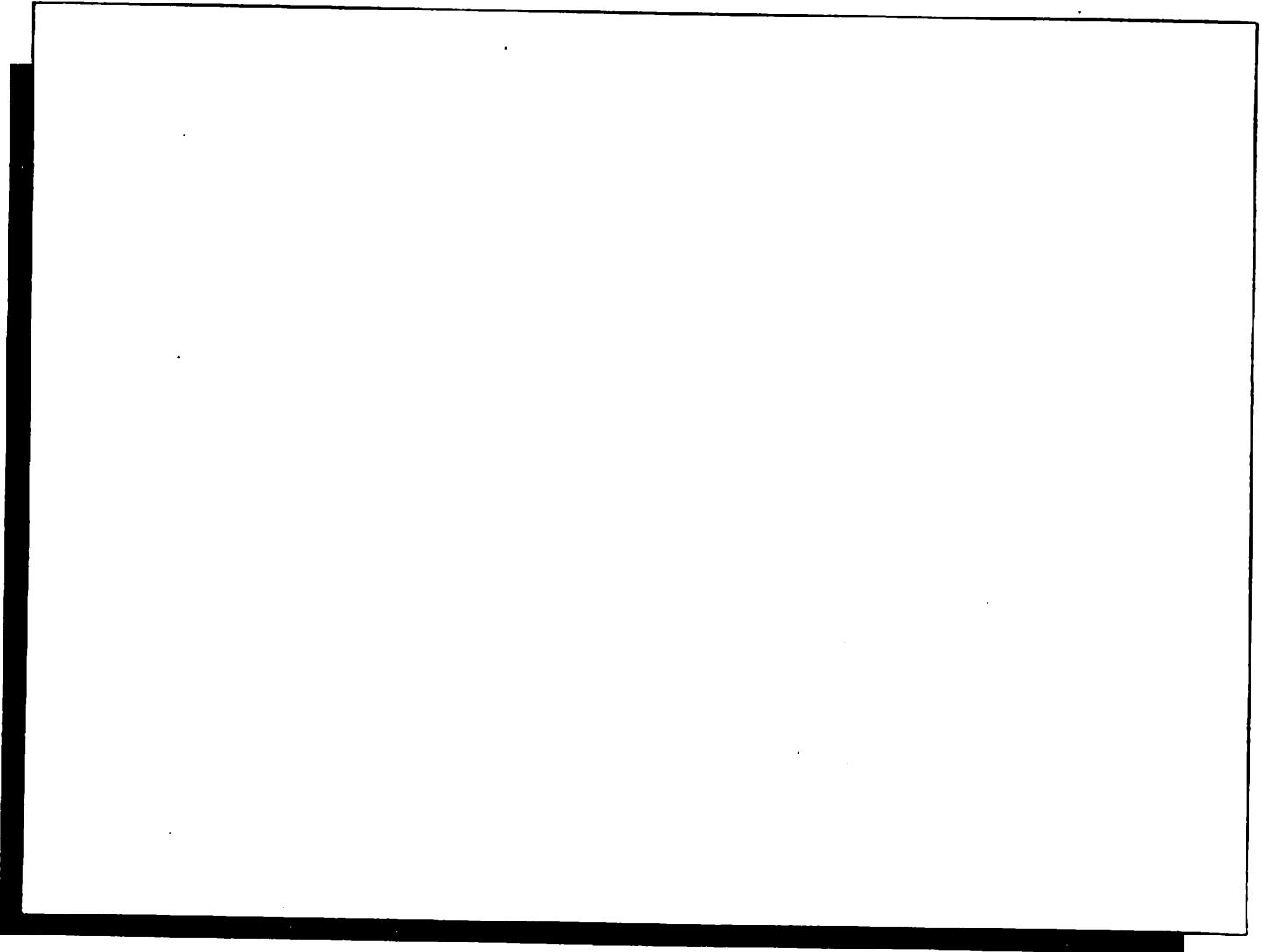


OWNER'S MANUAL

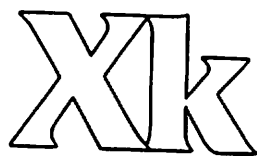
XLK



Oberheim

A Division of ECC Development Corporation





Master MIDI Keyboard

OWNER'S MANUAL

FIRST EDITION - August 1985

CAUTION: To prevent fire or shock hazard, do not expose this appliance to rain or moisture. Do not remove cover. No user servicable parts inside. Refer servicing to qualified service personnel.

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YOUNG CHANG Tom SVE

TO RESET PROG MEM 1-310-926-3200

1. POWER OFF

2. PRESS AND HOLD MASTER PROG

3. TURN ON

4. WHILE HOLDING M.P.

PRESS STORE. 5. 2 LINES APPEAR ON DISP

6. HIT #9 TWICE. (IT WILL COUNT BACK TO 99)

7. TURN POWER OFF # 8. SLIDE CONTINUOUS
CONTROLLER SLIDE TO LEFT

9. TURN POWER ON WHILE HOLDING CHORD.
BUTTON

INTRODUCTION

Welcome to the Xk

Congratulations! You are now the owner of a powerful and versatile remote MIDI keyboard of outstanding features and value.

The Oberheim Xk MIDI keyboard is an unique controller designed to command up to 16 different MIDI instruments, 6 in real time (3 MIDI channels playable at once, with 3 channels of spill-over). The Xk does not make sound on its own. It was designed to add flexibility and convenience to the musician's instrument setup. A new programming concept is introduced with the Xk, the concept of the MASTER PROGRAM. A Master Program is a storage of three different instrument setups (as opposed to sound setup), with each instrument being controlled by 1 of 3 ZONES within the Xk Master Keyboard.

The Xk has the most powerfull ARPEGGIATOR of any MIDI keyboard on the market. The arpeggiator has the ability to arpeggiate the played velocity of the notes.

The Xk keyboard is a MIDI output instrument which means using it as a Master Controller your keyboards that don't have HOLD/CHORD, or ARPEGGIATOR features can now have them. And think of the potential use with rack mount synths.

Because of the versility in all synths and other sound generating instruments, the Xk comes from the factory with very limited pre-programming. But don't be concerned about spending many hours programing the Xk. Working with a technique that we'll call a Programing Shell, and use of the Block Copy feature, the instrument setup is relatively simple.

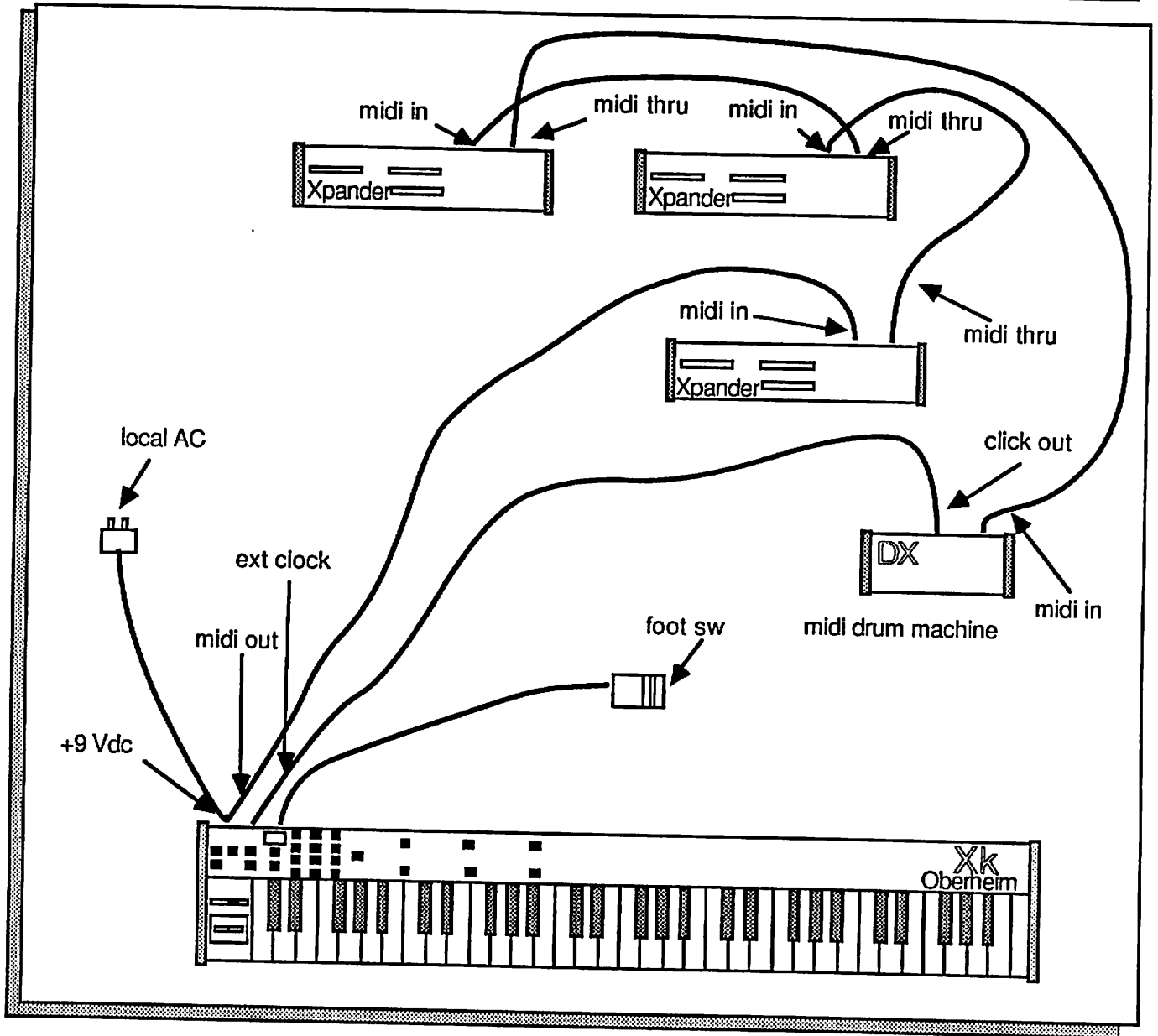
INTRODUCTION

Features

- Five Octave Velocity and Pressure Sensitive Keyboard
- 10 Octave Keyboard Range (Midi Notes 0 -120)
- Keyboard can be Split/Layered into 3 Zones, each Zone Assignable to Any Midi Channel (triple 16 voice possible).
- Each Zone has 12 Programmable Parameters
 - 1 - Patch Number
 - 2 - Midi Channel Number
 - 3 - Voice Limit
 - 4 - Lower Note Value Limit
 - 5 - Upper Note Value Limit
 - 6 - Key Transpose
 - 7 - Midi Mono On/Off
 - 8 - Pressure On/Off
 - 9 - Levers On/Off
 - 10 - Continuous Controller Value
 - 11 - Foot Switch Value
 - 12 - Mod Lever Negative Controller Value
- Hold, Chord, Chord Latch, Chord Transpose
- Programable Multi-Mode Arpeggiator
- Arpeggiator can be assigned to any zone
- External Clock for the Arpeggiator
- Pitch and Modulation Levers
- Two Velocity Scales plus Off
- Voice Spill-Over System (notes played higher than the voice limit are played on the next higher midi channel).
- Programmable Footswitch Input (either normally open or normally closed types)
- Programmable Slider (Midi Continuous Controller)
- Programmable Pressure Threshold
- 100 Master Keyboard Programs
- Battery Back-Up

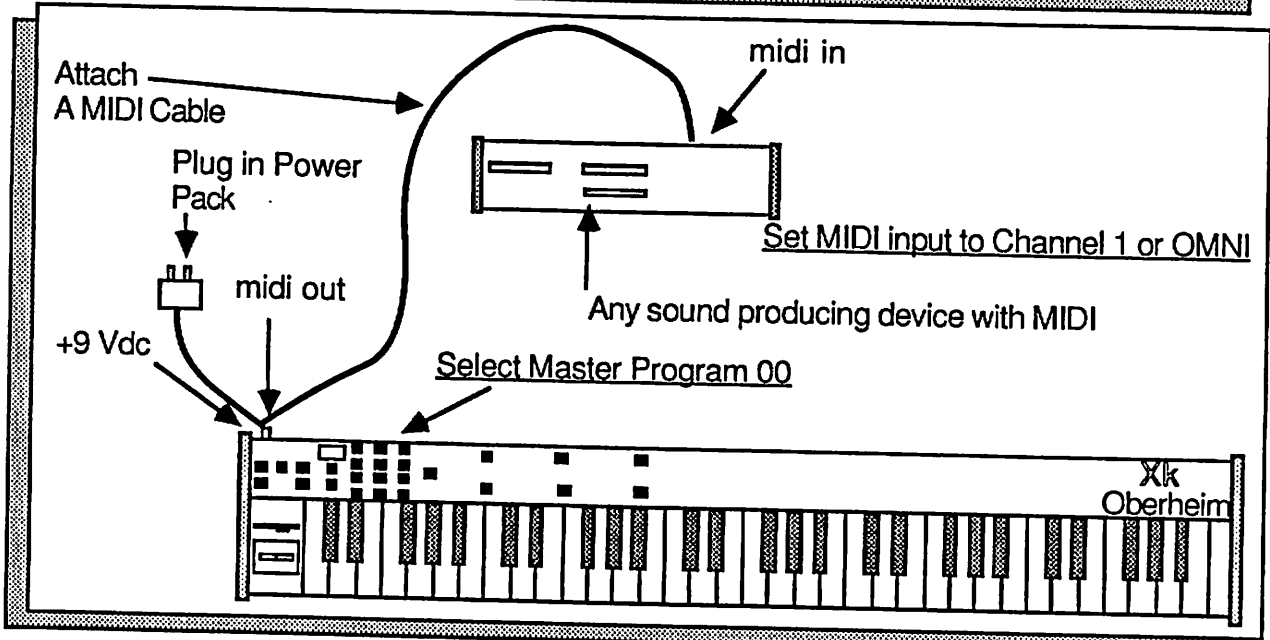
PICTURES

System Hookup

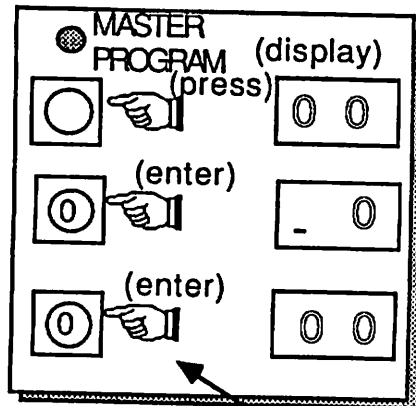


I WANT TO USE IT

Make It GO



Selecting A Master Program



The default Master Program "00" from factory is: Play entire keyboard range on channel 1 only.

This will select program/patch "00" on the remote device if MIDI patch changes are enabled.

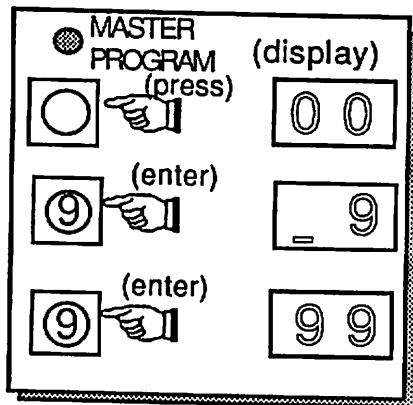
MASTER PROGRAM

What is Programmable?

- Parameters of all 3 zones
- Velocity scale
- Continuous Controller Value for all 3 zones
- Mod Lever Negative Controller Value for all 3 zones
- Foot Switch Controller Value for all 3 zones
- Arpeggiator Play Order
- Arpeggiator Mode
- Arpeggiator Transpose
- Arpeggiator Zone Assignment
- Arpeggiator Tempo

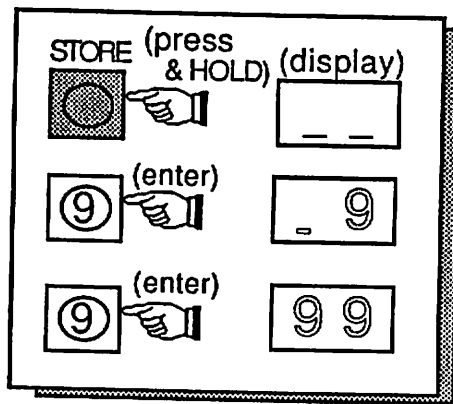
Selecting A Master Program

The Xk can store 100 Master Programs, numbered 00 thru 99. Select Master Program Mode by pressing the MASTER PROGRAM switch. Enter two numbers with the keypad or use the arrow buttons. The display will show which Master Program you have selected. Also when the Master Program is selected the Patch number for each zone is sent over MIDI.



Storing A Master Program

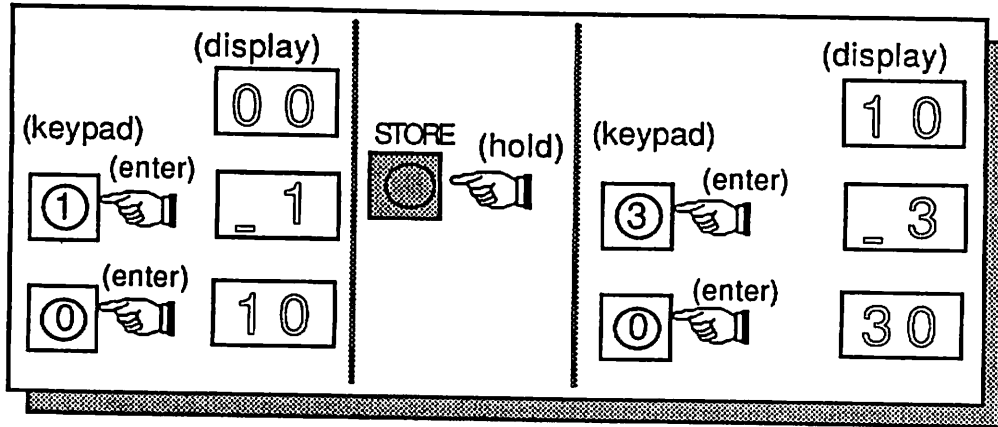
To store a Master Program, enter all the parameters (read ZONES and ARPEGGIATOR) that can be stored in a Master Program. HOLD the STORE switch the display will show 2 underlines, enter two digits of the Master Program number on with the keypad. Remember to HOLD the STORE switch down while entering the 2 digit number.



MASTER PROGRAM

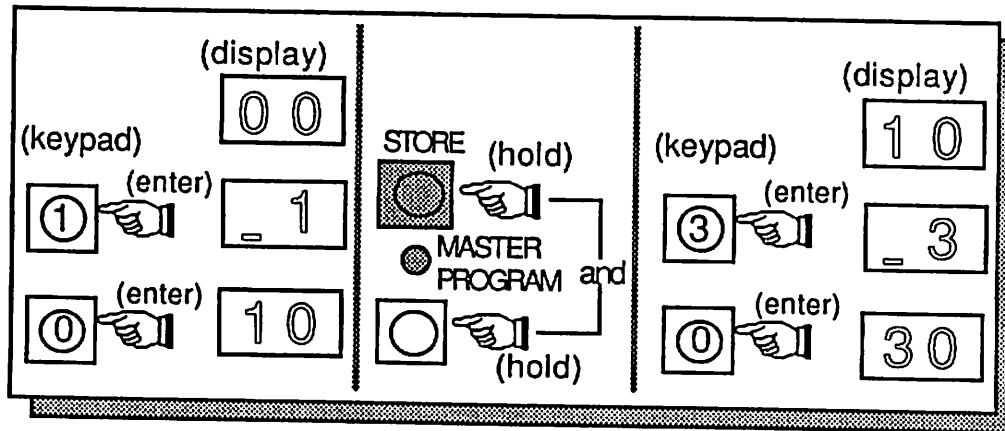
Copying A Master Program

To copy a Master Program Select the master program to be copied on with the keypad or use the arrows. Next HOLD the STORE switch down and enter the 2 digit program number you want to copy to. The following example copies MASTER PROGRAM 10 to MASTER PROGRAM 30.



Block Copy Of Master Programs

A block copy is the copying of one Master Program to a group of Master Programs. To copy a Master Program to more than one location, select the Master Program to be copied. HOLD the STORE switch and HOLD the MASTER PROGRAM switch. Next, with the keypad, enter the two digit number of the Master Program you want to copy the block of parameters to. Example: Select program 10, HOLD the STORE switch and the MASTER PROGRAM switch, enter 30. This copies the parameters of program 10 to programs 11 thru 30. This is how you can create a Master Program Shell (see Programming Fast under HINTS and HELP). You can only do block copies in the forward direction, that is you can't copy program 40 to 39 thru 20.

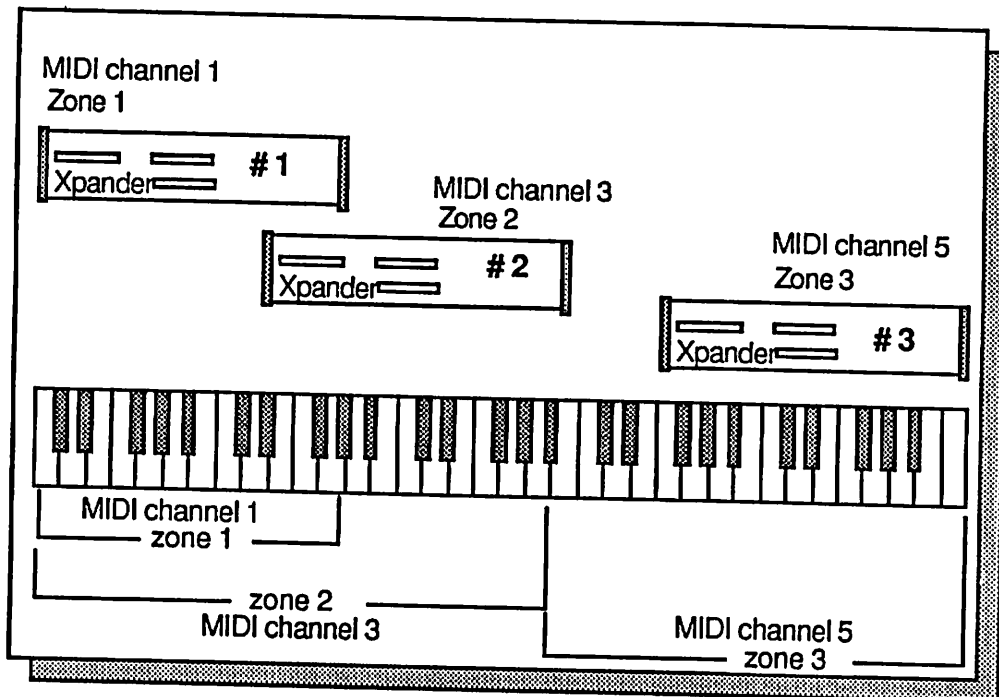


ZONES

What is a Zone ?

A Zone in the Xk is how the external instruments are separated. The separation is due to the ability of each Zone to be assignable to a different MIDI channel. Also each Zone has 11 programable parameters. In the example below, Xpander #1 is set to receive on MIDI channel #1 and the MIDI channel for Zone 1 in the Xk is set to send on channel #1. Xpander #2 is set to receive on MIDI channel #3 and the MIDI channel for Zone 2 in the Xk is set to send on channel #3. Xpander #3 is set to receive on MIDI channel #5 and the MIDI channel for Zone 3 in the Xk is set to send on channel #5.

With this setup, a note played in zone1 will sound on Xpander #1, a note played in Zone 2 will sound on Xpander #2, and a note played in Zone 3 will sound on Xpander #3.



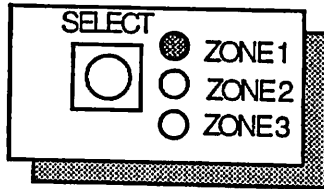
There are 11 programable parameters in a Zone.

- 1) A Single Patch or Multi Patch Value (but not both)
- 2) MIDI Channel Number
- 3) Voice Limit Value
- 4) Lower and Upper Range of the Keyboard
- 5) Transpose Value in semitones
- 6) MIDI Mono on/off
- 7) Pressure on/off
- 8) Levers on/off
- 9) Continuous Controller Value
- 10) Foot Switch Controller Value
- 11) Mod Lever Negative Controller Value

ZONES

Selecting A Zone

Press the SELECT switch in the ZONES section until the I.e.d. (light emitting diode) next to the Zone you want to program is lit. In the example below, Zone 1 is selected. The current Zone is indicated by the I.e.d. at all times.



Selecting A Patch Number

Next, select the patch number to be recalled on the remote unit assign to this Zone. You may select either a Single Patch value or a Multi Patch value, but not both. If the remote instrument is not an Oberheim with single and multi patches, it doesn't matter which one is selected. A non Oberheim instrument will do a normal patch change (See the Xk MIDI spec for details).

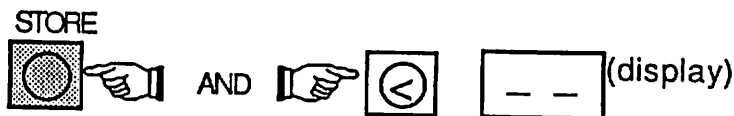
Press the UP arrow in the Zone Parameters section. The I.e.d. next to Single Patch number should be lit, if not press the arrow until it is. Enter the patch number (00 - 99) with the keypad.



Or, press the down arrow once again (the I.e.d. next to Multi Patch is lit) and select a multi-patch number.

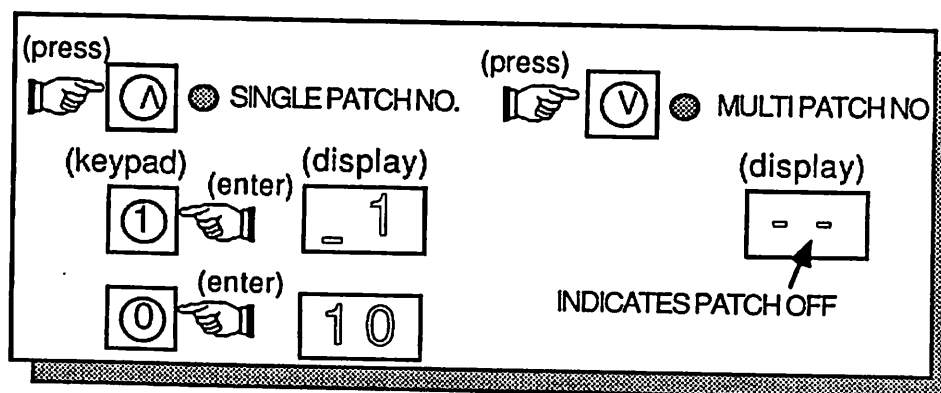


If no patch change is required, first press the "STORE" switch and the "<" on the keypad, the display will show "--". The instrument assigned to this Zone will not change patches.



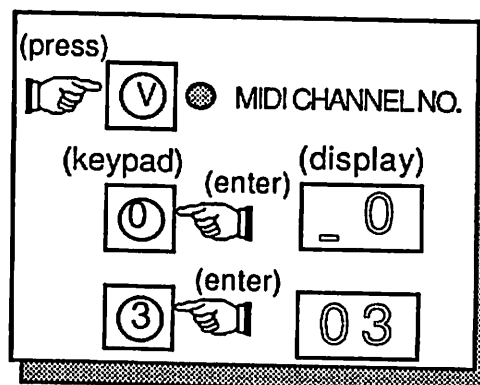
ZONES

In the example below, Single Patch 10 is set for the current Zone. Entering Multi-Patch the display will indicate the patch is off. The patch is sent to the receiving instrument when the second digit is entered.



Selecting A MIDI Channel

Now select the MIDI channel for the instrument assigned to this Zone. Press one of the arrow switches until the l.e.d. next to MIDI Channel is lit. Select the MIDI channel (01-16) you want the parameters of this Zone to be sent on. In the example below, MIDI channel 3 is set for the current Zone.



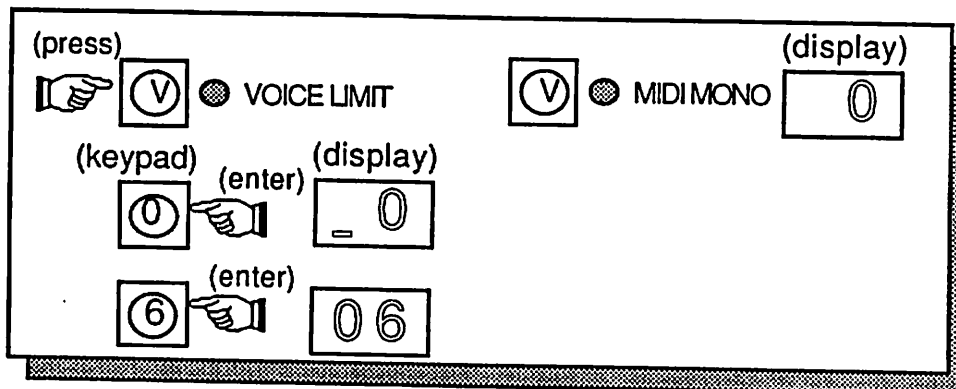
Setting The Voice Limit For Voice Spill-Over

The voice Spill-over system is a new concept introduced with the Xk. Spill-over is a way to play more than one synth from a Zone. Simply, if more notes are played than are playable in a Zone the extra notes are played on the next higher MIDI channel for that Zone. To use spill-over you must set the Voice Limit to a value less than 16.

Press one of the arrow switches until the l.e.d. next to Voice Limit is lit. Select the number of voices (01-16) playable on the MIDI Channel for this Zone. The simplest mode is to set the voice limit to 16. Remember setting to 16 selects no spillover. If the voice limit is set to less than 16 and MIDI Mono mode is off, the notes played up to the voice limit are played on the MIDI channel assigned to that Zone, the notes played after the voice limit are played on the next higher MIDI channel to a maximum of 16. Example: voice limit is set to 6, and the MIDI channel is set to 1, the first 6 notes played are sent on MIDI channel #1, the second 10 notes are sent on MIDI channel #2. To "Spill-Over" to the second set of voices in this case, you play 6 notes and then play a 7th note. The 7th note will sound the instrument on the next higher MIDI channel. (Hint: When programming the MIDI Channels for the different zones it is a good idea to set all of them to even or odd numbers. From the factory they are programmed 1, 3, 5 for this reason).

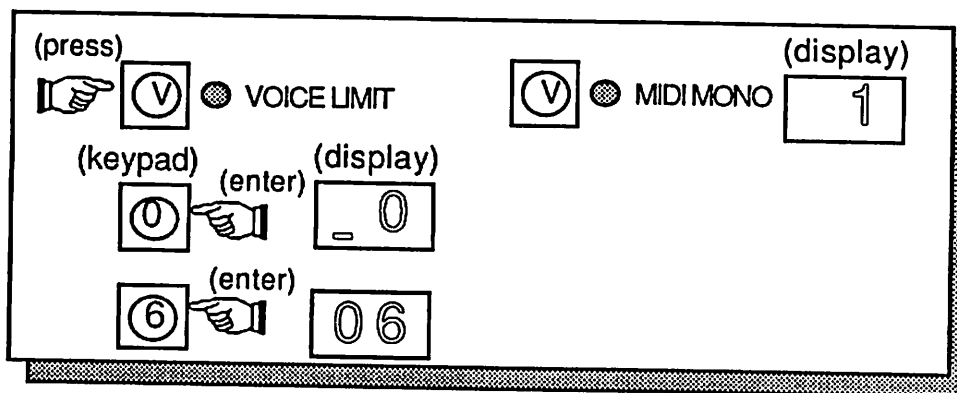
ZONES

In the example below, the voice will spill-over to the next higher MIDI channel when more than 6 notes are played



Setting Voice Limit For MIDI Mono

MIDI mono is a little used and available mode. The MIDI mono mode in the Xk conforms to Mode 4 for a transmitter in the MIDI 1.0 spec. When MIDI Mono is ON (set to 1) each new note played is sent on the next higher MIDI channel. Compare this to MIDI Omni/Poly, where all the notes play are sent on the basic channel. Let's use an example to describe the use. Set the voice limit to 6 and set the MIDI channel to 1. The first note played is sent on channel 1, the second on channel 2, the third on channel 3, up to 6 or to whatever the voice limit is set for. Also, examine a second example: Set the voice limit to 3 and set the MIDI channel to 10. The first note played is sent on channel 10, the second on channel 11, the third on channel 12, the fourth note will play on channel 10. The keyboard assignment mode is rotate. In the example below, the keyboard will rotate through 6 notes before starting over at the basic channel.

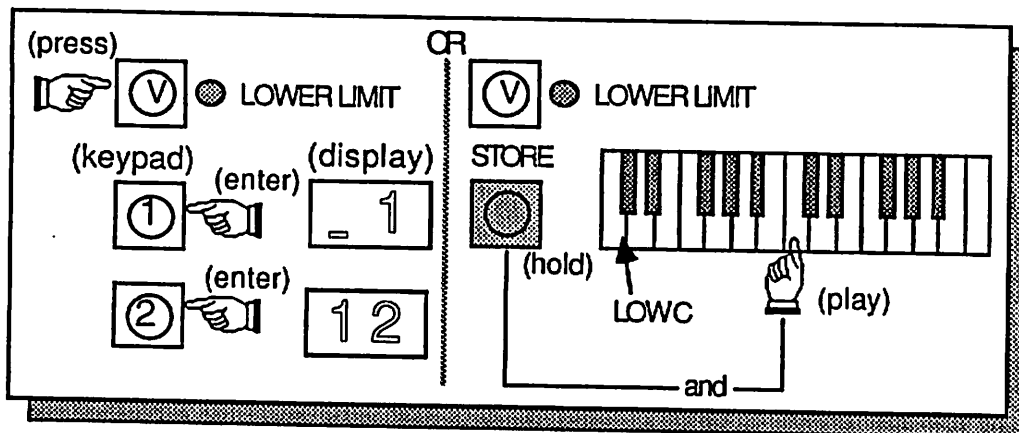


Setting the Lower Keyboard Limit

Press one of the arrow switches until the l.e.d. next to Lower Limit is lit. Select the lowest note you want playable with the keypad or select 61 to turn the Zone off. When the Zone is off, notes will not play on the instrument assigned to the MIDI channel for this Zone. The Patch number will still be sent on the MIDI channel for this Zone even though the notes are not sent, (remember the patch selection can be disabled, see "Selecting A Patch Number" above).

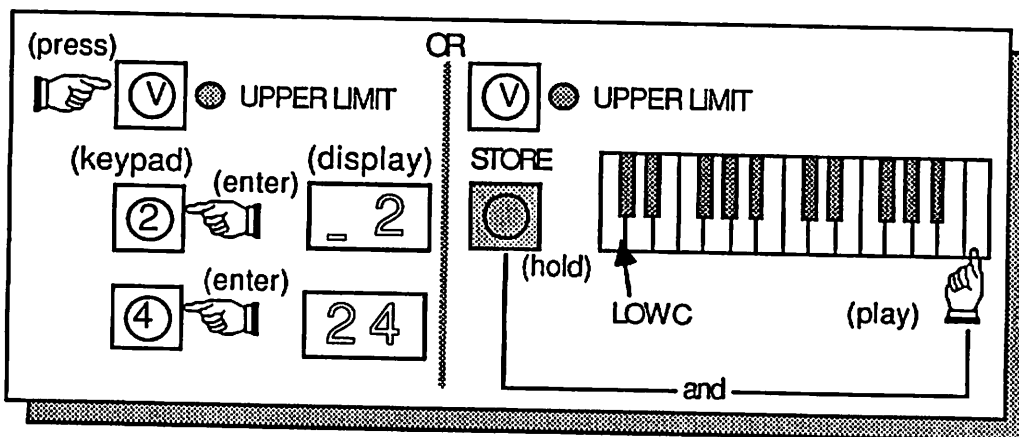
ZONES

Another way to select the limit is to press the "STORE" switch and play the note on the keyboard. The note will not be played and if more than one note is played the lowest note is used. The display will show the note value. In the example below, the lower limit for the current Zone is set to 12 or C1.



Setting the Upper Keyboard Limit

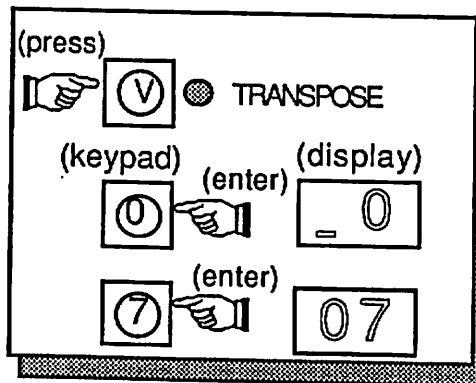
Press one of the arrow switches until the l.e.d. next to Upper Limit is lit. Repeat the same process used for the Lower Limit. Note if the upper limit is set to a value less than the lower limit the Zone is considered off. Although this will not cause a problem, it will not be as obvious as seeing the number 61 in the display. In the example below, the upper limit is set to 24 or C2.



ZONES

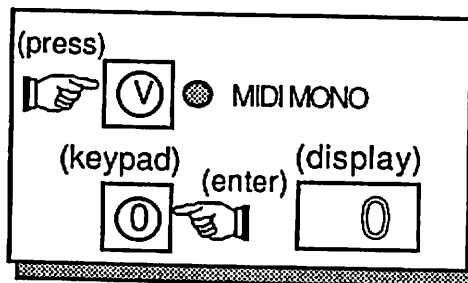
Setting The Key Transpose

Press one of the arrow switches until the l.e.d. next to Transpose is on. Select the key transpose value (00-12, each increment is a semi-tone) with the keypad. Note: If you are holding any note down while changing the value, the new note will not be sent until the key is released and then played. This prevents regating the external device until you expect it. In the example below the current Zone is transposed up a major fifth.



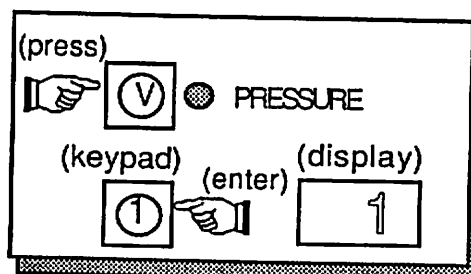
Setting MIDI Mono

Press one of the arrow switches until the l.e.d. next to MIDI Mono is on. Select 1 for on, 0 for off. When ON the first note played will be sent on the basic MIDI Channel, the second note played will be sent on the basic MIDI channel +1, the third note will be sent on basic MIDI channel +2, and so on, up to the voice limit. Refer to "Setting Voice Limit For Midi Mono". In the example below, MIDI MONO is off for the current Zone.



Setting Pressure

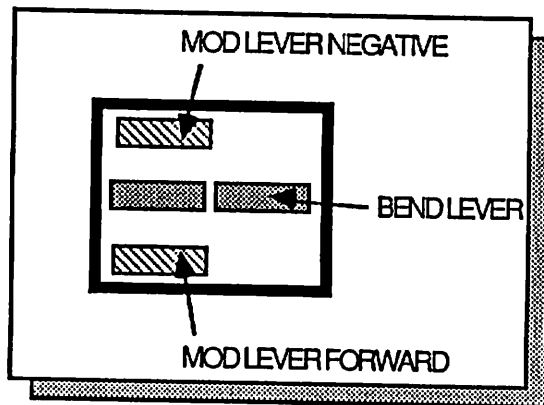
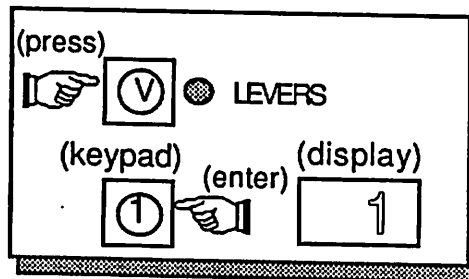
Press one of the arrow switches until the l.e.d. next to Pressure is on. Select 1 for on, 0 for off. When ON, channel pressure is sent on the MIDI Channel for this Zone. When off pressure information is not sent. In the example below, pressure is sent for the currently selected Zone.



ZONES

Setting Levers

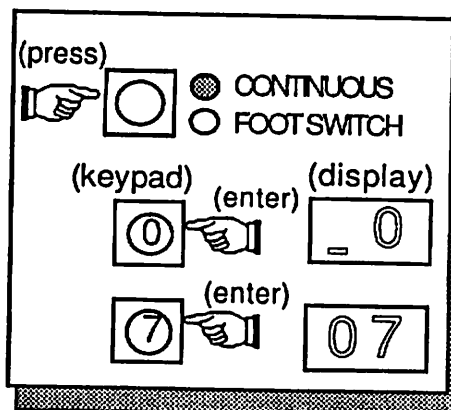
Press one of the arrow switches until the l.e.d. next to Levers is on. Select 1 for on, 0 for off. When ON, the levers are sent on the MIDI channel for this Zone. When off the levers are not sent. This applies to the bend, mod forward, and mod negative. In the example below, lever information is sent for the current selected Zone.



Setting The Continuous Controller Value

Press MIDI Controller switch until the l.e.d. next to Continuous is on. Select the controller value with the keypad.

A MIDI continuous controller value is a number assigned to a function, this number is not always defined the same from instrument to instrument. Please refer to the owners manual for the instrument you are controlling. In the example below, the Continuous Controller is set to 7 for the currently selected Zone (7 is generally assigned to Main Volume). Now, moving the slider will send a value from 0 to 127 to the instrument. This is one way to control the volume remotely.

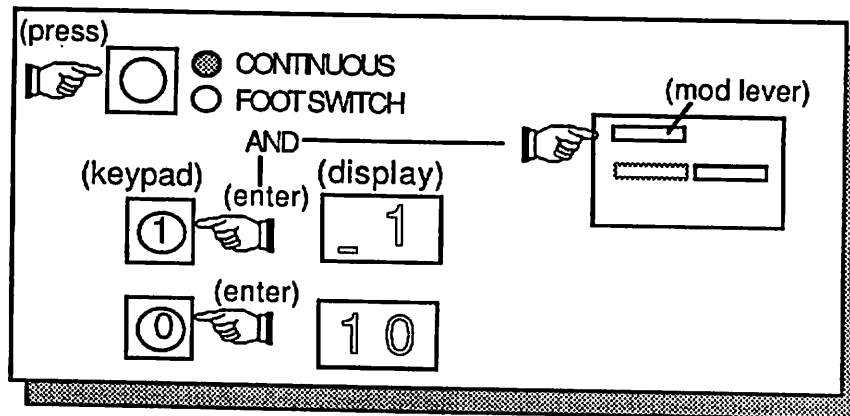


ZONES

Setting The Mod Lever Negative Controller Value

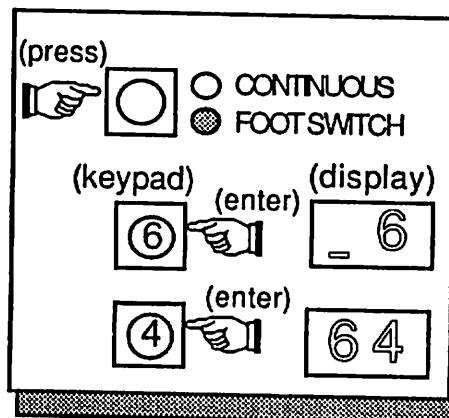
The Mod Lever is usable in both directions. Pulling the lever towards the front of the Xk changes the modulation amount on the remote instrument, this can't be reassigned. Pushing the Mod lever towards the back of the Xk will send a value to an assignable controller on the remote instrument. The range is the same as the slider (0 to 127). The controller number can be between 0 and 63.

TO SET THE MOD LEVER CONTROLLER VALUE, press the switch labeled "MIDI Controllers". The Continuous l.e.d. should be ON, if not press the switch again. Next, push the Mod Lever towards the back, and while Holding the lever, select the controller value on the keypad. In the example below, the mod lever negative is set to 10 for the currently selected Zone (10 is an arbitrary value).



Setting the Foot Switch Controller Value

Press the "MIDI Controller" switch until the l.e.d next to "Foot Switch" is on. Select the Back Panel Foot Switch ON/OFF Controller Value with the keypad. In the example below, the foot switch controller is set to 64 for the currently selected Zone (64 is an arbitrary value).

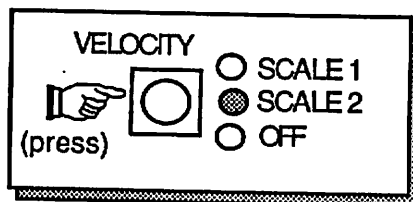


Repeat these steps for the other 2 zones.

VELOCITY

Velocity Scales

There are two user selectable velocity scales plus off in the Xk. Velocity Scale 1 is more sensitive in the upper range, while Velocity Scale 2 is more sensitive in the middle range. When the velocity is Off, no velocity is sent. The velocity is sent on new notes with the present velocity scale. It is possible to play and hold notes then change to a new velocity scale, this could be useful when arpeggiating. The user will select which scale is best for the type of playing being performed. And remember the sensitivity is almost always adjusted in the receiving device. In the example below, scale 2 is selected for the current Master Program.



Release Velocity

The Xk also sends release velocity. Release velocity is the time from the key being down to the time the key is up. The scale for the release velocity is the same used for the attack velocity, and when the velocity is OFF this applies to the release velocity also. Anytime the Xk turns the notes off automatically, the release velocity is sent at mid scale (64). This happens when arpeggiating, and when held notes are turned off.

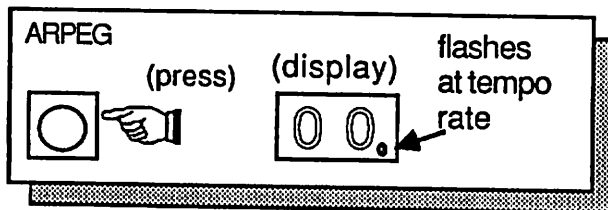
Velocity Range

The velocity range is 1 to 127 with 64 being the middle position. The loudest being 127 and the softest being 1. When the velocity is turned off a constant value of 64 is sent.

ARPEGGIATOR

Arpeggiate On/Off

The switch labled ARPEG turns the arpeggiator on and off. The decimal in the right display flashes at the tempo rate when the arpeggiator is on.



Arpeggiator Play Order

To select play order, press the switch until the led next to Play Order is lit.

Selecting 1, the notes will arpeggiate in the order played.

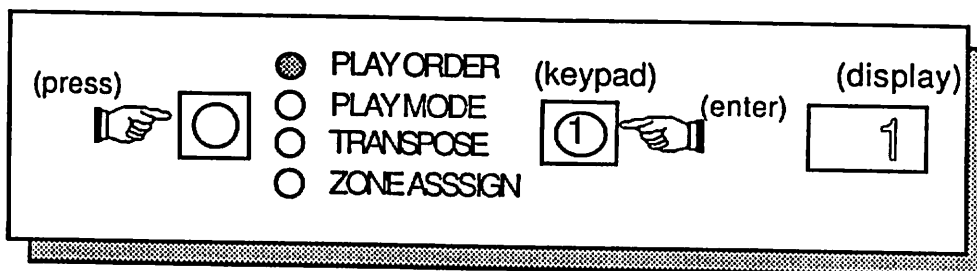
Selecting 2, the notes will arpeggiate in the reverse order played.

Selecting 3, the notes will first arpeggiate in the order played then in the reverse order played.

Selecting 4, the notes will arpeggiate in random order.

The arpeggiator will play only one note and in the Up/Down Order the end notes will sound twice.

In the example below the notes will arpeggiate in the order played.



Arpeggiator Play Mode

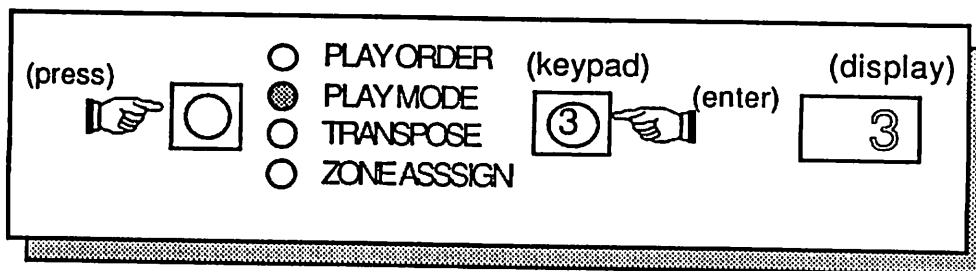
To select play mode, press the switch until the led next to Play Mode is lit.

Selecting 1, the notes played on the keyboard will arpeggiate.

Selecting 2, the notes held by the HOLD function will arpeggiate.

Selecting 3, the notes both played and held will arpeggiate.

In the example below both the notes held and the note played will arpeggiate.



ARPEGGIATOR

Arpeggiator Transpose

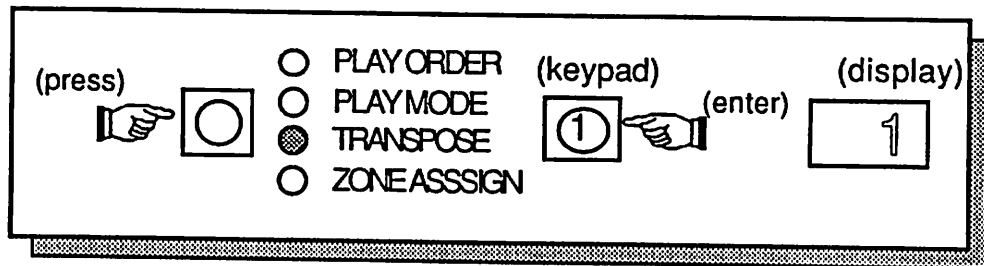
The Xk 's arpeggiator can transpose the arpeggiating note up to 5 intervals. To select the interval press the switch until the led next to Transpose is lit.

Enter 0 on the keypad not to transpose the arpeggiation.

Enter 1 to play first by no transposition, then play transposed by the first interval.

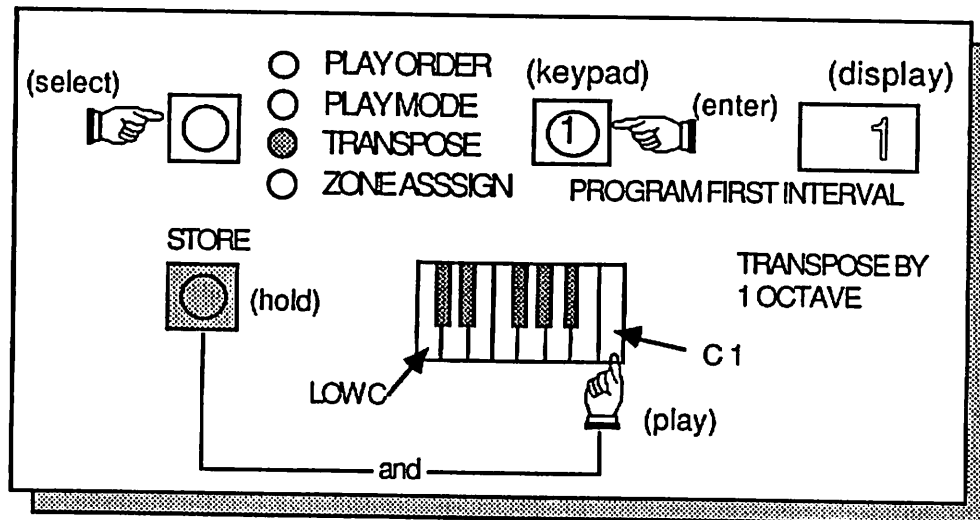
Enter 2 to first play by no transposition, then by the first interval, then by the second. This can be repeated up to 5 different intervals.

In the example below, the pattern will play first by no transposition and then play transposed by the first interval.



Programming Arpeggiator Transpositions

To program the transposition, press and hold the Store switch, and play the interval to be programmed relative to low C on the keyboard. In the example below, the first transposition is program to be 1 octave.



ARPEGGIATOR

Arpeggiator Zone Assignment

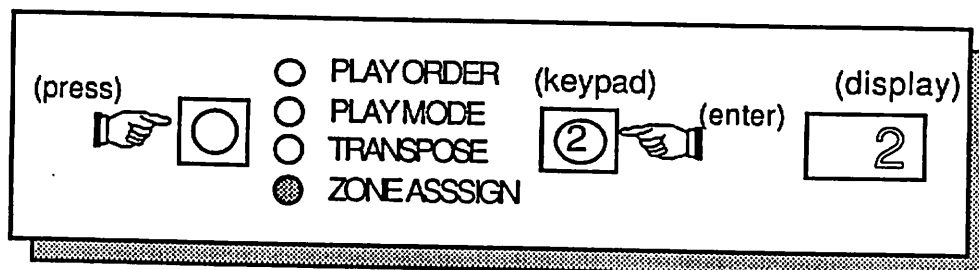
To assign the arpeggiator to a zone, press the switch until the led next to Zone Assign is lit.

Select 1 to arpeggiate zone 1.

Select 2 to arpeggiate zone 2.

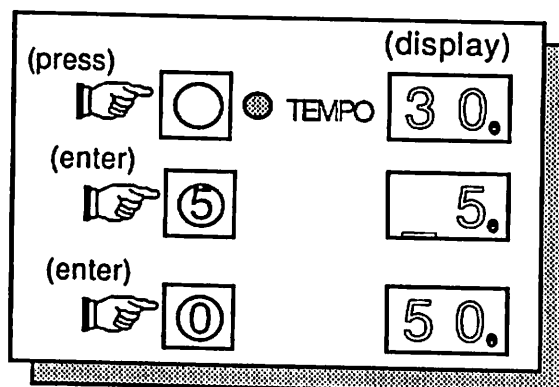
Select 3 to arpeggiate zone 3. Only one Zone at a time can be arpeggiated.

In the example below, Zone 2 will arpeggiate.



Internal Arpeggiator Tempo

The internal rate can be varied from 1 to 63, where 1 is the slowest (5.31 sec), 63 is the fastest (40Hz). 30 is the default setting.

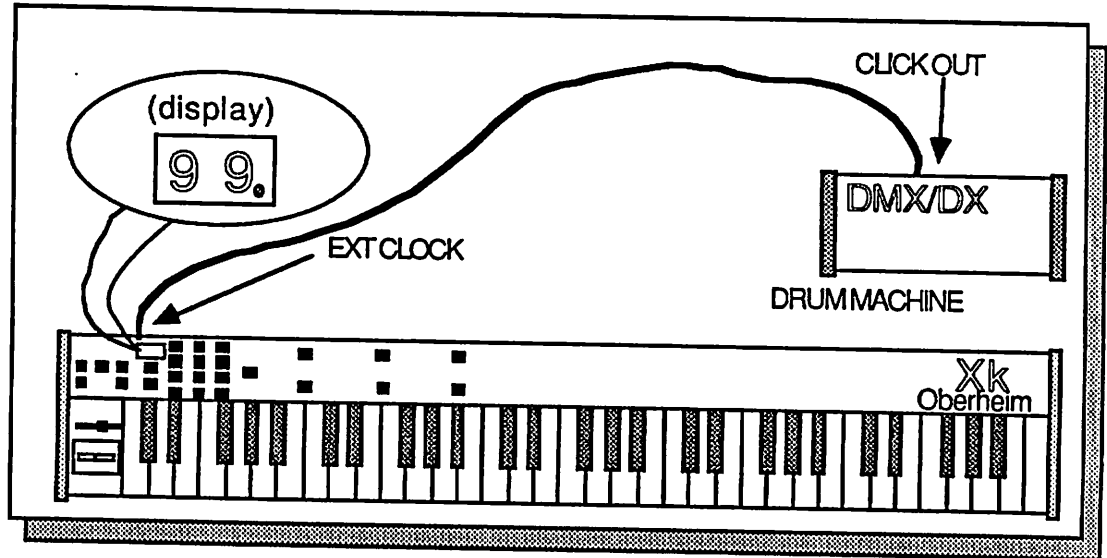


ARPEGGIATOR

External Arpeggiator Tempo

The external clock input was design to accept a metronome click. For every click present at the external clock input the arpeggiator will play one note. The input level can be between 4 and 20 volts. The external clock is sensed by a mono plug being inserted into the jack.

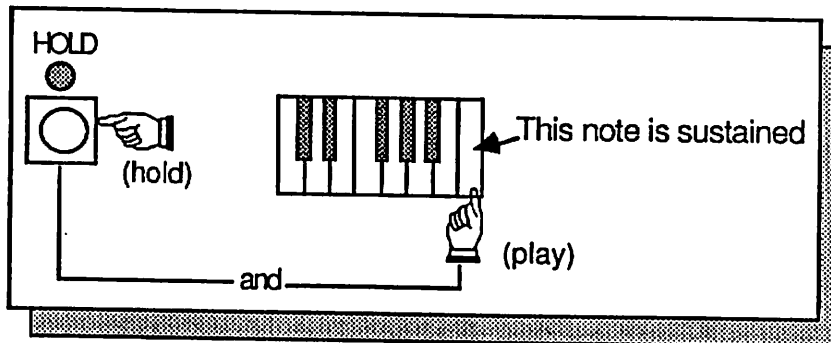
The display will show "99" after the first external clock is accepted by the Xk, this will aid the user in determining if the external source will work. The Arpeggiator must be on to accept any clock. The tempo decimal point in the right display will flash at the rate of the external clock.



HOLD/CHORD

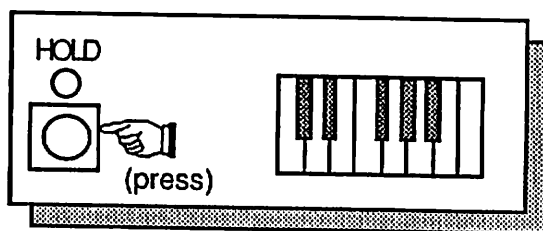
Holding Notes or Chords

This switch is used to produce a sustained note or chord. To use, press the HOLD switch and simultaneously play one or more notes, and then release the HOLD switch. The note or notes played will now sustain indefinitely. You can play the notes one at a time or all at once, but be sure to hold the HOLD switch down. You can HOLD up to a maximum of 15 notes per zone.



Canceling Held Notes

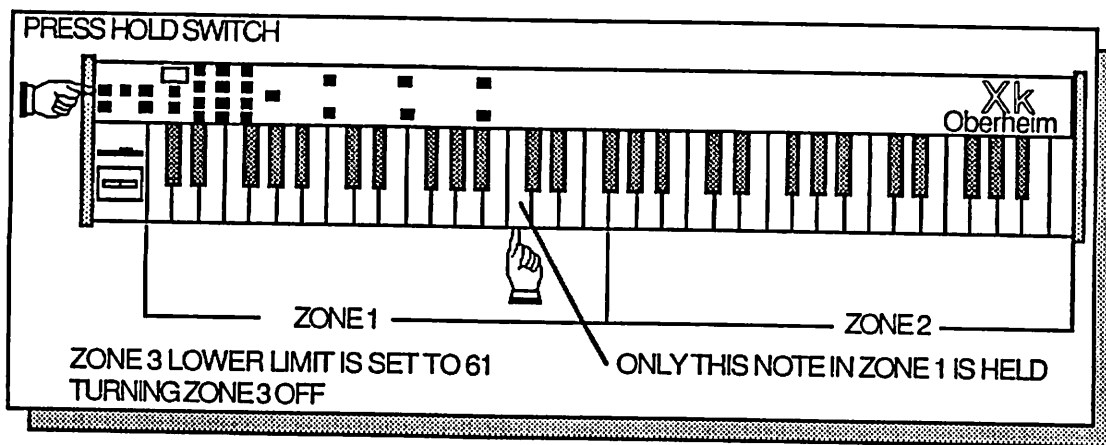
To CANCEL the HOLD function, don't play any keys and Press the HOLD switch. The l.e.d. will go out, and the note(s) will cease sounding.



Holding Notes and Zones

The notes will be held only if they are valid for the active zones, e.g. if zone 3 is off, no notes will be held in zone 3.

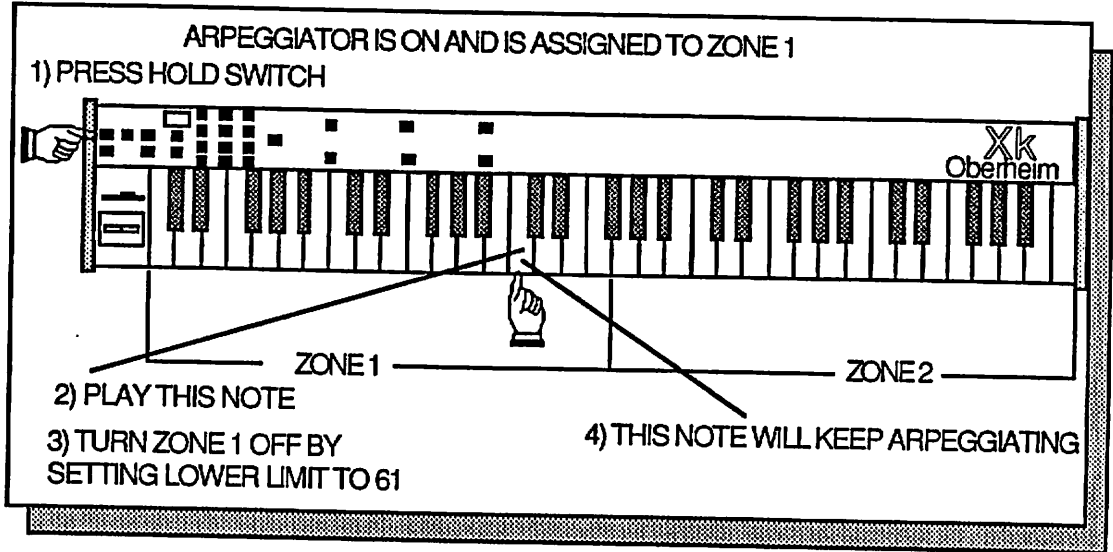
A zone may be turned off after notes are held in that zone. When the held notes are cancelled, the notes will silence on the instrument assign to the zone.



HOLD/CHORD

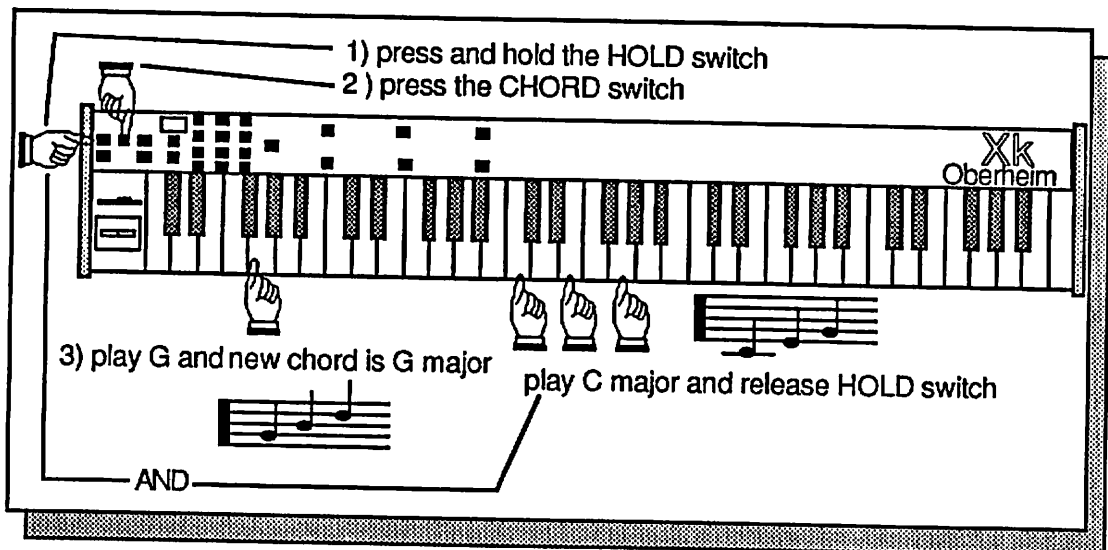
Holding Notes and the Arpeggiator

Held notes in a zone may also be arpeggiated even though the zone was turned off.



Chord/Hold

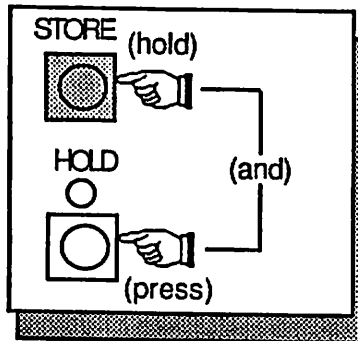
The HOLD and Chord switches can be used together to play chords with one key. First, select the desired notes by using the HOLD function described above. Next Press the CHORD switch. The held chord will cease sounding. Now playing a note on the keyboard will transpose the chord by the amount of the note played relative to Low C. For example, playing Low C will play the chord with no transposition. If the lowest G is played, the chord will play transposed up a fifth. If more than one note is played in Chord/Hold, the first lowest note will be used for the transposition. The other notes will not be played.



MISCELLANEOUS MIDI FUNCTIONS

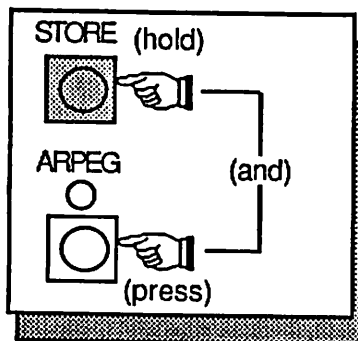
Starting A Drum Machine or Sequencer

The Xk can send a MIDI Start Command. To Start a drum machine or sequencer press and hold the STORE switch and then press the HOLD switch. It is important to press the STORE switch first to avoid entering HOLD mode.



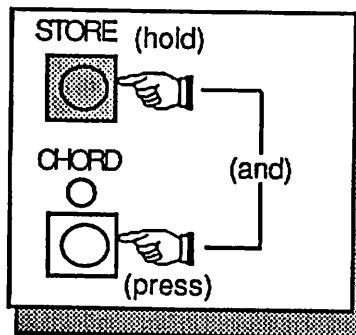
Continuing A Drum Machine or Sequencer

The Xk can send a MIDI Continue Command. To Continue a drum machine or sequencer press and hold the STORE switch and then press the ARPEG switch.



Stopping A Drum Machine or Sequencer

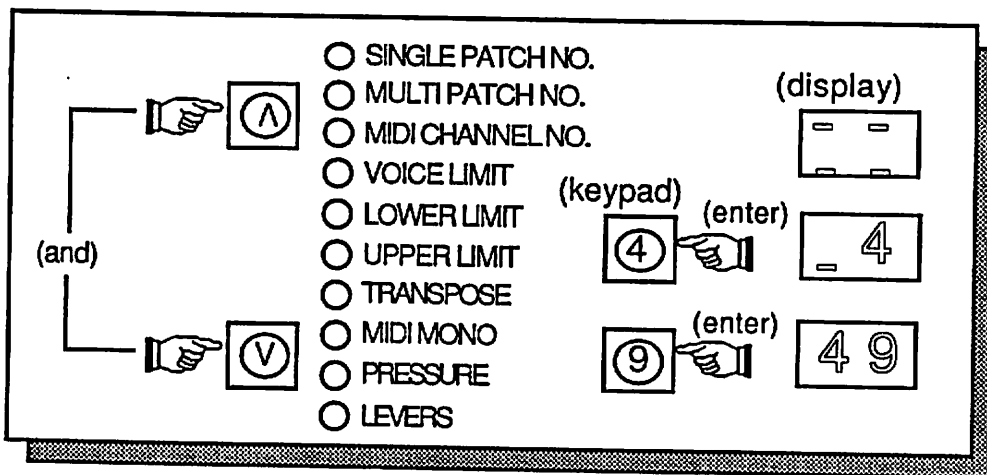
The Xk can send a MIDI Stop Command. To Stop a drum machine or sequencer press and hold the STORE switch and then press the CHORD switch.



MISCELLANEOUS MIDI FUNCTIONS

Selecting A Song

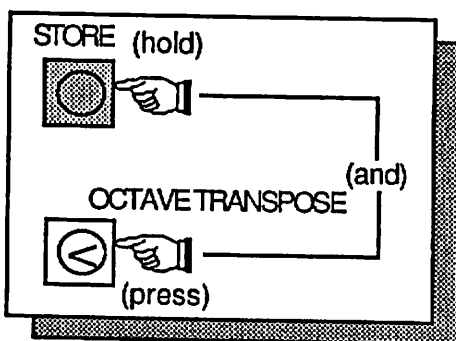
The Xk will enter Song Select Mode by pressing both the arrows in the ZONES PARAMETERS section at the same time. The Xk will stay in this mode until one of the Zone Parameter arrows is pressed. Also, while in this mode, the Zone Parameters l.e.d.'s are OFF. Depending on the instrument you are controlling with the Xk, the song selection might not be performed if a sequence is playing. In that case STOP the instrument, and then, Select the Song. This is true with the Oberheim Dx. To EXIT this MODE, press only ONE of the Zone Parameter Arrows, an l.e.d in this section will come back ON. In the example below, Song number 49 is sent. This is a performance function and is not stored in a Master Program.



Tuning a Instrument Remotely

The Xk can send a MIDI tune request to the remote instrument(s). This is a common message, meaning all instruments hooked to the Xk will receive the tune request regardless of the MIDI channel setting for that instrument.

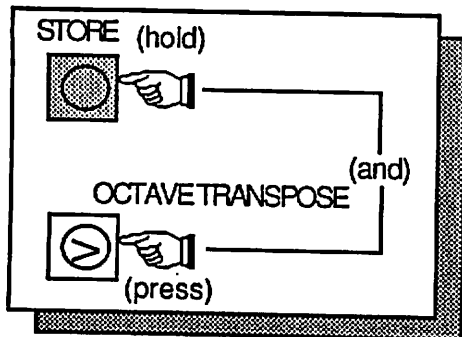
To send a tune request, press and hold the STORE switch and then press the Octave Down Arrow.



MISCELLANEOUS MIDI FUNCTIONS

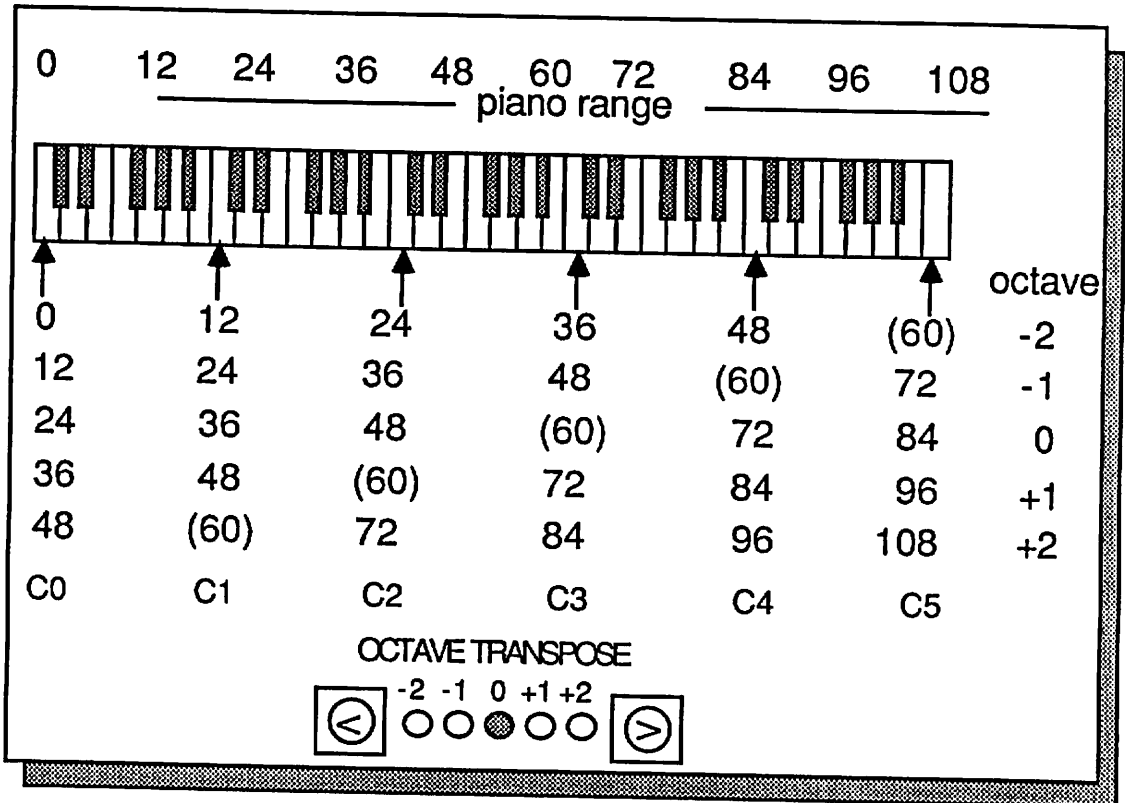
Sending an ALL NOTES OFF to the remote instruments

Sometime a note gets stuck ON for one reason or another. To send an All notes off command, press and hold the STORE switch and then press the Octave Up Arrow switch.



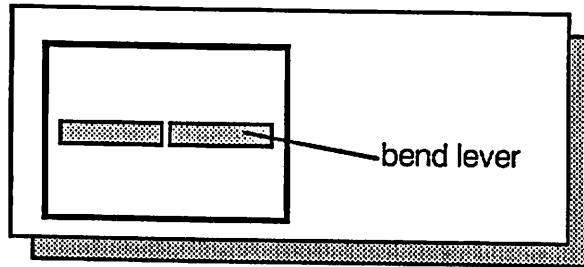
OCTAVE TRANSPOSE

The Xk keyboard can be transposed +/- 2 octaves. To transpose the keyboard press one of the arrow switches under OCTAVE TRANSPOSE. The transposition is sent over MIDI only when new notes are played, the octave does not change on a note that is being held down. The value of 60 is equal to middle C.

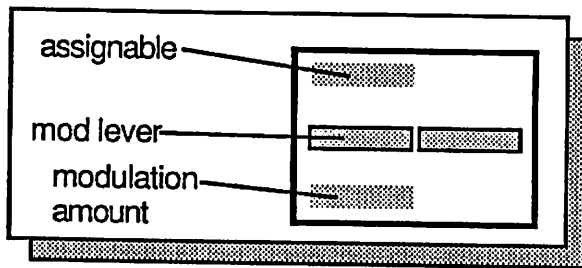


LEVERS / CONTINUOUS CONTROLLER (slider)

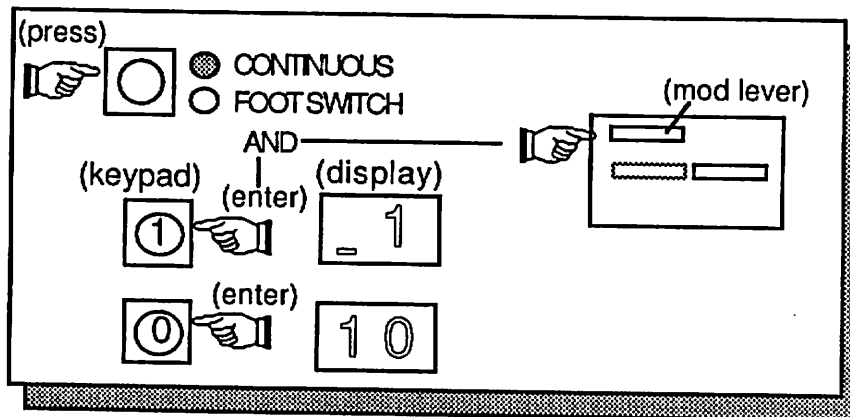
The lever closest to the keyboard is the Pitch Bend Lever. Pulling the lever towards you causes the Pitch on the remote instrument(s) to go up, pushing the lever towards the back of the Xk causes the Pitch to go down. The range of the lever is not adjustable in the Xk. This is to conform with the MIDI 1.0 spec. Adjust the range of the lever on the Remote Instrument.



The other lever is used for modulation. Pulling the lever towards the front of the Xk causes the Modulation Amount to increase on the Remote Instrument. This function is assigned to MIDI controller number 1.

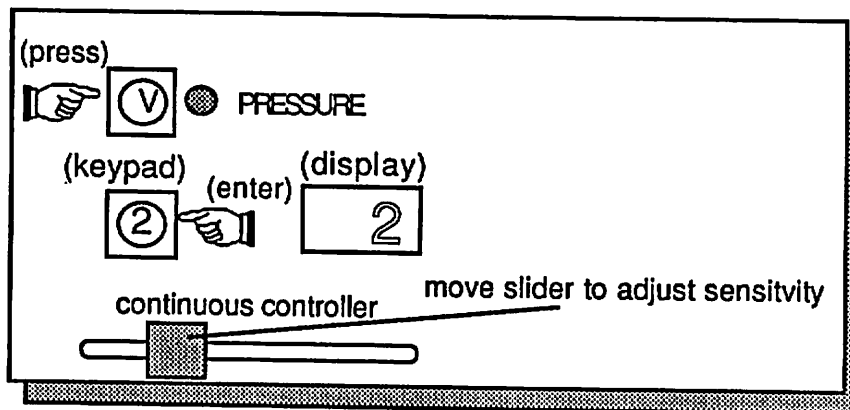


The Mod Lever in the negative direction is Programmable and will control whatever it is assigned to. To program the lever Press the Continuous Switch under MIDI Controller. The l.e.d. next to Continuous should be ON, if not press the switch again. Next, push the lever towards the back of the Xk, and while holding it back enter the controller number with the keypad that you want to assign the lever to.



SETTING THE PRESSURE SENSITIVITY

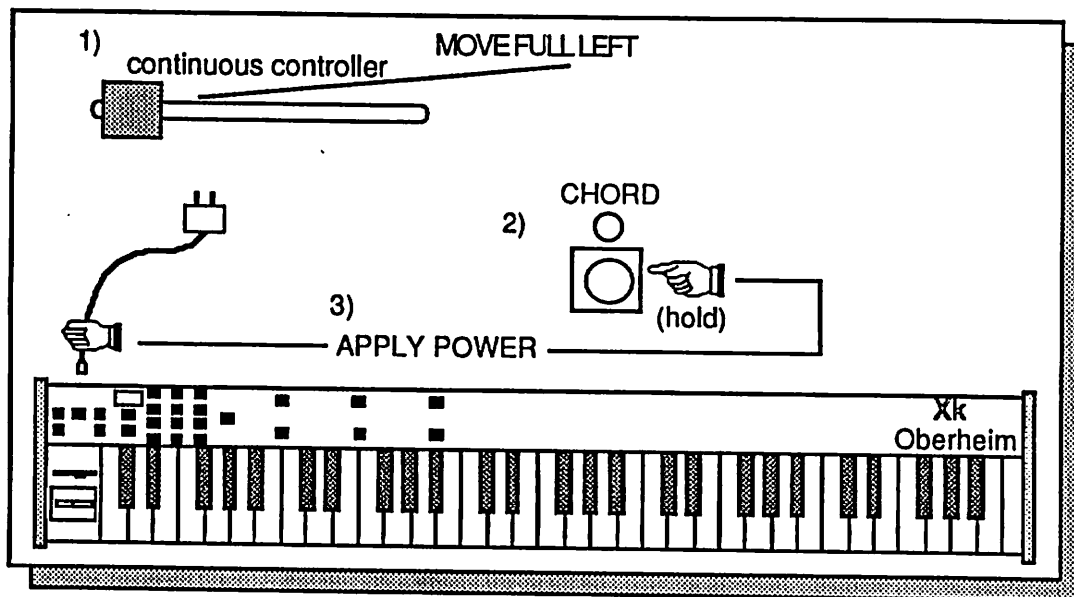
To Set the Pressure Sensitivity press one of the Zones Parameters switches until the l.e.d. next to PRESSURE is lit. Next enter "2" on the keypad. Now moving the slider will adjust the Sensitivity of the Pressure. To adjust the sensitivity, the PRESSURE l.e.d. must be on and "2" must be in the display. Changing the Xk to a different mode sets the slider back to use as a controller. The Pressure Sensitivity is stored in memory and the value is used until the user changes it. It is retained with the power off.



CALIBRATING

Continuous Controller (slider)

This calibration is performed at the factory and should be performed only if the user feels it is not correct. To calibrate the slider, turn the power OFF. Position the slider full left and while holding the Chord Switch apply power. This calibrates the slider.



Levers

The levers are calibrated every time the Xk is powered up. The only thing to remember is not to move the levers when applying power.

MIDI

How was MIDI 1.0 Implemented ?

Channel Modes:

Mode 1 Omni/Poly (This is the normal mode of the Xk)

Mode 4 Omni Off/Mono (This is the mode when MIDI Mono is ON for a selected Zone)

Note Off

status = 1000nnnn

data 0kkkkkkk k = 0 to 120

data 0vvvvvvv v = 1 to 127

Note On

status = 1001nnnn

data 0kkkkkkk k = 0 to 120

data 0vvvvvvv v = 1 to 127

Control Change

status = 1011nnnn

data 0ccccccc c = 00 to 95

Continuous Controller

data 0ccccccc c = 00 to 63

Foot Switch

data 0ccccccc c = 64 to 95

Mod Lever Negative

data 0ccccccc c = 00 to 63

Program Change

status = 1100nnnn

data 0pppppppp p = 0 to 99

Channel Pressure

status = 1101nnnn

data 0vvvvvvv v = 0 to 127

Pitch Wheel

status = 1110nnnn

data 0vvvvvvv

data 0vvvvvvv v = 0 to 7F40H (4000H = center)

Channel Pressure (After-Touch)

status = 1101nnnn

data 0vvvvvvv v = 0 to 127

nnnn = 0 to 0FH (Midi Channel 1 to 16)

Song Select

status = 11110011

Start

status = 11111010

Stop

status = 11111100

Continue

status = 11111011

Tune Request

status = 11110110

System Exclusive Codes

Single Patch Select

11110000

10H

02

0DH

02

00

0F7H

System exclusive

Oberheim ID number

Device number, Xpander = 02

Command byte, Programmer Mode Switches

Data LSB's Single Patch Switch

Data MSB

End of System exclusive

11110000

10H

02

0BH

18H

00

0F7H

System exclusive

Oberheim ID number

Device number, Xpander = 02

Command byte, Page and Subpage select

Data LSB's, Page no.

Data MSB, Subpage no.

End of System exclusive

Multi Patch Select

11110000

10H

02

0DH

01

00

0F7H

System exclusive

Oberheim ID number

Device number Xpander = 02

Command byte Programmer Mode Switches

Data LSB's Multi Patch Switch

Data MSB

End of System Exclusive

11110000

10H

02

0BH

18H

00

0F7H

System exclusive

Oberheim ID number

Device number, Xpander = 02

Command byte, Page and Subpage select

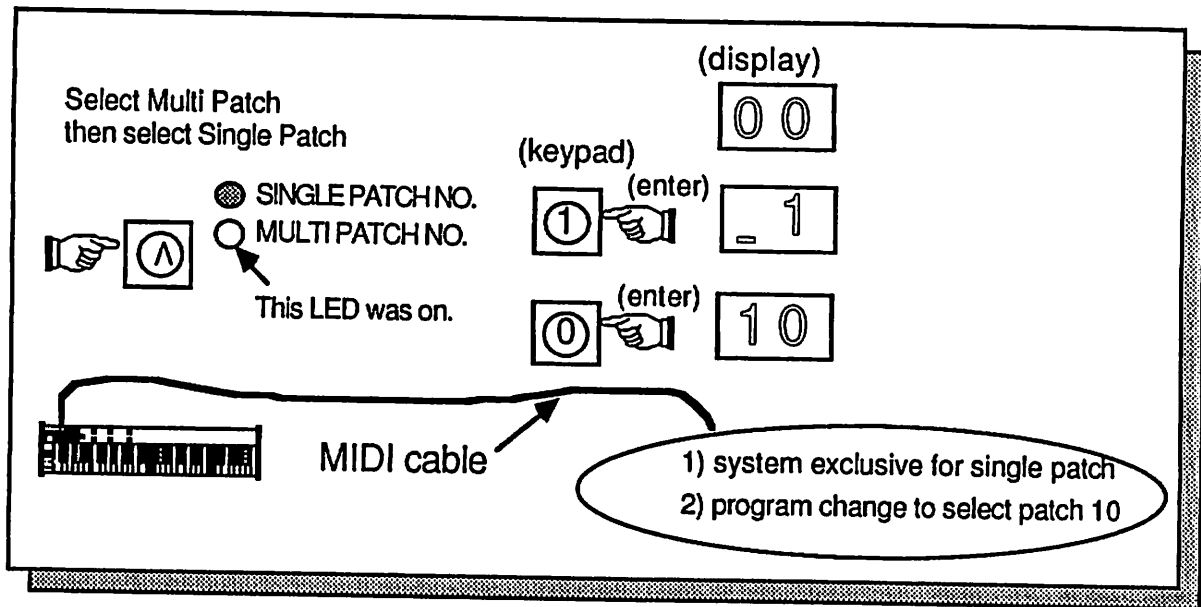
Data LSB's, Page no.

Data MSB, Subpage no.

End of System exclusive

What happens when selecting a Single or Multi Patch ?

When a patch change is sent from the Xk the following happens: When a single Patch is selected and the last selection was a single patch the System Exclusive code for selecting a Single Patch is NOT sent. The only time the system exclusive code is sent is when the last patch change was a Single Patch and now you select a Multi-Patch change. This is to prevent an Xpander, or other Oberheim synthesizer from entering the patch compare mode.



SPECIFICATIONS

KEYBOARD:	Five octave, long throw plastic Velocity, Release Velocity, and Pressure Sensitive
Range:	10 octaves (MIDI notes 0 to 120)
Velocity:	Two scales, plus off
Number of Notes:	48 maximum (16 per Zone)
PROGRAMS:	100
Programmed Functions:	All functions for all 3 Zones, MIDI Controller Number assignments for Slider, Foot Switch and Mod lever negative, (for each Zone), All Arpeggiator settings, Velocity Scale
ZONES:	3
Zone Functions (each):	Synthesizer Patch Number, Single/Multi Patch select, MIDI Channel, Voice Limit, Lower and Upper Note limits, Transposition, MIDI Mono Mode ON/OFF, Pressure ON/OFF, Levers ON/OFF
Voice Spillover System:	Notes in excess of the programmed Voice Limit play on an additional MIDI Channel; allows two synthesizers to play as one larger unit
ARPEGGIATOR:	Plays any Zone Up, down, Up/Down, Random Plays Keyboard, Held Notes, or Both Five Programmable Transpositions External Clock Input (positive edge trigger, metronome click)
CONTROLLERS:	Bend Lever (9 bit resolution) Double Modulation Lever: Forward and Back are separate, Back is Programmable (per Zone) Continuous Controller: Slide Pot, Programmable (per Zone) Footswitch Input: Momentary, Programmable(per Zone), automatic polarity sensing MIDI Clock Start/Stop/Continue Controls MIDI Song Select
Other Functions:	Bank Patch Copy, copies any one Program to any group of Programs
Inputs:	Power (9Vdc to 15Vdc at 600mA), Footswitch, Arpeggiator Clock
Outputs:	MIDI OUT
Weight:	15 Lbs.

WARRANTY

IF YOU HAVE A PROBLEM

The staff at E.C.C. / Oberheim wish to thank-you for purchasing an Oberheim product and hope that you will remain a long-time Oberheim player. We are confident that your instrument will provide you with years of excellent service as each unit is thoroughly tested and inspected before it leaves the factory. The Owner's Manual was written to be logical and comprehensive so that you will be able to get the most out of your Oberheim.

Although we have taken great care in manufacturing your Oberheim instrument and preparing thorough documentation in the manual, products at this level of technology may require servicing. The following Warranty Policy outlines your rights and responsibilities, and also lists several limitations of coverage and important exclusions. We strongly recommend that you read the following policy statements carefully and refer to the procedure at the end in obtaining service for your Oberheim product should it ever be needed.

OBERHEIM LIMITED CUSTOMER WARRANTY (Non-Transferable)

Oberheim, a Division of E.C.C. Development Corporation, warrants its products, when purchased from an Authorized Oberheim Dealer, to be free from defects in materials or workmanship for a period of 12 months from the date of purchase. Warranty service is effective and available to the original purchaser ONLY, and only upon completion and return of the Oberheim Warranty Registration card within 14 days of the date of purchase.

To obtain service under this Warranty, the product must, upon discovery of the defect, be properly packed and shipped to the nearest Oberheim Authorized Service Center. The party requesting Warranty service must provide proof of original ownership and date of purchase of the product by supplying to the Oberheim Authorized Service Center either the Warranty Registration Sticker applied to the unit itself, or the sales receipt. In the event that both have been lost or misplaced, the Service Center shall, at the Service Center's or owner's expense, contact Oberheim to verify the Warranty status of the product.

If the Warranty has been verified, Oberheim will, without charge for parts or labor, either repair or replace the defective part(s).

PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

WHAT IS COVERED

Oberheim warrants that it will make all necessary adjustments, repairs or replacements at no cost to the original owner within the first 12 months from the purchase date if:

1. The product fails to perform its specified functions due to failure of one or more of its components.
2. The product fails to perform its specified functions due to defects in workmanship.
3. The product is maintained and operated by the owner in strict accordance with the written instructions for proper maintenance and use as specified in the Owner's Manual.

WHAT IS NOT COVERED

Before purchasing and using, the owner shall determine the suitability of the product for his/her intended use, and the owner assumes all risk and liability whatsoever in connection therewith. Oberheim shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or inability to use the product.

WARRANTY

The Warranty provides only the benefits specified and does not cover defects or repairs needed as a result of acts beyond the control of Oberheim including but not limited to:

1. Damage caused by abuse, accident or negligence.
2. Any tampering, alteration or modification of the product's mechanical or electronic components.
3. Failure to operate the product in strict accordance with the procedures written in the Owner's Manual.
4. Repairs performed by unauthorized persons.
5. Damage caused by fire, smoke, falling objects, water or liquids etc. or acts of God such as earthquakes, floods, lightning, tornadoes, storms, etc.
6. Damage caused by operation on improper voltages.

IMPORTANT NOTICE: The warranty is VOID if the product is electronically or mechanically modified, altered or tampered with in any way.

Oberheim shall not be liable for costs involved in packing or preparing the product for shipping with regards to time, labor or materials, shipping and freight costs, or time and expenses involved in transporting the product to and from an Oberheim Authorized Service Center, an Oberheim Authorized Dealer or the Oberheim Factory.

Oberheim will not cover under Warranty an apparent malfunction that is determined to be in fact user error or the owner's inability to use the product. If a suitable shipping container is unavailable, a replacement carton can be purchased from Oberheim.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

Oberheim hereby excludes incidental and consequential damages, including but not limited to:

1. Loss of time
2. Inconvenience
3. Delay in performance of the Warranty
4. The loss of use of the product
5. Commercial loss
6. Breach of any express or implied warranty, including the Implied Warranty of Merchantability, applicable to this product.

Oberheim shall not be liable for damage or loss resulting from the negligent or intentional acts of the shipper or his contract affiliates. The owner of the product should contact the shipper for proper claims procedures in the event of damage or loss resulting from shipment.

HOW TO OBTAIN WARRANTY SERVICE

If you have reason to believe that your Oberheim product is malfunctioning or otherwise not operating properly, do the following:

STEP 1: CONTACT YOUR NEAREST OBERHEIM SERVICE CENTER

Telephone them as soon as the problem is discovered. Be prepared to discuss the problem as completely and accurately as possible. A current roster of Authorized Service Centers is included with the Owner's Manual.

The Service Center will let you know when the repair can be scheduled, the approximate number of days it will take to complete the repair and if the required parts are in stock or if they need to be ordered.

WARRANTY

Take the failed unit to the Service Center along with the sales receipt as the Service Center will need to verify the Warranty. If you have returned your Warranty Card, the Warranty Verification Sticker affixed to the bottom panel of your unit is sufficient to prove warranty status.

The Service Center will then inspect the product and take the necessary steps to complete the repair.

If the product continues to malfunction or another problem different from the original problem occurs, contact the service center IMMEDIATELY so that the problem can be resolved without delay or further complications.

STEP 2. CONTACT YOUR OBERHEIM DEALER

If you feel that your problem has not been resolved, contact the Oberheim Dealer where the product was purchased. It will be most expedient if you discuss the matter personally with the salesperson who sold you the instrument. By making the salesperson aware of your situation, they will be in a better position to assist you in getting the problem resolved.

STEP 3: CALL OR WRITE TO THE OBERHEIM FACTORY

If you believe that the problem is still unresolved after you have contacted the Service Center and Dealer, contact the Oberheim factory. In an attempt to resolve your problem, we will work with your local Service Center or Dealer to review and verify the information and facts. Based on these facts, we will advise or consult with the Service Center or Dealer as appropriate.

Written correspondence should be addressed to:

**OBERHEIM
Division of E.C.C. Development Corporation
Customer Services Department
2230 S. Barrington Avenue
Los Angeles, CA 90064**

Every attempt will be made to respond to your letter as quickly as possible.

If you would prefer to contact the Oberheim factory by telephone, a Service Representative will be available to assist you. Our telephone hours are from 1:00 PM to 4:00 PM West Coast Time, Monday through Friday only. The Customer Services Department can be reached at (213)479-4851. Collect calls cannot be accepted.

When calling the Oberheim offices:

- Have your instrument and amplifier turned on and in front of you when you are on the phone. You should have your Owner's Manual with you as well.
- Tell the receptionist that you are having a problem with your Oberheim product and ask to speak to a Service Representative.
- Be prepared to provide the following information:
 1. Your name.
 2. The model of the product.
 3. The product's Serial Number.
 4. The name of the Dealer from where it was purchased.
 5. The exact date of purchase.
 6. A complete description of the problem.

When writing to Oberheim, please also include your full address, telephone number and the best time to call should it be necessary to call you rather than answer your letter.

Xk MIDI Keyboard Controller Revision 1.4 Software Update

OWNER'S MANUAL ADDENDUM

INTRODUCTION

The Xk MIDI Keyboard Controller recently had some significant changes and additions made to its operating software which were not included in the Owner's Manual. This addendum serves as a guide to these changes and we recommend using it with the manual so that you will get the most out of your Xk. We have also included a revised Page 25 in the Manual. It is included at the end of this addendum.

I. HOLD/CHORD

The operation of HOLD/CHORD function of the Xk is now separate per Zone. Previously, notes held across the keyboard that were played on more than one Zone would be held on those Zones. Now, only notes played on what is called the "Active Zone" will be held.

1. Press and hold down the HOLD button.
2. Play the desired keys. Only the notes that are played in the Active Zone will be held. The Active Zone is the one with its LED lit on the front panel.
3. Pressing CHORD puts notes held in the Active Zone into "Chord Play". Remember that notes will not arpeggiate in CHORD MODE.
4. The Chord can be transposed within the Zone and is referenced to the note that defines the LOWER LIMIT of the Zone.

Keep in mind that if the LOWER LIMIT is changed while holding down a note, the note will not play with the new reference note until the key is released and replayed. (This is true with all events in the Xk - Anytime a change is made while a key or keys are being played, the change only affects new notes.)

II. BEND LEVER

The Bend Lever can now be reversed.

Press and hold the MIDI CONTROLLER switch while you are powering the Xk ON. This will remain in memory when the Xk is powered OFF.

III. ARPEGGIATOR

1. The Arpeggiator Gate Time has been changed to make its operation more reliable when used with the Matrix-6 and the OB-8 as well as many other MIDI synthesizers.

Previously, you might have experienced notes sticking on or notes not playing, especially at higher Arpeggiator tempos. This has been corrected in version 1.4.

Also, this change now makes the fastest Arpeggiator speed 20Hz. This means that the Arpeggiator will play at a maximum speed of 20 notes per second. Previously the upper limit was 40Hz (40 notes per second). It should also be noted that when EXTERNAL CLOCK IN is used to drive the Arpeggiator, the clock rate cannot exceed 20Hz, or notes will randomly stick on. It is also important that 1/64 notes or higher not be used.

2. The NONE interval used for arpeggio transposition can be changed. It is programmed the same way as other intervals. Keep in mind that the intervals used in an arpeggio are "Global" (they affect all programs in the Xk) and are not stored in a Master Program. Only the number of intervals to be used in the arpeggio is stored in a Master Program.
3. When using an external clock to drive the Arpeggiator - if the clock source is stopped, the Arpeggiator will not reset to the first note if the clock is restarted but will continue from the next note. To reset the Arpeggiator to start with the first note, turn the Arpeggiator OFF and then ON again.

- IV. The "Mod Lever Forward" controller value can now be changed from "01" to "00 to 63". This is a Global value and is not stored in a Master Program.

V. VELOCITY SCALE ADJUST Mode

The upper limit of the two Velocity Scales can now be set in the 1.4 software. Previously, the entire range of both scales were transmitted via MIDI and there was no method to adjust the Velocity output of the Xk. This presented a dilemma when attempting to use the Xk's Velocity with synthesizers such as a DX-7, for example, whose Velocity range is considerably more compressed. This feature is Global but can be independently adjusted per Zone.

1. To enter the VELOCITY SCALE ADJUST mode, press and hold STORE, press SCALE once, then let both buttons go.
2. The range of 0 to 63 is shown on the display and is set by using the 0 - 9 buttons on the Keypad for the current Zone. This selects the upper Velocity limit for the synthesizer being played from this Zone.
3. Once you have set the limit for the current Zone, you can select another Zone to adjust its Velocity Scale.
4. The Velocity range available is 0 to 127. But since the Xk's display only uses two digits, the actual Velocity setting is calculated as follows. The limit value is the number displayed times 2 plus 1. For example, "63" in the display is the maximum limit of 127 ($63 \times 2 = 126 + 1 = 127$). A display of "32" = 65, "24" = 49, etc. The recommended setting for a DX-7 is 85 (or a display of "42"). Since the Velocity output of the Xk is compatible with the Oberheim Xpander, Matrix-12 and Matrix-6, no special Velocity Scale adjustment is necessary - simply set the Velocity Scale to your own particular playing style.

Although this adjustment is not stored in a Master Program, settings that you make for the three Zones are remembered when the Xk is powered OFF.