset** you want to copy information *into*.
2. Press the **Save/Copy** menu button.
3. Select “**Copy Preset from**” using the data entry control.
4. **Select the preset** you want to copy using the data entry control. The ROM Bank, Preset Number, Bank Number, Category and Preset Name fields are all selectable.
5. Press the **Home/Enter** button.
6. A warning appears asking you to confirm once more. Press the **Home/Enter** button to copy the selected preset into the current location.

Copy Layer

The Copy Layer command lets you copy any layer information from one preset into any layer of the current preset location. The layer information in the source location (the layer location from which you want to copy) is not deleted from the original location, just copied to the destination location.

COPY LAYER User L1 -> L4
020¹ Source Preset

Copy PatchCords

► To Copy a Layer

1. Select the **Preset and Layer** you want to copy information *into*.
2. Press the **Save/Copy** menu button.
3. Move the cursor to the bottom line on the display.
4. Select the **preset location** using the data entry control, of the preset containing the information you want to copy into the current preset.
5. Move the cursor to the top line in the display.
6. Select the **layer** of the source preset in the first field on the right.
7. Select the **destination layer** in the second field.
8. Press the **Home/Enter** button.

The Copy Patch Cord command lets you copy the PatchCord settings from one layer of the preset location into the current layer of the current preset location. The preset information in the source location (the preset location from which you want to copy) is not deleted from the original location, just copied to the destination location.

COPY CORDS	User	L1 -> L4
020 ¹	Source Preset	

► To Copy a PatchCord

1. Select the **Preset and Layer** you want to copy information *into*.
2. Press the **Save/Copy** menu button.
3. Move the cursor to the bottom line on the display.
4. Select the **preset location** using the data entry control, of the preset containing the information you want to copy into the current preset.
5. Move the cursor to the top line in the display.
6. Select the **layer** of the source preset in the first field on the right.
7. Select the **destination layer** in the second field.
8. Press the **Home/Enter** button.

Copy Preset PatchCords

The Copy Preset PatchCord command lets you copy the preset patchcord settings from one preset location into the current preset location. The preset information in the source location (the preset location from which you want to copy) is not deleted from the original location, just copied to the destination location.



► To Copy a Preset PatchCord

1. Select the Preset you want to copy information *into*.
2. Press the **Save/Copy** menu button.
3. Move the cursor to the bottom line on the display.
4. Select the preset containing the information you want to copy.
5. Press the **Home/Enter** button.

Copy Arpeggiator Settings

This function lets you copy the Arpeggiator settings from any ROM or RAM preset location into the current RAM (User) preset.



► To Copy the Arpeggiator Settings

1. From the Preset View display, select the User Preset you want to copy the Arp setting *into*.
2. Press the **Save/Copy** menu button.
3. Move the cursor to any of the fields on the bottom line on the display.
4. Use the data entry control to select the preset you want to copy *from*.
5. Press **Enter** when you have made your selection. *The Enter LED is flashing indicating that XL-7 is waiting for your response.*
6. The Arp Settings are copied into the current preset.

Copy Arpeggiator Pattern

This function lets you copy the Arpeggiator pattern from any ROM or RAM preset to any RAM (user) pattern.

COPY ARP PAT from XL-7
96¹ TRANCED

► To Copy the Arpeggiator Pattern

1. Press the **Save/Copy** menu button.
2. Move the cursor to any of the fields on the bottom line on the display.
3. Use the data entry control to **select the preset** you want to copy *from*.
4. Press **Enter** when you have made your selection.

Overwrite pattern:
00⁰ No Control

5. Press **Enter**. The Arp Pattern is copied into the selected User Pattern.

Copy Preset Bank

The Copy Preset Bank command lets you copy an entire bank from any ROM or RAM bank location to any RAM (user) bank. This function can be especially useful after installing a new sound SIMM.

COPY BANK
From: XL-7 ² To: User ¹

ROM or RAM
Preset Location

Bank No.

Destination
Bank No.

► To Copy a Preset Bank

1. Press the **Save/Copy** menu button.
2. Move the cursor to the “**From**” field on the bottom line on the display.
3. Use the data entry control to **select the preset bank** you want to copy *from*.
4. Move the cursor to the “**To**” field on the bottom line on the display.
5. Use the data entry control to **select the User preset bank** you want to copy *into*.
6. Press the **Home/Enter** button to overwrite the bank.

Copy Sequencer Pattern

This function lets you copy a sequencer pattern from any location into the current pattern location.

COPY PATTERN from 30%
96¹ TRANCED

► To Copy the Sequencer Pattern

1. Press the **Save/Copy** menu button.
2. Move the cursor to any of the fields on the bottom line on the display.
3. Use the data entry control to select the **pattern** you want to copy *from*.
4. Press **Enter** when you have made your selection.

press ENTER to overwrite
063⁰ No Control

5. Press **Enter**. The pattern is copied into the current Pattern location.

Copy Song

This function lets you copy a song from any location into the current song location.

COPY SONG from 30%
002 ENTRANCED

► To Copy the Song

1. Press the **Save/Copy** menu button.
2. Move the cursor to any of the fields on the bottom line on the display.
3. Use the data entry control to select the song you want to copy *from*.
4. Press **Enter** when you have made your selection.

press ENTER to overwrite

5. Press **Enter**. The song is copied into the current song location.

Sound Authoring

Copy User Bank to Flash



If there is no Flash SIMM in the unit, the error message, "Requires Flash SIMM" will be displayed.

This is a special purpose function to be used with the Flash sound authoring feature. Flash Sound SIMMs created on an EOS Ultra sampler can be used as a custom XL-7 bank. Presets are then created in a User bank. When the bank of presets is finished, it can be copied, using this function, to the Flash SIMM. Flash SIMMs contain two separate memory locations. One of these memories contains the sound samples and the other memory can hold four banks of 128 presets.

WARNING: dangerous voltages are exposed inside XL-7! Make sure power is completely disconnected from XL-7 before removing the top panel. Replace the top panel before restoring power to the unit. The two sound SIMM sockets in XL-7, marked 0 and 1, are located behind the controller knobs on the circuit board. **The destination Flash SIMM must be placed in SIMM socket 1.**

COPY USER BANK TO FLASH
From: User⁰ To: Flash²

► To Copy a User Bank to Flash

1. Make sure a Flash SIMM is inserted into the extra SIMM socket.
2. Press the **Save/Copy** menu button.
3. Rotate the data entry control to select the **"Copy User Bank"** function shown above.
4. Move the cursor to the **"From"** field and select the User bank that you want to copy to the Flash SIMM.
5. Move the cursor to the **"To"** field and select the Flash bank that you want to contain the User bank.
6. Press **Enter**. The Enter LED will flash and the screen below appears.

**Press ENTER to Overwrite
Flash SIMM Presets**

7. Press **Enter** again to confirm. The following screen appears:

**COPYING USER BANK TO FLASH
Done. Please Reboot Now.**

8. The Flash presets cannot be used until XL-7 is rebooted (power off then on). **Reboot** the XL-7 and verify that the new Flash bank has been properly copied.

Rename Flash SIMM



The Flash ID is the MSB of the MIDI Bank Select command used to select the Sound Bank.



If there is no Flash SIMM in the unit, the error message, "Requires Flash SIMM" will be displayed.

This utility allows you to rename the Flash SIMM and change its ID number. Flash SIMMs can have any five letter name you choose. Each Flash SIMM in a XL-7 unit must have a unique ID number (106-119).

The field in the upper right corner selects between multiple Flash SIMMs. If only one Flash SIMM is installed, the field cannot be modified.

RENAME FLASH SIMM New Name: Drums	Flash ID: 110
--------------------------------------	------------------

1. Make sure a Flash SIMM is inserted in a XL-7 SIMM socket.
2. Press the **Save/Copy** menu button.
3. Rotate the data entry control to select the "Rename Flash SIMM" function shown above.
4. Move the cursor to the "**New Name**" field and rename the SIMM using the data entry control to select the letter and the cursor keys to select the position.
5. **Set the Sound ID number** for the SIMM. It doesn't matter which number you choose as long as the same number isn't used in another SIMM.
6. Press **Enter**. The following screen appears and the Enter LED will be flashing.

Press ENTER to Update Flash SIMM data
--

7. Press **Enter** again to confirm or any other button to abort. The following screen appears:

CHANGING SIMM NAME & ID (takes about 2 minutes)
--

8. The Flash presets cannot be used until XL-7 is rebooted (power off then on). **Reboot** the XL-7 and verify that the new Flash bank has been properly renamed.

Duplicate Flash

This utility allows you to duplicate Flash SIMMs using XL-7. Both Sound and Preset data is copied when a Flash SIMM is duplicated. A factory sound SIMM cannot be copied using this utility.

WARNING: dangerous voltages are exposed inside XL-7! Make sure power is completely disconnected from XL-7 before removing the top panel. **Replace the top panel before restoring power to the unit.**

The two sound SIMM sockets in XL-7 are marked 0 and 1. These are located behind the controller knobs on the circuit board. The Flash SIMM you want to copy **MUST** be placed into SIMM Socket 0. The destination Flash SIMM must be placed in SIMM socket 1.

DUPLICATE SLOT 0 FLASH
Start

1. Make sure the two Flash SIMM are located in the required XL-7 SIMM sockets.
2. Press the **Save/Copy** menu button.
3. Rotate the data entry control to select the **“Duplicate Flash SIMM”** screen shown above.
4. **Move the cursor** to the bottom line and press **Enter**. The following screen appears and the Enter LED will be flashing.

Press ENTER to overwrite
the Flash SIMM in Slot 1

5. Press **Enter** again to confirm or any other button to abort. The following screen appears and the SIMM is copied.

DUPLICATING SLOT 0 -> SLOT 1
(Takes about 5 minutes)

6. When XL-7 has finished duplicating the SIMM, turn power off, remove the copied SIMM, then **reboot**. That's it!



If there are no Flash SIMMs in the unit, or if the SIMMs are in the wrong slots, an error message will be displayed.

Compact Flash Now!

This option allows you to manually compact Flash RAM. Before the explanation of this feature, a little back ground. The Command Stations use non-volatile “Flash” memory for sequences, presets and multisetups. As you make changes to memory by recording, saving, etc., the flash memory becomes fragmented, with small blocks of memory scattered around the address space. When the Flash RAM becomes too fragmented to perform efficiently, the Command Station automatically “defragments” the Flash RAM, compacting it into a single continuous block. The compaction process can take several minutes, an extremely long time if you happen to be on stage when the Command Station decides that it’s time to compact.

This feature allows you to manually compact Flash RAM before a performance to avoid the annoying pause in operation at a critical moment. Because Flash RAM has a finite number of write operations before it goes bad, the Command Station will not allow you to manually compact when there is more than 100K bytes of compacted memory remaining.

MANUALLY COMPACT NOW
not for everyday use !!

► To Manually Compact Flash RAM

1. Press the **Save/Copy** menu button.
2. **Move the cursor** to the bottom line on the display.
3. Press the **Home/Enter** button.


This is a great feature which creates a new preset using portions of the ROM presets as source material. By merging random presets, really great sounding presets can be generated with ease. Use this feature to generate wild new sounds, get new programming ideas or just for fun.

RANDOMIZE PRESET User
000⁰ Any User Preset

► To Create a Random Preset

1. Press the **Save/Copy** menu button.
2. Move the cursor to the bottom line on the display and press **Enter**.
3. A new random preset will be created.
4. Don’t like it? Press **Enter** again to generate a new random sound.

Create Random Preset

 *Examine interesting presets to learn how they work using the Edit menu.*



Preset Programming

Editing Presets

Changing the Instrument



*The **Preset Edit Jump Buttons** are located in the "Command Functions" section of the front panel.*

There is so much you can do with the XL-7 it's impossible to describe it all. This chapter will give you a few ideas for programming your own custom sounds and contains step-by-step instructions to help you get started. In order to get the most from this chapter, we recommend you actually try each example.

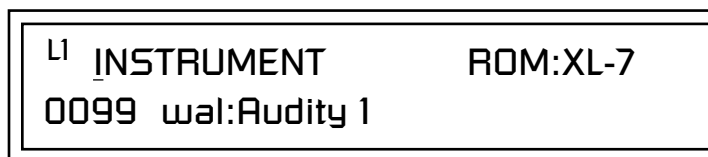
One of the easiest ways to make a new preset is to edit an existing preset. This is also an excellent way of becoming familiar with XL-7. If you don't like what you hear, simply select a new preset, then XL-7 reverts to the original sound. Changes are not permanent until you Save them (see "Saving a Preset" on page 288).

Let's experiment and modify a few parameters of an existing preset. We'll start with functions that have an obvious effect on the sound: Instrument Select, Tuning, and Chorus.

Changing the instrument is the easiest and most dramatic way to modify an existing preset.

► To Change the Instrument for the Current Layer

1. Choose any cool preset, then press the **Preset Edit** button.
2. Press the **#1 Jump button** twice to jump directly to the Instrument page. See "Preset Menu Jump Keys" on page 43.



3. Move the **cursor** down to the bottom line (using a **Cursor** button).
4. Use the **data entry control** to change the instrument. This changes the instrument for the current layer (in this case it's L1).
5. **Play the keyboard** as you scroll through the various instruments.

► **To Change the Instrument for any Layer in the Preset**

6. Move the **cursor** back up to the first field in the first line (the layer).
7. Use the **data entry control** to select the layer you want.

L2 INSTRUMENT 0513 vox:Orch	ROM:XL-7
--------------------------------	----------

8. Repeat steps 3 and 4 for each selected layer. Find an instrument that sounds good when combined with the previous instruments selected.

With all these great instruments to work with, you really can't go wrong. Now let's play with the tuning.

Changing the Tuning of an Instrument

Tuning the selected layer of the preset changes the pitch of the key on the controller. If the numbers are "00," it means that the instruments are tuned to concert pitch (A=440 Hz). The Coarse tuning value represents whole semitone intervals. The Fine tuning value shifts the pitch in 1/64 semitones (or 1.56 cents).

► **To Tune the Instrument of the Current Layer**

1. Press the #3 **Jump** button twice to jump directly to **Tuning** page.

L1 TUNING Coarse: +36	Fine: +6
--------------------------	----------

2. Move the cursor to the **Coarse** field (using the cursor button).
3. **Set the value to +12** to shift the pitch up a whole octave. To shift the pitch in smaller units than a semitone, **use the Fine field**.

Try tuning one of the instruments to a perfect fifth above the other by setting the Coarse value to +7.

Tuning an instrument far out of its normal range completely changes the character of the sound. For example, if you tune a bass guitar up 2 octaves, it's going to sound rather petite. On the other hand, if you tune it down 2 octaves, you can probably rattle plaster off the walls! Experiment with radical pitch shifting. You'll be surprised at the results.

Chorus



WARNING: Since it works by doubling the instruments, Chorus halves the number of notes you can play on XL-7.

This is an easy one. Chorus works by doubling the instruments and detuning them slightly. The larger the chorus value, the more detuning occurs. The Width parameter controls the stereo spread. A Width value of 0% reduces the chorus to mono, a value of 100% provides the most stereo separation. Chorus is useful when you want to “fatten up” a part quickly and easily.

► To Chorus a Layer

1. Press the **#5 Jump button** to jump directly to the Chorus page.
2. Use the **cursor buttons** to advance the cursor to the Chorus field (the first field in the bottom line of the display). Use the **data entry control** to turn on chorus.

L1	CHORUS	WIDTH
	off	100%

3. **Select a Width value** based on the amount of detuning you want. Smaller numbers mean less detuning, larger ones more.

You can select various amounts of chorusing for each of the instruments, just play around with the Chorus and Width parameter until you like what you hear.

Volume Envelope

Every sound you hear, whether it's a piano note, a drum, or a bell, has a characteristic volume curve or envelope. This Volume Envelope shapes the volume of the sound which grows louder or softer in various ways during the course of the sound. The volume envelope of a sound is one of the clues our brain uses to determine what type of sound is being produced.

An envelope shapes the sound or volume of the sound over time. The envelope generators in XL-7 all have six stages to the contour: Attack 1, Attack 2, Decay 1, Decay 2, Release 1 and Release 2. When you press a key on the keyboard, the envelope goes through each of the first four stages, advancing to the next stage when the defined Level for each is reached. As long as you continue to hold the key down, the envelope continues through the first four stages holding at the end of the Decay 2 level until the key is released. When you release the key, the envelope jumps to the Release stages (no matter where the envelope is when you release the key) ending at the Release 2 level.



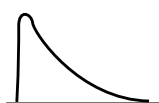
Piano



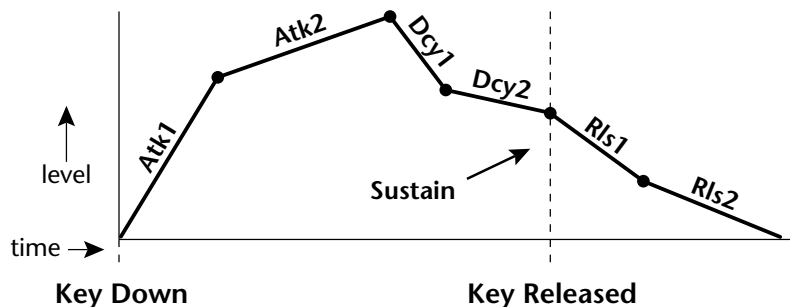
Organ



Strings



Percussion



Every instrument in XL-7 has its own predetermined volume envelope which is used when the Volume Envelope parameter is set to “factory.” By setting the Volume Envelope to “time-based” or “tempo-based,” we can reshape the instrument’s natural volume envelope any way we want. By reshaping the volume envelope of an instrument, you can dramatically change the way the sound is perceived. For example, you can make “bowed” pianos or backward gongs. The diagrams to the left show the characteristic volume envelopes of a few common sounds.

In preparation for this experiment choose almost any of the standard organ presets which continues to sustain when the key is held down. Go to the Instrument page and set it to “None” on all layers except Layer 1. Now you’re ready to play with the Volume Envelope.

► To Setup the Volume Envelope


1. Go to the **Volume Envelope** mode screen, by pressing the “Amp” jump button, and set the Volume Envelope mode to “time-based.”

L1 VOLUME ENVELOPE
Mode: time-based

2. Now move on to the next screen to set the Volume Envelope parameters.

L1 VOL ENV	TIME	LEVEL
Attack 1	<u>50</u>	100%

3. Increase the Attack 1 time value and play a note. The attack controls the time it takes for the sound to reach the Attack level when a key is pressed and held.

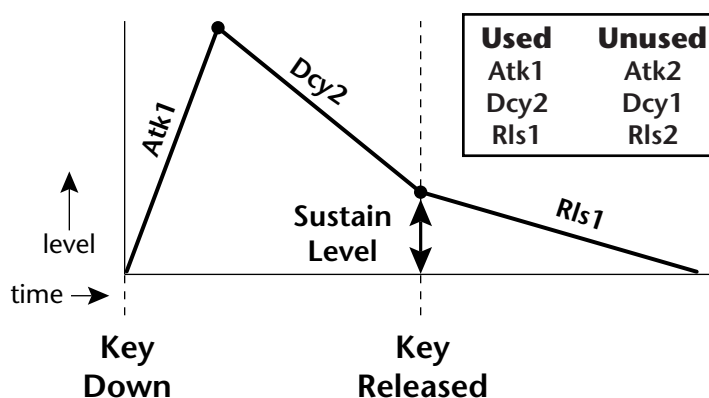
 Front panel knobs 5-8 are routed to the volume envelope parameters and thus affect the settings. You may want to disconnect the PatchCords to gain total control of the envelope parameters. (Alternately, you can create a completely blank preset and start from there.)

4. Move the cursor to the first field in the bottom line and use the cursor buttons to advance to the Release pages.
5. Increase the Release 1 and 2 times. Note the effect as you release the key on the controller. The Release stages controls the time it takes for the sound to die away when a note is released.

► To Setup the Volume Envelope as an ADSR

The classic synthesizer ADSR (Attack-Decay-Sustain-Release) envelope is easy to create using the XL-7 six segment envelope generators. The trick is to only use segments: Attack1, Decay2, and Release1.

1. Set Atk1, Atk2 & Dcy1 levels to 100.
2. Set Rls1 & Rls2 levels to 0.
3. Set Atk2, Dcy1 and Rls2 rates to 0.
4. Program the Atk1, Dcy2 and Rls1 segments as you wish. Decay 2 level is your Sustain level.



Working with Filters

The filters make it possible to remove certain components of the sound. A low pass filter removes the high frequency components or put another way, it “lets the low frequencies pass.” A high-pass filter removes the low frequency components from the sound letting only the high frequencies pass. See “XL-7 Filter Types” on page 221 for a complete list of XL-7’s filters and their descriptions.

In preparation for the next tutorial, select the Blank Preset. (Select the Preset Category and spin the data entry control all the way to the left).

1. Go to the Instrument screen (Preset Edit menu) and select Instrument #124 - Interference. This is a harmonically rich sound. Since filters work by removing or accentuating certain frequencies, we want to make sure that we have a lot of frequencies to start with.
1. Advance to the Filter Type screen using the data entry control. Select the Classic 4th order filter.



Front panel knobs 1-2 are routed to the filter parameters and will affect the initial settings made here. You may want to disconnect the PatchCords to gain total control over the filter parameters.

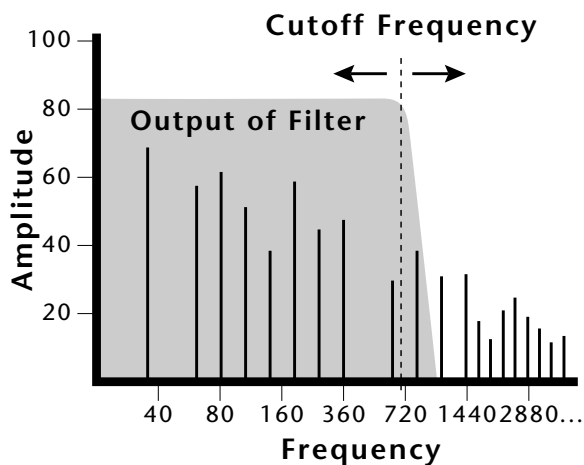
L1 FILTER	Ord	Type
Classic	4	LPF

- Go to the Filter Frequency and Q screen. Position the cursor in the Freq: field as shown in the following illustration.

L1 FILTER		
Freq:	<u>255</u>	Q: 000

The Frequency parameter determines the filter cutoff frequency or the frequency the filter uses as the highest frequency allowed to pass.

If you play the keyboard now, you should hear the raw sound. Slowly decrease the filter cutoff frequency value as you play the keyboard. The sound gets more and more dull as you remove more and more high frequencies from the sound. At some point, the sound completely disappears. (You have filtered out everything.) The chart on the following page illustrates what you just did.



- Open the filter back up to 255, then move the cursor to the Q field.
- Set the Q to 10, then move the cursor back under the Freq value. As you change the frequency, notice that the sound now has a sharp, nasal quality. A high Q boosts or amplifies the frequencies at the cutoff frequency (F_c).
- Reset the cutoff frequency to the lowest setting and the Q to 00.

Adding the Filter Envelope

Now let's modulate the Filter Frequency with the Filter Envelope. The Filter Envelope is a device that can automatically change the filter frequency during the course of the note. Before we define the Filter Envelope, we need to patch the Filter Envelope to the Filter Frequency.

► To Setup the Filter Envelope

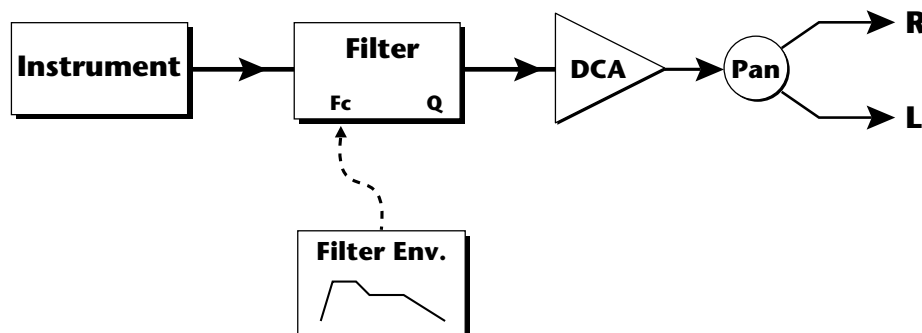
1. Go to the **PatchCord** screen by pressing the **Cords Jump** Key.

L1	PATCHCORD	#01
RlsVel	->	AmpVol +100

2. Move the **cursor** below the first field in the bottom line of the display. This is the **Source** field. Use the **data entry control** to change the Source to "FiltEnv" as shown in the following illustration.
3. Advance the **cursor** to the next field. This is the **Destination** field. Use the data entry control to change the destination to "FiltFreq."
4. Move the **cursor** to the last field in the line. This is the **Amount** field. The Amount field determines the amount of modulation applied. Set this value to "+100."

L1	PATCHCORD	#01
FiltEnv+	->	FiltFreq +100

This setup connects the Filter Envelope Generator to the Filter Cutoff as shown in the following diagram.



5. Now, return to the **Filter Envelope Mode** screen. Set the Mode to "time-based."

L1 FILTER ENVELOPE
Mode: time-based

6. Advance to the **Filter Envelope** parameter page.

L1 FILT ENV RATE LEVEL
Attack1 50 100%

7. Move the cursor underneath the **time field** and change the value to about +50. Now when you press a key the filter slowly sweeps up.

L1 FILT ENV RATE LEVEL
Attack1 50 +88%

8. Change the **attack rate** and note the change in the sound.
9. Set the envelope parameters as shown in the following table.

Envelope Phase	Time	Level %
Attack 1	40	65
Attack 2	65	100
Decay 1	80	85
Decay 2	25	50
Release 1	97	20
Release 2	73	0

With the above setup, the filter sweeps up, then Decays back down to the Decay 2 Level until you release the key. Then it sweeps down at the Release rates. Play with the envelope parameters for awhile to get a feel for their function. (If you're having trouble understanding the Envelope Generators, please refer to the Programming Basics section in this manual.)

Changing Filter Types

Go back to the Filter Type screen shown below and move the cursor down the lower line of the display. Change the filter type while playing the keyboard. There are 50 different filter types.

L1 FILTER	Ord	Type
Aah-Ay-Eeh	6	VOW

These filters are extremely powerful and have been carefully crafted to offer maximum flexibility and musical control. You may want to change the Envelope (PatchCord) Amount, Q and/or the Filter Frequency to get the right sound for each filter and instrument. These three controls, coupled with the Filter Envelope, are perhaps the most important controls on any synthesizer. Take the time to learn how they interact with each other and you will be able to create the most amazing sounds.

Envelope Repeat

The Envelope Generator can also be made to repeat. When the envelope repeat function is On, the Attack (1&2) and Decay (1&2) stages will continue to repeat as long as the key is held.

► To Make the Filter Envelope Repeat:

1. Go to the Filter Envelope **Mode** screen shown below.
2. Move the **cursor** to the Mode field.

L1 FILTER ENVELOPE
<u>Mode</u> : time-based

3. Turn the **data entry control** clockwise. The Mode field will change to Repeat as shown below.

L1 FILTER ENVELOPE
Repeat: on

4. Move the **cursor** to the on/off field and turn **Envelope Repeat On**.
5. **Play a key** on the keyboard. You should now hear the envelope repeating.

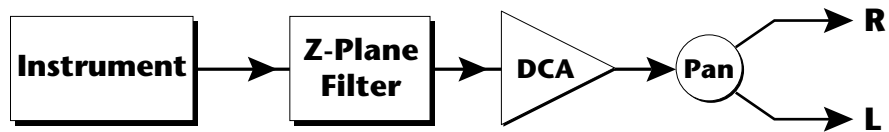
Practice Modulating

6. Go back to the envelope parameter page and **adjust the Attack 1&2**, and Decay 1&2 parameters. The repeating envelope cycles through these four stages as long as the key is held.
- Try modulating the pitch with the Filter Envelope generator.
 - Use Velocity to modulate the Filter Envelope PatchCord or the Filter Frequency. This brightens the sound as you play harder.
 - Program the LFO to modulate Filter Frequency and Volume (PatchCord screen).
 - Modulate the LFO with the other LFO, with Velocity, and with the Touchstrip or Pitch Wheel.
 - Examine the Factory presets to learn how they're constructed. There are lots of cool synthesis tricks you can use in your own presets.
 - We've programmed the front panel knobs our way, but since they're completely programmable there's no reason why you can't create your own custom controls.
 - Think of ten exotic modulation routings, then try them out. Experimentation is the key to learning how to control XL-7.

Troubleshooting

A common source of confusion when working with the filter envelope is that the Attack or Release parameters might not seem to be working correctly. If you are not getting the expected result, try to analyze the situation. There will be many times when you will have to stop for a minute and think, “What am I trying to do and why isn't it working?” When this happens (and it will), don't panic. Troubleshooting is a normal part of the synthesis process. Simply examine the various parameters and try to be as analytical as possible as you solve the problem. The solution is usually simple. (“The filter is already wide open and can't open any more.” or “Another PatchCord is connecting something to the parameter and affecting it.”) Learning to play any instrument takes a little patience and practice.


Referring to the diagram below which shows the XL-7 signal flow, notice that the DCA comes after the Filter. The DCA controls the final volume of the sound, so if the filter's release is longer than the release for the DCA, you won't hear it, because the DCA has already shut off the sound.



You're getting the general idea by now. Remember not to select a new preset before saving the current one or all your changes will be lost (the preset reverts to the last saved version). If you want to save your creation, select the Save/Copy menu and select a destination preset location for your masterpiece, then press Enter.

Because you can save your work, it's worth spending time to get the sound just right. When designing sounds you become an instrument builder as well as a musician. With XL-7 you can design the custom radical instruments you've always wanted!

Linking Presets

 See "Preset Links" on page 243 for more information.

Using the Link pages in the Edit menu is a quick and easy way to create new sounds. Use the Links to "layer" presets and to "split" a keyboard into sections containing different sounds.

► To Layer Two Presets

1. Select the first preset you want to layer.
2. Press the **Preset Edit** button.
3. Go to the **Link** screen by pressing the **Links Jump Key**.

LINK 1	PRESET	XL-7
off		

4. Move the cursor to the second line of the display. Select the preset you want to link with the preset you selected in step 1. Play the keyboard as you scroll through the various presets to hear the results.
5. If you want the link to be a permanent part of the preset, be sure to save the preset. Otherwise, simply change the preset to erase your work.

► To Create a Split Keyboard Using Links

1. Follow steps 1 through 4 above.
2. Press **Enter** and use the **Jump Key** to advance to the next page.

LINK 1	KEY	VEL
RANGE	C-2 B4	000 127

3. Set the keyboard range of the linked preset as desired.
4. Press **Enter** and use the **data entry control** to go to the Key Range page using the **Ranges** jump key.

L1	KEY:LO	FADE	HIGH	FADE
	C5	000	G8	000

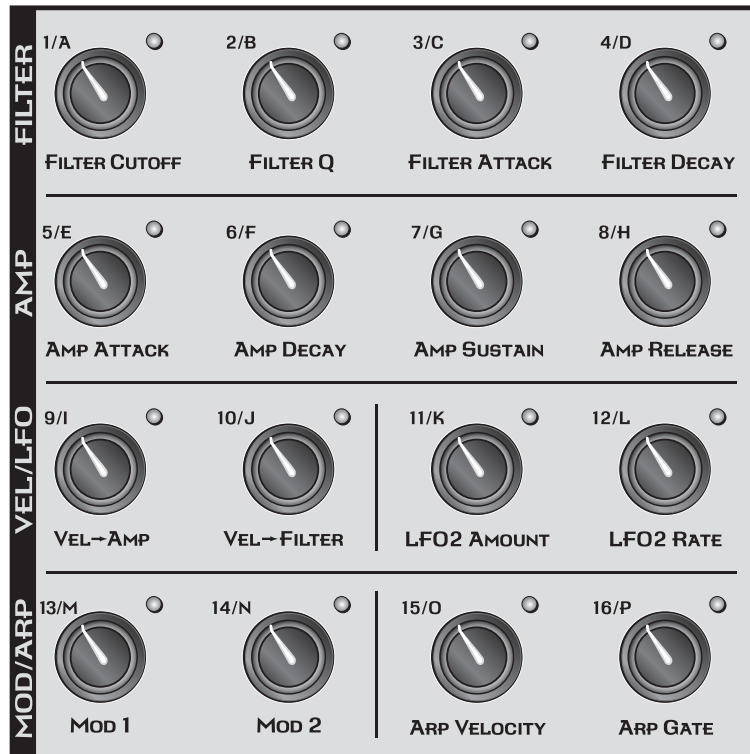
5. Set the range of the original preset so it fills the remaining keyboard area. **Save the preset.**

Appendix

Front Panel Knob Functions

This section provides some of the more technical information about XL-7. In this appendix, you will find information about velocity curves, MIDI commands and PatchCord charts.

The front panel knob functions are standardized for most of the factory presets. The typical functions of the controller knobs are described below. Match the controller knobs on an external MIDI controller to the Realtime Controller Assignments in the MIDI menu if you want to externally control these functions.



Knob Controller Descriptions



The functions shown here are the factory programmed settings. The Front Panel Knobs can be reprogrammed for each preset and stored in any of the User Presets. See page 230.

A - Filter Cutoff	.....	Filter Frequency
B - Filter Q	.....	Filter Resonance
C - Filter Attack	.....	Filter Envelope Attack Rate
D - Filter Decay	.....	Filter Envelope Decay and Release Rate
E - Amp Attack	.....	Volume Envelope Attack Rate
F - Amp Decay	.....	Volume Envelope Decay Rate
G - Amp Sustain	.....	Volume Envelope Sustain Level
H - Amp Release	.....	Volume Envelope Release Rate
I - Velocity -> Amp	.....	Key Velocity to Volume
J - Velocity -> Filter	.....	Key Velocity to Filter Frequency
K - LFO 2 Amount	.....	LFO 2 Amount
L - LFO 2 Rate	.....	LFO 2 Frequency
M -Mod 1	.....	Modulation Wheel (<i>Usually vibrato</i>)
N -Mod 2	.....	Usually 1 Octave Upshift
O -Arp Velocity	.....	Arpeggiator Velocity Control (<i>for Arp presets</i>)
P - Arp Gate	.....	Arpeggiator Gate Time (<i>for Arp presets</i>)

Presets

XL-7 Preset Categories

The XL-7 presets are organized in categories according to the types of sound. Listed below are the categories and their three letter prefixes:

arp: Arpeggiated	air: Wind noise instrument
bas: Bases	bel: Bells
bpm: Synchro-sonic, clocks	bts: BEATS presets
edg: Edgy, cutting	gtr: Guitar
hit: Shorter	key: Keyboard instrument, organ
kit: Drum kit	led: Leads
pad: Sustained, pad-like	nse: Noises
raw: Playable, vanilla	prc: Percussion
syn: Complex, harmonically rich	sfx: Sound Effects
wal: Dense, harmonically complex	vox: Vocals

Preset Listing

User Bank 0, XL-7 Bank 0

0. kit:K-0	43. kit:K-13 QP-Dly	86. hit:Nice 1
1. kit:K-1	44. kit:K-14 D-Down	87. hit:Nice 2
2. kit:K-2	45. kit:K-15 D-D2	88. hit:Nice 3
3. kit:K-3	46. kit:K-16 Tremor	89. hit:Logger
4. kit:K-4	47. kit:808 Delay	90. hit:Dance 1
5. kit:K-5	48. kit:Envelope	91. hit:Dance 2
6. kit:K-6	49. prc:Kicks 1	92. hit:Dance 3
7. kit:K-7	50. prc:Kicks 2	93. hit:Dance 4
8. kit:K-8	51. prc:Solo Kick 1	94. hit:Dance 8
9. kit:K-9	52. prc:Solo Kick 2	95. hit:Dance 11
10. kit:K-10	53. prc:Snares 1	96. hit:Dance 12
11. kit:K-11	54. prc:Snares 2	97. hit:Dance 14
12. kit:K-12	55. prc:Snares 1 +7	98. hit:Dance 16
13. kit:K-13	56. prc:Snares 2 Eff	99. hit:Dance 20
14. kit:K-14	57. prc:Snares 2 Rev	100. hit:Dance 21
15. kit:K-15	58. prc:Snare Fill 1	101. hit:Dance 22
16. kit:K-16	59. prc:Snare Fill 2	102. hit:Dance 23
17. kit:K-17	60. prc:Ambi Snare	103. hit:Dance 24
18. kit:K-808	61. prc:Toms & Stuff	104. hit:Dance 25
19. kit:K-909	62. prc:Congas etc 1	105. hit:Dance 26
20. kit:Acoustic 1	63. prc:Congas etc 2	106. hit:Organ 3
21. kit:Acoustic 2	64. prc:Hats 1	107. hit:Organ 4
22. kit:Hybrid	65. prc:Hats 2	108. hit:Organ 5
23. kit:Hard 1	66. prc:Solo Hat 1	109. hit:Organ 6
24. kit:Hard 2	67. prc:Solo Hat 2	110. hit:UnisonString
25. kit:K-1 HPF	68. prc:Tambs	111. hit:Unison Brass
26. kit:K-1 up 9	69. prc:Cymbals	112. hit:Brass 6
27. kit:K-2 millini	70. prc:Shakers etc.	113. hit:Brass 7
28. kit:K-3 LFO~LPF	71. prc:Bells	114. hit:Brass 9
29. kit:K-4 LFO~AMP	72. prc:Blocks	115. hit:Brass 18
30. kit:K-5 Octave	73. prc:Claps/Snaps	116. hit:Trumpet FX 1
31. kit:K-5 up 7	74. prc:Misc	117. hit:Trumpet FX 2
32. kit:K-5 Klub	75. prc:Warehouse	118. hit:Sax FX
33. kit:K-6 Chorus	76. prc:Scratches 1	119. hit:Blipp
34. kit:K-7 LFO~REZ	77. prc:Scratches 2	120. hit:Buzz Blip
35. kit:K-8 16tsPan	78. prc:Tic a Tak	121. hit:Game
36. kit:K-8~8 go	79. prc:Ubu Delay FX	122. hit:Bell
37. kit:K-9 D-Pan	80. hit:Enrezzle	123. hit:CMI
38. kit:K-9 up 12	81. hit:PLATINUM	124. hit:Bass Stab
39. kit:K-10 D-Up	82. hit:Voxy	125. hit:H G
40. kit:K-10 High Q	83. hit:Krunchy	126. hit:H G Dive
41. kit:K-11 T-Dly	84. hit:Dreamer Tags	127. hit:Drum Stab
42. kit:K-12 Q-Dly	85. hit:Boink-King	

Preset Listing

User Bank 1, XL-7 Bank 1

- | | | |
|----------------------|----------------------|-----------------------|
| 0. syn:Basic Saw | 43. syn:Electric | 86. led:PureSaw |
| 1. syn:ORiON | 44. syn:CZ BIG | 87. led:Wormsine |
| 2. syn:Spiders | 45. syn:SinEnsemble | 88. led:Technoval |
| 3. syn:Nordica | 46. syn:BigDandyBoy | 89. led:Falling |
| 4. syn:Sync4Sequenc | 47. syn:Willy 4 | 90. led:Scizy 2 |
| 5. syn:Tink Or Toy | 48. syn:R&B Stegas | 91. pad:Rumble Pad |
| 6. syn:Kyng Doam | 49. syn:60-30 | 92. pad:Super Pad |
| 7. syn:70-64 | 50. syn:SweetDream | 93. pad:ARK Covet |
| 8. syn:12-30 | 51. led:Wet | 94. pad:E P I C |
| 9. syn:Trancer | 52. led:Cyber 1 | 95. pad:Sleepy |
| 10. syn:MortalSynth | 53. led:Cyber 5 | 96. pad:Tecnorise |
| 11. syn:The Grid | 54. led:Cyber 6 | 97. pad:Cvox |
| 12. syn:Calmer | 55. led:Cyber 7 | 98. pad:Soft Trace |
| 13. syn:Cyborg | 56. led:Saturn | 99. pad:Ice Dreams |
| 14. syn:South Euro 1 | 57. led:More Senses | 100. pad:Big Chief |
| 15. syn:South Euro 2 | 58. led:Wormy 2 | 101. pad:Slow Dance |
| 16. syn:Big E | 59. led:Wormy 3 | 102. pad:Warm&Lush |
| 17. syn:Riverdancing | 60. led:Zeaxy 2 | 103. pad:Art Deko |
| 18. syn:Air Age | 61. led:Brixx 2 | 104. pad:Daddy's Girl |
| 19. syn:Trem String | 62. led:Apoly 1 | 105. pad:Strings Box |
| 20. syn:OBX | 63. led:Fat S12 | 106. pad:Hi&LowLight |
| 21. syn:40-10 | 64. led:Fat CL1 | 107. pad:Vespers |
| 22. syn:12-20 | 65. led:Fat INT | 108. pad:Ambi Pad |
| 23. syn:3 O 3 | 66. led:Groove Wow | 109. pad:Pure Synth |
| 24. syn:Geaxoils | 67. led:Alter 4 | 110. pad:HarmonicLift |
| 25. syn:XtoZ | 68. led:Alter 6 | 111. pad:Lunar Trail |
| 26. syn:Munster | 69. led:Synrg 7 | 112. pad:Cryo Stasus |
| 27. syn:Booty Qooty | 70. led:Synrg 9 | 113. pad:Genesis |
| 28. syn:Uborator | 71. led:Fat Saw | 114. pad:Dark City |
| 29. syn:Prophecy | 72. led:Scizy 2 | 115. pad:SlogritStrng |
| 30. syn:Raved Pass | 73. led:Scizy 4 | 116. pad:SaturnRings |
| 31. syn:D Pee | 74. led:Jungle X | 117. pad:Smooovie |
| 32. syn:Jesuasynt | 75. led:Hypass Ditty | 118. pad:Aki's World |
| 33. syn:Wavetable | 76. led:Heavy | 119. pad:Low Back |
| 34. syn:Minor Evil | 77. led:Dreamlead | 120. pad:www.f mono |
| 35. syn:Profit Brass | 78. led:Duzbe 2 | 121. pad:Spelunkers |
| 36. syn:Sweepy | 79. led:Fuzzer | 122. pad:Lifedream |
| 37. syn:Glider | 80. led:Weezel | 123. pad:Perception |
| 38. syn:Grumpy | 81. led:Noise F | 124. pad:Involved |
| 39. syn:Gothica | 82. led:P Mod 1 | 125. pad:Lo Fi String |
| 40. syn:Too Big | 83. led:DesertTrance | 126. pad:AmbString 1 |
| 41. syn:Echoing | 84. led:TB 2 | 127. pad:AmbString 2 |
| 42. syn:Screamer | 85. led:Metallic | |

Preset Listing

User Bank 2, XL-7 Bank 2

0. bas:Top Tri	43. edg:Boxt	86. wal:Luscious
1. bas:UK shoota	44. edg:Matrix	87. nse:Interfear
2. bas:Love Bee	45. edg:Honker	88. nse:Diffuser
3. bas:Jump Up	46. edg:Analog Beast	89. nse:Radon Shield
4. bas:Sub Duh	47. edg:Zorkon	90. nse:That'sCreepy
5. bas:Hybrid Phase	48. edg:AudKlav	91. nse:Future Steps
6. bas:A.D. 3033	49. edg:Scrape	92. nse:LittleWeasel
7. bas:Vortex	50. edg:Hlywd Native	93. nse:Martians
8. bas:Saws Normal	51. edg:Ringer	94. nse:Cast
9. bas:1 Shot	52. edg:Bare Edge	95. nse:SpottedWhite
10. bas:Hard X	53. edg:Spawn	96. nse:Heavy Mental
11. bas:Pinhead	54. edg:Rez Zip	97. nse:Hadrian's
12. bas:Go Long	55. edg:FuzzGrinder	98. nse:Machined
13. bas:Square V	56. edg:Love All	99. nse:Rezawrect
14. bas:H2O	57. edg:Squeake	100. nse:Massive
15. bas:Interference	58. edg:2 Flange	101. nse:Soline 7x
16. bas:B-Acer	59. edg:Teeth	102. nse:Quiet Wall
17. bas:P-dg	60. edg:Slicer	103. nse:Bottom Floor
18. bas:Fatso	61. edg:Skreecher	104. nse:Distructor
19. bas:F16	62. edg:Love Hurts	105. nse:Undertaker
20. bas:Acid 7	63. wal:Strangled	106. nse:Coyote
21. bas:Sonic	64. wal:The Macheen	107. nse:Turbonic
22. bas:Bullit	65. wal:Duckfuzz	108. nse:GrainyPixel
23. bas:Dance II	66. wal:C-Ride	109. nse:Faucet Drip
24. bas:Rippedbass	67. wal:HoverCraft	110. nse:Psychic Sea
25. bas:Depth	68. wal:Clavonate	111. nse:Aarno Ldt
26. bas:Arplikebass	69. wal:DailyBread	112. key:Smarm Organ
27. bas:Fat Arc	70. wal:I made it	113. key:Disca Queen
28. bas:PPX 1	71. wal:Backdraft	114. key:Rave Organ
29. bas:PPX 2	72. wal:Mammoth	115. key:Organik
30. bas:Jungle Sub	73. wal:Maryland	116. key:SynhissOrgan
31. bas:Fat Juno	74. wal:Thickets	117. key:Deep Organ
32. bas:Smooth	75. wal:Ice Ring	118. key:P-soul
33. bas:Heavy B	76. wal:Silkness	119. key:TechnoGrand
34. bas:Sub E	77. wal:Byzantine	120. key:Ocean
35. bas:S-Bass	78. wal:Raverotic	121. key:HybridTine
36. bas:Thwip	79. wal:Ripped	122. key:EP Roll 1
37. bas:Log Bass	80. wal:Balls2The..	123. key:EP Roll 2
38. bas:Disser	81. wal:W6 3sEvEn	124. key:EP Fog
39. bas:Sunny	82. wal:Abyss	125. gtr:Guit Hits
40. bas:HardHouse	83. wal:GoSpeedRacer	126. gtr:Univibe
41. bas:Garage Sub	84. wal:Tension	127. gtr:Clicky Picky
42. bas:Planet X	85. wal:Big Wall	

Preset Listing

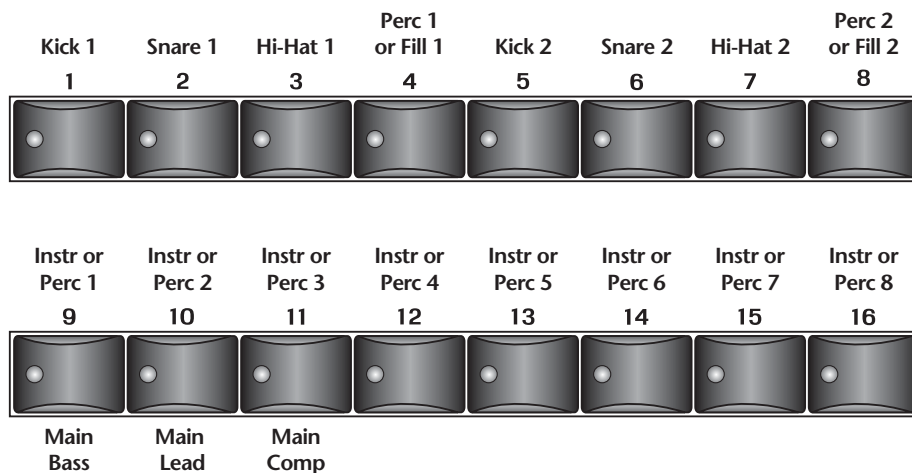
User Bank 3, XL-7 Bank 3

0. arp:Deeper Love	43. bpm:Underclass	86. vox:Lushorch Vox
1. arp:Glider	44. bpm:Tempo LFOs	87. vox:Toxic Vox
2. arp:Alloy M	45. bpm:Carpe Diem	88. vox:Zephyr
3. arp:JUNOsis	46. bpm:L Room	89. vox:Air Voices
4. arp:A Trip	47. bpm:Reepeter	90. vox:SIRRUS
5. arp:Dreamer	48. bpm:Solace	91. vox:Future Vox
6. arp:Palomar	49. bpm:GRITS	92. vox:Bliss
7. arp:Raving	50. bpm:TRIPPER	93. vox:ARMAGEDDON
8. arp:Robo Trace	51. bpm:Higher Power	94. vox:ANGELIKA
9. arp:Glory II	52. bpm:Trashy	95. vox:Galaxal
10. arp:Holographic	53. bpm:Vision	96. vox:Bandvoxxe
11. arp:Pele	54. bpm:Wading	97. vox:Exploration
12. arp:Lust II	55. bpm:Grinded	98. vox:AfterShock
13. arp:Bottom Perc	56. bpm:Electon	99. vox:Surfacing
14. arp:You Know It	57. bpm:Bubbler	100. vox:Ethereal
15. arp:X-light II	58. bpm:End	101. vox:Suffocating
16. arp:OrbisTabula	59. bpm:Wicked Low	102. vox:Space Voxxal
17. arp:OrbisPitcher	60. bpm:RadioDaze	103. sfx:Moby's Trip
18. arp:The Grind	61. bpm:Panhandel	104. sfx:Odd Quasar
19. arp:Tron X	62. bpm:Minator	105. sfx:S-METAL
20. arp:Dry Wastland	63. bpm:Lucy-Q	106. sfx:Zoned
21. arp:Axis One	64. air:Bat Pann	107. sfx:OverTheEdge
22. arp:Bouchete	65. air:GhostStories	108. sfx:Granules
23. arp:Saw Standard	66. air:Breath Stack	109. sfx:Glassers
24. arp:Phrophetics	67. air:Tibet	110. sfx:Alienator
25. arp:Sine Drum	68. air:Futura	111. sfx:Ripped Lazer
26. arp:Gutter Punk	69. air:Air Surf	112. sfx:FoldingSpace
27. arp:MooGie-D	70. air:Eastern Mist	113. sfx:Uncertainty
28. arp:No Lo	71. air:Vampirella	114. sfx:CosmicCompny
29. arp:Sanctuary	72. air:Floater	115. sfx:REZA'S LaB
30. arp:Pissto Hi	73. air:Warm Chill	116. sfx:TerrorZoNE
31. arp:T-2000	74. air:Digital Noiz	117. sfx:LupeDeKool
32. bpm:Bouncerette	75. air:Scary Noise	118. sfx:CyberSience
33. bpm:Traveler	76. air:StickyFinger	119. bel:Modular Ring
34. bpm:Boogy Synth	77. air:LeaveMeAlone	120. bel:Efemm Bellsa
35. bpm:Lighter	78. air:Breathless	121. bel:Mult-A-Metal
36. bpm:End	79. air:FluteState	122. bel:Mystery Bell
37. bpm:E Room	80. vox:LuciferDom	123. bel:NordicCalm
38. bpm:Monster	81. vox:Upper Bottom	124. bel:Rainbellz
39. bpm:Peak 7	82. vox:QVoxDelay	125. bel:Agualla Bell
40. bpm:Cult-feel	83. vox:Aah Eeh	126. bel:Capsulate
41. bpm:Love II	84. vox:Choirish	127. :XL-7 default
42. bpm:Synthex 90'	85. vox:Ooh,Voices!	

XL-7 Pattern Layout

The XL-7 factory patterns range from 4-16 bars long using 8 to 16 tracks each. Use the Track Enable/Mute buttons to bring parts in and out. All instrument tracks are in the key of C.

Pattern Track List



	MAIN GROOVE
Track 1 / Channel 1	Kick Pattern 1
Track 2 / Channel 2	Snare Pattern 1
Track 3 / Channel 3	Hat Pattern 1
Track 4 / Channel 4	Percussion 1 or Fill 1
	ALTERNATE GROOVE
Track 5 / Channel 5	Kick Pattern 2
Track 6 / Channel 6	Snare Pattern 2
Track 7 / Channel 7	Hat Pattern 2
Track 8 / Channel 8	Percussion 2 or Fill 2
	WILD - Instruments or Percussion
Track 9 / Channel 9	Instr or Percussion 1 (Main Bass)
Track 10 / Channel 10	Instr or Percussion 2 (Main Lead)
Track 11 / Channel 11	Instr or Percussion 3 (Main Comp)
Track 12 / Channel 12	Instrument or Percussion 4
Track 13 / Channel 13	Instrument or Percussion 5
Track 14 / Channel 14	Instrument or Percussion 6
Track 15 / Channel 16	Instrument or Percussion 7
Track 16 / Channel 16	Instrument or Percussion 8

Pattern Listing



The number after the pattern name is the tempo in beats per minute.

- | | | |
|------------------------|--------------------------|------------------------|
| 0. Arctic Drift 140 | 44. The E Room 125 | 88. Heaven 140 |
| 1. Beat Pusher 138 | 45. Underground 138 | 89. Humana 135 |
| 2. Lily's Love 140 | 46. Amsterdam 130 | 90. Light R 137 |
| 3. Body Groove 134 | 47. Basshead 125 | 91. Lily's Rose 135 |
| 4. Cool Down 135 | 48. Beat Freak 125 | 92. Organic Cube 136 |
| 5. Dream Punk 130 | 49. Clap and Stop 123 | 93. Outer Wall 139 |
| 6. Es Paradis 160 | 50. Diamond Hip 132 | 94. Rocket 134 |
| 7. Future Man 137 | 51. House Of Tec 135 | 95. Voice Farm 135 |
| 8. Hard In Motion 145 | 52. Insane One 134 | 96. My Goodness 129 |
| 9. K E M 160 | 53. Insane Two 134 | 97. Hurt 125 |
| 10. Joya 129 | 54. Beautify 134 | 98. Oh Yea 122 |
| 11. Big Brother 138 | 55. Lola 128 | 99. Deep Sleep 120 |
| 12. Ambideep 140 | 56. Phatt Boy E 122 | 100. Mood Two 117 |
| 13. Ibiza's Strobe 140 | 57. Sunset Flight 134 | 101. Closer 115 |
| 14. In The Air 135 | 58. Midnight 160 | 102. Mind Game 115 |
| 15. Club Luv 139 | 59. Living Free 156 | 103. Dark Dream 110 |
| 16. Millennium 138 | 60. Bass Scape 166 | 104. Floppy 107 |
| 17. Flyer 140 | 61. Outer Body 148 | 105. Euro One 105 |
| 18. You Want It 140 | 62. Particle Beam 180 | 106. Lost Joy 105 |
| 19. Over Ground 139 | 63. Trip Steppin One 168 | 107. Mood Three 105 |
| 20. Home Free 145 | 64. Trip Steppin Two 168 | 108. Slow Trip 94 |
| 21. Metallic 134 | 65. UK Limited 160 | 109. Decoder 90 |
| 22. Lo Fi 145 | 66. Zodiac 150 | 110. Vodo Lounge 133 |
| 23. Commandment 135 | 67. Fire Fly 158 | 111. Crow Bar 126 |
| 24. Bee Hive 140 | 68. Soot 158 | 112. Level Twenty 126 |
| 25. Side By Side 140 | 69. Chill Bee 160 | 113. Luv Parade 126 |
| 26. Tantra 125 | 70. Dark Flower 158 | 114. Krave 129 |
| 27. Trance Date 140 | 71. Seasoning 153 | 115. Good Life 130 |
| 28. Trancer 139 | 72. Serene 85 | 116. Opium Gardens 125 |
| 29. Traveler 138 | 73. New World 150 | 117. PLUR 132 |
| 30. Two Tales 140 | 74. Deep Space One 160 | 118. Garage One 130 |
| 31. Her Glory 140 | 75. Deep Space Two 160 | 119. Garage Two 130 |
| 32. Rafters 140 | 76. Doggy Style 140 | 120. Tequila Mix 125 |
| 33. Organ Donor 138 | 77. Electro Dream 160 | 121. Industry Jump 125 |
| 34. X Mox 132 | 78. Hard House One 146 | 122. Front Line 125 |
| 35. Four AM 130 | 79. Hard House Two 146 | 123. Red Corner 136 |
| 36. Peak 132 | 80. Zolo 145 | 124. Tekno Tribe 135 |
| 37. Magic Blue 133 | 81. East Tenth 145 | 125. Unhooked 130 |
| 38. My Hero 140 | 82. Elevate 132 | 126. Total Chaos 145 |
| 39. Mood One 125 | 83. Big Break 130 | 127. Stepper 94 |
| 40. Perception 135 | 84. Break Beat 137 | |
| 41. Pod Racer 140 | 85. Encore 142 | |
| 42. Smooth 135 | 86. Exciter 140 | |
| 43. Storm Bringer 150 | 87. Germania 140 | |

Riff Listing

- | | | |
|----------------------|--------------------------|-------------------------|
| 0. KEY-C3.mid | 44. BTS-Dark Hero 1 | 88. HIT-Enrezzele |
| 1. AIR-Bat Pann | 45. BTS-Dist Treo 1 | 89. HIT-Guit Hits |
| 2. AIR-Breathless | 46. BTS-DoFi 1 | 90. HIT-Orgy Hitts |
| 3. AIR-Futura | 47. BTS-Drumatic 1.mid | 91. HIT-Tite |
| 4. BAS-1 Shot | 48. BTS-Elbowroom 1 | 92. KEY-C Triad.mid |
| 5. BAS-2600x | 49. BTS-Europiavis1 | 93. KEY-C2 (2 Bars) |
| 6. BAS-3O3x | 50. BTS-Frantikk 1.mid | 94. KEY-C2 (4 Bars) |
| 7. BAS-Acid Mono | 51. BTS-Ginger 1 | 95. KEY-C3 (2 Bars).mid |
| 8. BAS-BadTubex | 52. BTS-Groove II 1 | 96. KEY-C3 (4 Bars).mid |
| 9. BAS-Bullit | 53. BTS-Groove IT 1 | 97. KEY-C4.mid |
| 10. BAS-Dist TB1 | 54. BTS-HBtoo 3 | 98. KEY-Cm7.mid |
| 11. BAS-DistortoTBx | 55. BTS-Heaven 3 | 99. KEY-Cm9.mid |
| 12. BAS-DoFi | 56. BTS-HiHo 1 | 100. KEY-Cmaj7.mid |
| 13. BAS-Filter 1 | 57. BTS-Indy-T 1 | 101. KEY-CUp-Down.mid |
| 14. BAS-Filter 2 | 58. BTS-Jump Hard 1 | 102. KEY-Cs Up.mid |
| 15. BAS-Filter 3 | 59. BTS-Kraftwork 1 | 103. KEY-DxJx |
| 16. BAS-Heavy M | 60. BTS-L-101 1 | 104. KEY-Groove |
| 17. BAS-Interfear | 61. BTS-Light-R 1.smf | 105. KEY-Organik |
| 18. BAS-Lo-Za | 62. BTS-Lo-Z 1 | 106. KEY-Synhiss |
| 19. BAS-Metal Heartx | 63. BTS-LoFi 1 | 107. KIT-80's 4track |
| 20. BAS-Mini Morex | 64. BTS-Logic1 | 108. KIT-Boom 4track |
| 21. BAS-Pdg | 65. BTS-Mind Game 2 | 109. KIT-Compre 4track |
| 22. BAS-Q Bassx | 66. BTS-Mind Game 3 | 110. KIT-Dirt 5track |
| 23. BAS-SE Microx | 67. BTS-Peak777 1 | 111. KIT-G 4track |
| 24. BAS-Say Whatx | 68. BTS-Perception 1 | 112. KIT-Hide 4track |
| 25. BAS-Shiftx | 69. BTS-RollerGirl 1.mid | 113. KIT-K'werk 4track |
| 26. BAS-Sub Corex | 70. BTS-Rush 1 | 114. KIT-Mant 4track |
| 27. BEL-Bellsa | 71. BTS-Semi-Time 2 | 115. LED-Boxt mono |
| 28. BEL-Modular | 72. BTS-System X 1 | 116. LED-Krane |
| 29. BEL-Mystery | 73. BTS-TeknoTribe 1 | 117. LED-More S |
| 30. BPM-Boogy | 74. BTS-The Beast 1.mid | 118. LED-Tunnel |
| 31. BPM-Bounce | 75. BTS-Trancer 1 | 119. LED-Wet |
| 32. BPM-UnderC | 76. BTS-TranzAmbient | 120. NSE-LucyF |
| 33. BTS-007 1 | 77. BTS-Unhooked 1 | 121. PAD-BP Strings |
| 34. BTS-4am flyin 1 | 78. BTS-X-Mox 1.smf | 122. PAD-Danube |
| 35. BTS-808 Street 1 | 79. BTS-Xie-racy 1 | 123. PAD-Dark City |
| 36. BTS-Acid 1 | 80. BTS-HI-NRG | 124. PRC-Construct |
| 37. BTS-Big Body 1 | 81. BTS-Trance Date 1 | 125. PRC-Crash Head |
| 38. BTS-Big Shaker 1 | 82. BTS-Club it 1 | 126. RAW-Drama |
| 39. BTS-BlackHouse1 | 83. BTS-Lily's Rage | 127. SYN- 7064 |
| 40. BTS-D&B Smooth 2 | 84. BTS-Rocket | 128. SYN-4 track a |
| 41. BTS-D&B Tight 1 | 85. EDG-Boxt filter | 129. SYN-4 track b |
| 42. BTS-D-House 1 | 86. EDG-FilterQ | 130. SYN-Basic |
| 43. BTS-DJ-A.mid | 87. GTR-Chuckinx | 131. SYN-Compu X |

Riff Listing

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|-----------------------|-----------------------|-----------------------|
| 132. SYN-Enviroment | 176. BTS-Trance Date | 220. BTS-RollerGirl 1 |
| 133. SYN-Grind Me | 177. BTS-Trancer 1 | 221. BTS-Rush 1 |
| 134. SYN-Nordica | 178. BTS-TranzAmbient | 222. BTS-Semi-Time 2 |
| 135. SYN-Octivate | 179. BTS-Unhooked 1 | 223. BTS-System X 1 |
| 136. SYN-Orion | 180. BTS-X-Mox 3 | 224. BTS-TeknoTribe 1 |
| 137. SYN-Quadra | 181. BTS-Xie-racy 1 | 225. BTS-The Beast 1 |
| 138. SYN-Saint | 182. SYN-Enviroment | 226. BTS-Trance Date |
| 139. SYN-Sinner | 183. SYN-Grind Me | 227. BTS-Trancer 1 |
| 140. SYN-South E2 | 184. SYN-Nordica | 228. BTS-TranzAmbient |
| 141. SYN-Tran 3track | 185. SYN-Octivate | 229. BTS-Unhooked 1 |
| 142. SYN-Tripper | 186. SYN-Orion | 230. BTS-X-Mox 3 |
| 143. VOX-Bliss | 187. SYN-Quadra | 231. BTS-Xie-racy 1 |
| 144. VOX-Zephr | 188. SYN-Saint | 232. SYN-Enviroment |
| 145. WAL-Abyss | 189. SYN-Sinner | 233. SYN-Grind Me |
| 146. WAL-CRide | 190. SYN-South E2 | 234. SYN-Nordica |
| 147. WAL-Love 2bee | 191. SYN-Tran 3track | 235. SYN-Octivate |
| 148. WAL-Mammoth | 192. SYN-Tripper | 236. SYN-Orion |
| 149. WAL-Raverot | 193. VOX-Bliss | 237. SYN-Quadra |
| 150. XTR-Booty Q | 194. VOX-Zephr | 238. SYN-Saint |
| 151. BTS-C-Man | 195. WAL-Abyss | 239. SYN-Sinner |
| 152. BTS-Humana | 196. WAL-CRide | 240. SYN-South E2 |
| 153. BTS--Indy-T 1 | 197. WAL-Love 2bee | 241. SYN-Tran 3track |
| 154. BTS-Jump Hard 1 | 198. WAL-Mammoth | 242. SYN-Tripper |
| 155. BTS-Kraftwork 1 | 199. WAL-Raverot | 243. VOX-Bliss |
| 156. BTS-L-101 1 | 200. XTR-Booty Q | 244. VOX-Zephr |
| 157. BTS-Light-R 2 | 201. BTS-C-Man | 245. WAL-Abyss |
| 158. BTS-Lily's Rage | 202. BTS-Humana | 246. WAL-CRide |
| 159. BTS-Lo-Z 1 | 203. BTS--Indy-T 1 | 247. WAL-Love 2bee |
| 160. BTS-LoFi 1 | 204. BTS-Jump Hard 1 | 248. WAL-Mammoth |
| 161. BTS-Logic1 | 205. BTS-Kraftwork 1 | 249. WAL-Raverot |
| 162. BTS-Metallic | 206. BTS-L-101 1 | 250. XTR-Booty Q |
| 163. BTS-Mind Game 2 | 207. BTS-Light-R 2 | 251. BTS-C-Man |
| 164. BTS-Mind Game 3 | 208. BTS-Lily's Rage | 252. BTS-Humana |
| 165. BTS-Organic Cube | 209. BTS-Lo-Z 1 | 253. BTS--Indy-T 1 |
| 166. BTS-Peak777 1 | 210. BTS-LoFi 1 | 254. BTS-Jump Hard 1 |
| 167. BTS-Perception 1 | 211. BTS-Logic1 | 255. BTS-Kraftwork 1 |
| 168. BTS-placeholder | 212. BTS-Metallic | 256. BTS-L-101 1 |
| 169. BTS-Rocket | 213. BTS-Mind Game 2 | 257. BTS-Light-R 2 |
| 170. BTS-RollerGirl 1 | 214. BTS-Mind Game 3 | 258. BTS-Lily's Rage |
| 171. BTS-Rush 1 | 215. BTS-Organic Cube | 259. BTS-Lo-Z 1 |
| 172. BTS-Semi-Time 2 | 216. BTS-Peak777 1 | 260. BTS-LoFi 1 |
| 173. BTS-System X 1 | 217. BTS-Perception 1 | 261. BTS-Logic1 |
| 174. BTS-TeknoTribe 1 | 218. BTS-placeholder | 262. BTS-Metallic |
| 175. BTS-The Beast 1 | 219. BTS-Rocket | 263. BTS-Mind Game 2 |

Riff Listing

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|----------------------|-----------------------|-----------------------|
| 264. SYN-Enviroment | 281. WAL-Raverot | 298. BTS-Peak777 1 |
| 265. SYN-Grind Me | 282. XTR-Booty Q | 299. BTS-Perception 1 |
| 266. SYN-Nordica | 283. BTS-C-Man | 300. BTS-placeholder |
| 267. SYN-Octivate | 284. BTS-Humana | 301. BTS-Rocket |
| 268. SYN-Orion | 285. BTS--Indy-T 1 | 302. BTS-RollerGirl 1 |
| 269. SYN-Quadra | 286. BTS-Jump Hard 1 | 303. BTS-Rush 1 |
| 270. SYN-Saint | 287. BTS-Kraftwork 1 | 304. BTS-Semi-Time 2 |
| 271. SYN-Sinner | 288. BTS-L-101 1 | 305. BTS-System X 1 |
| 272. SYN-South E2 | 289. BTS-Light-R 2 | 306. BTS-TeknoTribe 1 |
| 273. SYN-Tran 3track | 290. BTS-Lily's Rage | 307. BTS-The Beast 1 |
| 274. SYN-Tripper | 291. BTS-Lo-Z 1 | 308. BTS-Trance Date |
| 275. VOX-Bliss | 292. BTS-LoFi 1 | 309. BTS-Trancer 1 |
| 276. VOX-Zephr | 293. BTS-Logic1 | 310. BTS-TranzAmbient |
| 277. WAL-Abyss | 294. BTS-Metallic | 311. BTS-Unhooked 1 |
| 278. WAL-CRide | 295. BTS-Mind Game 2 | 312. BTS-X-Mox 3 |
| 279. WAL-Love 2bee | 296. BTS-Mind Game 3 | 313. BTS-Xie-racy 1 |
| 280. WAL-Mammoth | 297. BTS-Organic Cube | |

Instrument Listing

This section lists the raw instruments in the XL-7 ROM set.
Instruments consist of either multisamples or single samples.

- | | | |
|--------------------|---------------------|---------------------|
| 0. None | 41. Audity Synth 2 | 83. Audity Bell 1 |
| 1. Sine Wave | 42. Audity Synth 3 | 84. Audity Bell 2 |
| 2. Saw Wave | 43. Audity Synth 4 | 85. Audity Bell 3 |
| 3. Square Wave | 44. Audity Synth 5 | 86. Audity Bell 4 |
| 4. Triangle Wave | 45. Audity Synth 6 | 87. Audity Bell 5 |
| 5. Audity Saw | 46. Audity Synth 7 | 88. Vox Humana |
| 6. Audity Square | 47. Audity Synth 8 | 89. Vapor Vox |
| 7. Audity Blend | 48. Audity Synth 9 | 90. Chronic Vox |
| 8. Audity Sync | 49. Audity Synth 10 | 91. Vox Wave 1 |
| 9. Audity Sync | 50. Audity Synth 11 | 92. Vox Wave 2 |
| 10. Audity Sync 1 | 51. Audity Synth 12 | 93. Vox Wave 3 |
| 11. Audity Sync 2 | 52. Audity Synth 13 | 94. Vox Wave 4 |
| 12. Audity Sync 3 | 53. Audity Synth 14 | 95. Vox Wave 5 |
| 13. Audity PWM 1 | 54. Audity Bass 1 | 96. Vox Wave 6 |
| 14. Audity PWM 2 | 55. Audity Bass 2 | 97. White Noise |
| 15. Audity PWM 3 | 56. Audity Bass 3 | 98. Pink Noise |
| 16. Ring Mod 1 | 57. Acid Bass 1 | 99. Audity Wall 1 |
| 17. Ring Mod 2 | 58. Acid Bass 2 | 100. Audity Wall 2 |
| 18. Ring Mod 3 | 59. Acid Bass 3 | 101. Audity Wall 3 |
| 19. Metal Wave | 60. Acid Bass 4 | 102. Audity Wall 4 |
| 20. Jungle Lead | 61. Acid Bass 5 | 103. Audity Wall 5 |
| 21. Metalik | 62. Acid Bass 6 | 104. Audity Wall 6 |
| 22. Brass Lead 1 | 63. Acid Bass 7 | 105. Audity Wall 7 |
| 23. Brass Lead 2 | 64. Acid Bass 8 | 106. Noise Tunnel |
| 24. Audity Lead 1 | 65. Acid Bass 9 | 107. Air Pipe |
| 25. Audity Lead 2 | 66. Acid Bass 10 | 108. Crystal Cavern |
| 26. Audity Lead 3 | 67. Hybrid Bass 1 | 109. Sonar |
| 27. Audity Lead 4 | 68. Hybrid Bass 2 | 110. Audity Edge 1 |
| 28. Audity Lead 5 | 69. Hybrid Bass 2b | 111. Audity Edge 1b |
| 29. Audity Lead 6 | 70. Dance Bass 1 | 112. Audity Edge 1c |
| 30. Audity Lead 7 | 71. Dance Bass 2 | 113. Audity Edge 2 |
| 31. Audity Lead 8 | 72. Mikro Bass | 114. Audity Edge 3 |
| 32. Audity Lead 9 | 73. Shush Bass | 115. Future World |
| 33. Audity Lead 10 | 74. Fuzz Bass | 116. Grinder |
| 34. Audity Lead 11 | 75. Flange Bass | 117. Growly |
| 35. Classic Lead 1 | 76. Buzz Bass | 118. Cricket |
| 36. Classic Lead 2 | 77. Booty Q Bass 1 | 119. Fuzz Ball |
| 37. Classic Lead 3 | 78. Booty Q Bass 2 | 120. Droid Scrape |
| 38. Classic Lead 4 | 79. Zodiac Bass 1 | 121. Rez Honk |
| 39. Digi Lead | 80. Zodiac Bass 2 | 122. Krunchy Hit |
| 40. Audity Synth 1 | 81. Prodigal Bass | |
| | 82. Zeek Bass | |

Instrument Listing

123.	Turbo	168.	Looped Perc 29	213.	1 Shot Perc 22
124.	Interference	169.	Looped Perc 30	214.	1 Shot Perc 23
125.	1 Shot Bass	170.	Looped Perc 31	215.	1 Shot Perc 24
126.	1 Shot Dis Bass 1	171.	Looped Perc 32	216.	1 Shot Perc 25
127.	1 Shot Dis Bass 2	172.	Looped Perc 33	217.	1 Shot Perc 26
128.	1 Shot Dis Bass 3	173.	Looped Perc 34	218.	1 Shot Perc 27
129.	1 Shot Perc Bass	174.	Looped Perc 35	219.	1 Shot Perc 28
130.	1 Shot Grind	175.	Looped Perc 36	220.	1 Shot Perc 29
131.	1 Shot Siren	176.	Looped Perc 37	221.	1 Shot Perc 30
132.	1 Shot Turbine	177.	Looped Perc 38	222.	1 Shot Perc 31
133.	1 Shot Alien	178.	Looped Perc 39	223.	1 Shot Perc 32
134.	1 Shot Laser Rip	179.	Looped Perc 40	224.	1 Shot Perc 33
135.	1 Shot Aud Vox	180.	Looped Perc 41	225.	1 Shot Perc 34
136.	1 Shot Scratch 1	181.	Looped Perc 42	226.	1 Shot Perc 35
137.	1 Shot Scratch 2	182.	Looped Perc 43	227.	1 Shot Perc 36
138.	1 Shot Scratch 3	183.	Looped Perc 44	228.	1 Shot Perc 37
139.	1 Shot Scratch 4	184.	Looped Perc 45	229.	1 Shot Perc 38
140.	Looped Perc 1	185.	Looped Perc 46	230.	1 Shot Perc 39
141.	Looped Perc 2	186.	Looped Perc 47	231.	1 Shot Perc 40
142.	Looped Perc 3	187.	Looped Perc 48	232.	1 Shot Perc 41
143.	Looped Perc 4	188.	Looped Perc 49	233.	1 Shot Perc 42
144.	Looped Perc 5	189.	Looped Perc 50	234.	1 Shot Perc 43
145.	Looped Perc 6	190.	Looped Perc 51	235.	1 Shot Perc 44
146.	Looped Perc 7	191.	Looped Perc 52	236.	1 Shot Perc 45
147.	Looped Perc 8	192.	1 Shot Perc 1	237.	1 Shot Perc 46
148.	Looped Perc 9	193.	1 Shot Perc 2	238.	1 Shot Perc 47
149.	Looped Perc 10	194.	1 Shot Perc 3	239.	1 Shot Perc 48
150.	Looped Perc 11	195.	1 Shot Perc 4	240.	1 Shot Perc 49
151.	Looped Perc 12	196.	1 Shot Perc 5	241.	1 Shot Perc 50
152.	Looped Perc 13	197.	1 Shot Perc 6	242.	1 Shot Perc 51
153.	Looped Perc 14	198.	1 Shot Perc 7	243.	1 Shot Perc 52
154.	Looped Perc 15	199.	1 Shot Perc 8	244.	1 Shot Perc 53
155.	Looped Perc 16	200.	1 Shot Perc 9	245.	1 Shot Perc 54
156.	Looped Perc 17	201.	1 Shot Perc 10	246.	1 Shot Perc 55
157.	Looped Perc 18	202.	1 Shot Perc 11	247.	1 Shot Perc 56
158.	Looped Perc 19	203.	1 Shot Perc 12	248.	1 Shot Perc 57
159.	Looped Perc 20	204.	1 Shot Perc 13	249.	1 Shot Perc 58
160.	Looped Perc 21	205.	1 Shot Perc 14	250.	1 Shot Perc 59
161.	Looped Perc 22	206.	1 Shot Perc 15	251.	1 Shot Perc 60
162.	Looped Perc 23	207.	1 Shot Perc 16	252.	1 Shot Perc 61
163.	Looped Perc 24	208.	1 Shot Perc 17	253.	1 Shot Perc 62
164.	Looped Perc 25	209.	1 Shot Perc 18	254.	1 Shot Perc 63
165.	Looped Perc 26	210.	1 Shot Perc 19	255.	1 Shot Perc 64
166.	Looped Perc 27	211.	1 Shot Perc 20	256.	1 Shot Perc 65
167.	Looped Perc 28	212.	1 Shot Perc 21	257.	1 Shot Perc 66

Instrument Listing

258.	1 Shot Perc 67	303.	Analow	348.	Perco
259.	1 Shot Perc 68	304.	Moog Tri	349.	Not So Mini
260.	1 Shot Perc 69	305.	Moog Sub	350.	Spitt
261.	1 Shot Perc 70	306.	Moogy	351.	Tap
262.	1 Shot Perc 71	307.	Fat Sun	352.	Juno Sub
263.	1 Shot Perc 72	308.	Analog	353.	Complex Sub
264.	1 Shot Perc 73	309.	Q 1	354.	Full Octave
265.	1 Shot Perc 74	310.	Q 2	355.	Deep Pocket
266.	1 Shot Perc 75	311.	Q 3	356.	JP4
267.	1 Shot Perc 76	312.	Planet	357.	Synth Hits
268.	1 Shot Perc 77	313.	2600	358.	DX 1
269.	1 Shot Perc 78	314.	Synth 1	359.	DX 2
270.	1 Shot Perc 79	315.	Synth 2	360.	DX 3
271.	1 Shot Perc 80	316.	Synth 3	361.	EP 1
272.	1 Shot Perc 81	317.	Synth 4	362.	EP 2
273.	Audity Scratches	318.	Synth 5	363.	EP 3
274.	El Perc Kit 1	319.	Synth 6	364.	Home 1
275.	El Kit 1 Looped	320.	Synth 7	365.	Home 2
276.	Kit 1 Env Loops	321.	Synth 8	366.	Street
277.	El Perc Kit 2	322.	Synth 9	367.	Pure
278.	El Kit 2 Looped	323.	Synth 10	368.	Fing&Harms 1
279.	Kit 2 Env Loops	324.	TB 1	369.	Fing&Harms 2
280.	Hybrid Perc	325.	TB 2	370.	All Purpose
281.	Warehouse Perc	326.	TB 3	371.	Standard
282.	Acoustic Perc A	327.	TB 4	372.	Fretless 1
283.	Ac Kick+Snare B	328.	CZ101	373.	Fretless 2
284.	Acoustic Kit A+B	329.	PPG	374.	Fretless 3
285.	Hardcore Kit 1	330.	Mini 1	375.	Fretless 4
286.	Hardcore Kit 2	331.	Mini 2	376.	Upright 1
287.	Hardcore Kit 3	332.	Mini 3	377.	Upright 2
288.	Hum	333.	Mini 4	378.	Slap 1
289.	Below Sub	334.	Saw	379.	Slap 2
290.	Super Sub	335.	Ultimate 1	380.	Gruddy Pop
291.	SE Sub 1	336.	Ultimate 2	381.	Pop Slide 1
292.	SE Sub 2	337.	Micro Moog	382.	Pop Slide 2
293.	SE Sub 3	338.	DB9 1	383.	Pop Slide 3
294.	SE Sub 4	339.	DB9 2	384.	Pop Slide 4
295.	SE Sub 5	340.	Phlappy	385.	Funk Hits
296.	SE Sub 6	341.	Power Q	386.	Organ 1
297.	SE Sub 7	342.	Big Sync	387.	Organ 2
298.	Hit	343.	Buzzer	388.	Mutes
299.	Subtle	344.	Saw Sync	389.	Power 1
300.	Mem Moog	345.	Pocket	390.	Power 2
301.	Lowness	346.	Q Attack Sub	391.	Power Hit
302.	Ice	347.	Sonics	392.	Synth Axe

Instrument Listing

393. Hits	438. Rast Keys	483. Rezzzy
394. Pipe Organ	439. ARP Sync	484. Hi Octaves
395. DrawbarOrgan	440. Narrow Synth	485. Dreemy
396. Perc Organ	441. Fat Attack	486. Phat
397. Org Day	442. ARP Lead	487. Tekno
398. Disco Organ	443. Synthetic	488. Life
399. DX Organ	444. Overtone	489. Classic
400. JX Organ	445. Buzz Saw	490. Dreamer
401. Tone Organ	446. Blipper	491. Paddy
402. Simple Organ	447. Full Synth	492. Dance Chord
403. Org Lite	448. Bass Synth	493. Zoom
404. Org Nod	449. Mini Lead	494. Keyngdom
405. Full Organ	450. Sawtooth	495. Oddd Organ
406. Synth Organ	451. M12 Lead	496. Mood Strings
407. BreathyOrgan	452. Sync Wave 1	497. Brazz
408. Dance Organ	453. Sync Wave 2	498. Synthyy
409. Farfisa 1	454. Sync Wave 3	499. P5
410. Farfisa 2	455. Sync Wave 4	500. Bari Wave
411. Vox Organ	456. Sync Wave 5	501. Sax Wave
412. Synth Cheeze	457. Sync Wave 6	502. Mute Trumpet
413. Organ Hits 1	458. Pop Square	503. Trumpet FX 1
414. Organ Hits 2	459. Juno Square	504. Trumpet FX 2
415. Tine EP	460. SquareAttack	505. Cool Loops
416. Pretty EP	461. Square Lead	506. Sax Riff
417. Classic EP	462. SquareChorus	507. Boink
418. FM EP 1	463. Sinusoid	508. Classic Hit
419. FM EP 2	464. Worm Lead 1	509. Hits 1
420. EP Hits	465. Worm Lead 2	510. Hits 2
421. Clavinet	466. Worm Lead 3	511. Jax Breath
422. Piano Wave	467. Worm Lead 4	512. Synth
423. Xylo Pad	468. Worm Lead 5	513. Orch
424. Pure H2O	469. Worm Lead 6	514. Soul Oohs
425. Log Hit	470. Harmonica	515. CMI Breath
426. Pluck Tone	471. Synth Flute	516. Breathy
427. Hollow Deep	472. Soft Synth	517. Tarzana
428. Bell Synth	473. Hi String	518. Gothic
429. Syn Tone	474. OBX Saws	519. Oow
430. Perc Axe	475. Big Planet	520. Vox 1
431. Whine	476. JP6 Pad	521. Vox 2
432. CZ101 Digi	477. Saw Sweep	522. Strings
433. CZ Lead	478. Juno Pulse	523. All Dance 1
434. CZ Echo Lead	479. CZ Synstring	524. All Dance 2
435. Wild Synth	480. Ensemble	525. Sound Track
436. Spacey Keys	481. Rezzzy Wave	526. Music Crowd
437. Digi Buzz	482. Heavy	527. Lawn Mower

Instrument Listing

528. Riff Trip	572. Cowbell	616. Dance 24
529. Cyber Pan	573. Agogos	617. Dance 25
530. Groove Thing	574. Misc 1	618. Dance 26
531. Science	575. Misc 2	619. Dance 27
532. Under Pad FM	576. kit:1	620. Organ 1
533. Sci Fi	577. kit:2	621. Organ 2
534. Synth Siren	578. kit:3	622. Organ 3
535. Metal	579. kit:4	623. Organ 4
536. Vinyl 1	580. kit:5	624. Organ 5
537. Vinyl 2	581. kit:6	625. Organ 6
538. Vinyl 3	582. kit:7	626. UnisonString
539. Vinyl 4	583. kit:8	627. Unison Brass
540. Pink	584. kit:9	628. Brass 1
541. White	585. kit:10	629. Brass 2
542. Scratches 1	586. kit:11	630. Brass 3
543. Scratches 2	587. kit:12	631. Brass 4
544. Kicks 1	588. kit:13	632. Brass 5
545. Kicks 2	589. kit:14	633. Brass 6
546. Snares 1	590. kit:15	634. Brass 7
547. Snares 2	591. kit:16	635. Brass 8
548. Toms 1	592. GM Dance	636. Brass 9
549. Toms 2	593. Dance 1	637. Brass 10
550. Timbales 1	594. Dance 2	638. Brass 11
551. Timbales 2	595. Dance 3	639. Brass 12
552. Congas etc 1	596. Dance 4	640. Brass 13
553. Congas etc 2	597. Dance 5	641. Brass 14
554. Hats 1	598. Dance 6	642. Brass 15
555. Hats 2	599. Dance 7	643. Brass 16
556. Cymbals 1	600. Dance 8	644. Brass 17
557. Cymbals 2	601. Dance 9	645. Brass 18
558. Shakers	602. Dance 10	646. Brass 19
559. Maracas	603. Dance 11	647. Brass 20
560. Bells 1	604. Dance 12	648. Trumpet FX 1
561. Bells 2	605. Dance 13	649. Trumpet FX 2
562. Blocks 1	606. Dance 14	650. Trumpet FX 3
563. Blocks 2	607. Dance 15	651. Trumpet FX 4
564. Tams 1	608. Dance 16	652. Trumpet FX 5
565. Tams 2	609. Dance 17	653. Sax FX 1
566. Claps 1	610. Dance 18	654. Sax FX 2
567. Claps 2	611. Dance 19	655. Sax FX 3
568. Snaps	612. Dance 20	656. Blipp
569. Clave	613. Dance 21	657. Buzz Blip
570. Vibraslap	614. Dance 22	658. Game
571. Guiro	615. Dance 23	659. Disssss

Instrument Listing

660. Siren Loop	705. Gtr Wawa 3	750. Wazzup?
661. Bell	706. Gtr Wawa 4	751. Barker
662. Klank	707. Gtr Wawa 5	752. Plunger
663. Metal	708. Gtr Wawa 6	753. Skipper
664. Slinky Q	709. Heavy Guitar	754. Fast
665. Space Whip	710. HeavyGtrDive	755. Kick 1
666. Short Quack	711. Drum Stab	756. Kick 2
667. Quack Ahhh	712. Guit On It	757. Kick 3
668. Bowser Bark	713. Jazz Short	758. Kick 4
669. Chiffin	714. Blamp	759. Kick 5
670. CMI Hot Air	715. Bass Slide	760. Kick 6
671. L9000 Noise	716. Hip Hop	761. Kick 7
672. Comon Vox	717. Drum Stall	762. Kick 8
673. Odd Vox	718. Stalled	763. Kick 9
674. Mmm Hmm	719. Wind Down 1	764. Kick 10
675. Ah Hah	720. Wind Down 2	765. Kick 11
676. EP Roll 1	721. Ripped	766. Kick 12
677. EP Roll 2	722. Space Wiggle	767. Kick 13
678. EP Roll 3	723. Sqweal Rev	768. Kick 14
679. EP Fog	724. Draggit	769. Kick 15
680. Fat Low Syn	725. MC	770. Kick 16
681. Bass Stab 1	726. Fun	771. Kick 17
682. Bass Stab 2	727. SSSSystem 1	772. Kick 18
683. Gtr Hi Chuck	728. SSSSystem 2	773. Kick 19
684. Gtr UpStroke	729. Here	774. Kick 20
685. Gtr Scratch1	730. On It	775. Kick 21
686. Gtr Scratch2	731. Diss	776. Kick 22
687. KleanGtrChuk	732. Bow Wow	777. Kick 23
688. Gtr Jangle	733. Diva Scratch	778. Kick 24
689. Gtr Riff 1	734. Organ Blip	779. Kick 25
690. Gtr Riff 2	735. Classic Tape	780. Kick 26
691. Gtr Riff 3	736. Out!	781. Kick 27
692. Gtr FunkyHit	737. Punch It	782. Kick 28
693. Another Gtr	738. Ork	783. Kick 29
694. Jazz Riff 1	739. Tape Stop	784. Kick 30
695. Jazz Riff 2	740. Zip	785. Kick 31
696. Jazz Riff 3	741. Tape Pull	786. Kick 32
697. GtrSlideRiff	742. Wild	787. Kick 33
698. Gtr PopSlide	743. Up	788. Kick 34
699. Guitar Pop	744. Away	789. Kick 35
700. Chord Chuck	745. Frenzy	790. Kick 36
701. Guitar Slide	746. Kick 1	791. Kick 37
702. Sad Guitar	747. Kick 2	792. Kick 38
703. Gtr Wawa 1	748. Snare	793. Kick 39
704. Gtr Wawa 2	749. Tite	794. Kick 40

Instrument Listing

795. Kick 41	839. Snare 28	883. Snare 72
796. Kick 42	840. Snare 29	884. Snare 73
797. Kick 43	841. Snare 30	885. Snare 74
798. Kick 44	842. Snare 31	886. Snare 75
799. Kick 45	843. Snare 32	887. Snare 76
800. Kick 46	844. Snare 33	888. Snare 77
801. Kick 47	845. Snare 34	889. Snare 78
802. Kick 48	846. Snare 35	890. Snare 79
803. Kick 49	847. Snare 36	891. Snare 80
804. Kick 50	848. Snare 37	892. Snare 81
805. Kick 51	849. Snare 38	893. Snare 82
806. Kick 52	850. Snare 39	894. Snare 83
807. Kick 53	851. Snare 40	895. Snare 84
808. Kick 54	852. Snare 41	896. Snare 85
809. Kick 55	853. Snare 42	897. Snare 86
810. Kick 56	854. Snare 43	898. Snare 87
811. Kick 57	855. Snare 44	899. Snare 88
812. Snare 1	856. Snare 45	900. Snare 89
813. Snare 2	857. Snare 46	901. Snare 90
814. Snare 3	858. Snare 47	902. Snare 91
815. Snare 4	859. Snare 48	903. Snare 92
816. Snare 5	860. Snare 49	904. Snare 93
817. Snare 6	861. Snare 50	905. Snare 94
818. Snare 7	862. Snare 51	906. Snare 95
819. Snare 8	863. Snare 52	907. Snare 96
820. Snare 9	864. Snare 53	908. Snare 97
821. Snare 10	865. Snare 54	909. Snare 98
822. Snare 11	866. Snare 55	910. Snare 99
823. Snare 12	867. Snare 56	911. Snare 100
824. Snare 13	868. Snare 57	912. Snare 101
825. Snare 14	869. Snare 58	913. Snare 102
826. Snare 15	870. Snare 59	914. Snare 103
827. Snare 16	871. Snare 60	915. Snare 104
828. Snare 17	872. Snare 61	916. Snare 105
829. Snare 18	873. Snare 62	917. Snare 106
830. Snare 19	874. Snare 63	918. Tom 1
831. Snare 20	875. Snare 64	919. Tom 2
832. Snare 21	876. Snare 65	920. Tom 3
833. Snare 22	877. Snare 66	921. Tom 4
834. Snare 23	878. Snare 67	922. Tom 5
835. Snare 24	879. Snare 68	923. Tom 6
836. Snare 25	880. Snare 69	924. Tom 7
837. Snare 26	881. Snare 70	925. Tom 8
838. Snare 27	882. Snare 71	926. Tom 9

Instrument Listing

927.	Tom 10	971.	Hat 5	1015.	Hat 49
928.	Tom 11	972.	Hat 6	1016.	Hat 50
929.	Tom 12	973.	Hat 7	1017.	Hat 51
930.	Tom 13	974.	Hat 8	1018.	Hat 52
931.	Tom 14	975.	Hat 9	1019.	Hat 53
932.	Tom 15	976.	Hat 10	1020.	Hat 54
933.	Tom 16	977.	Hat 11	1021.	Hat 55
934.	Tom 17	978.	Hat 12	1022.	Hat 56
935.	Tom 18	979.	Hat 13	1023.	Hat 57
936.	Tom 19	980.	Hat 14	1024.	Hat 58
937.	Tom 20	981.	Hat 15	1025.	Hat 59
938.	Tom 21	982.	Hat 16	1026.	Hat 60
939.	Tom 22	983.	Hat 17	1027.	Hat 61
940.	Tom 23	984.	Hat 18	1028.	Hat 62
941.	Tom 24	985.	Hat 19	1029.	Hat 63
942.	Tom 25	986.	Hat 20	1030.	Hat 64
943.	Tom 26	987.	Hat 21	1031.	Hat 65
944.	Timbale 1	988.	Hat 22	1032.	Hat 66
945.	Timbale 2	989.	Hat 23	1033.	Hat 67
946.	Timbale 3	990.	Hat 24	1034.	Hat 68
947.	Timbale 4	991.	Hat 25	1035.	Hat 69
948.	Timbale 5	992.	Hat 26	1036.	Hat 70
949.	Timbale 6	993.	Hat 27	1037.	Hat 71
950.	Conga 1	994.	Hat 28	1038.	Hat 72
951.	Conga 2	995.	Hat 29	1039.	Hat 73
952.	Conga 3	996.	Hat 30	1040.	Hat 74
953.	Conga 4	997.	Hat 31	1041.	Hat 75
954.	Conga 5	998.	Hat 32	1042.	Hat 76
955.	Conga 6	999.	Hat 33	1043.	Hat 77
956.	Conga 7	1000.	Hat 34	1044.	Hat 78
957.	Conga 8	1001.	Hat 35	1045.	Cymbal 1
958.	Conga 9	1002.	Hat 36	1046.	Cymbal 2
959.	Conga 10	1003.	Hat 37	1047.	Cymbal 3
960.	Bongo 1	1004.	Hat 38	1048.	Cymbal 4
961.	Bongo 2	1005.	Hat 39	1049.	Cymbal 5
962.	Bongo 3	1006.	Hat 40	1050.	Cymbal 6
963.	Bongo 4	1007.	Hat 41	1051.	Cymbal 7
964.	Bongo 5	1008.	Hat 42	1052.	Cymbal 8
965.	Bongo 6	1009.	Hat 43	1053.	Cymbal 9
966.	Bongo 7	1010.	Hat 44	1054.	Cymbal 10
967.	Hat 1	1011.	Hat 45	1055.	Cymbal 11
968.	Hat 2	1012.	Hat 46	1056.	Cymbal 12
969.	Hat 3	1013.	Hat 47	1057.	Cymbal 13
970.	Hat 4	1014.	Hat 48	1058.	Cymbal 14

Instrument Listing

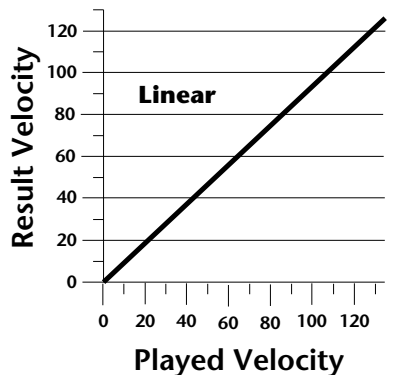
1059. Misc 27
1060. Misc 28
1061. Misc 29
1062. Misc 30
1063. Misc 31
1064. Misc 32

1065. Misc 33
1066. Misc 34
1067. Misc 35
1068. Misc 36
1069. Misc 37
1070. Misc 38

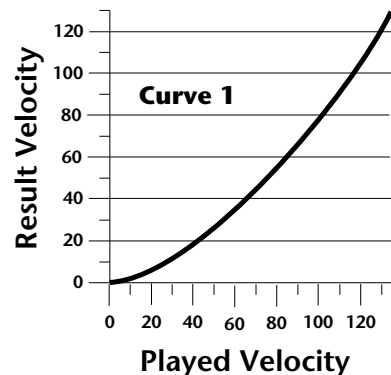
1071. Misc 39
1072. Misc 40
1073. Misc 41
1074. Misc 42
1075. Misc 43

Velocity Curves

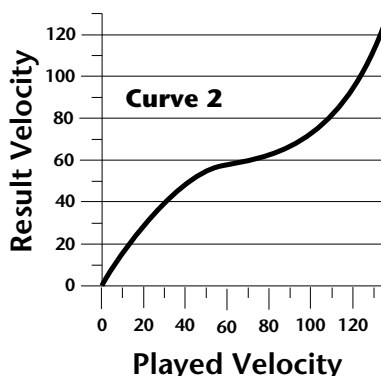
This section provides diagrams and descriptions of the XL-7 velocity curves.



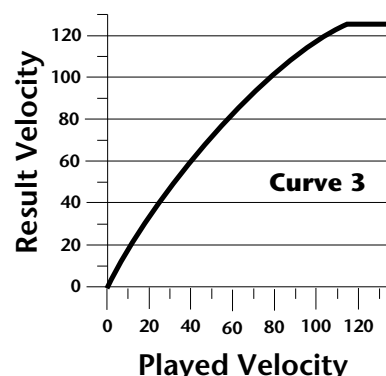
Linear, no change to velocity.



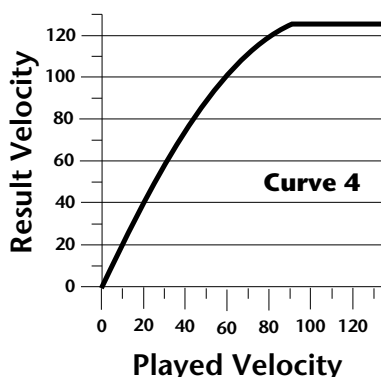
Compresses velocity range.



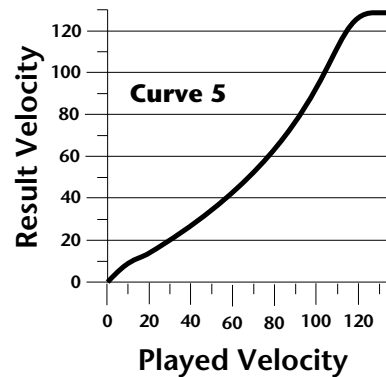
Expands dynamics in low range, emphasizing medium velocity values and compressing high velocity values.



Expands velocity range.
Soft -> Loud

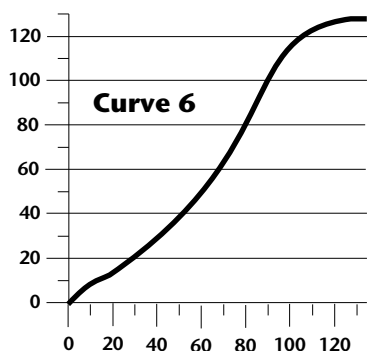


Expands velocity range.
Outputs high values.



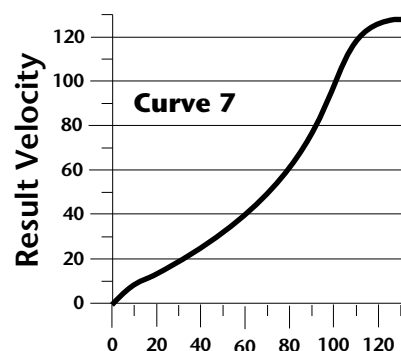
Shifts velocity values upward.
Good dynamic range.

Velocity Curves



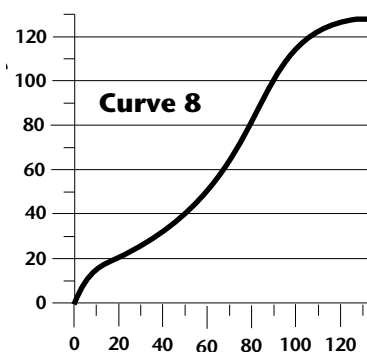
Played Velocity

Shifts velocity values up while compressing the middle range.



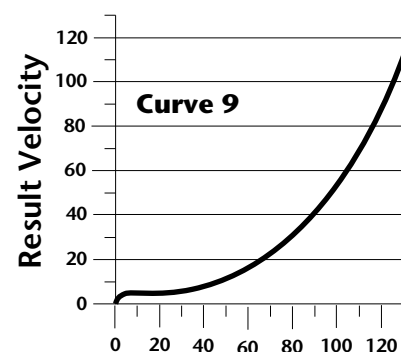
Played Velocity

Similar to Curve 6.



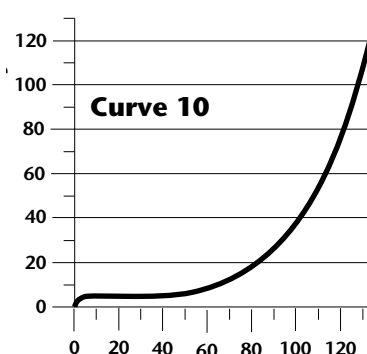
Played Velocity

Similar to Curve 6 with more emphasis on the middle range.



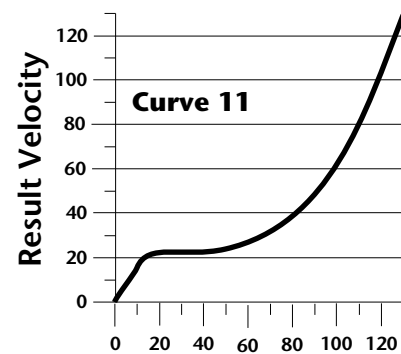
Played Velocity

Extreme dynamic range compression.



Played Velocity

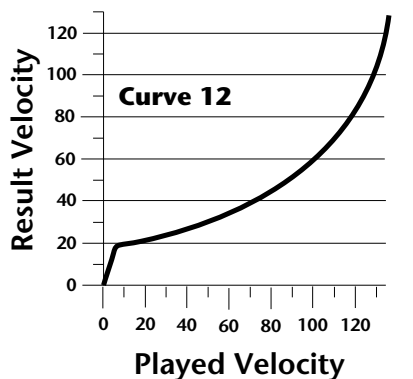
Extreme dynamic range compression. Outputs low values.



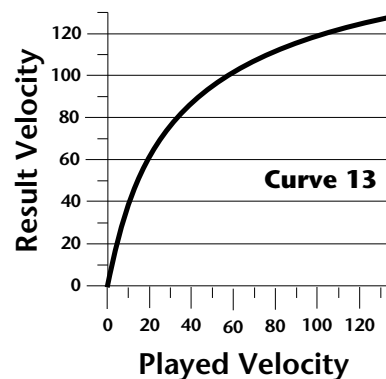
Played Velocity

Extreme dynamic range compression but doesn't output low values

PatchCord Amount Chart



Less severe version of Curve 11.



Extreme expansion of
velocity range.

The following chart shows the PatchCord “Amount” settings in order to get semitone intervals when modulation sources are connected to pitch.

Semitone	PatchCord Amount	Semitone	PatchCord Amount
1	3	21	66
2	6	22	69
3	approx. 9	23	approx. 72.5
4	approx. 12	24	approx. 76
5	16	25	79
6	19	26	82
7	22	27	88
8	25	28	91
9	28	29	approx. 95
10	approx. 31	30	98
11	35	31	
12	38	32	
13	41	33	
14	44	34	
15	47	35	
16	50	36	
17	approx. 53	37	
18	57	38	
19	60	39	
20	63	40	

Shift Key Shortcuts

This chart lists the hidden shift-key shortcuts for XL-7.

Key Combination	Function
PLAY + STOP	Resets Current Pattern or starts queued pattern
TAP + STOP	Toggles Temporary Bar Region (Loop) on or off
TAP + SELECT	Sets Loop Start location
TAP + EDIT	Sets Loop End location
TAP + REC	Replace Record Mode
TAP + PLAY	XMIX Mode
TAP + TRIGGER	Selects the Trigger Button function
TAP + TRACK MUTE	Selects Track
ERASE + TRACK MUTE	Erases all Track Data on the selected track
ENTER + MIDI	MIDI Panic Button (Sends All Notes Off)
ENTER (while powering up)	OS Update Mode
AUDITION (while powering up)	Product Design Credits

Rhythmic Notation

Measures

This extremely brief overview is intended solely as a refresher and memory jogger; for a detailed description of rhythmic notation, see any good book on music theory.

A piece of music is divided into measures, and each measure is divided into notes. The number of notes, and rhythmic value of the notes, depends both on the composition and the time signature (see Appendix C).

Note values

With a measure written in 4/4, there are four beats per measure, with each beat representing a quarter note. Thus, there are four quarter notes per measure of 4/4 music.

There are two eighth notes per quarter note. Thus, there are eight eighth notes per measure of 4/4 music.

There are four sixteenth notes per quarter note. Thus, there are sixteen sixteenth notes per measure of 4/4 music.

There are eight thirty-second notes per quarter note. Thus, there are thirty-two thirty second notes per measure of 4/4 music.

There are also notes which span a greater number of beats than quarter notes. A half-note equals two quarter notes. Therefore, there are two half-notes per measure of 4/4 music. A whole note equals four quarter notes. Therefore, there is one whole note per measure of 4/4 music.

Triplets

The above notes divide measures by factors of 2. However, there are some cases where you want to divide a beat into thirds, giving three notes per beat. Dividing a quarter note by three results in eighth note triplets. The reason why we use the term “eighth note triplets” is because the eighth note is closest to the rhythmic value which we want. Dividing an eighth note by three results in sixteenth note triplets. Dividing a sixteenth note by three results in thirty-second note triplets.

Time Signatures

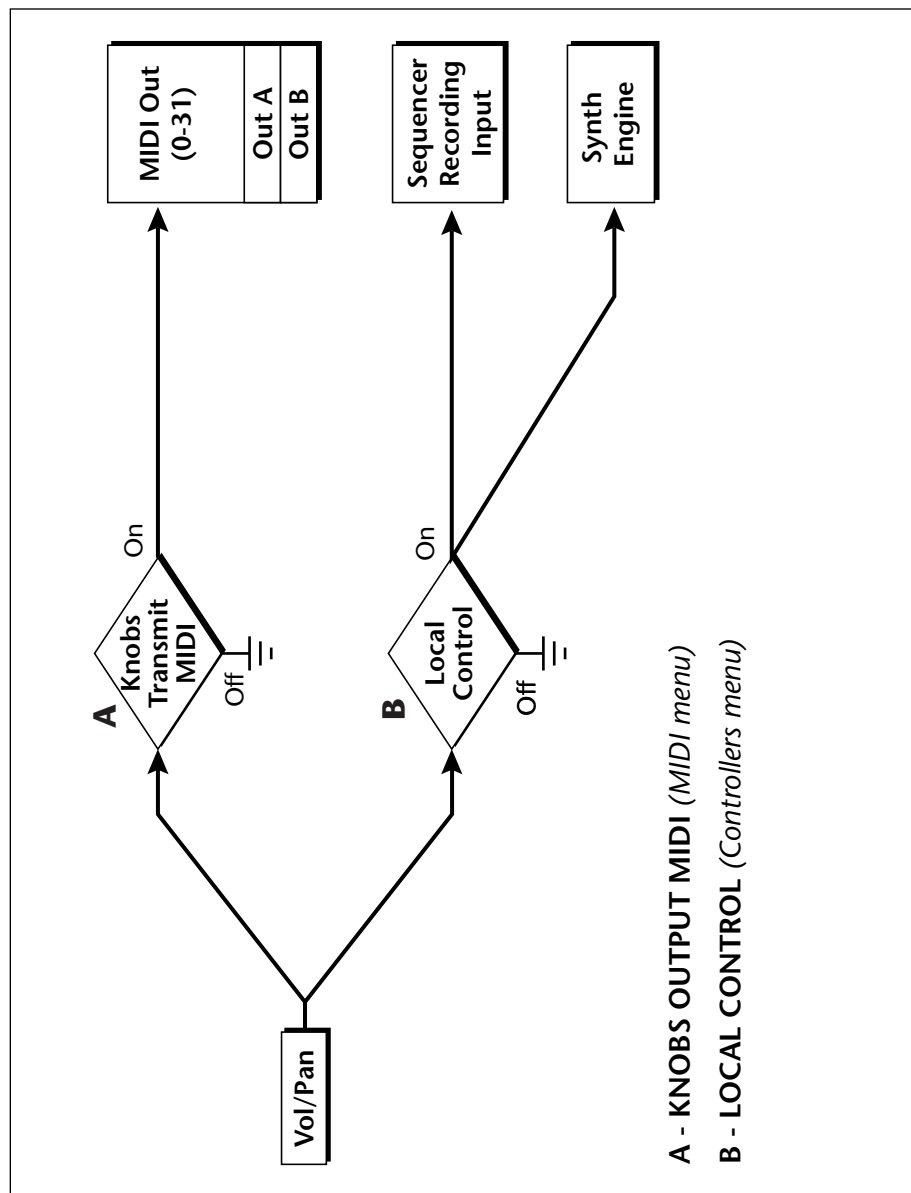
A time signature (also called metric signature) describes the meter of a piece of music. It consists of two numbers arranged like a fraction, such as 3/4, 4/4, etc. The top number (numerator) indicates the number of beats in each measure, while the bottom number (denominator) indicates the rhythmic value of each beat. For example, with a 3/4 time signature the numerator indicates that there are three notes per measure, while the denominator indicates that each of these notes is a quarter note. 4/4 indicates that each measure includes 4 quarter notes. Usually the downbeat (1st beat) of each measure is emphasized by a metronome to help you get a feel for the meter.

3/4 and 4/4 are the most common time signatures, but they are by no means the only ones. In jazz, both 5/4 (where each measure has five 1/4 notes) and 7/4 (where each measure has seven 1/4 notes) are often used. In practice, complex time signatures are played like a combination of simpler time signatures; for example, some 7/4 compositions would have you count each measure not as “1, 2, 3, 4, 5, 6, 7” but as “1, 2, 3, 4, 1, 2, 3”. It’s often easier for musicians to think of 7/4 as one bar of 4/4 and one bar of 3/4, since as we mentioned, 4/4 and 3/4 are extremely common time signatures.

Block Diagrams

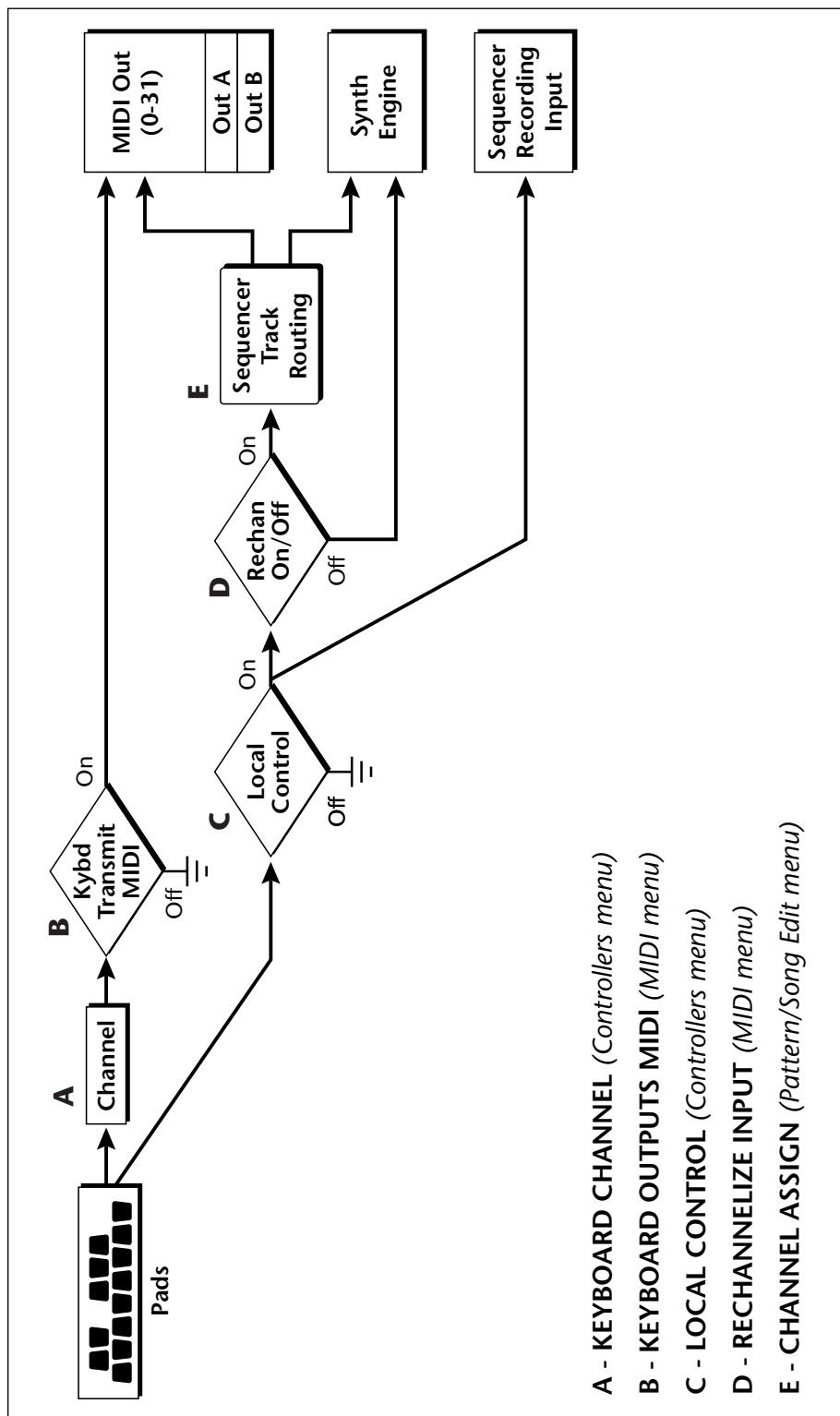
Volume & Pan

These block diagrams show the internal signal routings and the functions of the various screens. They should prove highly useful when programming complex setups or for troubleshooting.



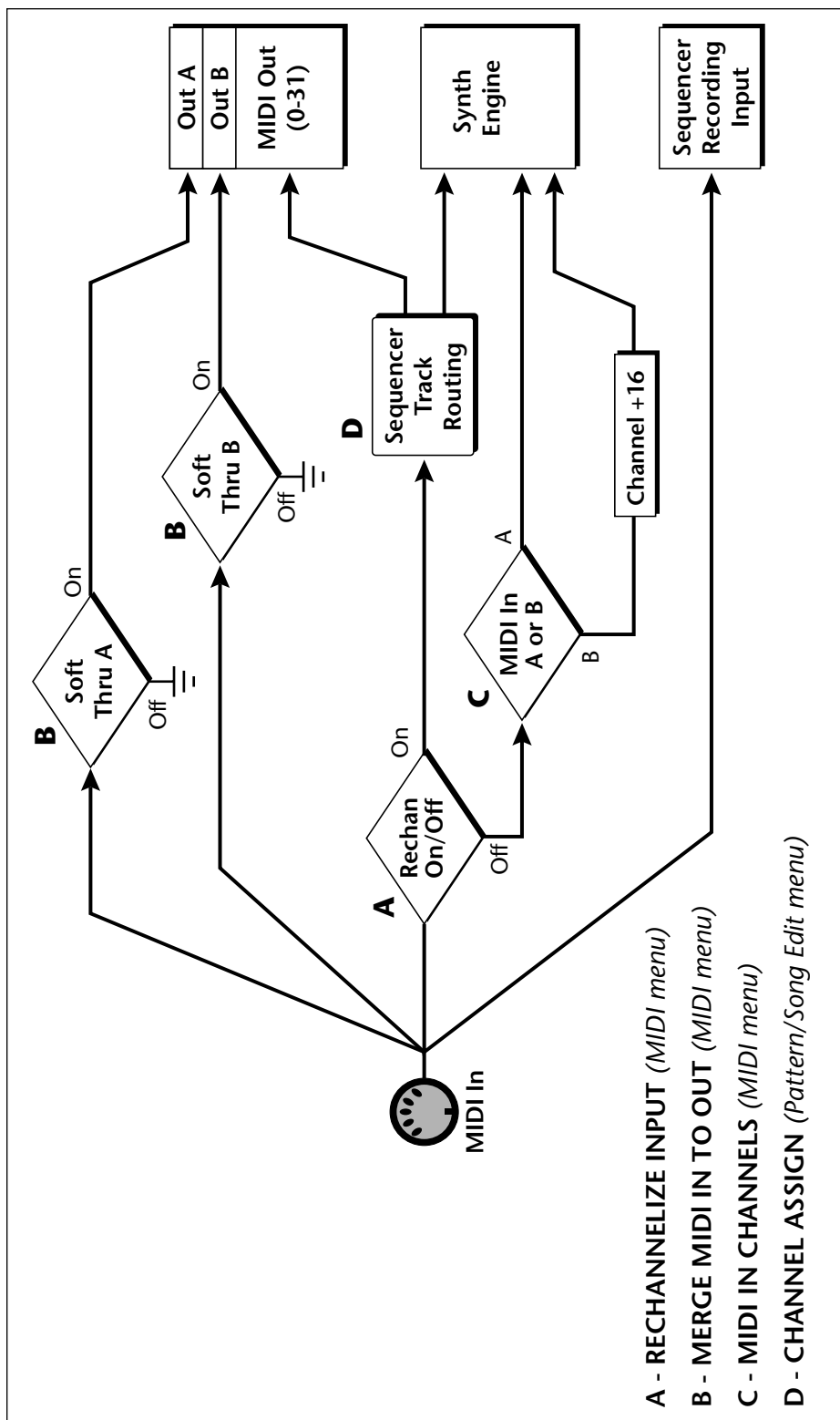
Block Diagrams

Pads Routing



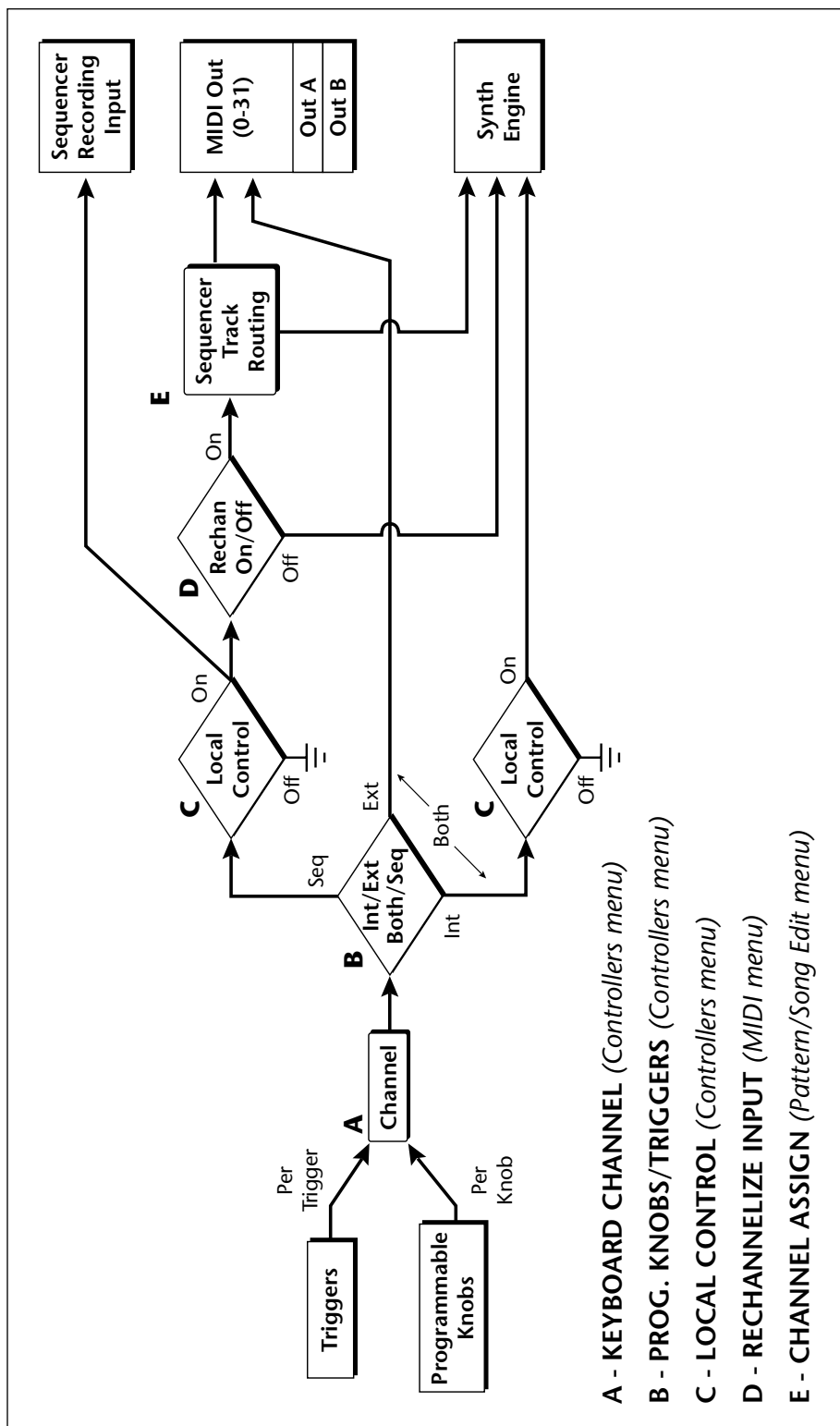
Block Diagrams

MIDI In



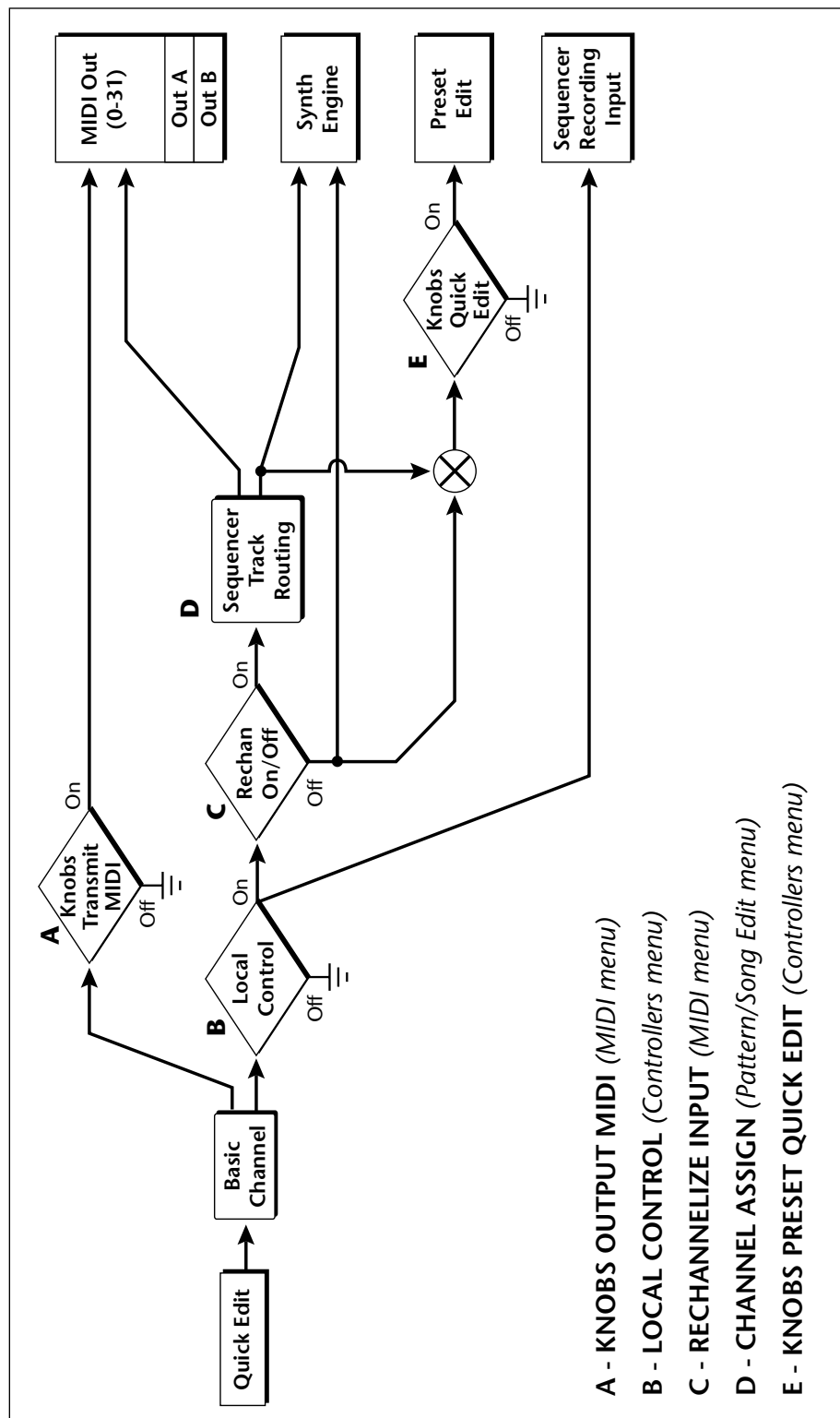
Block Diagrams

Triggers & Programmable Knobs



Block Diagrams

Quick Edit



E-MU Expansion Sound Sets



Eleven different ROM expansions are currently available, with more being developed every day. ROM expansions typically add 32MB of sound data and 512 additional presets. Adding new sounds is like getting a new instrument and a sure way to spark your creativity. ROM Expansions are available from your E-MU dealer. Also check out the official E-MU web site: www.emu.com for the latest sounds.

Orchestral Sessions VOLUME 1

The Orchestral Sessions Vol. 1 expansion 32 MB ROM offers you the most realistic and comprehensive collection of section strings available, complete with legato, spiccato, pizzicato and tremolando samples, and includes special presets for 4 speaker applications.

Orchestral Sessions VOLUME 2

The Orchestral Sessions Vol. 2 expansion 32 MB ROM offers you the most realistic and comprehensive collection of woodwinds, brass, percussion, and solo strings available, complete with velocity switching between p/mf/ff samples, special presets for 4 speaker applications and a percussion battery with over 20 instruments.

Siedlaczek Orchestra Special Edition

The Peter Siedlaczek Advanced Orchestra Special Edition puts 32 MB of his finest ensembles onto a single expansion ROM. String, brass, woodwind and percussion ensembles are included in a variety of styles (i.e. vibrato, tremolo, pizzicato, sordino, etc.), to give you a diverse collection of samples.

Protozoa

E-MU presents the 16 MB Protozoa expansion ROM—the ultimate sound compilation containing presets from the ground breaking Proteus sound modules, all optimized for your 's advanced synthesis and filter architecture.

Sounds of the ZR

The Sounds of the ZR Expansion ROM faithfully reproduces the diverse sounds of ENSONIQ's popular ZR-76 keyboard, including William Coakley's Perfect Piano. You'll find everything from synths and orchestral instruments to one of the finest pianos ever sampled in one soundset.

Definitive B-3

John Novello and E-MU present the 32 MB Definitive B-3 expansion ROM, a diverse collection of tone wheel organ drawbar settings sampled direct and with rotary speakers (chorale and tremolo) to give you the most versatile and playable B-3 available!



X-Lead

The X-Lead soundset consists primarily of analog, noise and modern synthesizer waveforms. These sounds are rich in harmonic texture and are a perfect match with the Z-plane filters in your Proteus® family sound module. With the included software upgrade, you now have access to dynamic and rhythmic features not found on any other instrument.



PURE PHATT

The 32 MB Pure Phatt is E-MU's latest Hip-Hop soundset that produces the freshest and newest sounds and grooves from top notch producers from the East, Southeast and West coasts. Pumping leads and basses, silky pads and those unique hits, scratches and drones, that your mix needs to bring it to the next level, are ready to provide the love.



World Expedition

An amazing collection of traditional instruments from the four corners of the globe including exotic stringed instruments, winds, percussion, and chromatic percussion. World Expedition provides you with the most realistic ethnic soundset in the world. Discover a world of sounds to bring to your music.



Techno Synth

Rob Papen and E-MU introduce the 32 MB Techno Synth Construction Yard Expansion ROM, a compilation of synth, techno, and ambient sounds from one of Europe's finest programmers. From atmospheric pads to punchy sub-basses and crunch drum loops, these sounds will help you tear up the dance floor!



Beat Garden

Dutch sound designer Rob Papen and E-MU introduce the 32 MB Beat Garden expansion ROM, a diverse palette of all-new Electronica/Dance beats, synths, basses, drumkits, acoustic and electronic percussion. Experience the Beat Garden for yourself and add a unique dimension to your tracks.



Proteus Pop Collection

The 32 MB Proteus Pop Collection offers you all of the bread and butter sounds of E-MU's Proteus 2500 Module and PK-6 keyboard with 640 diverse presets covering everything from traditional keyboards and orchestral instruments to electric guitars, world percussion and drum kits.



ENSONIQ Project

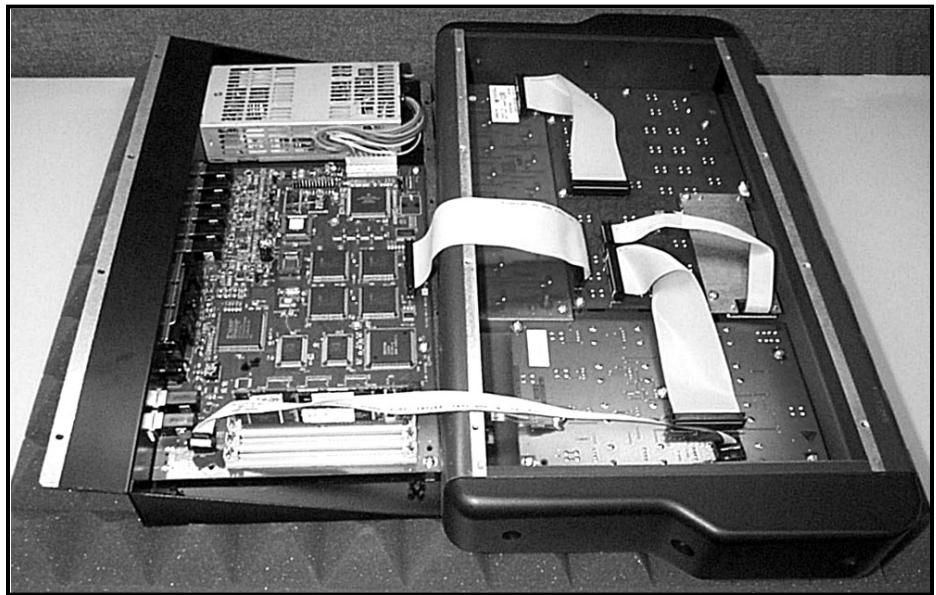
The 32 MB ENSONIQ Project Expansion ROM delivers the sounds of ENSONIQ's acclaimed Urban Dance Project and Real World collections with the Hip-Hop and World sounds heard on countless hits, all optimized for E-MU's powerful synthesis and filter architecture.

Installing Sound SIMMs

XL-7 can be easily expanded to contain up to 128 MB of sound data (4 SIMMs). The sound SIMM sockets are located inside the unit.

► Open the Unit


1. **IMPORTANT:** Unplug power from the unit before opening!
2. Carefully turn the unit keypad-side down on a soft, padded surface.
3. The bottom panel is secured by eight phillips head screws — four along the rear edge and four along the front edge. Remove the eight screws and place them where they won't roll away or get lost.
4. Holding the bottom panel and the top piece together, carefully turn the entire unit right-side up again.
5. Carefully lift the rear of the top panel, tilting it upward. Do this slowly so as not to stress the ribbon cables.
6. Continue to open the unit as if you were opening a book, so that the top piece is resting on the buttons and knobs as shown below. Take care not to stress or damage the fragile ribbon cables.



The service position for XL-7. The Sound ROM sockets can be seen at lower left.

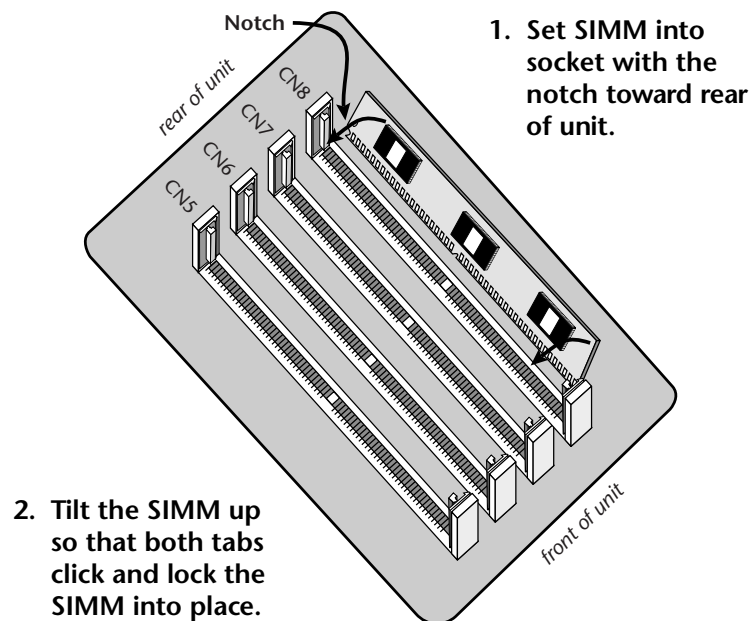
► To Remove ROM SIMMs (if necessary):

1. Orient the unit so that the rear panel is facing you. Ground yourself by touching a grounded object. (*Such as the chassis of another piece of equipment connected to the wall socket with a three-prong power plug.*)
2. On each end of the SIMM socket there is a silver or plastic tab. Use a screwdriver or a ball point pen to squeeze the tabs toward the outside of the socket while gently nudging the SIMM toward the right side of the unit. The old SIMM should “hinge” to the right and can now be removed.

 ROMs can be installed in any available SIMM location. The physical position of the sound set does not affect the order that they appear in the LCD.

► Install a New ROM SIMM

1. Ground yourself by touching a grounded object, then remove the memory SIMM modules from the static protected packaging.
2. Notice that one end of the SIMM connector is notched. This notch should be oriented towards the rear panel of the unit. When installing multiple SIMMS, install the SIMM into the lowest numbered socket first (i.e. first CN-5, then CN-6, then CN-7, then CN-8).



3. Gently set the SIMM deep into the SIMM socket at a 45° angle with the notch toward the rear of the unit. Without forcing the insertion, let the board rest in the socket as deep as it will go. It should rest naturally in place at this 45° angle. Refer to the diagram on the previous page.
4. While applying a slight downward pressure on the top of the SIMM to keep it from popping out of the socket, tilt the SIMM board into a vertical position. You should hear an audible click. Make sure both sides of the silver tabs have latched.

► Reassemble the Unit

5. Lift the top panel into a vertical position so you have some slack on the ribbon cables.
6. Press on the ribbon cable connectors to ensure they are properly seated before closing the unit.
7. Replace the top panel and all eight screws. The screws are all identical. Make sure to replace all eight screws tightly or grounding problems could result. (This grounding problem usually manifests itself as a buzzing in the headphone output.)

► **Test It**

The installation is almost finished.

1. Turn the unit right-side up and plug in the power cord.
2. Turn on power.
3. Press the Preset View button.
4. Move the cursor under the ROM field and turn the data entry control to verify that your new sound ROM has been recognized.
5. Play the presets on the new ROM banks and verify that they sound OK.

Problems?

1. Disconnect power immediately.
2. Open the unit, and try re-seating the ROM SIMMs. If you're still having problems, return the unit to its original configuration and call EMU Systems Customer Service at (831) 438-1921. Telephone support hours are 8:00-5:00 PST, Monday through Friday.

MIDI

MIDI Implementation Chart (part 1)

MIDI Information	Transmitted	Recognized	Remarks
MIDI Channels	1-16A, 1-16B	1-16	32 MIDI Chan.
Note Numbers	0-127	0-127	
Program Change	0-127	0-127	
Bank Select Response?	No	Yes	MSB + LSB
Modes: Omni (<i>Mode 1</i>)	No	Yes	
Mono (<i>Mode 2</i>)	No	Yes	
Poly (<i>Mode 3</i>)	No	Yes	
Mode 4 (<i>Y/N</i>)	No	No	
Multi (<i>Mode 5</i>)	No	Yes	
Note On Velocity	Yes	Yes	
Note Off Velocity	No	Yes	
Channel Aftertouch	Yes	Yes	
Poly (Key) Aftertouch	Yes	No	
Pitch Bend	Yes	Yes	
Active Sensing	No	No	
System Reset	No	No	
Tune Request	No	No	
System Exclusive	Yes	Yes	
Sample Dump Standard	No	No	
File Dump	Yes	Yes	
MIDI Tuning	Yes	Yes	
Master Volume	No	Yes	
Master Balance	No	No	
Notation Information	No	No	
Turn GM1 System On	No	No	
Turn GM2 System On	No	No	
Turn GM1 System Off	No	No	
Other (<i>See Remarks</i>)	No	No	
NRPNS	No	No	
RPN 00 (<i>Pitch Bend Sensi.</i>)	No	No	
RPN 01 (<i>Chan. Fine Tune</i>)	No	No	
RPN 02 (<i>Chan Coar. Tune</i>)	No	No	
RPN 03 (<i>Tuning Prog Sel.</i>)	No	No	
RPN 04 (<i>Tuning Bank Sel.</i>)	No	No	
RPN 05 (<i>Mod Depth Rang</i>)	No	No	
MIDI Timing & Sync			
MIDI Clock	Yes	Yes	
Song Position Pointer	Yes	Yes	<i>Received only when synced to MIDI clock</i>
Song Select	No	No	

MIDI Information	Transmitted	Recognized	Remarks
Start Continue Stop	Yes Yes Yes	Yes Yes Yes	<i>Start/Continue response only from the stopped transport state.</i>
MIDI Time Code	No	No	
MIDI Machine Control	No	No	
MIDI Show Control	No	No	
Extension Capability			
General MIDI Compat? Is GM default mode?	No No	No No	
DLS compatible? Import DLS Files? Export DLS Files?	No No No	No No No	
Import Std MIDI files Export Std MIDI files	Yes Yes	Yes Yes	

MIDI Implementation Chart (part 2 - Controllers)

Control #	Function	Transmitted	Recognized	Remarks
0	Bank Select MSB	Yes	Yes	
1	Mod Wheel MSB	Yes	Yes	
2	Breath Cntrl MSB	No	No	* <i>see note</i>
3		Yes		*
4	Foot Cntrl MSB	Yes	No	*
5	Portamento MSB	No	No	*
6	Data Entry MSB	No	No	*
7	Chan Volume MSB	Yes	Yes	*
8	Balance MSB	No	No	*
9				*
10	Pan MSB	Yes	Yes	*
11	Expression MSB	No	Yes	*
12	Effect Cntrl 1 MSB	No	No	*
13	Effect Cntrl 2 MSB	No	No	*
14				*
15				*
16	GenPur Ctrl 1 MSB			*
17	GenPur Ctrl 2 MSB			*
18	GenPur Ctrl 3 MSB			*
19	GenPur Ctrl 4 MSB			*
20				*
21				*
22				*
23				* <i>see note</i>
24				*
25	➡	Yes	Yes	* <i>Filt Attck</i>
26	➡	Yes	Yes	* <i>Filt Decy</i>
27				*
28				*
29				*
30				*
31				*
32	Bank Select LSB			*
33	Mod Wheel LSB			*
34	Breath Cntrl LSB			*
35				*
36	Foot Cntrlr LSB			*

Control #	Function	Transmitted	Recognized	Remarks
37	Portamento LSB			*
38	Data Entry LSB			*
39	Chan Volume LSB			*
40	Balance LSB			*
41				*
42	Pan LSB			*
43	Expression LSB			*
44	Effect Cntrl 1 LSB			*
45	Effect Cntrl 2 LSB			*
46				*
47				*
48	Gen Pur Ctrl 1 LSB			*
49	Gen Pur Ctrl 2 LSB			*
50	Gen Pur Ctrl 3 LSB			*
51	Gen Pur Ctrl 4 LSB			*
52				*
53				*
54				*
55				*
56				*
57				*
58				*
59				*
60				*
61				* see note
62				*
63				*
64	Sustain Pedal	Yes	Yes	*
65	Portamento on/off	No	No	*
66	Sostenuto	No	No	*
67	Soft Pedal			*
68	Legato Footswitch			*
69	Hold 2			*
70	Variation			*
71	Timbre/Har Inten	Yes	Yes	*
72	Release Time	Yes		*
73	Attack Time	Yes		*
74	Brightness	Yes		*

Control #	Function	Transmitted	Recognized	Remarks
75	Sound Cntrlr 6 ➡	Yes	Yes	* <i>Decay</i>
76	Sound Cntrlr 7			*
77	Sound Cntrlr 8 ➡	Yes	Yes	* <i>Vel->Filt</i>
78	Sound Cntrlr 9 ➡	Yes	Yes	* <i>Vel->amp</i>
79	Sound Cntrlr 10	Yes	Yes	⚡ <i>See note</i>
80	Gen Purp Cntrlr 5	Yes	Yes	⚡ <i>See note</i>
81	Gen Purp Cntrlr 6			*
82	Gen Pur Cntrlr 7 ➡	Yes	Yes	* <i>Arp Vel</i>
83	Gen Pur Cntrlr 8 ➡	Yes	Yes	* <i>Arp Gate</i>
84	Portamento Cntrl			*
85	➡	Yes	Yes	* <i>Sustain</i>
86				*
87				*
88				*
89				*
90				*
91	Effects 1 Depth			*
92	Effects 2 Depth			*
93	Effects 3 Depth			*
94	Effects 4 Depth			*
95	Effects 5 Depth			*
96	Data Increment			
97	Data Decrement			
98	NRPN (LSB)			
99	NRPN (MSB)			
100	RPN (LSB)			
101	RPN (MSB)			
102				
103				
104				
105				
106				
107				
108				
109				
110				
111				
112				

Control #	Function	Transmitted	Recognized	Remarks
113				
114				
115				
116				
117				
118				
119				
120	All Sound Off	No	Yes	✎ See note
121	Reset All Contrls	No	Yes	
122	Local Cntrl on/off	No	No	
123	All Notes Off	No	Yes	
124	Omni Mode Off	No	Yes ★	★ if enabled
125	Omni Mode On	No	Yes ★	★ if enabled
126	Poly Mode Off	No	Yes ★	★ if enabled
127	Poly Mode On	No	Yes ★	★ if enabled
NOTES: * XL-7 can transmit and receive ANY continuous controller number from 1 to 95. Because of XL-7's powerful synth engine, many of the standard MIDI controllers can be user programmed to provide the desired function. A "Yes" response in this chart means that a controller is programmed by default in XL-7. ⚡ Controller 79 is hard-coded to the Mix Output parameter. 0=Use Preset, 1=Send 1, 2=Send 2, 3=Send 3, 4=Send 4 ⚡ Controller 80 is hard-coded to the Arp Status parameter. 0=Off, 1=On, 2=P (preset), 3=M (master) ⚡ Value of 0 = reset all except vol & pan; value of 127 = reset all. Other: Pan: -64 = hard left, +63 = hard right				

Operating System Upgrades

XL-7's operating system can be updated using the USB port or the MIDI interface using E-MU's E-Loader utility. E-Loader comes with a set of detailed instructions for upgrading the operating system.

You'll find E-Loader on the CD-ROM that came with your XL-7, or you can download it from the E-MU web site (www.emu.com). There you will also find the latest software revision for your XL-7

Product ID for XL-7 = 0F (15)

MIDI Device Inquiry Responses

Family

MSB 0x04 (Musical Instruments)

LSB 0x04 (ROM Players)

Members

MSB 0x00 (Proteus 2000 series)

LSB 0x02 Audity 2000
 0x03 Proteus 2000
 0x04 B-3
 0x05 XL-1
 0x06 Virtuoso 2000
 0x07 Mo'Phatt
 0x08 B-3 Turbo
 0x09 XL-1 Turbo
 0x0A Mo'Phatt Turbo
 0x0B Planet Earth
 0x0C Planet Earth Turbo
 0x0D XL-7
 0x0E MP-7
 0x0F Proteus 2500
 0x10 Orbit 3
 0x11 PK-6
 0x12 XK-6
 0x13 MK-6
 0x14 Halo
 0x15 Proteus 1000
 0x16 Vintage Pro
 0x17 Vintage Keys
 0x18 PX-7

There is only one edit buffer which is used by the current preset (the preset shown in the display). You can edit only one preset at a time via SysEx commands, although these presets can be edited independently of the current preset edited using the Front Panel. Remote Preset selection is independent of the edit buffer. Changing the current preset erases the edit buffer.

Received Channel Commands

Channels number (n) = 0-15. Message bytes are represented in hex. All other numbers are decimal. Running Status is supported.

Command	Message	Comments
Note Off	8n kk vv	
Note On	9n kk vv	velocity 0 = note off
Key Aftertouch	An kk vv	kk = 0-127 vv = 0-127
Program Change	Cn vv	0-127
Channel Aftertouch	Dn vv	0-127
Pitch Bend	En ll mm	l = lsb, m = msb
Real-time Controller	Bn cc vv	cc = 00-31, 64-95
Footswitch	Bn cc vv	cc = 64-79, vv ≥ 64 = on
Volume	Bn 07 vv	0-127
Pan	Bn 0A vv	0=left, 127=right, 64=center
All Sound Off	Bn 78 00	turns all sound off
Reset All Controllers	Bn 79 00	ignored in omni mode
All Notes Off	Bn 7B 00	ignored in omni mode
Omni Mode Off*	Bn 7C 00	forces all notes & controls off
Omni Mode On*	Bn 7D 00	forces all notes & controls off
Mono Mode On (Poly Off)*	Bn 7E 00	forces all notes & controls off
Poly Mode On (Mono Off)*	Bn 7F 00	forces all notes & controls off
Bank Select MSB	Bn 00 bb	bb = bank MSB (see page 198)
Bank Select LSB	Bn 20 bb	bb = bank LSB (see page 198)

Special Notes:

- **From Omni Mode** Omni Off turns Poly On.
- **From Poly Mode** Omni On turns Omni On; Mono On turns Mono On.
- **From Mono Mode** Mono Off turns Poly On; Omni On turns Omni On.
- **From Multi Mode** Omni On turns Omni On; Omni Off or Mono Off turns Poly On; Mono On turns Mono On.
- All other changes have no effect.

SysEx Specification

XL-7 contains an extensive set of MIDI SysEx commands. (*Virtually every parameter is controllable via SysEx.*) Because of the size and technical nature of the System Exclusive specification, it is beyond the scope of this manual. The complete SysEx specification for XL-7 is available on the official E-MU Systems, Inc. web site: www.emu.com

Technical Specifications

Audio Channels:	128
MIDI:	MIDI In, (2) MIDI Out
MIDI Channels:	32
Presets:	512 user presets. <i>(The number of ROM presets is determined by the sound SIMMs installed.)</i>
Sequencer	
Timing Resolution:	1/384 quarter note
Tracks:	16 tracks +1 song track <i>(16 channels/track)</i>
Patterns:	1024 pattern locations
Songs:	512 song locations
Filters:	2nd order to 12th order filters (50 different types)
Audio Outputs:	6 polyphonic analog outputs
Submix Inputs:	4 analog inputs (sum to main outs)
Digital Output:	S/PDIF stereo (20-bit, AES-pro compatible)
Max. Output Level:	+4 dB
Output Impedance:	1000 Ohms
Sound Memory:	32 MB (expandable to 128 MB)
Data Encoding:	16-bit linear data
Effects Engine:	24-bit internal processing
Sample Playback Rate:	44.1 kHz
Signal to Noise:	>92 dB
Dynamic Range:	>90 dB
Frequency Response:	20 Hz - 20 kHz (+2/-1 dB)
THD + Noise:	< 0.02% (1kHz sine wave, A-weighting)
IMD	< 0.05%
Stereo Phase	Phase Coherent +/- 1° at 1 kHz
Power Consumption:	20 Watts
Voltage Input:	90VAC-260VAC at 50Hz-60Hz

Warranty

Please read this warranty, as it gives you specific legal rights.

Limited Warranty

This product is warranted, to the original consumer purchaser, to be free of all defects in workmanship and materials for a period of one (1) year (warranty period is two (2) years in the European Union, effective Jan-1-2002), from the date of such purchase from an authorized E-MU Systems dealer, provided that: (a) the Warranty Registration Card is filled out and returned to E-MU Systems within 14 days of the purchase date; (b) the E-MU Systems service center is provided a copy of the consumer purchaser's sales receipt; and (c) E-MU Systems has confirmed the validity of the subject unit's serial number.

Warranty Restrictions

Specifically, but without limitation, E-MU Systems does not provide warranty service for:

- Damages due to improper or inadequate maintenance, accident, abuse, misuse, alteration, unauthorized repairs, tampering, or failure to follow normal operating procedures as outlined in the owner's manual;
- Deterioration or damage of the cabinet;
- Damages occurring during any shipment of the unit;
- Any unit which has been modified by anyone other than E-MU Systems.
- Any unit with an invalid or wholly or partially obliterated serial number.

NO OTHER EXPRESS OR IMPLIED WARRANTY IS MADE, AND E-MU SYSTEMS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. E-MU SYSTEMS'S LIABILITY UNDER WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF THE UNIT, OR REFUND, AT EMU'S OPTION. IN NO EVENT WILL E-MU SYSTEMS BE LIABLE FOR LOSS OF REVENUE OR SAVINGS, LOSS OF TIME, INTERRUPTION OF USE, OR ANY OTHER CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES.

The foregoing will apply notwithstanding the failure of essential purpose of any remedy provided herein. Some jurisdictions do not allow the exclusion of implied warranties or conditions, or limitations on how long an implied warranty or condition may last, so the above limitations may not apply. This warranty gives you specific legal rights. You may have other rights which vary from jurisdiction to jurisdiction.

How To Obtain Warranty Service

All E-MU Systems products are manufactured with the highest standards of quality. If you find that your unit does require service, it may be done by any authorized E-MU Systems service center. If you are unable to locate a service center in your area, please contact EMU's Service Department at (831) 438-1921. They will either refer you to an authorized service center in your area or ask that you return your unit to the E-MU Systems factory.

When returning your unit to the E-MU Systems factory, you will be issued a Return Merchandise Authorization (RMA) number. Please label all cartons, shipping documents and correspondence with this number.

E-MU Systems suggests you carefully and securely pack your unit for return to the factory. (Do not send the power cord or operation manual.) Send the unit to E-MU Systems, Inc., 1600 Green Hills Road, Scotts Valley, CA 95066. You must pre-pay shipping charges to E-MU Systems.

E-MU Systems will pay return shipping charges. You will be responsible for any damage or loss sustained during shipment in any direction.

3/9

Index

Symbols

“+” modulation polarity 231
“±” modulation polarity 231

Numerics

12VDC Lamp 15, 33
19-Tone Tuning 241
1-Bar Trigger 268
1st Pattern Only 113
2-Pole Filters 192
4-Pole Filters 192
6-Pole Filters 192

A

A Effect Types 275, 276
Absolute Value Processor 181
AC Power Switch 4, 33
AC Receptacle 16
ADSR Envelopes 303
AES Pro Output Format 158
Aftertouch
 mono 173
Algorithm
 FXA 277, 278
 FXB 277, 279
 master FXA 155
 master FXB 156
All Layers 201, 203
All Notes Off, MIDI 38
All Patterns 113
All Sound Off, MIDI command 38
Alternate Tunings 158, 241
Amount
 patchcord 196, 230
 quantization 79
Amplifier 213
Amplitude 221, 302
 envelope 214
 modulation 172
Apply Clipboard Settings 93
Arp/Riff MIDI Out 255

Arpeggiator 48
 button 38
 channel 48
 controllers 247
 copy pattern 292
 copy settings 291
 copying settings 292
 delay 252, 253
 duration 259
 enabling in song mode 113
 extension 247
 extension count 251
 extension interval 251
 factory patterns 249
 gate 247
 gate time 250
 guided tour 27
 interval 247
 key offset 258
 key range 255
 keyboard thru 254
 latch mode 254
 master parameters 247
 MIDI data transmit 255
 MIDI song start 256
 mode 248
 modes 246
 patchcord destinations 239
 pattern 246, 249
 pattern naming 260
 pattern speed 249
 resolution 247
 song start resync 256
 status 248
 user patterns 257
 velocity 247, 250
Assign
 group 219
 tracks to MIDI channels 96, 97, 123
Asterisk
 in pattern name 54, 287, 288
 in preset name 46, 288
 in song name 288
 removing from pattern 105
 removing from song 127
 using repeat button 45
Attack
 envelope 215, 225, 232, 306
Audition
 beats 263
 button 38
 patterns in song step record 107
 patterns while recording songs 107
 preset 24
 riff 244

- Auto Mode
 - pattern step mode 71
- Auto-correct
 - description 58
 - pattern 79
 - song 115
- Automated Mixing
 - in pattern mode 63
 - in song mode 111
- Automated Pan
 - in a pattern 64
 - in song mode 111
- Automatic Channel Assignment,
 - sequencer 65
- Automating Volume Changes 63
- Auxiliary Envelope 175, 225

B

- B Effect Types 275, 276
- Balance 195
- Band-Pass Filter 191, 221
- Bandwidth 193
- Bank Number 26, 46
- Bank Select Display 39
- Banks 26
 - selecting 46
 - selecting via MIDI 47
- Bar/Beat display 35
- Base Tempo 162
- Basic Channel 46, 263
- Basic Setup 16
- Basics, programming 171
- Beat Markers 56
- Beats 245, 263
 - busy 266
 - channel 263
 - initial setup 264
 - keys layout 268
 - keys offset 269
 - MIDI data transmit 255
 - part group 271
 - part transpose 270
 - part velocity 269
 - patchcord destinations 239
 - played using trigger buttons 261
 - riffs 261
 - song start resync 256
 - variation 267
 - example 265
 - velocity group 1-4 266
 - xpose group 1-4 266
- Bend Range 150
- Bi-directional Controller 44
- BNC Connector 33

- Bounce Tracks, pattern 93
- Breath Controller 144
- Bts Busy 266
- Button
 - arpeggiator 38
 - audition 38
 - compare 38
 - controllers 37
 - cursor 35
 - glide 44
 - global 37
 - home/enter 38, 135, 147, 161, 245
 - MIDI 38
 - pattern edit 37
 - preset edit 37
 - repeat 45, 64
 - save/copy 38, 287
 - song edit 37
 - touchstrip hold 44
 - transpose 44
 - trigger 43

C

- Category
 - instrument 49
 - preset 49
- Center Frequency 193
- Change
 - filter type 307
 - MIDI preset 166
 - preset 26, 46
- Channel
 - arpeggiator 48
 - assign 96
 - MIDI enable 166
 - pan 48
 - selection, MIDI 46
 - volume 47
- Channel Aftertouch
 - erasing events from a song 117
 - erasing from a pattern 85
 - thinning events in a song 116
 - thinning from a pattern 83
- Chorus 275, 285
 - width 301
- Chorus, effect 285
- Chorusing 216, 301
- Clear Beats Part 261, 262
- Clipboard
 - apply settings 93
 - copy track to 91, 121
 - cut track to 90, 120
 - explode data into multiple tracks 95
 - paste to track 92, 122

- Clock
 - divisor 173
 - MIDI output enable 164
 - modulation 179
 - sync delay time to 276
 - using external MIDI 162
 - Clogging the Sequencer 111
 - Coarse Tuning 213, 300
 - Comb Filter 222
 - Comb Filter, effect 276, 285
 - Combine Tracks 94
 - Compacting Flash 297
 - Compare Button 38
 - Conductor Track 103
 - Connection Instructions 16
 - Continuous Controller 196
 - editing
 - pattern 100
 - song 125
 - erasing events from a song 117
 - erasing from a pattern 85
 - thinning events in a song 116
 - thinning from a pattern 83
 - Contour, envelope 173, 215
 - Control
 - data entry 35
 - effects multi mode 154
 - keys 262
 - volume 33
 - Controller
 - assigning real-time 166
 - bi-directional 44
 - footswitch 16, 17, 145
 - keypad 44
 - knobs 39, 40, 41, 42, 143, 197
 - modes 39
 - programming 142
 - menu 135
 - MIDI 143, 196
 - MIDI #10 48
 - MIDI #7 47, 196
 - MIDI real-time 196
 - pan knobs 42
 - programmable knobs 41, 142
 - quick edit 40
 - realtime assignment 143
 - realtime knobs 39
 - standardized MIDI numbers 144
 - tempo 145
 - touchstrip 44
 - trigger buttons 43, 136
 - Controllers Button 37
 - Copy
 - bar of a pattern 88
 - layers 289
 - patchcord 290
 - preset 289
 - preset banks 292
 - preset patchcords 291
 - track to clipboard 91, 121
 - Count-in 59
 - Crossfade
 - between effects 238
 - random 174
 - ranges 209
 - Current Tempo 162
 - Cursor
 - buttons 35
 - definition 35
 - Curve
 - glide 220
 - velocity 151
 - volume 301
 - Cut, track to clipboard 90
 - Cutoff Frequency 191, 304
- D**
- Damping, high frequency 276, 284
 - Data Entry Control 35
 - DC Offset, example 188
 - DCA 195, 309
 - Decay
 - effect A 156, 276
 - effects 276
 - envelope 301
 - Default Assignment, beats 262
 - Default Settings, multisetup 148
 - Defragment, flash ram 297
 - Delay
 - arpeggiator 252, 253
 - effect B 157
 - effects 275, 276, 286
 - sync to master clock 276
 - layer 216
 - LFO 229
 - master FXB 157
 - preset link 243
 - Delete
 - notes from a pattern
 - grid mode 71
 - realtime record mode 62
 - notes from a song
 - realtime record mode 110
 - pattern, from a song 107
 - Demo Sequences 24
 - Descending Arpeggiator 246
 - Destinations, modulation 180, 232
 - Device ID 168
 - Digital Output Format 158

- Diode Processor 182
 - Disable Tracks 96, 123
 - Display Edit Button 35
 - Display, viewing angle 159
 - Distortion Effect 275, 286
 - Double & Detune 216, 301
 - Double Time, grid record 71
 - Doubling, effect 285
 - Dual Channel Beats 263
 - Dual Tap, delay effect 286
 - Duplets, changing to triplets 81
 - Duration
 - arp pattern 259
 - pattern step mode, note-on 72
 - Dynamic Filter 189
 - Dynamic Range 354
- E**
- Echo Thru, Local Control on/off 137
 - Edit All Layers Enable 158
 - Edit Controls 37
 - Edit Display Button 35
 - Edit MIDI notes
 - in a pattern 99
 - Editing
 - arp user patterns 257
 - MIDI notes
 - song 124
 - presets 299
 - Effect Diagram 234, 235, 237
 - Effects
 - A type 275
 - B into effect A 282
 - B submix routing 157
 - B type 275
 - busses 273
 - by channel number 282
 - chorus 285
 - crossfade between 238
 - decay 276
 - delay 276, 286
 - sync to master clock 276
 - description 284
 - distortion 286
 - doubling 285
 - dual tap delay 286
 - enabling in song mode 113
 - feedback 276, 286
 - flanger 285
 - FXA decay 156
 - FXA HF Damping 156
 - FXB feedback 157
 - FXB->FXA 156, 277
 - global 281
 - HF damping 276
 - LFO rate 157, 276
 - master 273, 278, 281
 - A algorithm 155
 - B algorithm 156
 - FXB->FXA 278
 - LFO rate 157
 - mode, bypass 280
 - multi mode control 154
 - panning delay 286
 - patchcords 238
 - preset 234, 277
 - processor 273
 - programming in the preset 277
 - returns 19
 - reverb 284
 - routing diagram 153
 - saved with a pattern 53, 63
 - saved with a song 55
 - send amounts 273
 - sends 152
 - patchcord destinations 239
 - slapback 285
 - stereo delay 286
 - submix routing, A 156, 237, 238
 - type A 155, 236, 275, 276
 - type B 157, 237, 276
 - vibrato 286
 - E-Loader 351
 - Enable
 - controllers menu 135
 - MIDI channels 166
 - quick-edit mode 143
 - Enter Button 38
 - Envelope
 - ADSR, programming 303
 - attack 215, 225, 232
 - auxiliary 225
 - decay 301
 - filter 224, 305, 308
 - generator 173, 175
 - example 192
 - mode, factory 302
 - mode, filter 305
 - release 301
 - repeat 307
 - repeating 176
 - reverberation 284
 - volume 214, 215, 301, 302
 - Equal Temperment Tuning 241
 - Erase
 - button 45
 - deleting patterns with 45, 107
 - in grid record mode 45, 71
 - controller data 64
 - in a pattern 64

- in a song 112
- entire pattern 62
- events 85
 - from a pattern 62, 71, 85
 - from a song 110
 - in a song 112, 117
- notes
 - from a pattern 62, 71
 - from a song 110
- pattern event 100
- pattern note 99
- song event 125
- song note 124
- tempo changes 104
- track 62, 73

Errors, data transmission 168

Event List Editor

- pattern 100
- song 125

Event Scroll Field 99, 100, 124, 125

Event Source 55, 109, 113

Event Timing 132

Events

- thinning in a pattern 84
- thinning in a song 116

Explode Tracks 94

Extend Sequence Data To 88

Extension

- count, arpeggiator 251
- interval, arpeggiator 251

External Clock, MIDI 162

External MIDI Keyboard, connection

- example 133

External Program Changes 102

External Song Start/Stop 165

F

Factory

- envelope mode 302
- patterns, arpeggiator 249

Fail-Safe Power Off 33

Fc 223, 304

Feedback 276, 286

- FXB 157

Feel, adding using swing 79

Fills, beats 261

Filter

- 2-pole 192
- 4-pole 192
- 6-pole 192
- bandpass 191, 221
- changing type 307
- comb 222, 276
- definition 190

- dynamic 189
- envelope 175, 224, 305
 - attack 306
- envelope generator 224, 308
- envelope mode 305
- frequency 223, 224, 232, 304
- highpass 190, 303
- lowpass 190
- mode 305
- morph 194
- notch 191
- parametric 193
- pole 192
- programming 303
- Q 223, 304
- swept EQ 193
- troubleshooting 309
- tutorial 189
- type 303, 307
 - changing 307
- Z-plane 194, 195, 221

Fine Tuning 213, 300

Fingered Glide. solo mode 219

First Key, modulation 184

First Note Record 60

Flanger Effect 275, 285

Flash Memory, compacting 297

Flashing LEDs 56

Flip-Flop Processor 182

Footswitch 145, 173

- connecting 16, 17
- programming 138

Format, output 158

Free Running LFO 227

Frequency

- filter 224, 232
 - center 193
 - cutoff 191
- instrument 212, 213

Frequency Modulation 172

Front Panel Knobs 39, 142, 311

FX Cords 238

FXA Algorithm 277, 278

FXA Parameters 237

FXB -> FXA 277, 278, 282

FXB Algorithm 237, 277, 279

- master 156

FXB Parameters 238

FXB Submix Routing 157

G

- Gain Processor 182
- Gamelan Tuning 241
- Gate 173
 - % in grid mode 70
 - pattern step mode 72
 - time 250
- Generator
 - envelope 173
 - filter envelope 224, 308
 - noise & random 173
 - volume envelope 214
- Gig Bag 15
- Glide 220
 - curve 220
 - key 173
 - rate 173, 220
- Global
 - button 37
 - controller assignments 144
 - effects 278, 281
 - menu 147
- Grid
 - editing 54
 - mode
 - double time 71
 - jumping into from play mode 36
 - velocity change 70
 - recording, description 67
- Grooves, beat 261
- Group
 - assigning channels to a 219
 - beats 261

H

- High Frequency Damping 156, 276, 284
- Highpass Filter 190, 303
- Hold, mutes from pattern to
 - pattern 130
- Home Position 26
- Home/Enter Button 38, 135, 147, 161, 245

I

- Implementation Chart, MIDI 346, 348
- Initial
 - pan position 213
 - setup
 - reloading pattern & song 36, 56, 106
 - volume 213
- Input Quantize 58

- Input, rechannelize MIDI 163
- Insert
 - meter changes 104
 - pattern 107
 - pattern event 100
 - track mutes into a song 109
- Installing in a Rack 19
- Instrument 195, 299
 - category 49
 - listing 322
 - selecting 204
- Internal Program Changes 102
- Inverting LFO Waves 178

J

- Jump Buttons
 - preset edit menu 43
 - using 299
- Just C Tuning 241
 - description 242
- Just Intonation 241

K

- Key
 - glide 173
 - layout, beats 268
 - offset, arpeggiator 258
 - range
 - arpeggiator 255
 - keyboard 206
 - preset link 243
 - sync, arpeggiator 252
 - trigger 268
 - tuning 158
 - velocity 173
- Key Up Layer 217
- Keyboard
 - beats trigger layouts 261
 - key 173
 - layering & splitting 310
 - pressure 173
 - range 205, 206
 - semitone transpose 136
 - splitting 310
 - thru, arpeggiator 254
 - tracking 173
 - transpose
 - on/off 218
 - tuning 241
 - 19-tone 241
 - equal temperament 241
 - gamelan 241
 - just C 241
 - Kirnberger 241

- repeating octave 241
- Scarlatti 241
- Vallotti 241
- Werkmeister III 241
- Keyboard/Knob Channel 136
- Keypads 44
- Kirnberger Tuning 241
- Knob
 - controller 39, 197
 - keyboard/knob channel 136
 - programmable controller 142
 - typical functions 311
- Knob Preset Quick-Edit 143
- Knobs Output MIDI 164

L

- Lag Amount, preset lag 183
- Lag Processor 181
- Lamp Power Connection 33
- Latch
 - beats part 268
 - keys in beats 261
 - mode, arpeggiator 254
 - triggers 43
- Layer
 - copy 289
 - definition 202
 - instrument 171
 - presets 310
 - selecting 203
- LED Display 35
- LED View 35
- Left/Right Cursor Buttons 35
- Legato 218
- LFO 226
 - effect B 157
 - flanger 286
 - key sync 227
 - master FXB rate 157
 - rate 276
 - rate, effect 157
 - tricks & tips 227
 - trigger 178
 - variation 229
 - waveforms 177
 - waveshape 226
- Linking Presets 243, 310
- Live Performance Features 128
- Load, pattern/song setups 36, 56
- Local Control On/Off 137, 138
- Loop
 - envelopes 176
 - pattern in song mode 23
 - section 77, 131

- Low Frequency Oscillator 173, 177, 226
 - delay 229
 - free running 227
 - sync 226, 227
 - variation 229
- Lowpass Filter 190
 - example 192

M

- Manually Compact Now 297
- Master
 - arpeggiator 27
 - parameters 247
 - bend range 150
 - clock
 - current tempo 162
 - modulation 178
 - sync delay time to 276
 - effects 154, 273, 278, 281
 - FXA algorithm 155
 - FXB algorithm 156
 - riff 263, 271
 - tempo, offset 244
- Measure, definition 335
- Melody Solo Mode
 - high 218
 - last 218
 - low 218
- Memory
 - checking remaining 287
 - reducing size
 - in song 116
 - size, reducing
 - in pattern 83
- Meter
 - definition 335
 - erasing events from a song 117
 - erasing from a pattern 85
 - inserting or editing changes 104
 - setting in a pattern 75
- Metronome 61, 76, 115
- MIDI
 - A-P assignments 143
 - arp data, transmit 255
 - bank select display 24, 39
 - basic channel 46
 - beats data, transmit 255
 - channel
 - A or B select 165
 - inc/dec using a footswitch 139
 - routing outputs by 152
 - selection 46
 - shift 163
 - tempo controller 145

- clock
 - output enable 164
- continuous controller 173, 196
 - assignment 143
 - knobs 142
- controller #7 47
- device ID 168
- enable 166
- event step editing
 - in a song 126
 - pattern 101, 102
- external clock 162
- footswitch assign 138, 145
- implementation chart 346, 348
- inputs A & B 17
- knob transmit 164
- menu button 38
- mode 166, 273
- multi mode 170
- multichannel data 98
- note edit
 - in a pattern 99
 - in a song 124
- note triggers 43, 139, 140
- omni mode 170
- out
 - knob enable 164
- pan control #10 48
- panic button 38
- poly mode 170
- port A & B assignments
 - pattern 96
 - song 123
- real-time controllers 196
- receive program change 166
- received channel commands 353
- recording sysex data 169
- send sysex data 169
- sequencer, recording into an
 - external 137
- song start 256
 - received/ignored 165
- song start resync 256
- standardized controller
 - numbers 144
- sysex data, sending 168
- sysex packet delay 168
- sysex, send/receive 169
- touchstrip transmit 164
- MIDI In Channels 165, 166
- Minimoog, solo mode 219
- Mix
 - button 34
 - display 41
 - enabling in song mode 113
 - view screen 34
 - using 63
- Mix Output 233
 - description 152
 - function 274
 - programmed in the preset 233
- Mod Wheel 173
- Mode
 - arpeggiator 248
 - latch 254
 - controller 39
 - effects 280
 - factory envelope 302
 - filter envelope 305
 - MIDI 166, 273
 - mono 353
 - multi 170, 273, 353
 - non-transpose 218
 - omni 170, 280, 353
 - poly 170, 280, 353
 - solo 218
 - time-based envelope 305
- Mode/View Buttons 34
- Modulation 231
 - amplitude 172
 - clock 179
 - delay time 276
 - definition 172
 - destinations 180
 - note-on 180
 - polarity 231
 - processors 181, 185
 - random 174
 - routing 230
 - sources 173
 - sources & destinations 232
 - wheel 144
- Momentary Footswitch 16
- Mono Aftertouch 173
- Mono A-I, assign group 219
- Mono Mode 353
- Morph Filter 194
- Multi A/B Channels 96
- Multi Channel
 - arpeggiators 28
 - converting tracks to 94
 - MIDI data 98
 - pan knobs 42
 - track recording 98
 - volume knobs 41
- Multi Mode 170, 273, 353
 - effects control 154
 - map, send/receive 169
- Multiple Trigger, solo mode 218
- Multisetup
 - default setup 148
 - definition 148
 - name 149

- restoring 148
- saving 149
- send/receive 168

Mute

- beats 261, 262
- buttons 43
- hold feature 130

N

Name

- multisetup 149
- pattern 74
- preset 202
- song 113
- user arp pattern 260

Noise & Random Generators 173

Non-Transpose Mode 218

Notch Filter 191

Note

- and event order 132
- duration
 - scaling in a pattern 116
 - shifting in a pattern 116
- erasing from a pattern 62, 71, 85
- erasing from a song 110, 117
- list editor
 - pattern 99
 - song 124
- start time, scale/shift 81
- value, arpeggiator 249, 253
- value, definition 335

Note-On Modulation 180

O

Octave Transpose Buttons 44

Offset, arpeggiator key 258

Omni Mode 170, 280, 353

On Record, rechannelize 163

Operating System, upgrading 351

Output

- format 158
- jack 16, 17, 18
- jacks 19
- mix 152, 233, 274
- mono 16
- routing 233

Overall Tuning, adjusting 150

Overdub, realtime controller data 111

P

Packet Delay, MIDI sysex 168

Pan 195

- automation in a pattern 64
- automation in song mode 111
- channel 48
- enabling in song mode 113
- initial 213
- knob control of 42
- preset link 243

Panic Button, MIDI 38

Panning Delay, effect 286

Parametric Filters 193

Part, beat 261

Paste

- clipboard to track 92, 122
- preset settings 93

Patchcord 174, 230

- amount 196, 230
- copy 290
- example 185
- routing 180

Pattern

- arpeggiator 246, 249
 - duration 259
 - naming 260
 - repeat 259
 - speed 249
 - user 257
 - velocity 259
- audition in song step record 107
- edit button 37
- edit menu 74
- holds tempo when changing 162
- inc/dec
 - using a footswitch 139
- length 74
- listing 318
- loop in song mode 23
- selection using trigger buttons 141
- sequencer
 - information saved with a 63
 - length 60
 - changing in a song 107
 - in main pattern screen 75
 - mode display 34
 - number display 35
 - record modes 36, 54
 - setup information 53, 63

Pause Mode 36

Pedal 173

Performance Controllers 39, 43, 44, 173

Pink Noise, example 187

Pitch Wheel 173

- erasing events from a song 117
 - erasing from a pattern 85
 - master bend range 150
 - range 233
 - thinning events in a song 116
 - thinning from a pattern 83
 - Pitch, shifting 300
 - Pitchbend Range 233
 - Play
 - button 36
 - pattern 21, 56
 - patterns & songs 21
 - solo layers 244
 - song 23, 106
 - trigger buttons 140
 - Play/Stop
 - using a footswitch 138
 - Polarity
 - modulation & LFO 231
 - ramp rate 184
 - Pole, filter 192
 - Poly Aftertouch
 - erasing events from a song 117
 - erasing from a pattern 85
 - thinning events in a song 116
 - thinning from a pattern 83
 - Poly All, assign group 219
 - Poly Mode 170, 280, 353
 - Poly Pressure Editing
 - pattern 101
 - song 126
 - Poly, assign group 219
 - Portamento 220
 - Power Consumption 354
 - Power Down Sequence 19
 - Power Switch 16
 - Power Up Settings 148
 - Pre-sequence Setup 132
 - Preset
 - architecture 202
 - audition 24
 - category 26, 49
 - change enable 166
 - changes, enabling in song mode 113
 - changes, recording external 102
 - changing 26
 - copy 289
 - edit button 37
 - editing 299
 - effects 234, 277
 - links 243, 244, 310
 - listing 322
 - menu jump buttons 43
 - MIDI changes 166
 - naming 202
 - random 297
 - select screen 34
 - selecting 25, 46
 - selection 46
 - tempo offset 244
 - user 169
 - view button 34
 - view screen 46
 - Preset Lag Processor 183
 - patchcord destinations 239
 - Preset Ramp Processor 183
 - patchcord destinations 239
 - Pressure Curves (aftertouch) 136
 - Priority of Sequencer Tracks 132
 - Processor
 - 4x gain 182
 - absolute value 181
 - diode 182
 - effect 273
 - flip-flop 182
 - modulation 185
 - preset lag 183
 - preset ramp 183
 - quantizer 182
 - Product Description 1
 - Program Change
 - editing
 - pattern 101
 - song 126
 - enabling in song mode 113
 - erasing events from a song 117
 - erasing from a pattern 85
 - inserting into a pattern 102
 - receive enable 166
 - Program->Preset Map 167
 - send/receive 168
 - Programmable Knobs 142
 - enabling 41
 - Programming Basics 171
 - Punch In & Out 62
 - using a footswitch 139
 - Pushing the Beat 81
- Q**
- Q 191, 222, 223, 304, 307
 - Quantization, explained 58
 - Quantize
 - pattern 79
 - song 115
 - Quantized, arp sync 252
 - Quantizer 182, 188
 - example 187
 - Quarter Note
 - in record screen 60
 - marker 56

Quick Edit
 enabling 143
 mode 40
 recording in a pattern 63
 recording in song mode 111
Quick Erase, track 62
Quick Select
 MIDI channels 110
 track 62, 69
 trigger mode 142

R

Rack Mounting 19
 ears 15
Ramp Rate 184
Random
 creating presets 297
 crossfade 174
 crossswitch 210
 generator, noise and 173
 modulation sources 174
Range
 arp extension count 251
 key 205, 206
 keyboard 205
 pitchbend 233
 velocity 207
Rate
 effect, LFO 157, 276
 glide 220
 LFO 227
 master FXB LFO 157
Rate/Level Envelopes 175
Realtime Control of Arps 247
Realtime Controller 136
 assignment 143, 166
 crossfading 209
 data
 recording in a pattern 63
 tutorial 196
Realtime Crossfade 209
Realtime Pattern Record 54, 57
Realtime Song Record 55, 110
Receive Program Change 166
Receiving MIDI SysEx Data 169
Rechannelize Data 96
Rechannelize Input 163, 338
Record
 audition riffs into a pattern 134
 button 36
 first note record 60
 MIDI sysex data 169
 new pattern 61
 pattern in step time 72
 pattern using grid record 69

 quick edits 63
 realtime controller data
 in a pattern 63
 replace record mode 66
 song in realtime mode 110
 song track mutes 55
 trigger buttons 30
Record-Pause Mode 36, 110
Rectifier 181
Reducing Pattern Size 83
Release Layer 217
Release Velocity 173
Release, envelope 301
Reload, pattern/song setups 36, 56
Rename, arpeggiator pattern 260
Repeat
 arpeggiator pattern 259
 button 45
 inserting events 100, 125
 inserting pattern notes 99
 inserting patterns with 108
 inserting song notes 124
 inserting tempo changes 104
 recording with 64
 using for live performance 130
 song event 125
 song note 124
Replace Record Mode 66
Replace Tracks, using XMix 128
Resolution, quantize 79
Resonance, filter 191, 222, 223, 307
Restart Pattern Fire Key 57
Restoring Multisetups 148
 via MIDI command 148
Return Signal 18
Return To Zero 36, 56
Reverb 275, 284
 envelope 284
Revert to Saved Pattern 104, 127
Riff
 assignment 244
 controllers 272
 listing 319
 playing 24, 38
 recording into a pattern 134
 tempo 272
ROM Card Identifier 26
ROM Installation 343
Routing
 FXA submix 156, 237, 238
 FXB submix 157
 modulation 230
 output 152, 233, 273
RTZ 56, 106
Rubber Keypads 44

S

S/PDIF

- output 17
- output format 158

Save

- arp menu parameters 148
- arp parameters 245
- controllers menu parameters 148
- global menu parameters 148
- MIDI menu parameters 148
- multiple arp setup 30
- multisetup 149
- preset 288
- preset/volume/pan/arp assignments 148
- song 109

Save/Copy

- button 38, 287
- menu 287

Scale/Shift

- note duration 82
- start times 81
- velocity
 - in a pattern 87
 - in a song 119

Scarlatti Tuning 241

Screen Viewing Angle 159

Selecting

- control data in a song 113
- menus with jump buttons 299
- patterns 56
 - using trigger keys 141
- presets 25, 46

Semitones, transpose keyboard by 136

Send

- amount 273
 - FXA 156, 237, 238
 - FXB 157
- effect 152
- preset effect 233

Sequencer

- controls 36
- definitions 53
- events, definition 53
- metronome 76, 115
- name pattern 74
- note duration scale 82
- note duration shift 82
- note time shift 81
- overview 52
- pattern
 - definition 53
 - erase events 85
 - grid recording 67
 - length 74
 - paste track 92

scale/shift note duration 82

scale/shift velocity 87

step mode

gate 72

step resolution 71

step time record 71

time signature 75

track copy 91

track cut 90

track erase 62

transpose 86

velocity shift 87

play button 56

quantize 79

amount 79

resolution 79

realtime recording a pattern 57

rechannelize 163

RTZ 56

song

definition 55

track copy 121

track cut 120

song start resyncs beats/arps 256

stop button 56

swing 79

track

combine 94

explode 94

track mute buttons 56

track setup information 53

tracks, definition 53

transpose pattern 86

Setting Meter

pattern 75

song 114

Setup

basic 16

performance 18

studio 17

Shift Key 77, 128, 130, 142

functions

set temporary bar region 78

trigger mode 142

xmix 128

shortcut list 334

Shift Note Duration 82

pattern 81

Signal Path 195, 273

SIMM Installation 343

Slapback 285

Soft Power Switch 4, 33

Software, upgrading 351

Solo Layer 244

Solo Mode 218

- Song
 - & pattern buttons 34
 - auto-correct 115
 - channel assign screen 123
 - deleting a pattern 45, 107
 - edit menu 113
 - erase events 117
 - event source 114
 - events only 113
 - inserting a pattern 107
 - meter 114
 - name 113
 - parameters saved with 109
 - playing 106
 - quantize 115
 - realtime mode 110
 - record modes 36, 55
 - setup information 55
 - start, MIDI 256
 - step recording 106
 - thin events 116
 - time signature 114
 - track 55
 - transpose 118
 - velocity scale 119
 - velocity shift 119
 - Song & Pattern
 - event source 113
 - Song Mode 106
 - button 106
 - display 34
 - realtime record 55
 - step Eedit 55
 - Song Start 165
 - Song Start Resync 256
 - Sound Memory Installation 343
 - Sound Navigator 49
 - selecting instruments 204
 - Sound Start 216
 - Sources, modulation 232
 - Specifications, technical 354
 - Split Keyboard 243, 310
 - using links 310
 - Stack
 - layers 207
 - presets 243
 - Standard MIDI Files 54
 - Standardized MIDI Controller
 - Numbers 144, 348
 - Start Time
 - note scale/shift 81
 - Start/Stop Beats 261, 262
 - Step Edit
 - patterns 54
 - songs 55
 - Step Recording 71
 - song mode 106
 - step-by-step 72
 - Step-By-Step Preset Programming 299
 - Stereo Delay, effect 286
 - Stolen Voices 219
 - Stop Button 36, 57, 106
 - Stop/RTZ
 - using a footswitch 139
 - Studio Setup 17
 - Stutter Effect, restarting patterns 57
 - Sub Output Jacks 19
 - Submix Routing
 - FXB 157
 - Summing Amp 181, 182
 - Summing Nodes 172
 - Swept EQ Filter 193
 - Swing 79
 - definition 80
 - Switch Processor 181, 185
 - Sync
 - arp key 252
 - arp/beats to MIDI song start 256
 - delay effect to master clock 276
 - LFO 226, 227
 - Synth Solo Mode
 - high 219
 - last 218
 - low 219
 - System Exclusive
 - device ID 168
 - erasing from a pattern 85
 - packet delay 168
 - send data 169
- T**
- Tap Button, used as shift key 77
 - Tap Tempo 36, 162
 - using a footswitch 139
 - Technical Specifications 354
 - Tempo
 - base 162
 - change
 - using conductor track 103
 - change via MIDI controller 145
 - controller 145
 - display 35
 - enabling in song mode 113
 - erasing events from a song 117
 - erasing from a pattern 85
 - hold, when changing patterns 162
 - offset 244
 - thinning events in a pattern 83
 - thinning events in a song 116

- Tempo-based Envelope 176, 214, 224, 302
 - Temporary Bar Region 77
 - Thin Events
 - pattern 83
 - song 116
 - Ticks 0 & 1 132
 - Ticks-per-note Chart 72
 - Time
 - arpeggiator gate 250
 - master FXB delay 157
 - Time Signature
 - pattern 75
 - song 114
 - Time-based Envelope 175, 214, 224, 302, 305
 - Touchstrip 44, 308
 - erasing from a pattern 85
 - hold 44
 - master bend range 150
 - thinning events in a song 116
 - thinning from a pattern 83
 - transmit MIDI 164
 - Track
 - & MIDI channel display 35
 - combine 94
 - copy to clipboard 91
 - cut to clipboard 90
 - explode 94
 - extending the length of 88
 - mixing 22
 - mute buttons 56
 - mutes
 - recording into a song 109
 - muting 22
 - priority 132
 - quick erase 62
 - quick select 62, 69, 110
 - setup information, saving 53
 - Track/Channel +/- Buttons 35
 - Transmission Errors 168
 - Transmit MIDI Clock 164
 - Transmit MIDI, knob 164
 - Transpose 150, 212, 213
 - arpeggiator 251
 - beat part 270
 - buttons 44
 - pattern 86
 - preset link 243
 - rubber keypads 136
 - Trig Hold, beats 262
 - Trigger Buttons 43, 139, 140
 - controlling multiple arps 28
 - quick select 142
 - recording into a sequence 30
 - selecting patterns using 141
 - Trigger Channel 263
 - Trigger Key 261
 - Trigger Mode 43, 140
 - quick select 142
 - Triplets, changing to duplets 81
 - Triplets, definition 335
 - Troubleshooting 309
 - Tune 150
 - Tuning 213, 300
 - 19-tone 241
 - coarse 300
 - equal temperament 241
 - fine 300
 - gamelan 241
 - just C 241
 - key 158
 - keyboard 241
 - Kirnberger 241
 - repeating octave 241
 - Scarlatti 241
 - Vallotti 241
 - Werkmeister 241
 - Tutorial
 - filter 189
 - how to record the audition riffs 134
 - inserting a tempo change 103
 - inserting patterns in a song 108
 - inserting program changes 102
 - record realtime controller data over patterns 111
 - recording a pattern
 - grid record mode 69
 - realtime record mode 61
 - step record mode 72
 - recording into the sequencer with an external MIDI keyboard 133
 - replacing tracks using xmix 128
 - setup a track for multichannel recording 98
 - synth programming 299
- ## U
- Unlatch Beats Part 268
 - USB Port 16, 351
 - User
 - banks 26
 - key tuning 158
 - presets 169
 - tuning tables 158
 - User Pattern
 - arpeggiator 257
 - naming 260
 - repeat 259
 - velocity 259

V

Vallotti Tuning 241
 Value, metronome 76, 115
 Variation
 beats 267
 LFO 229
 Velocity
 arpeggiator 250
 changing in grid record 70
 crossfade 207, 208
 curve 151, 331
 key 173
 preset link 243
 recording in pattern step mode 71
 release 173
 scale
 song 119
 scaling in a pattern 87
 sensitive keypads 44
 shift
 pattern 87
 song 119
 user pattern 259
 Vibrato, effect processor 286
 Viewing Angle, screen 159
 Voices, stolen 219
 Volume
 automation in pattern 63
 channel 47
 control 33
 control #7 47
 curve 301
 enabling in song mode 113
 envelope 175, 195, 214, 215, 301, 302
 mixing in song mode 111
 preset link 243

W

Waveform
 instrument list 322
 inverting 178
 LFO 177
 Werkmeister Tuning 241
 Wheel
 modulation 173
 pitch 173
 Width, chorus 301

X

XMix 128

Z

Zipper noise, with tempo-synced
 delay 276
 Z-Plane Filter 194, 195, 221

