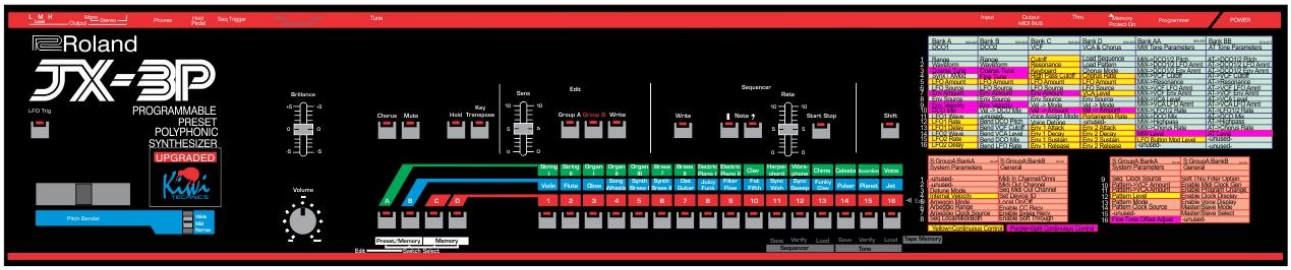
PROGRAMMABLE PRESET POLYPHONIC SYNTHESIZER

JX-3P

KIWITECHNICS UPGRADE
Version 2 Firmware



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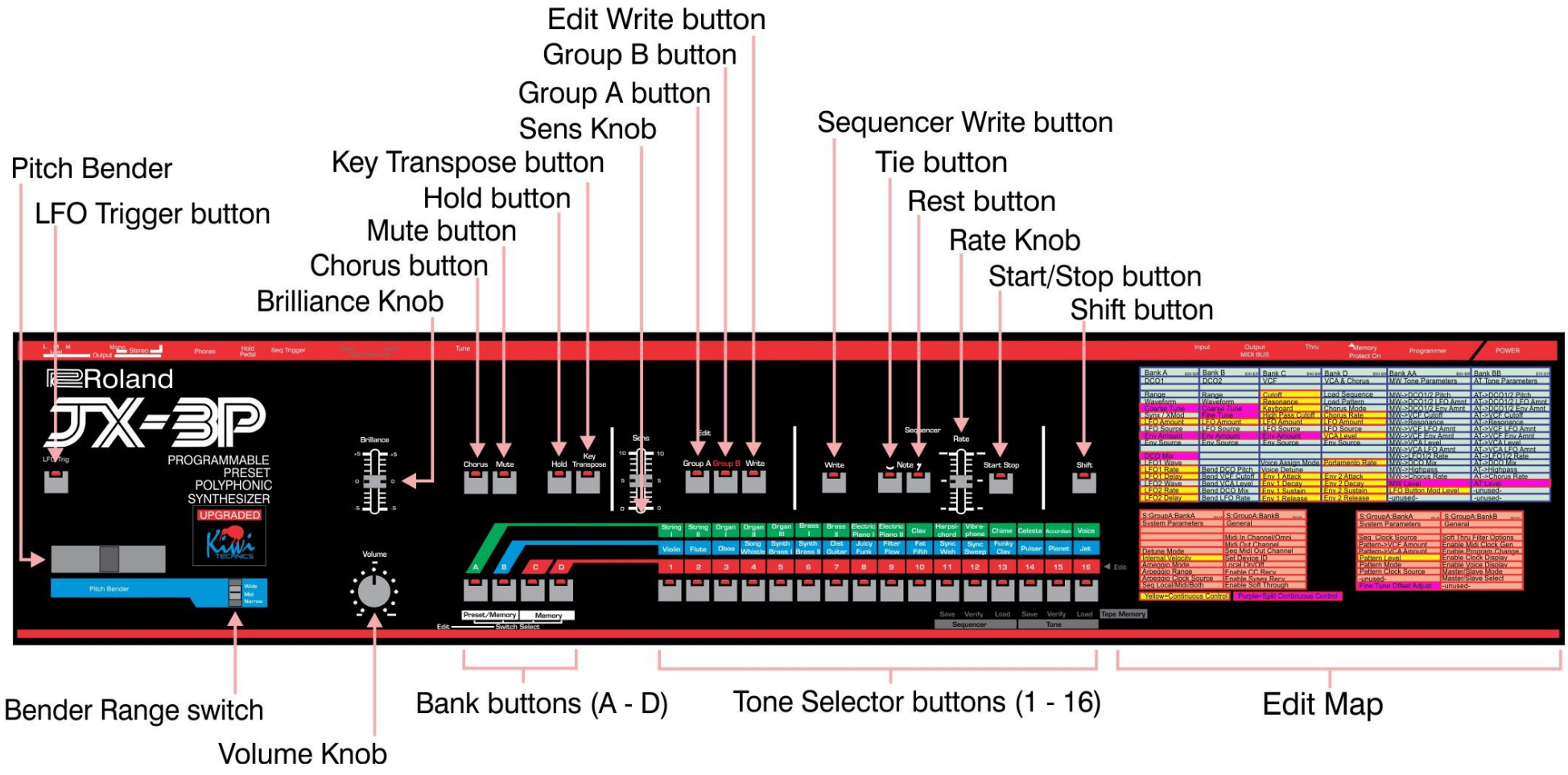
Control Description

Front Panel



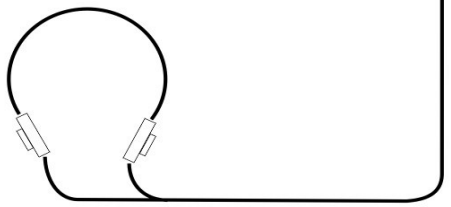
Basic Connections

■ Rear Panel

Power switch

External Selector Switch
Leave set to center position to stop memory being overwritten or on PG-200 setting to enable memory. The Midi setting is **not** used.
Note - A mod must be done to the midi board which is detailed in the install section.

Tune
This is used to tune the pitch with the external musical instrument (at its center position A-442Hz, variable range - ±1/4 tone).



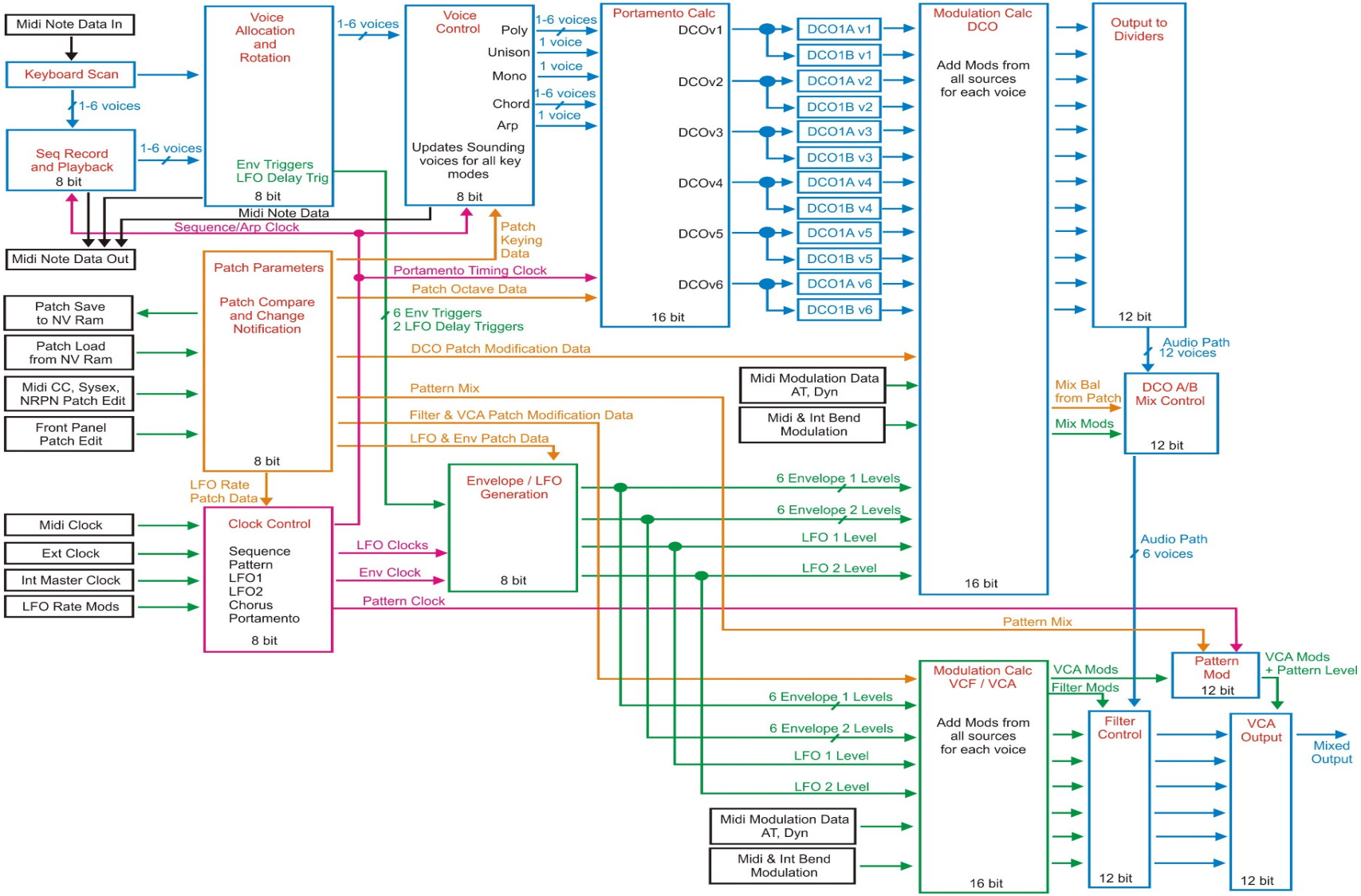
Stereo Headphones RH-10

Keyboard	M/H
Audio Amplifier	H
Recording Equipment	H
PA Mixer	L/M/H
Guitar Amplifier	L/M

Features

- 256 Tones, 8 Sequences & 16 Patterns can be stored and edited, Sequences & Patterns can be optionally linked to tones. It is also possible to temporarily edit any Tone, Seq or Pattern
- MidiCC support for all parameters, Midi Sysex support for Tone Dump & Load
- Patch Editor Control of Parameters (requires PE v 4.1 or later), Tones have 85 editable parameters
- 8 separate 122 max step polyphonic sequences. These can be clocked from the internal/external sequencer clock, Pattern Generator, LFO2 or midi clock divided by 3,4,6,9,12,18,24,36,48,72,96,128,144,168 or 192
- Polyphonic, Unison and Mono Key Assign Modes
- Portamento in Unison, Mono & Chord modes
- DCO Key Assign Detune available in all key modes, DCO 1 & 2 have separate Tune controls (+-12 semitones)
- Master Synth Fine Tune adjust
- Two independent envelope generators
- Two independent Low Frequency Oscillators. LFO2 random2 can be clocked from the sequencer clock. The Arp, Pattern and Sequence clocks can be optionally sourced from the LFO2
- 16 stored Pattern Generator patterns. These can be clocked from the internal/external clock, LFO2 or midi clock divided by 3,4,6,9,12,18,24,36,48,72,96,128,144,168 or 192. The pattern can be any length between 2 and 16 steps
- Pattern Play Mode. This can be faded from no effect to full effect.
- Aftertouch, Modulation Level and dynamics via midi
- Modulation options include Aftertouch and midi modulations that can be used in any combination. Each ENV Mod can select from ENV 1 or 2 and is a split control with add (normal) and subtract (inverted)
- LFO Button can inject mod control to any mod destination(s)
- LFOs can be plus and minus base note or plus only
- Bend Lever can be directed to Osc, Filter, LFO Rate and VCA Level in any combination
- Chord Mode. Any chord with up to 6 notes can be set and played from any key
- Enhanced Parameter editing to allow editing of all 85 Tone parameters and 27 Global Parameters from the front panel
- Sequencer, LFO 1 and LFO 2 clocks and voice use can optionally display on the front panel
- Greater speed range and 6 waveforms for LFO1 and LFO2, LFO2 has a second Random mode that can be clocked from the Sequence Clock
- The Arpeggiator can be clocked from the internal/external clock, Pattern Generator, LFO2 or midi clock divided by 3,4,6,9,12,18,24,36,48,72,96,128,144,168 or 192.
- Arp modes are Up, Down, Up and Down and Random, 0, 1 or 2 octaves
- Key transpose allows transposition to any key. Sequencer key can be shifted to any key while playing by using Key Transpose
- Sequencer can be Started, Stopped & Continued using Midi Commands
- Sequences can be edited
- Appeggiator will Output Midi Data and Sequencer can optionally Output Midi
- Chorus has Manual Mode & variable speed

Software Flow Chart



Menu Flow Chart

3P Upgrade v300 Menu Structure

Power On Options

FULL FACTORY RESTORE
Edit Write & Seq Write Held
WARNING! WILL ERASE ALL TONES
Exit to Menu Level 00

FIRMWARE UPDATE
Tape Held
Play update into Midi In Port
Stops with Bank D lit if successful

Menu Level 00
Default @ power on

SET BANK
Bank Button A-D
Set current Bank
Bank Set Changed by
Pressing the same Bank twice
Does Not Load or Effect Tone

SHIFT MENU
TAPE Button Pushed

LFO BUTTON
LFO Pushed
Inject Midi Mod at Param level

CHORUS MODE
Chorus Pushed
Toggle Chorus on/off

KEY TRANSPOSE
KeyT Button Pushed
KeyT Button Released
$07
If Chord mode and key(s) pressed
Set Chord and exit back to 00
If Chord mode and no key pressed
Clear Chord Mode and exit back to 00
If Not Chord mode and key pressed
Set Key Transpose and exit back to 00

LOAD TONE
Tone Button 1-16
Load Tone -> Working Buffer
Uses Currently Selected Bank
Set Menu Level back to 00

SAVE TONE
Edit Write Pushed
Check Protect
if on flash error and exit to 00

SELECT MEM LOCATION
Bank Button A-D
Set current Bank
Bank Set Changed by
Pressing the same Bank twice

WRITE
Tone Button 1-16
Save Tone -> Memory
using current Bank
Set Menu Level back to 00

EXIT/ABORT
$01
Tape Pushed

LOAD PATTERN
Group B Button Pushed
$02 LOAD
Tone Button 1-16
Load Pattern -> Memory
Set Menu Level back to 00

EXIT/ABORT
Tape Pushed

MUTE MODE
Mute Pushed
Toggle Mute Mode on/off

HOLD MODE
Hold Pushed
Toggle Hold Mode

LOAD SEQUENCE
Seq Tie Pushed
$03
Tone Button 1-8
Load Seq -> Memory
Set Menu Level back to 00
Tape Pushed
Abort

PLAY/STOP SEQUENCE
Seq Play Pushed
Plays Last Seq in Mem
Toggle Seq Start/Stop
Set Menu Level back to 00

WRITE/EDIT SEQUENCE
Seq Write Pushed
Check Protect
if on flash error and exit to 00
$04
Tone Button 1-8
Set Seq to Edit
Flash Current

ABORT
Tape Pushed

NOTE(s)
Key(s) Pushed
Write Seq Step
Inc Seq Step

REST
Rest Pushed
Write Blank Seq Step
Inc Seq Step

TIE
Tie Pushed
Repeat Last Seq Step
Inc Seq Step

SET LENGTH
Bank B Pushed
Set Seq Length to Current Step

OVERDUB
Bank A Pushed
Loads Current Seq Step for Edit

$05 STEP
Grp A or B Pushed
Move Backward/Foreward 1 Step

SAVE
Seq Write Pushed
Finish Seq
$06
Tone Button 1-16
Save Seq -> Memory
Set Menu Level back to 00
Tape Pushed
Abort

EXIT
Tape or Start Pushed
Set Menu Level back to 00
Start will also start seq

MIDI PANIC
Group A Button Pushed
Stop All Sounding Voices

PROTECT OFF

$10
CHORD MODE
Key Transpose Pushed
Set Chord Mode

ARP MODE
Hold Pushed
Toggle Arp Mode

PATTERN ON/OFF
Mute Pushed
Toggle Pattern Play on/off

EDIT TONE
Edit Write Button Pushed
Edit Tone Parameters

EDIT GLOBAL PARAMETERS
Group A Button Pushed

EDIT PATTERN
Group B Button Pushed
$a0
Tone Button 1-16
Set Pattern to Edit

MIDI DUMP/LOAD & SYSTEM RESTORE
Bank D Pushed

ERASE SEQUENCE
Seq Write Pushed
Check Protect
if on flash error and exit to 00
$e0
Tone Button 1-16
WARNING!
Clear Seq
Tape Pushed
Abort

ABORT
Tape Pushed

$d0
Tape Pushed

Tone Button 1
Send Currently Selected Tone
$d1
Edit Write Pushed
Send Current Tone to Midi
Tape Pushed
Abort

Tone Button 2
Send All Tones
WARNING - Large File size
$d2
Edit Write Pushed
Send All Tones to Midi
Tape Pushed
Abort

Tone Button 3
Send Global Params
$d3
Edit Write Pushed
Send Current Global Param to Midi
Tape Pushed
Abort

Tone Button 4
Send Currently Selected Sequence
$d4
Edit Write Pushed
Send Current Seq to Midi
Tape Pushed
Abort

Tone Button 5
Send All Sequences
WARNING - Large File size
$d5
Edit Write Pushed
Send All Seqs to Midi
Tape Pushed
Abort

Tone Button 6
Send Currently Selected Pattern
$d6
Edit Write Pushed
Send Current Pattern to Midi
Tape Pushed
Abort

Tone Button 7
Send All Patterns
$d7
Edit Write Pushed
Send All Patterns to Midi
Tape Pushed
Abort

Tone Button 16
FACTORY RESTORE
Tones A1-B16
Check Protect
if on flash error and exit to 00
$df
Edit Write Pushed
Factory Restore A&B Banks
Tape Pushed
Abort

TONE PARAM EDIT (SEE TONE TABLE)

SELECT PARAM TO EDIT
$20-$7f
Bank Button A-D,AA & BB
Set current Param Bank
Tone Button 1-16
Set Param to Edit

EDIT
Edit Parameter
Using Sense Slider

EXIT
Tape Pushed

SAVE/EXIT
PROTECT ON
Edit Write Pushed
Check Protect - if on flash error

EDIT GLOBAL PARAM (SEE GLOBAL TABLE)

SELECT GLOBAL PARAM TO EDIT
Bank Button A-B
Set current Bank
Tone Button 1-16
Set Param to Edit

EDIT
Edit Parameter
Using Sense Slider

SAVE/EXIT
$80-$9f
Edit Write Pushed
Check Protect if on flash error and exit to $80-$9f
Write to Memory

EXIT
Tape Pushed

EDIT PATTERN

EDIT
Edit Pattern
Using Tone buttons
Hold Button 2s to add Accent

SET LENGTH
$a1
Group A Pushed
Set Pattern Length
$a3
Tape Pushed
Tone Button 2-16
Set Pattern Length
Set Menu Level back to $a1

SAVE/EXIT
Edit Write Pushed
Check Protect
if on flash error and exit to 00
$a2
Tone Button 1-16
Save Seq -> Memory
Set Menu Level back to 00

EXIT
Tape Pushed

TONE PARAMETERS

	Bank A $20-$2f	Bank B $30-$3f	Bank C $40-$4f	Bank D $50-$5f	Bank AA $60-$6f	Bank BB $70-$7f
	DCO1	DCO2	VCF	VCA & Chorus	MW Tone Parameters	AT Tone Parameters
1	Range	Range	Cutoff	Load Sequence	MW->DCO1/2 Pitch	AT->DCO1/2 Pitch
2	Waveform	Waveform	Resonance	Load Pattern	MW->DCO1/2 LFO Amnt	AT->DCO1/2 LFO Amnt
3	Coarse Tune	Coarse Tune	Keyboard	Chorus Mode	MW->DCO1/2 Env Amnt	AT->DCO1/2 Env Amnt
4	Synx / XMod	Fine Tune	High Pass Cutoff	Chorus Rate	MW->VCF Cutoff	AT->VCF Cutoff
5	LFO Amount	LFO Amount	LFO Amount	LFO Amount	MW->Resonance	AT->Resonance
6	LFO Source	LFO Source	LFO Source	LFO Source	MW->VCF LFO Amnt	AT->VCF LFO Amnt
7	Env Amount	Env Amount	Env Amount	VCA Level	MW->VCF Env Amnt	AT->VCF Env Amnt
8	Env Source	Env Source	Env Source	Env Source	MW->VCA Level	AT->VCA Level
9					MW->VCA LFO Amnt	AT->VCA LFO Amnt
10	DCO Mix				MW->LFO1/2 Rate	AT->LFO1/2 Rate
11	LFO1 Wave	LFO Mode	Voice Assign Mode	Portamento Rate	MW->DCO Mix	AT->DCO Mix
12	LFO1 Rate	Bend DCO Pitch	Voice Detune	Env Speed	MW->Highpass	AT->Highpass
13	LFO1 Delay	Bend VCF Cutoff	Env 1 Attack	Env 2 Attack	MW->Chorus Rate	AT->Chorus Rate
14	LFO2 Wave	Bend VCA Level	Env 1 Decay	Env 2 Decay	MW Level	AT Level
15	LFO2 Rate	Bend DCO Mix	Env 1 Sustain	Env 2 Sustain	LFO Button Mod Level	
16	LFO2 Delay	Bend LFO Rate	Env 1 Release	Env 2 Release		

Yellow=Continuous Control Purple=Split Continuous Control

GLOBAL PARAMETERS

	S:GroupA:BankA $80-$8f	S:GroupA:BankB $90-$9f
	System Parameters	General
1		Midi In Channel/Omni
2		Midi Out Channel
3	Detune Mode	Seq Midi Out Channel
4	Internal Velocity	Set Device ID
5	Arpeggio Mode	Local On/Off
6	Arpeggio Range	Enable CC Recv
7	Arpeggio Clock Source	Enable Sysex Recv
8	Seq Local/Midi/Both	Enable Soft Through
9	Seq_Clock Source	Soft Thru Filter Option
10	Pattern->VCF Amount	Enable Midi Clock Gen
11	Pattern->VCA Amount	Enable Program Change
12	Pattern Level	Enable Clock Display
13	Pattern Mode	Enable Voice Display
14	Pattern Clock Source	Master/Slave Mode
15	Seq Midi Start/Stop Mode	Master/Slave Select
16	Fine Tune Offset Adjust	

Menu Notes

The menu system in the 3P Upgrade is complex. This is unavoidable due to the number of features and the limited number of buttons available.

The parameters for editing can all be accessed using menu system. Tone parameters are all saved with the Tone and will be changed whenever a Tone is loaded. Global Parameters will remain unchanged on Tone loads.

Shift Menu

Many sections of the menu are accessed using the Tape button which acts as the Shift button. This button sets the Shift level (flashing) and also cancels from any menu back to play mode.

Sysex Dumps

The output from these can be recorded using midi software (e.g. midiOX)
These can be played into the 3P at any time to restore the 3P Tone, Sequence or Pattern back to the same state that it was when the recording was made.

Note - Write Protect must be off to Load Dumps

NOTE - some of the output files are large.

IMPORTANT - All of the dumps Loading and Saving will overwrite the working buffers with the saved copy. Save any edits before any dumps in or out.

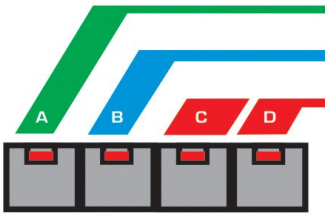
IMPORTANT - When a Tone, Sequence or Pattern is dumped it is the saved copy that is dumped and not the edited version

Sysex details can be found at the end of this manual.

Most SysEx dumps include the number which the Tone, Sequence or Pattern was stored under at the time of the dump. The dump will always load back to this same position. To load it to a different memory position the number can be edited in the SysEx file. Details of file layouts can be found in the Sysex Section at the end of the manual.

Preset Section

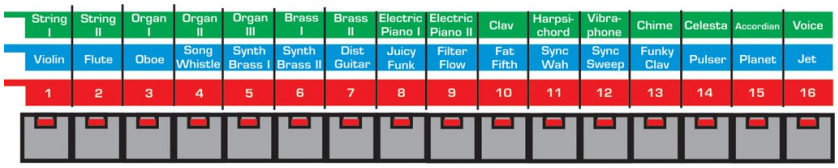
⑳ Bank Buttons (A~D)



There are 4 Bank 'Sets' in the 3P Upgrade giving a total of 256 Tones. Sets are changed by pressing the same Bank button twice. The Bank lights will show which Bank is selected as follows

Bank Set 1 Selected Bank On Steady - others Off
Bank Set 2 Selected Bank On Flashing - others Off
Bank Set 3 Selected Bank Off - others On Steady
Bank Set 4 Selected Bank Flashing - others On Steady

㉑ Tone Selector Buttons (1~16)

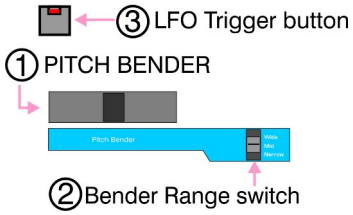


32 different patches have been pre-programmed in the 3P Upgrade. These have been made close to the original 3P patches. All these can be edited and restored. When selecting a patch select a combination of the Bank button and the Tone button. The Bank and Tone buttons will light to show the selection.

Note - The memory protection switch on the rear of the 3P will prevent memory writing. The write button will not function if the rear panel switch is in the middle position. All the Tone lights will flash once if a write is attempted with the protect on.

- You can only select one patch at a time
- All tones on Banks C to P contain a generic tone only from the factory and can be programmed with your own synthesized sounds
- All patches on all banks can be programmed (256 in total)

Performance Control Section



① Pitch Bender

This allows you to change the pitch of the DCOs individually or together depending on the selection made using the B-12 parameter edit. The pitch bender can also be directed to the Filter Cutoff, DCO Mix and LFO rate using parameters B-13 to B-16. These can be applied in any combination.

② Bend Range Switch

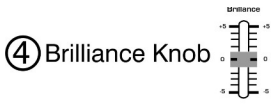
This sets the Maximum effect of the bender.

- Wide...Maximum effect. This will be an Octave for DCOs
- Mid...Medium effect. This will be a major perfect 5th for DCOs
- Narrow...Smallest effect. This will be a two semitones for DCOs

③ LFO Trigger Button

This button will add modulation. The destination of this modulation can be any of the AA-1 to AA-13 modulation parameters and the level is set by the AA-14 & AA-15 level controls.

On all factory programs the LFO button has been configured to a moderate level of DCO LFO level on both DCOs to give a vibrato effect.

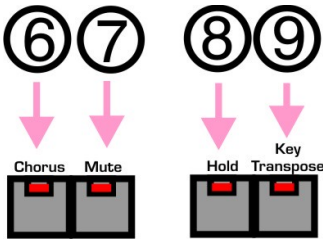


④ Brilliance Knob

This control sets the overall tone of the 3P. It achieves this by altering the filter cutoff level for all voices. This is done using hardware and will alter any programmed filter settings.

⑤ Volume Knob

This sets the overall output level of the 3P.



⑥ Chorus button

Press this button to turn on the chorus effect. The indicator LED will light when the effect is on. Press this button again to turn this effect off. If manual mode has been selected then this button will flash.

⑧ Hold button

The Hold button is used for several different functions

- Hold button pressed only will switch on the hold function and the indicator LED will light. Press this button again to turn this effect off. While hold is on notes played will continue to sound at the envelope sustain or gate level depending how the VCA mode has been selected using D-8. If notes are played after all notes were released the held notes are cleared and a new hold is started. To hold multiple notes play them all before releasing the last note. This differs from the original 3P hold method.

- Pressing and releasing the TAPE button and then pressing the Hold button will enter Arp mode. This is indicated by the Hold LED flashing. If the Hold function is active while in Arp mode the Hold light will remain on overriding the Arp indication but will not effect Arp Play.

⑦ Mute button

If you press this button the volume of the lower two octaves will be decreased. The indicator LED will light when the effect is on. Pressing this button again will turn the mute function off. This will also effect sequence play. This effect will not apply to midi note data.

- Pressing and releasing the TAPE button and then pressing the Mute button will Enable/Disable Pattern Play.

⑨ Key Transpose button.

Transposition to any key is possible. By using the appropriate key you can shift the pitch of the entire keyboard. This is set by pressing the Key T button and pressing any key on the keyboard while the Key T button is held. The Key T LED will light if the keyboard is transposed. To clear this, press the Key T button and press any C key. This is available in all playing modes except Chord Mode. The Key T light will flash when the 3P is in Chord mode.

Note - if the 3P is in Chord Mode any previous transpose will stay set but it will not be possible to change or cancel this until Chord Mode is exited as the Key Transpose button is used to set the Chord. See the section on assignment modes. Pressing and releasing the Key Transpose button in Chord mode without keys down will exit Chord Mode.

Note - Key Transposing will also apply to midi note data sent to the 3P. It is possible to have the 3P playing a different note to another keyboard using the same midi note data if the Key Transpose has been set.

3P Upgrade Notes

Sens Control

The behavior of the Sens control during parameter editing has been changed from the way the original 3P works. When editing a parameter the current value of the parameter must be matched before the Sens Control will have any effect on the parameter value. e.g. if the filter cutoff is set to 7 the Sens must be moved to 7 before it will begin to edit the setting. This has been done so that a parameter will not jump to the Sens setting which can cause unpredictable and sometimes unpleasant results.

The switch settings are no longer changed using the Bank buttons. They are now also changed using the Sens control. See the section on Parameter Editing for details on this.

Factory Presets

The factory presets have been made close to the original 3P presets.

Clock Display

The two LFOs and the Sequencer clock can display on the front panel. LFO 1 & 2 will display on the Group A and Group B buttons and the Sequence Clock will display on the Rest button light if enabled.

The LFO's will stop displaying while the 3P is not in normal play mode and the Sequence Clock will not display while a sequence is being edited.

Midi Switch

The 3P should be run with the protect switch in the center position.

This can be moved to 'Protect off' to change patches. **The Midi select position is not used.**

Chorus

When the Chorus Upgrade is installed Chorus Speed and a Chorus Manual Mode will be available. The Sense Slider will alter Chorus Speed when not in edit mode

Midi Received

Midi data received will flash the Tape Memory button light if it is recognized by the 3P.

Midi Panic

The Group A button also acts as Midi Panic and will cancel any sounding notes including internal. To stop all output from the 3P press Group A. Note - This will only work when not in Edit Mode.

PG-200 Support

PG-200 support has been removed from release 2.50 or higher.

SysEx Dump

SysEx Bulk Load/Dump facilities have been provided in the 3P system. Manual Dumps of the Currently Selected Tone, All Stored Tones, the Currently Selected Sequence and the Currently Selected Pattern can be Loaded or Dumped. The button sequence required is detailed in the Menu Map. Other Dump types are available via SysEx messages which are detailed in the SysEx section.

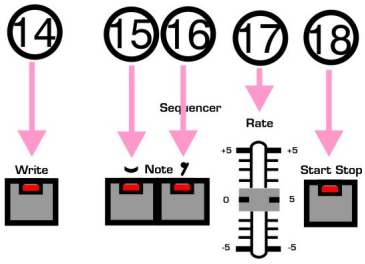
Note - All Dumps and Loads use the edit buffer to transfer data. Any unsaved edits will be lost. e.g. If you dump Tone 1 the saved version will be dumped not the edit buffer.

Note - Write Protect must be off to Load Dumps

Sequencer

The JX-3P Upgrade contains a polyphonic sequencer that has the capacity of 124 step automatic playing. Up to 6 notes can be played at a time so writing a chord is possible.

Note - if more than 6 notes are used in one step only the last 6 notes will play.



⑭ Sequencer Write Button

Press this button, followed by the sequence number using the tone buttons (1-16), to write data into the built in sequencer.

⑮ Sequencer Tie Button

In sequencer edit mode this button will join notes by repeating the last step.
In Play mode the Tie button will enable one of 16 saved sequences to be loaded. Press Tie followed by Tone number 1-16. The currently loaded Seq will flash. The loaded sequence will begin to play after the current one has reached the last position if currently playing.

⑯ Sequencer Rest Button

In sequencer mode this button will write rests (no sound) into the sequence.

⑰ Rate Knob

This controls the speed of the Sequencer clock if the clock source is selected as internal using parameter control A-13. If the clock source is from any other source this control will have no effect. Also if a clock source is plugged into the external socket in the rear of the 3P this will override the internal clock and this control.
If the 3P has been configured to send midi Clocks then the Rate control will set the speed of these. Note - if anything is plugged into the External Input the internal Clock will stop. This is a hardware function of the 3P.

⑱ Start/Stop Button

This is to start or stop the sequencer playing. Each time you press this button the sequencer will start or stop. Note - If the clock source is midi, pattern or external the sequence will not begin playing until the first clock is received.

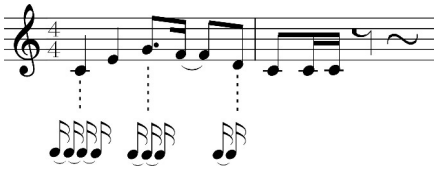
A) Writing / Editing

The 3P Upgrade differs from the original 3P in that the sequence write is always in edit mode. The only way to erase or blank a sequence is by using the Seq Erase Menu Option (Shift:Seq Write:Tone Number - see the menu map). **If you choose an existing sequence when Seq Write is pressed then any step(s) you write will overwrite all notes in the existing step(s) already in the sequence.** The Group A (backwards) and Group B (forwards) buttons will allow non destructive stepping within a sequence.

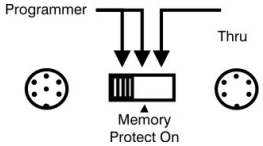
e.g. if the existing sequence is C, D, E, F, G and you step to the third step and play the chord C E G the resulting sequence will now be C, D, CEG(chord), F, G. You will have overwritten the third step.

You can write the pitch by playing the keyboard (or midi keyboard), and the rhythm by pressing the Tie button and the Rest button. (The pitch and rhythm should be simultaneously written).

(1) Find the shortest time value in the phrase you wish to write. Then divide the longer time values by that shortest one.
(e.g)



(2) The external selector switch should remain in the PG-200 position when writing to memory.

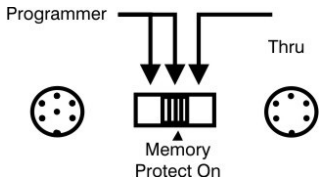


(3) Press the Sequence Write button followed by the Tone button for the Sequence to Write/Edit. The current Sequence number will flash on the Tone lights. The Write button lights up and the JX-3P will be in the writing/editing mode.

(4) By playing the keyboard and using the Tie button and Rest button, write steps one after another.

(5) If writing is complete press the Write button followed by a Tone button to Save the Sequence to permanent memory or the Start button or Shift Button to exit edit mode. The Start button will also start the sequence playing on the next clock received. If the Seq is not saved the sequence will be lost if the 3P is powered off or another sequence is loaded. Pressing the Start/Stop button again will stop the sequence playing and the Start indicator will go out. (refer to **B->Playing**)

(6) Return the Ext Switch to the Memory Protect Position.



A) Seq Overdub Edit

Overdub editing is possible by pressing Bank A during a sequence edit while playing Sequence note(s). When Bank A is pressed the existing Sequence step is loaded into the sequence step edit buffer and any notes played are added to the existing note(s).

Sequence steps can be non-destructively stepped forward or backwards by using the Group A button to step backwards (closer to the start of the sequence) or Group B to step forwards.

A sequence can be stopped at the current step by pressing Bank B at the last step required. All steps beyond this point will be lost. For example, if the sequence being edited has 5 steps and you are on the 3rd step and press Bank B the length of the sequence will be 3 and steps 4 & 5 will be lost.

B) Playing

Load Sequence

A Sequence can be loaded in two ways. A Sequence is loaded **manually** by pressing Seq Tie and then a Tone button 1-16. The Sequence that is stored under the Tone button selected will be loaded to memory

.

A Sequence can be assigned to a Tone and can load **automatically** when the Tone is loaded. To do this place the Sequence number 1-16 in the Load Sequence Field (D-1) in the Tone Parameter Editing. Place a zero in this field (no editing lights on) if you do not want a Sequence to load. The last Sequence will stay in memory and continue to play (if enabled) in this case.

If you press the Start/Stop button the indicator will light up and the data written into the sequencer will be played. If the seq clock is set to ext or midi the first note of the sequence will only sound once a clock has been received. This allows a seq to be queued to start. When all the notes are played the data will return to the beginning and be played again from the start. Pressing the Start/Stop button once more (it's indicator will go out) will stop playing immediately. The temp of the playing will be determined by the clock source. If the clock source is internal then the tempo will be set by the Rate Knob. The Rate Knob will have no effect if the clock source is anything other than the internal clock.

* If you stop the Sequence part way through and then restart it the data will start from the beginning.

* If you wish to only play the data once, put some rests are the end so it is easier to stop the sequence in the correct place.

It is possible to play along with the sequencer. The 3P has 6 voices in total and if not enough voices remain for all the sequence note(s) then these will be lost. i.e. if the sequence step has four notes and three are being played then one sequence note will not sound.

Note - If a new sequence or tone is loaded while a sequence is playing the load of the tone and Seq and pattern will delay until the current sequence reaches the end and is about to loop back to the start. At this point the Tone and Sequence (if auto load enabled) and Pattern (if auto load enabled) will then load and the next note(s) to sound will be with the new selection.

Arpeggiator

The KiwiTechnics 3P Upgrade has a built in Arpeggiator that can be applied to any sound.

Arpeggiator Mode is entered by pressing and releasing the Tape button and then pressing the Hold button.

The Hold button will begin to flash. Note - if Hold Mode is applied during Arp Mode the Hold Mode Light will override the Arp Mode light and the Hold light will stay on. This will not effect Arp Mode which is still active.

The clock for the Arpeggiator can be chosen from a number of sources using Global A-7. These can be Int/Ext, Pattern, LFO2 or the midi clock divided by 3, 4, 6, 9, 12, 18, 24, 36 48, 72, 96, 128, 144, 168 or 192.

The behavior or the Arpeggiator can be set using Global A-5 to set the style and Global A-6 to set the range. The style can be up only, down only, up & down and random. The range can be 0-2 octaves.

Canceling Arpeggiator Mode.
Arpeggiator mode can be cleared by pressing and releasing the Tape button and then pressing the Hold button.

Note - If the Arpeggiator notes held are spread over more than 1 octave and more than one octave is selected in the Arp Range the notes played will be as follows. All the first octave notes held will play followed by the same pattern moved up one or two octaves. The result of this will be the first note of the second pass can be lower than the last note of the first pass. This can sound odd if you have selected one direction for the Arp Mode.

Pattern Play

The KiwiTechnics 3P Upgrade has a pattern system that can be applied to any Tone. There are 16 independent patterns which are stored under the Tone buttons 1-16.

Pattern Play.
Pattern Play can be toggled on and off by pressing and releasing the Tape button and then pressing the Mute button. Pattern Level is set using Global Parameter A-12.

Note: If the Pattern Level is set to off, Pattern > VCF or VCA is not enabled or the Pattern is blank the Pattern Selected will not sound even if Play is enabled.

Load Pattern
A Pattern can be loaded in two ways. A pattern is loaded **manually** by pressing Group B and then a Tone button 1-16 (the current pattern will flash). The pattern that is stored under the Tone button selected will be loaded to memory and begin to play **only if pattern play and pattern destination (VCF or VCA) is enabled, and the Pattern Level is not zero.**
A pattern can be assigned to a Tone and can load **automatically** when the Tone is loaded. To do this place the pattern number 1-16 in the Load Pattern Field (D-2) in the Tone Parameter Editing. Place a zero in this field (no editing lights on) if you do not want a pattern to load. The last pattern will stay in memory and continue to play (if enabled) in this case.

Edit Pattern
Edit mode is entered by pressing and releasing Tape and then pressing the Group B button followed by a Tone button 1-16 to select the pattern to edit. The currently selected Pattern will flash.

Clock Speed can be set using Global Parameter A-14. The clock for the Pattern System can be chosen from Int/Ext, LFO2 or the midi clock divided by 3, 4, 6, 9, 12, 18, 24, 36 48, 72, 96, 128, 144, 168 or 192.

The Pattern clock will show on the 16 Tone lights while in Pattern Edit mode.

Exit Pattern Edit mode by pressing the Edit Write button followed by the Tone number 1-16 to store the pattern under that number or the Tape button to abort editing without storing the Pattern. If aborted the edited pattern will remain in the temporary buffer and continue to sound until it is overwritten or the 3P is powered off.

To create a pattern press the tone buttons to add or remove sections of the pattern. If a tone button light is dark the pattern step will sound at the Pattern Level parameter setting (Global Parameter A-12) and if the tone button light is on the pattern step will sound at normal play level.

Pattern Length.
The pattern length can be changed from 2-16. This is set by pressing and holding the Group A button and then pressing a tone button between 2 and 16 while in Pattern edit mode. The current Length will flash on the Tone Lights while Group A is pressed.

Canceling a Pattern.
A pattern can be cleared by setting all the tone lights on.

Chord Mode

Chord Mode is entered by pressing and releasing the Tape button and then pressing the Key Transpose button.

The Key Transpose button light will flash while in this mode.

A Chord is set by playing the Chord and then pressing and releasing the Key Transpose button while the keys of the chord are being held. The chord that is set will then play for each key pressed as the base note.

Note - it is best to set the chord using middle 'C' as the base note.

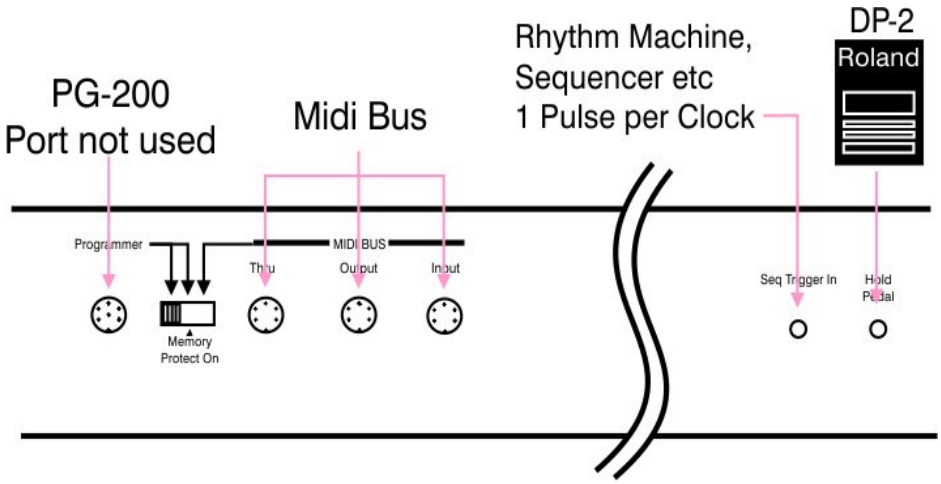
As only one chord can be played at a time the keys played have lowest or highest note priority depending on the Unison or Mono Key Assign Mode setting, this will be low note priority if in either poly .

Changing a chord.
To change a chord play the new chord and press and release the Key Transpose button while the chord keys are pressed.

Canceling Chord Mode.
To cancel chord mode press Key Transpose with no notes pressed.

Note - If the keyboard has been previously transposed to another key this will remain in effect. It will not be possible to change the key transpose setting while in Chord Mode.

Setting up with External Devices



You can adjust the tempo, and start or stop the Sequencer of the JX-3P with the controls on the external unit.

Before starting external synchronization with the external unit, make sure that the built-in sequencer in the JX-3P is not running. Press the Start/Stop button and it's indicator will light then start the synchronization.

Midi Notes

If your JX-3P has Midi though fitted this should be used if multiple units are being used on the midi chain to reduce delays. While every effort has been made to make the midi as fast as is possible within the KiwiTechnics JX-3P Upgrade there will always be small delays between the midi input and midi output as the commands need to be interpreted which cannot be done until a full command arrives. Full midi command details are at the end of the manual.

Hold Pedal

The Roland DP-2 is shown but any pedal that shorts the tip to ground when not pressed can be used. It will need to go open circuit when pressed to suit the JX-3P

The operation of the hold has changed from the original 3P. Pressing the hold pedal will set the envelope release time to maximum if the VCA mode has been set to 'Envelope' or toggle the Hold button if the VCA mode has been set to 'Gate'. This has a more natural piano like operation for the Envelope mode.

Editing a Patch

The Edit Parameter table on the next page shows all the parameters that can be edited with the KiwiTechnics 3P Upgrade.

Use the menu map as a guide to the editing key sequence. For example to edit the filter cutoff press Tape then Edit Write then Bank C then Tone Button 1 and edit the value using the Sense Slider

To change from Bank A to Bank AA or Bank B to Bank BB press the Bank button twice

The Groups are identified as follows:

Bank A	Bank A light on steady	Bank D	Bank D light on steady
Bank B	Bank B light on steady	Bank AA	Bank A light slow flash
Bank C	Bank C light on steady	Bank BB	Bank B light slow flash

All Parameters are edited using the Sens control unlike the original 3P which used the Bank buttons to set switches. These are now changed using the Sens slider as well.

Note - The behavior of the Sens control during parameter editing has been changed from the way the original 3P works. When editing a parameter the current value of the parameter must be matched before the Sens Control will have any effect on the parameter value.

e.g. if the filter cutoff is set to 7 the Sens must be moved to 7 before it will begin to edit the setting. This has been done so that a parameter will not jump to the Sens setting which can cause unpredictable and sometimes unpleasant results.

Raising a control towards 10 will deepen an effect. Each parameter being edited is identified by the Bank A to D buttons and the Tone buttons 1-16 Flashing.

Switch values are displayed as follows on the Bank lights.

No lights showing is off
Light 1-16 on - Setting 1-16
Light 1-16 flashing - Setting 17-32

Edit Parameters

TONE PARAMETERS

	Bank A $20-$2f	Bank B $30-$3f	Bank C $40-$4f	Bank D $50-$5f	Bank AA $60-$6f	Bank BB $70-$7f
	DCO1	DCO2	VCF	VCA & Chorus	MW Tone Parameters	AT Tone Parameters
1	Range	Range	Cutoff	Load Sequence	MW->DCO1/2 Pitch	AT->DCO1/2 Pitch
2	Waveform	Waveform	Resonance	Load Pattern	MW->DCO1/2 LFO Amnt	AT->DCO1/2 LFO Amnt
3	Coarse Tune	Coarse Tune	Keyboard	Chorus Mode	MW->DCO1/2 Env Amnt	AT->DCO1/2 Env Amnt
4	Synx / XMod	Fine Tune	High Pass Cutoff	Chorus Rate	MW->VCF Cutoff	AT->VCF Cutoff
5	LFO Amount	LFO Amount	LFO Amount	LFO Amount	MW->Resonance	AT->Resonance
6	LFO Source	LFO Source	LFO Source	LFO Source	MW->VCF LFO Amnt	AT->VCF LFO Amnt
7	Env Amount	Env Amount	Env Amount	VCA Level	MW->VCF Env Amnt	AT->VCF Env Amnt
8	Env Source	Env Source	Env Source	Env Source	MW->VCA Level	AT->VCA Level
9					MW->VCA LFO Amnt	AT->VCA LFO Amnt
10	DCO Mix				MW->LFO1/2 Rate	AT->LFO1/2 Rate
11	LFO1 Wave	LFO Mode	Voice Assign Mode	Portamento Rate	MW->DCO Mix	AT->DCO Mix
12	LFO1 Rate	Bend DCO Pitch	Voice Detune		MW->Highpass	AT->Highpass
13	LFO1 Delay	Bend VCF Cutoff	Env 1 Attack	Env 2 Attack	MW->Chorus Rate	AT->Chorus Rate
14	LFO2 Wave	Bend VCA Level	Env 1 Decay	Env 2 Decay	MW Level	AT Level
15	LFO2 Rate	Bend DCO Mix	Env 1 Sustain	Env 2 Sustain	LFO Button Mod Level	
16	LFO2 Delay	Bend LFO Rate	Env 1 Release	Env 2 Release		

GLOBAL PARAMETERS

	S:GroupA:BankA $80-$8f	S:GroupA:BankB $90-$9f
	System Parameters	General
1		Midi In Channel/Omni
2		Midi Out Channel
3	Detune Mode	Seq Midi Out Channel
4	Internal Velocity	Set Device ID
5	Arpeggio Mode	Local On/Off
6	Arpeggio Range	Enable CC Recv
7	Arpeggio Clock Source	Enable Sysex Recv
8	Seq Local/Midi/Both	Enable Midi Non CCPass

GLOBAL PARAMETERS

	S:GroupA:BankA $80-$8f	S:GroupA:BankB $90-$9f
	System Parameters	General
9	Seq Clock Source	Enable Midi CC Pass
10	Pattern->VCF Amount	Enable Midi Clock Gen
11	Pattern->VCA Amount	Enable Program Change
12	Pattern Level	Enable Clock Display
13	Pattern Mode	Enable Voice Display
14	Pattern Clock Source	Master/Slave Mode
15	Seq Midi Start/Stop Mode	Master/Slave Select
16	Fine Tune Offset Adjust	

Yellow=Continuous Control

Purple=Split Continuous Control

TONE - DCO (Digitally Controlled Oscillator)

Parameter	Edit Location	Values
Range 16', 8', 4'	A-1 DCO 1 B-1 DCO 2	1 = 16', 2=8', 3=4'
Wave Saw, Pulse, Square Noise (DCO2 Only)	A-2 DCO 1 B-2 DCO 2	1 = Saw, 2= Pulse, 3=Square 1 = Saw, 2= Pulse, 3=Square, 4 = Noise
DCO Coarse Tune ± 1 Octave	A-3 B-3	Range 0-127 (-1200 cents -> +1200 cents) ± 1 Octave
DCO 2 Fine Tune	B-4	Range 0-127 (~-50 cents -> +50 cents)
DCO 1 LFO Modulation Depth DCO 2 LFO Modulation Depth	A-5 B-5	Range 0-127
DCO 1 LFO Source DCO 2 LFO Source	A-6 B-6	1 = LFO 1, 2 = LFO 2
DCO 1 Env Modulation Depth DCO 2 Env Modulation Depth	A-7 B-7	Range ±63 - Note - this control is center off
DCO 1 Env Source DCO 2 Env Source	A-8 B-8	1 = ENV 1, 2 = ENV 2
DCO 2 Cross Modulation	A-4	1 = Off, 2= Sync, 3= Metal
DCO Mix	A-10	Range 0-127 (0=DCO1, 64 = 50/50, 127 = DCO2)

TONE - VCF (Voltage Controlled Filter)

Parameter	Edit Location	Values
VCF Cutoff	C-1	Range 0-127
VCF Resonance	C-2	Range 0-127
VCF Pitch Follow	C-3	Range 0-127
HPF Cutoff Frequency	C-4	Range 0-127
VCF LFO Modulation Depth	C-5	Range 0-127
VCF LFO Source	C-6	1 = LFO 1, 2 = LFO 2
VCF Env Modulation Depth	C-7	Range ±63 - Note - this control is center off
VCF Env Source	C-8	1 = ENV 1, 2 = ENV 2

TONE - VCA (Voltage Controlled Amplifier)

VCA LFO Modulation Depth	D-5	Range 0-127
VCA LFO Source	D-6	1 = LFO 1, 2 = LFO 2
VCA Level	D-7	Range 0-127
VCA Mode	D-8	1 = Gate, 2 = Env 1, 3 = Env 2

TONE - LFO (Low Frequency Oscillator)

LFO 1 & 2 Wave Sine, Triangle, Saw, Rev Saw Square, Random LFO 2 - Seq Clocked Random	A-11 LFO 1 A-14 LFO 2	1 = Sine 2 = Triangle 3 = Saw 4 = Rev Saw 5 = Square 6 = Random 7 = Seq Clocked Random (LFO 2 Only)
LFO 1 & 2 Rate	A-12 LFO 1 A-15 LFO 2	Range 0-127 (0=slowest)
LFO 1 & 2 Delay	A-13 LFO 1 A-16 LFO 2	Range 0-127 (0=no delay)
LFO 1 & 2 Mode	B-11	1 = LFO 1 & 2 Normal (above and below base note) 2 = LFO 1 & 2 Plus (above base note only)

TONE - ENV 1 & 2 (Envelope Generators)

Envelope 1 & 2 Attack	C-13 ENV 1 D-13 ENV 2	Range 0-127
Envelope 1 & 2 Decay	C-14 ENV 1 D-14 ENV 2	Range 0-127
Envelope 1 & 2 Sustain	C-15 ENV 1 D-15 ENV 2	Range 0-127
Envelope 1 & 2 Release	C-16 ENV 1 D-16 ENV 2	Range 0-127
Envelope 1& 2 Speed	D-12 ENV 1/2	1 = Normal Speed, 2 = Half Speed

TONE - Chorus

Chorus Off/Auto/Manual (with upgrade fitted)	D-3	1 = Off, 2 = Auto, 3 = Manual
Chorus Rate (with fitted)	D-4	Range 0-127

TONE - Aftertouch Control

DCO Freq	BB-1	0=Off, 1=DCO1, 2=DCO2, 3=Both
DCO LFO Level	BB-2	0=Off, 1=DCO1, 2=DCO2, 3=Both
DCO ENV Level	BB-3	0=Off, 1=DCO1, 2=DCO2, 3=Both
VCF Cutoff	BB-4	0 = Off, 1 = On
VCF Resonance	BB-5	0 = Off, 1 = On
VCF LFO Level	BB-6	0 = Off, 1 = On
VCF ENV Level	BB-7	0 = Off, 1 = On
VCA Level	BB-8	0 = Off, 1 = On
VCA LFO Level	BB-9	0 = Off, 1 = On
LFO Frequency	BB-10	0=Off, 1=LFO1, 2=LFO2, 3=Both
DCO Mix	BB-11	0 = Off, 1 = On
HighPass Filter	BB-12	0 = Off, 1 = On
Chorus Rate	BB-13	0 = Off, 1 = On
Aftertouch Level	BB-14	Range ±63 - Note - this control is center off

TONE - Modulation Control (midi and LFO button)

DCO Freq	AA-1	0=Off, 1=DCO1, 2=DCO2, 3=Both
DCO LFO Level	AA-2	0=Off, 1=DCO1, 2=DCO2, 3=Both
DCO ENV Level	AA-3	0=Off, 1=DCO1, 2=DCO2, 3=Both
VCF Cutoff	AA-4	0 = Off, 1 = On
VCF Resonance	AA-5	0 = Off, 1 = On
VCF LFO Level	AA-6	0 = Off, 1 = On
VCF ENV Level	AA-7	0 = Off, 1 = On
VCA Level	AA-8	0 = Off, 1 = On
VCA LFO Level	AA-9	0 = Off, 1 = On
LFO Frequency	AA-10	0=Off, 1=LFO1, 2=LFO2, 3=Both
DCO Mix	AA-11	0 = Off, 1 = On
HighPass Filter	AA-12	0 = Off, 1 = On
Chorus Rate	AA-13	0 = Off, 1 = On
Modulation Level	AA-14	Range ±63 - Note - this control is center off
Modulation Button Level	AA-15	Range 0-127

TONE - Bend Control

DCO Pitch	B-12	0=Off, 1=DCO1, 2=DCO2, 3=Both
VCF Cutoff	B-13	0 = Off, 1 = On
VCA Level	B-14	0 = Off, 1 = On
DCO Mix	B-15	0 = Off, 1 = On
LFO Rate	B-16	0=Off, 1=LFO1, 2=LFO2, 3=Both

TONE - Voice Mode Control

Voice Assign Mode	C-11	0 = Poly 1 (7th note override) 1 = Poly 2 (7th note ignored) 2 = Unison 1 (Low note priority) 3 = Unison 2 (High note Priority) 4 = Mono 1 (Low note priority) 5 = Mono 2 (High note Priority)
Voice Assign Detune Amount	C-12	Range 0-127

GLOBAL - Arpeggiator Control

Arpeggiator Mode	A-5	0=Up, 1=Down, 2=Both, 3=Random
Arpeggiator Range	A-6	0=0 Oct, 1=1 Oct, 2= 2 Octs
Arp Clock Source	A-7	0 = Int/Ext 1 = LFO 2 2= Pattern Generator 3 = Midi Clock / 3 (1/32 Note) 4 = Midi Clock / 4 (1/32 Note Dotted) 5 = Midi Clock / 6 (1/16 Note) 6 = Midi Clock / 9 (1/16 Note Dotted) 7 = Midi Clock / 12 (1/8 Note) 8 = Midi Clock / 18 (1/8 Note Dotted) 9 = Midi Clock / 24 (1/4 Note) 10 = Midi Clock / 36 (1/4 Note Dotted) 11 = Midi Clock / 48 (1/2 Note) 12 = Midi Clock / 72 (1/2 Note Dotted) 13 = Midi Clock / 96 (Whole Note) 14 = Midi Clock / 128 (Whole + 1/4 Note) 15 = Midi Clock / 144 (Whole + 1/2 Note) 16 = Midi Clock / 168 (Whole + 1/2 Dotted) 17 = Midi Clock / 192 (2 Notes)

GLOBAL - Sequencer Control

Seq Mode	A-8	0 = Both 1 = Local Only 2 = Midi Only
Seq Start/Stop Midi Command Mode	A-15	0 = Disabled - 3P will ignore midi Start/Stop 1 = Enabled - 3P will Action midi Start/Stop

GLOBAL - Sequencer Control

Seq Clock Source	A-9	0 = Int/Ext 1 = LFO 2 2= Pattern Generator 3 = Midi Clock / 3 (1/32 Note) 4 = Midi Clock / 4 (1/32 Note Dotted) 5 = Midi Clock / 6 (1/16 Note) 6 = Midi Clock / 9 (1/16 Note Dotted) 7 = Midi Clock / 12 (1/8 Note) 8 = Midi Clock / 18 (1/8 Note Dotted) 9 = Midi Clock / 24 (1/4 Note) 10 = Midi Clock / 36 (1/4 Note Dotted) 11 = Midi Clock / 48 (1/2 Note) 12 = Midi Clock / 72 (1/2 Note Dotted) 13 = Midi Clock / 96 (Whole Note) 14 = Midi Clock / 128 (Whole + 1/4 Note) 15 = Midi Clock / 144 (Whole + 1/2 Note) 16 = Midi Clock / 168 (Whole + 1/2 Dotted) 17 = Midi Clock / 192 (2 Notes)

GLOBAL - Pattern Generator

Pattern -> VCF	A-10	0 = Off, 1 = On
Pattern -> VCA	A-11	0 = Off, 1 = On
Pattern Level	A-12	Range 0-127
Pattern Mode	A-13	0 = Off, 1 = On
Pattern Clock Source	A-14	0 = Int/Ext 1 = LFO 2 2 = Midi Clock / 3 (1/32 Note) 3 = Midi Clock / 4 (1/32 Note Dotted) 4 = Midi Clock / 6 (1/16 Note) 5 = Midi Clock / 9 (1/16 Note Dotted) 6 = Midi Clock / 12 (1/8 Note) 7 = Midi Clock / 18 (1/8 Note Dotted) 8 = Midi Clock / 24 (1/4 Note) 9 = Midi Clock / 36 (1/4 Note Dotted) 10 = Midi Clock / 48 (1/2 Note) 11 = Midi Clock / 72 (1/2 Note Dotted) 12 = Midi Clock / 96 (Whole Note) 13 = Midi Clock / 128 (Whole + 1/4 Note) 14 = Midi Clock / 144 (Whole + 1/2 Note) 15 = Midi Clock / 168 (Whole + 1/2 Dotted) 16 = Midi Clock / 192 (2 Notes)

GLOBAL - Key Control

Voice Detune Mode	A-3	0 = Unison & Mono Only 1 = All Key Modes

Internal Velocity	A-4	Range 0-127 - Sets Velocity Level for internal keys

GLOBAL - Fine Tune

Fine Tune Offset	A-16	Range ±63 (~±200 cents) - Note - this control is center off This will adjust the entire 3P and is independent of the tune control on the rear of the 3P

GLOBAL - Midi and General Settings

Midi In Channel	B-1	Range 0-16 for Channels 1-16 & Omni (Default 0) All Tone Lights will flash for OMNI
Midi Out Channel	B-2	Range 0-15 for Channels 1-16 (Default 0)
Seq Midi Out Channel	B-3	Range 0-15 for Channels 1-16 (Default 0)
Device ID	B-4	Range 0-16 for ID 1-16 & Omni (Default 0) All Tone Lights will flash for OMNI
Local On/Off	B-5	0 = Local Keyboard Off 1 = Local Keyboard On (Default 1)
Enable Midi CC Receive	B-6	0 = Midi CC Receive Disabled 1 = Midi CC Receive Enabled (Default 1)
Enable Midi Sysex Receive	B-7	0 = Midi Sysex Receive Disabled 1 = Midi Sysex Receive Enabled (Default 1)
Enable Midi Soft Through note - real time midi commands will always pass and B:8 will have no effect	B-8	0 = No Midi Passed (Default 0) 1 = Midi Passed depending on B-9 filter
Midi Soft Through Filter note - if Midi In B:1 is set to omni all midi will pass and B:9 will have no effect note - SysEx intended for the 3P will not be passed and B:9 will have no effect	B-9	0 = No Filter - all midi passed (Default 0) 1 = Filter all midi on 3P Input Channel 2 = Filter only midiCC on 3P Input Channel* * = bank select, panic & MW CC will still be passed
Enable Midi Clock Generation	B-10	0 = Midi Clock not generated (Default 0) 1 = Midi Clock Generated from Internal
Enable Program Change Command	B-11	0 = Program Change not sent (Default 0) 1 = Program Change sent
Enable Clock Display	B-12	0 = Clock Display Disabled 1 = Clock Display Enabled (Default 1)
Enable Voice Display note - this setting is lost on power down	B-13	0 = Voice Display Disabled (Default 0) 1 = Voice Display Enabled

3P Upgrade Special Functions

Setting Incoming Midi Channel

The incoming midi channel can be set to any channel from 0-16. 0=Omni 1-16=channel number
This is set using the Global Parameter Edit B-1

Setting Outgoing Midi Channel

The outgoing midi channel can be set to any channel from 1-16.
This is set using the Global Parameter Edit B-2

Setting Sequencer Outgoing Midi Channel

The Sequencer outgoing midi channel can be set to any channel from 1-16.
This is set using the Global Parameter Edit B-3

Factory Restore 1

Programs 1-32 can be restored to factory original by the following actions
1) Press 'Tape Memory'. The Tape Memory Light will begin to flash
2) Press 'Bank D' button. The 'D' light will start to flash
3) Press 'Tone 16' button. The Tone 16 and Edit Write buttons will begin to fast flash.
4) Press Edit Write to start restore or Tape Memory to cancel
Only Programs 1-32 (Banks A & B) are overwritten and Memory Protect must be set to off. To Cancel press Tape Memory before Write is pressed
The 3P will stop responding for a short period while the restore is being done.

Factory Restore 2

Programs 1-256 can be restored to factory settings by the following action
Press and hold Edit Write and Seq Write while powering the 3P on.

WARNING - There will be no confirmation and all Tones, Sequences & Patterns will be cleared.

The Memory Protect must be set to off. The 3P will stop responding while the restore is being done.

Program Update

The KiwiTechnics 3P Upgrade has built in ability to update the firmware should updates become available. This section is entered by pressing the Tape button while the 3P is powered on. The Update file is then 'played' into the 3P using midiOX or similar. The update progress is displayed on the Tone Lights. Once complete the Bank D button will light and the 3P should be repowered.

WARNING - If this procedure fails the 3P will be rendered unusable and will require a replacement CPU from KiwiTechnics. Use at your own risk.

The current releases are displayed on the Tone Selector lights for about 1 sec at power on. Tone 1 - 6 display the program release and 7 - 8 display the Bootloader release. e.g. Tone 2, 3 & 7 would mean Prog v2.3 and BL v 1

Upgrade install

The KiwiTechnics 3P Upgrade must be installed by a competent technician with the correct tools or damage to your 3P can occur.

The cpu needs to be removed and replaced with a 40 pin socket which is supplied with the KiwiTechnics 3P Upgrade. These instructions are supplied as a guide for your technician only and it is your responsibility to have this done professionally. This can take 1-2 hours depending on your skill level.

KiwiTechnics will not be responsible for damage done to your precious 3P if this upgrade is not fitted correctly.

Step 1) Opening the 3P - After removing the four screws located in the end panels and the 4 screws on the underside at the rear the top can be opened.

Step 2) Removing the main board. Remove the screws securing the keyboard from the underside of the 3P so the keyboard can be moved forward and give access to the main board. Remove the 8 screws shown in Photo 1.

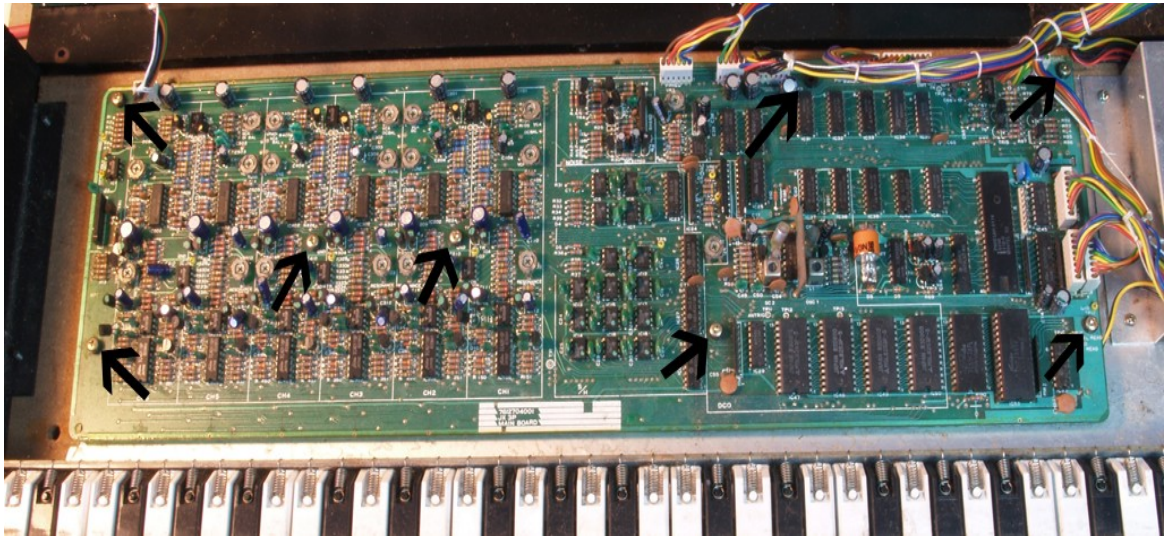
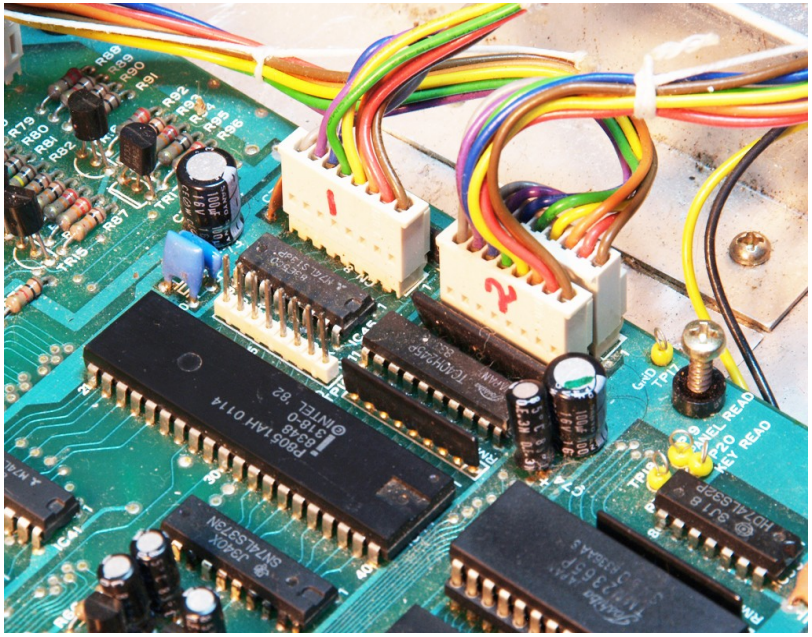


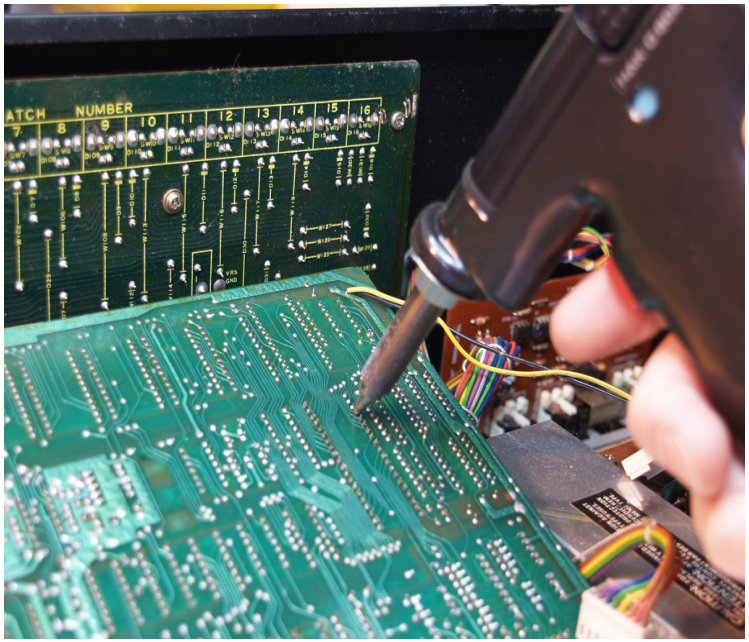
Photo 1 - Screw Locations in the 3P main board

Step 3) Remove the 6 cable plugs and turn the board over.

Step 4) Desolder the CPU (IC44) and fit the supplied 40 pin IC Socket.

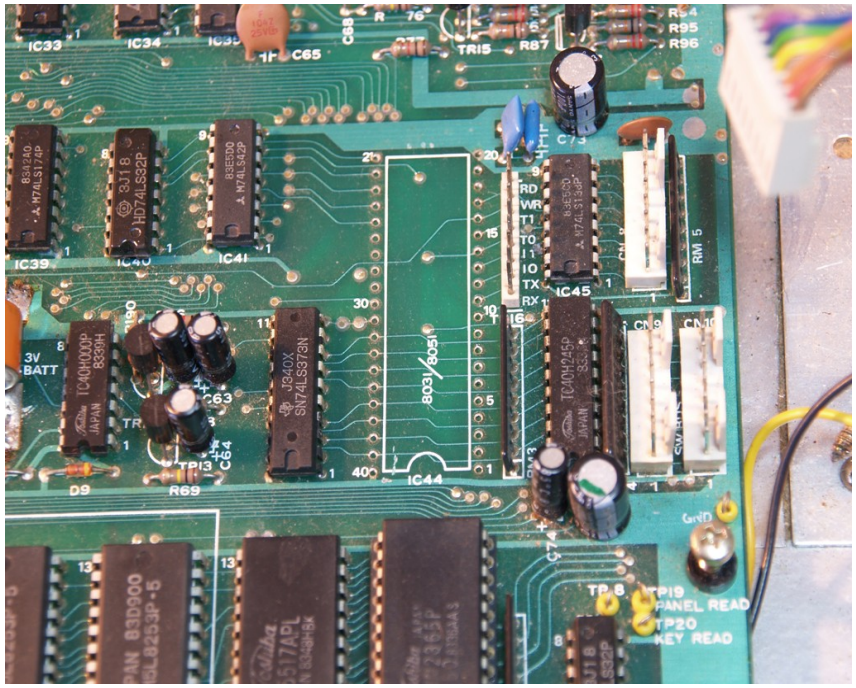
It is very important that this step is done correctly.

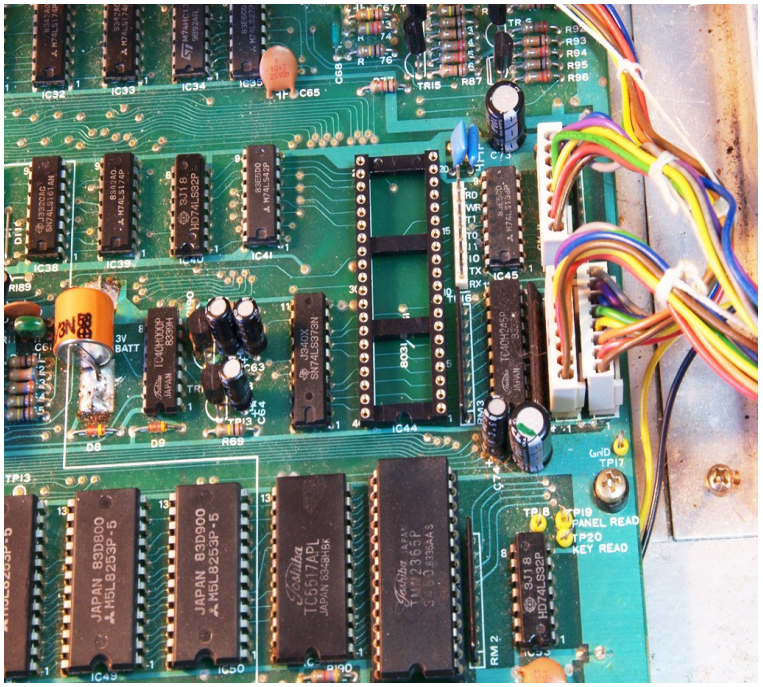




On the top side of the board underneath the IC44 CPU are some fine tracks that will be damaged and difficult to repair if all the solder is not removed correctly. **All the solder must be removed from all the 40 holes and the pins free of the hole edges before the CPU is lifted.** The CPU pins should be able to move freely in the hole which shows that they are not still soldered to the hole sides. The best way to achieve this is with a good vacuum desoldering tool. The photo shows a Hakko being used. A hand vacuum can be used but these can cause damage to the board as they can jump and damage tracks as they are triggered. Quality Solder wick is a better approach than a hand desolderer.

Step 5) Carefully solder in the supplied 40 IC socket.

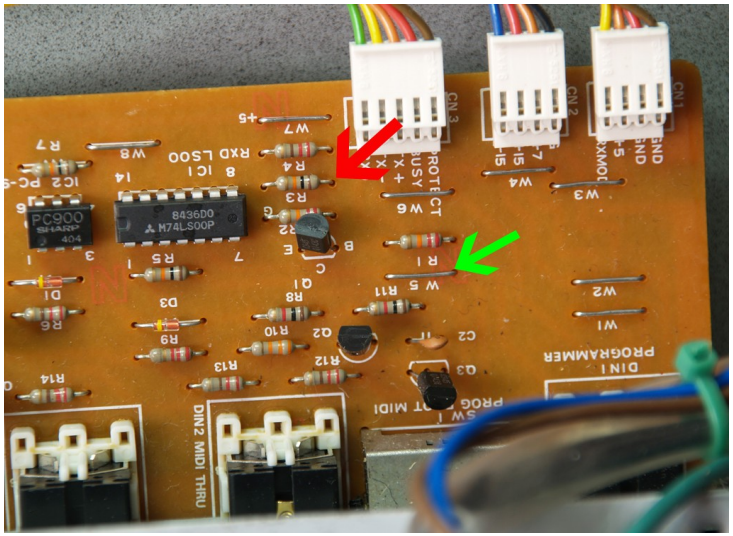




Step 6) Fit the KiwiTechnics Upgrade Board into the socket. **Pin 1 on the upgrade board is marked and this end MUST be at the pin 1 end of the socket**. Pin 1 is marked on the board, socket & upgrade board by a notch in one end (see pictures). It is most important **to make sure all the pins are located inside all the socket holes** before pressing the upgrade firmly into the socket. This will need a firm push to seat and if pins are not located correctly they will bend and are likely to break off which will require a replacement.

Step 7) If the Chorus speed mod is also being fitted do not screw this board back yet

Step 8) A link needs be cut or removed on the Midi board to allow the midi to work when the memory protect is on. If this is not done the midi input will stop when the Selector switch is on the Protect position or PG-200 setting. This link is labeled 'W5' and is marked in the photo with the green arrow and can be cut with the board in place. On 3P Jack boards that do not have a midi through the link is still labeled as 'W5' and is in a similar part of the board.



The PG-200 is no longer supported and all control needs to be via midi input.

If you are fitting the Chorus Speed mod upgrade then this will require the front panel control board to be removed which is best done next. If you are also changing the LED operation described under the optional mods then this should also be done at the same time.

If not then skip to Adjustments

Optional Chorus Speed Mod

The Chorus Upgrade will allow control of the Chorus Speed in the 3P which can be controlled via midi and saved with a program patch. There is also a manual mode to allow the chorus sweep to be stopped in any position or controlled at any speed.

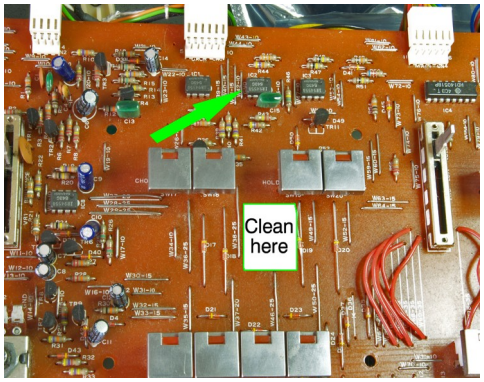
Step 1) Remove the front panel board. To do this it will be necessary to remove the Jack board to allow access to the mounting screws for the front panel. This is done by removing the four screws at the ends of the jacks on the rear of the 3P. The front panel can then be removed by removing the slider knobs and then undoing the mounting screws.

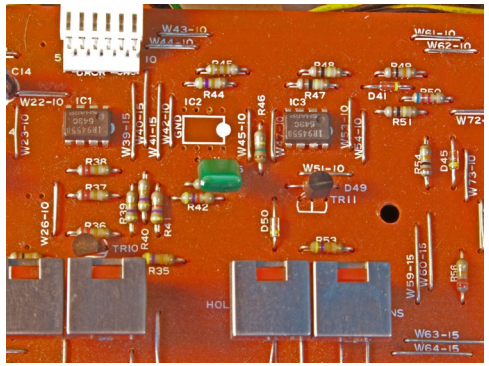
Step 2) Remove IC2 (green arrow in picture)

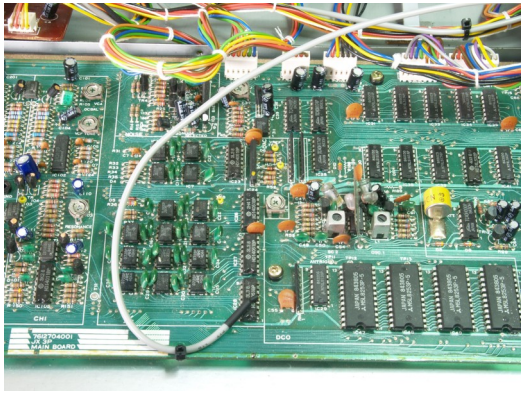
Step 3) Clean and dust or dirt from the labeled space on the board in the photo using a damp cloth and then dry. Bend down C15 as much as will easily bend away from the IC2 holes. Do not force. Remove the tape from the double sided sponge on the Chorus Mod PC board and press the board onto this spot. Solder in the 8pin header into the IC2 holes with the cable going over C15 (see photo). Make sure the bottom of the Chorus Board does not touch any of the wire links.

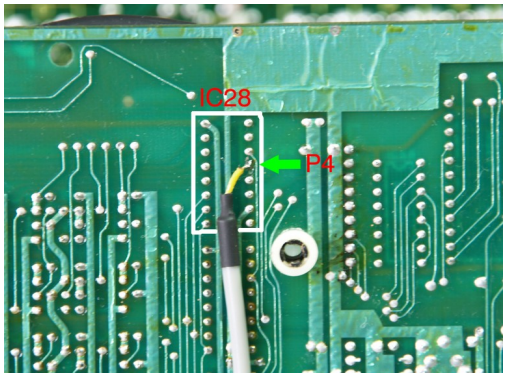
Step 4) Uncoil the shielded cable and tie this to the existing wiring loom down to the main voice board.

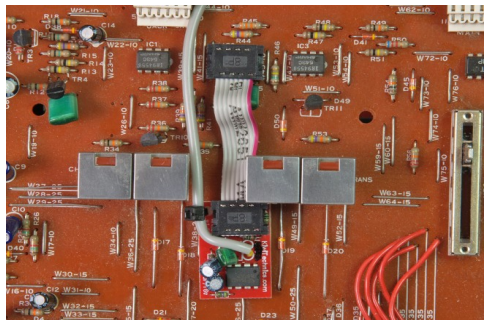
Step 5) Carefully Solder the end of the cable to pin 4 of IC28 making sure you have not bridged the IC pins with solder. This is arrowed on the picture. This will need to be done fairly quickly so the IC does not get too hot which will damage it. The cable can be soldered to the top or bottom of the board. The cable should be tied to the hole in the board next to IC28 (see photos).











Optional Fixes for the JX-3P

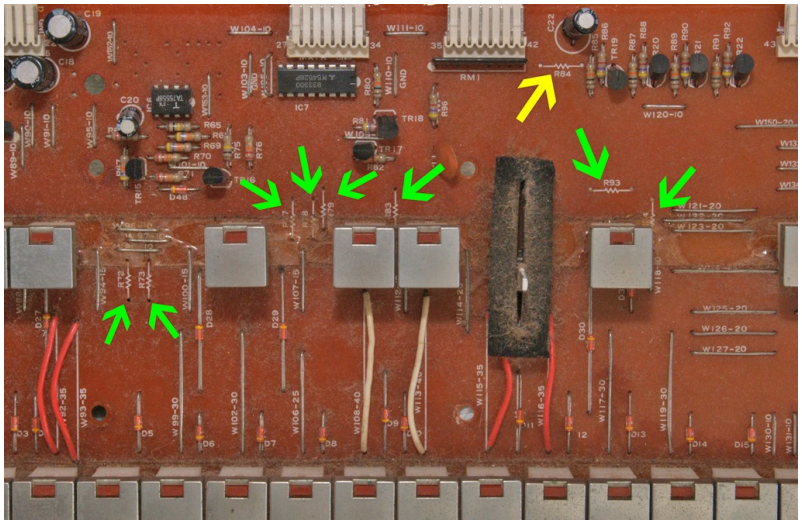
The following are optional modifications that can be made. The first changes the way the LEDs are powered which will reduce the flickering that occurs as LED are changed on the display. This is more noticeable once the KiwiTechnics Upgrade is fitted due to the enhanced use of the LEDs.

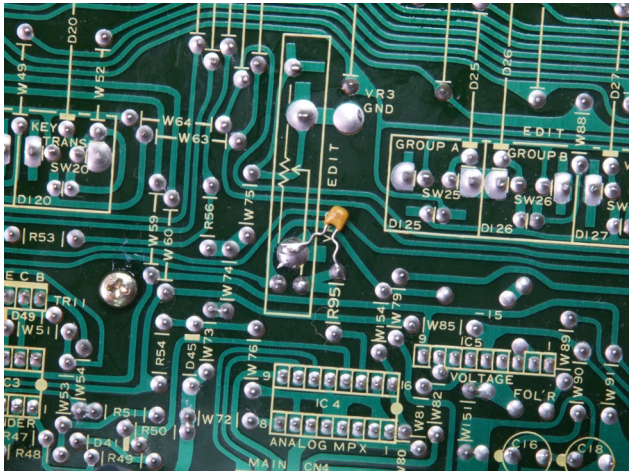
Step 1 Remove the front panel board. To do this it will be necessary to remove the Jack board to allow access to the mounting screws for the front panel. This is done by removing the four screws on the rear of the 3P. The front panel can then be removed by removing the slider knobs and then undoing the mounting screws.

Step 2 Remove all of the nine 100R resistors identified with arrows. The photo shows these already removed.

Step 3 Place a link in place of R84 which is identified by the yellow arrow and fit the eight supplied 220R resistors to the eight green arrow locations. There is a resistor numbering error in the service manual so use the photo as your guide.

Step 4 Replace the front panel board, the rear jack board and front panel knobs





The second modification improves the stability of the Sens slider. On my test 3P I had noise issues with the Sens pot which caused it to be noise prone and jumpy. This can be improved by fitting the supplied 0.1uF cap to ground on the junction between the Sens Edit Pot slider connection and R95. This is most easily fitted on the underside of the front panel board as shown in the photo. The Sens Pot is located near the center of the front panel board and has the word 'EDIT' next to it.

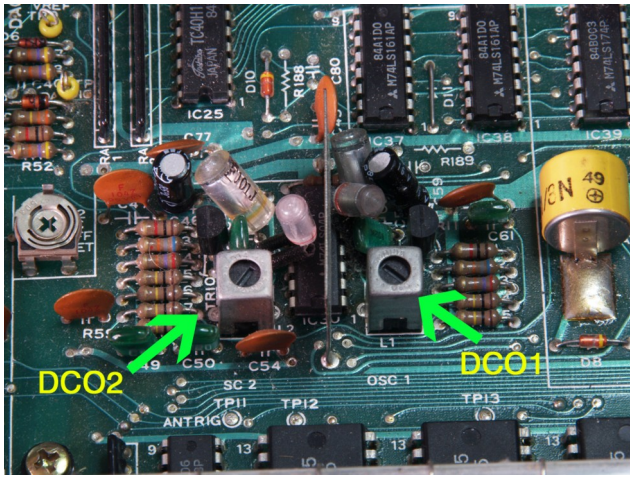
Adjustments for the JX-3P

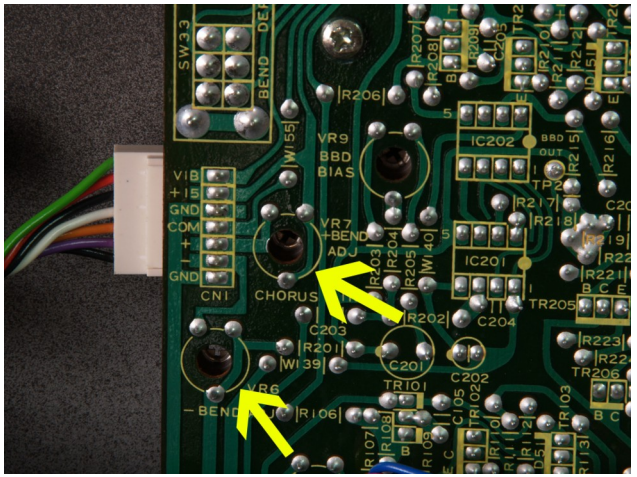
Before the cover is screwed back on is a good time to check the Bend Lever Range, 3P reference voltage setting and the DCO Master Clocks tuning.

Master DCO Clock Tuning

The two DCOs in the 3P each have an independent clock and if these are not set correctly it is difficult to fine tune the tones correctly. These are tuned as follows.

1) Get something to measure the frequency output of the 3P. I recommend APTuner from www.aptuner.com.
2) Choose any of the blank factory tones from banks C-P. These all have both DCOs on the same tune setting and fine tune set to the center. Switch off the Chorus.
3) Set the tune adjust on the rear of the 3P to the center position
4) Edit the mix parameter (A:10) to DCO1 only (left on the lights) and tune the preset marked DCO1 in the photo. Note - these tune adjusters are sensitive to ferrous (metal) screw drivers. If you do not have a nonferrous screw driver (plastic or similar) you will need to move the screw driver well away from the trim after each adjustment.
5) Play A3 (the second A from the left) and adjust DCO1 trim to get it exact.
6) Change the Mix parameter to 50% so that both DCOs can be heard
7) Adjust the trim for DCO2 until no beating can be heard.





3P Reference Voltage Adjustment

There is a test point on the 3P board marked VREF TP9. This is just visible in the photo at the top left of the picture. Connect a digital voltmeter to this point and adjust the trim near it marked VREF ADJ VR1 until the voltmeter reads 4.70v

Bend Lever Adjustment

With the bend switch set to Wide Range check the the bend range is one octave up and down. The maximum and minimum settings can be adjusted using VR6 (-) and VR7 (+).

Midi Data

Function	Transmitted	Recognized	Notes
Basic Channel	1-16	1-16	If Omni selected the 3P will recognize any midi channel
Note Number	24(C1)-108(C8)	0-127	Notes that are received outside the JX-3P range of 24-108 are transposed to the nearest octave within range.
Mode	X	X	Voice Modes need to be changed using Midi Control or Sysex commands
Velocity Note On Note Off	 O X	 O X	All keys sent from the JX-3P have a velocity set by the Global Parameter A4 (or midiCC 107)
Aftertouch Keys Channels	 X X	 X O	Due to the small number of keyboards supporting Key AT only Channel AT has been implemented.
Pitch Bender	O	O	Midi & internal bends are additive within the 3P. Midi bend input is effected by the Range switch.
Control Change	O	O	Only if Midi CC option is Enabled. See Control Change Tables for details
Program Change	X	0-127	If CC0, CC32 is 0,0 then 0-63 selects Tone Bank 1, 64-127 Selects Tone Bank 2 If CC0, CC32 is 0,1 then 0-63 selects Tone Bank 3, 64-127 Selects Tone Bank 4
System Exclusive	O	O	Only if Midi Sysex option is Enabled - See Sysex Table for details
System Real Time Clock Commands	O	O	Will Transmit from Seq Clock if Clock Output is enabled. Input clocks passed through to midi out unaltered. Recognized within the 3P only if the clock source has been set to midi on the Pattern, Arp or Sequence clocks
Modulation	O	O	Will adjust patch value(s) as a temporary effect if enabled.

Notes X=No O=Yes

Supported Midi Messages	Status	Second	Third	Notes
Note Off	$8n (128-143)	$kk	$yy	n = 0-15 midi channel kk = note number (0-127) -outside range 24-108 are ignored yy = Don't care (ignored)
Note On	$9n (144-159)	$kk	$yy	n = 0-15 midi channel kk = note number (0-127)-outside 24-108 are transposed to the nearest Octave yy = 0=Off, 1-127 = Note Velocity.
Continuous Controllers	$bn (160-191)	$kk	$yy	n = 0-15 midi channel $kk & $yy see CC table

Program Change	$cn (192-207)	0-127		n = 0-15 midi channel
				If CC0, CC32 is 0,0 then
				0-63 selects Tone Bank 1, 64-127 Selects Tone Bank 2
				If CC0, CC32 is 0,1 then
				0-63 selects Tone Bank 3, 64-127 Selects Tone Bank 4

Channel Aftertouch	$dn (208-223)	$kk	---	n = 0-15 midi channel kk = Channel Pressure (0-127)
Pitch Bend	$en (224-239)	$kk	$yy	n = 0-15 midi channel kk = Least Significant 7 bits yy = Most Significant 7 bits
				Note $xx = hex number

Continuous Controllers

Continuous Controllers	Second	Third	Notes
Bank Select MSB	$00 (00)	$00-$01	0=Bank Selection, 1=Pattern Selection, 2=Seq Selection Used in conjunction with CC32 Bank Select LSB
Modulation Wheel Level	$01 (01)	$00-$7f (0-127)	
Breath Controller	$02 (02)	$00-$7f (0-127)	Not Supported
Portamento Time	$05 (05)	$00-$7f (0-127)	
NRPN MSB	$06 (06)	$00-$7f (0-127)	Not Supported
Overall Volume	$07 (07)	$00-$7f (0-127)	Sets VCA Level
DCO 1 Range	$08 (08)	$yy	yy = $00-$1f (0-31) 16' $20-$3f (32-63) 8' $40-$7f (64-127) 4'
DCO 1 Wave	$09 (09)	$yy	yy = $00-$1f (0-31) Ramp $20-$3f (32-63) Pulse $40-$7f (64-127) Square
DCO 1 Tune	$0a (10)	$00-$7f (0-127)	Split Control +-63 (+- 1 octave +-1200 cents)
DCO Cross Mod	$0b (11)	$yy	yy = $00-$1f (0-31) Off $20-$3f (32-63) Sync $40-$7f (64-127) Metal
DCO 1 LFO Mod Amount	$0c (12)	$00-$7f (0-127)	
DCO 1 LFO Source	$0d (13)	$yy	yy = $00-$3f (0-63) LFO 1 $40-$7f (64-127) LFO 2
DCO 1 Envelope Mod Amount	$0e (14)	$00-$7f (0-127)	Split Control +-63 - below 63 will subtract effect, above 63 will add effect
DCO 1 ENV Source	$0f (15)	$yy	yy = $00-$3f (0-63) ENV 1 $40-$7f (64-127) ENV 2
LFO Mode	$10 (16)	$yy	yy = $00-$1f (0-31) LFO1&2 Normal $40-$7f (64-127) LFO1&2 Plus
DCO Source Mix	$11 (17)	$00-$7f (0-127)	0=DCO1 only, 63=50/50 mix, 127=DCO2 Only
LFO 1 Wave	$12 (18)	$yy	yy = $00-$0f (0-15) Sine $10-$1f (16-31) Triangle $20-$2f (32-47) Saw $30-$3f (48-63) Rev Saw $40-$4f (64-79) Square $50-$7f (80-127) Random
LFO 1 Rate	$13 (19)	$00-$7f (0-127)	
LFO 1 Delay	$14 (20)	$00-$7f (0-127)	
LFO 2 Wave	$15 (21)	$yy	yy = $00-$0f (0-15) Sine $10-$1f (16-31) Triangle $20-$2f (32-47) Saw $30-$3f (48-63) Rev Saw $40-$4f (64-79) Square $50-$5f (80-95) Random $60-$7f (96-127) Random 2 - clocked from Sequencer Clock
LFO 2 Rate	$16 (22)	$00-$7f (0-127)	
LFO 2 Delay	$17 (23)	$00-$7f (0-127)	
DCO 2 Range	$18 (24)	$yy	yy = $00-$1f (0-31) 16' $20-$3f (32-63) 8' $40-$7f (64-127) 4'
DCO 2 Wave	$19 (25)	$yy	yy = $00-$1f (0-31) Noise $20-$3f (32-63) Ramp $40-$5f (64-95) Pulse $60-$7f (96-127) Square
DCO 2 Tune	$1a (26)	$00-$7f (0-127)	Split Control +-63 (+- 1 octave +-1200 cents)
DCO 2 Fine Tune	$1b (27)	$00-$7f (0-127)	Split Control +-63 (~ +-50 cents)

Continuous Controllers

Continuous Controllers	Second	Third	Notes
DCO 2 LFO Mod Amount	$1c (28)	$00-$7f (0-127)	
DCO 2 LFO Source	$1d (29)	$yy	yy = $00-$3f (0-63) LFO 1 $40-$7f (64-127) LFO 2
DCO 2 Envelope Mod Amount	$1e (30)	$00-$7f (0-127)	Split Control +-63 - below 63 will subtract effect, above 63 will add effect
DCO 2 ENV Source	$1f (31)	$yy	yy = $00-$3f (0-63) ENV 1 $40-$7f (64-127) ENV 2
Bank Select LSB	$20 (32)	$00-$7f (0-127)	Selects Bank sets for Program Select $00 (0)=Banks A-H $01 (1)=Banks I-P
Bend Dest DCO1 Pitch	$23 (35)	$yy	yy = $00-$1f (0-31) Off $20-$3f (32-63) DCO1 $40-$5f (64-95) DCO2 $60-$7f (96-127) Both
Bend Dest VCF Cutoff	$24 (36)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
Bend Dest VCA Level	$25 (37)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
NRPN LSB	$26 (38)	$00-$7f (0-127)	Not Supported
Bend Dest DCO Mix	$27 (39)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
Bend Dest LFO Rate	$28 (40)	$yy	yy = $00-$1f (0-31) Off $20-$3f (32-63) LFO1 $40-$5f (64-95) LFO2 $60-$7f (96-127) Both
VCF Low Pass Cutoff	$29 (41)	$00-$7f (0-127)	
VCF Low Pass Resonance	$2a (42)	$00-$7f (0-127)	
VCF Pitch Follow	$2b (43)	$00-$7f (0-127)	
High Pass Filter Cutoff	$2c (44)	$00-$7f (0-127)	
VCF LFO Mod Amount	$2d (45)	$00-$7f (0-127)	
VCF LFO Source	$2e (46)	$yy	yy = $00-$3f (0-63) LFO 1 $40-$7f (64-127) LFO 2
VCF Envelope Mod Amount	$2f (47)	$00-$7f (0-127)	Split Control +-63 - below 63 will subtract effect, above 63 will add effect
VCF ENV Source	$30 (48)	$yy	yy = $00-$3f (0-63) ENV 1 $40-$7f (64-127) ENV 2
ENV 1 Attack	$33 (51)	$00-$7f (0-127)	
ENV 1 Decay	$34 (52)	$00-$7f (0-127)	
ENV 1 Sustain	$35 (53)	$00-$7f (0-127)	
ENV 1 Release	$36 (54)	$00-$7f (0-127)	
Load Sequence	$37 (55)	$00-$0f (0-16)	0 = Do not load sequence 1-16= Load Seq 1-16 All other numbers ignored
Load Pattern	$38 (56)	$00-$0f (0-16)	0 = Do not load Pattern 1-16= Load Pattern 1-16 All other numbers ignored
Chorus Off/Auto/Manual	$39 (57)	$yy	yy = $00-$3f (0-31) Chorus Off $20-$5f (32-63) Chorus On Auto $40-$7f (64-127) Chorus On Manual
Chorus Rate	$3a (58)	$00-$7f (0-127)	
VCA LFO Mod Amount	$3b (59)	$00-$7f (0-127)	

Continuous Controllers

Continuous Controllers	Second	Third	Notes
VCA LFO Source	$3c (60)	$yy	yy = $00-$3f (0-63) LFO 1 $40-$7f (64-127) LFO 2
VCA Mode	$3d (61)	$yy	yy = $00-$1f (0-31) Gate $20-$3f (32-63) ENV 1 $40-$7f (64-127) ENV 2
Seq midi Start/Stop Enable	$3e (62)	$yy	yy = $00-$3f (0-63) Disable $40-$7f (64-127) Enable
Hold Pedal	$40 (64)	$yy	yy = $00-$1f (0-31) Off $40-$7f (32-63) On
ENV 2 Attack	$41 (65)	$00-$7f (0-127)	
ENV 2 Decay	$42 (66)	$00-$7f (0-127)	
ENV 2 Sustain	$43 (67)	$00-$7f (0-127)	
ENV 2 Release	$44 (68)	$00-$7f (0-127)	
Envelope Control	$45 (69)	$yy	$yy = $00-$3f Normal Speed Envs $40-$7f Half Speed Envs
Start/Stop Arp	$46 (70)	$yy	yy = $00-$3f (0-63) Arp Stopped $40-$7f (64-127) Arp Playing
Start/Stop Seq	$47 (71)	$yy	yy = $00-$3f (0-63) Seq Stopped $40-$7f (64-127) Seq Playing
Start/Stop Pattern	$48 (72)	$yy	yy = $00-$3f (0-63) Pattern Stopped $40-$7f (64-127) Pattern Playing
MW Level	$52 (82)	$00-$7f (0-127)	Split Control +-63 - below 63 will subtract effect, above 63 will add effect
LFO Button Level	$53 (83)	$00-$7f (0-127)	Output Mod Level from LFO Button
NRPN Data Plus	$60 (96)		Not Supported
NRPN Data Minus	$61 (97)		Not Supported
NRPN Data LSB	$62 (98)		Not Supported
NRPN Data MSB	$63 (99)		Not Supported
RPN Data LSB	$64 (100)		Not Supported
RPN Data MSB	$65 (101)		Not Supported
After Touch Level	$67 (103)	$00-$7f (0-127)	Split Control +-63 - below 63 will subtract effect, above 63 will add effect
Key Mode	$68 (104)	$yy	yy = $00-$0f (0-16) Poly 1 $10-$1f (17-31) Poly 2 $20-$2f (32-47) Unison 1 $30-$3f (48-63) Unison 2 $40-$4f (64-79) Mono 1 $50-$7f (80-127) Mono 2
Key Assign Detune	$69 (105)	$00-$7f (0-127)	
Key Assign Detune Mode	$6a (106)	$yy	yy = $00-$3f (0-63) Mono Only $40-$7f (64-127) Mono/Poly
Internal Velocity	$6b (107)	$01-$7f (1-127)	Sets 3P internal Key velocity level
Arpeggiator Mode	$6c (108)	$yy	$yy = $00-$1f(0-31) Up $20-$3f(32-63) Down $40-$5f(64-95) Up & Down $60-$7f(96-127) Random
Arpeggiator Range	$6d (109)	$yy	$yy = $00-$1f(0-31) 0 Octave $20-$3f(32-63) 1 Octave $40-$7f(64-127) 2 Octaves

Continuous Controllers

Continuous Controllers	Second	Third	Notes
Arpeggiator Clock Source	$6e (110)	$yy	$yy = $00-$07(0-6) Int/Ext $08-$0b(7-13) LFO 2 $0c-$0f(14-20) Pattern Clock $10-$17(21-27) Midi/3 (1/32 Note) $18-$2f(28-34) Midi/4 (1/32 Note Dotted) $20-$27(35-41) Midi/6 (1/16 Note) $28-$3f(42-48) Midi/9 (1/16 Note Dotted) $30-$37(49-55) Midi/12 (1/8 Note) $38-$3f(56-62) Midi/18 (1/8 Note Dotted) $40-$47(63-6f) Midi/24 (1/4 Note) $48-$4f(70-76) Midi/36 (1/4 Note Dotted) $50-$57(77-83) Midi/48 (1/2 Note) $58-$5f(84-90) Midi/72 (1/2 Note Dotted) $60-$67(91-97) Midi/96 (Whole Note) $68-$6f(98-104) Midi/128 (Whole + 1/4 Note) $70-$77(105-111) Midi/144 (Whole + 1/2 Note) $78-$7e(112-118) Midi/168 (Whole + 1/2 Dotted) $7f-$7f(127-127) Midi/192 (2 Notes)
Sequencer Mode	$6f (111)	$yy	yy = $00-$1f (0-31) Local $20-$3f (32-63) Midi $40-$7f (64-127) Both
Sequencer Clock Source	$70 (112)	$yy	$yy = $00-$07(0-6) Int/Ext $08-$0b(7-13) LFO 2 $0c-$0f(14-20) Pattern Clock $10-$17(21-27) Midi/3 (1/32 Note) $18-$2f(28-34) Midi/4 (1/32 Note Dotted) $20-$27(35-41) Midi/6 (1/16 Note) $28-$3f(42-48) Midi/9 (1/16 Note Dotted) $30-$37(49-55) Midi/12 (1/8 Note) $38-$3f(56-62) Midi/18 (1/8 Note Dotted) $40-$47(63-6f) Midi/24 (1/4 Note) $48-$4f(70-76) Midi/36 (1/4 Note Dotted) $50-$57(77-83) Midi/48 (1/2 Note) $58-$5f(84-90) Midi/72 (1/2 Note Dotted) $60-$67(91-97) Midi/96 (Whole Note) $68-$6f(98-104) Midi/128 (Whole + 1/4 Note) $70-$77(105-111) Midi/144 (Whole + 1/2 Note) $78-$7e(112-118) Midi/168 (Whole + 1/2 Dotted) $7f-$7f(127-127) Midi/192 (2 Notes)
Pattern -> VCF Cutoff	$71 (113)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
Pattern -> VCA Level	$72 (114)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
Pattern Level	$73 (115)	$00-$7f (0-127)	
Pattern Mode	$74 (116)	$yy	yy = $00-$3f (0-63) Off $40-$7f (64-127) On
Pattern Clock Source	$75 (117)	$yy	$yy = $00-$07(0-6) Int/Ext $08-$0f(7-13) LFO 2 $10-$17(21-27) Midi/3 (1/32 Note) $18-$2f(28-34) Midi/4 (1/32 Note Dotted) $20-$27(35-41) Midi/6 (1/16 Note) $28-$3f(42-48) Midi/9 (1/16 Note Dotted) $30-$37(49-55) Midi/12 (1/8 Note) $38-$3f(56-62) Midi/18 (1/8 Note Dotted) $40-$47(63-6f) Midi/24 (1/4 Note) $48-$4f(70-76) Midi/36 (1/4 Note Dotted) $50-$57(77-83) Midi/48 (1/2 Note) $58-$5f(84-90) Midi/72 (1/2 Note Dotted) $60-$67(91-97) Midi/96 (Whole Note) $68-$6f(98-104) Midi/128 (Whole + 1/4 Note) $70-$77(105-111) Midi/144 (Whole + 1/2 Note) $78-$7e(112-118) Midi/168 (Whole + 1/2 Dotted) $7f-$7f(127-127) Midi/192 (2 Notes)
Fine Tune Offset	$76 (118)	$00-$7f (0-127)	

Continuous Controllers

Continuous Controllers	Second	Third	Notes
Program Change	$6f (119)	$yy	yy = $00-$7f (0-127) Program Number Note – this is only here because the BCR2000 is not able to step programs using two buttons
All Sound off	$78 (120)		Stops all output immediately
All Notes off	$7b (123)		Stops all output immediately

Real Time Commands

Midi Clock	$f8 (248)		Midi Timing Clock
Start	$fa (250)		Start Sequence Play
Stop	$fc (252)		Stop Sequence Play

Midi Sysex Support

Function	Transmitted	Recognized	Notes
Basic ID	1-16	1-16, Omni	Set using Device ID in Global Variable S:B:4
Load	O	O	
Dump	O	O	

Midi Sysex Data		
		Notes $nn = Hexadecimal Data - Decimal data is in Brackets e.g. $0a (10)
Sysex Header	$f0	Sysex Start
	$00 $21 $16	Kiwitechnics Manufacturers ID
	$60	Kiwitechnics ID
	$01	Kiwitechnics 3P ID
	nn	Device ID ($00-$0f) (3P Device ID 1-16)
	xx	Command ID (see table 1.0) $01 = Request Global Dump $02 = Transmit/Receive Global Dump $03 = Request Tone Edit Buffer Dump $04 = Transmit/Receive Tone Edit Buffer Dump $05 = Request Tone Dump $06 = Transmit/Receive Tone Dump $07 = Request Pattern Dump $08 = Transmit/Receive Pattern Dump $09 = Request Seq Dump $0a = Transmit/Receive Seq Dump $0b = Request Tone Name $0c = Transmit/Receive Tone Name $0d = Request Tone Parameter $0e = Transmit/Receive Tone Parameter $0f = Request Global Parameter $10 = Transmit/Receive Global Parameter $11 = Request Pattern Edit Buffer Dump $12 = Transmit/Receive Pattern Edit Buffer Dump $13 = Request Sequence Edit Buffer Dump $14 = Transmit/Receive Sequence Edit Buffer Dump
	Data	Depending on command type (see table 1.0)
	$f7	Sysex Footer

WARNING! Sysex dumps have the ability to put non valid settings into memory and few checks are made for validity. If the 3P becomes unusable due to non valid data you will need to do a full restore of the 3P which will lose all saved memory.

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
$01 (1) Request Global Dump	No Data		3P transmits a $02 (2) command

$02 (2) Transmit or Receive Global Dump 48 data bytes	$00 (0) = Voice Detune Mode	0000000x	x - 0=Mono Only, 1=Mono & Poly
	$01 (1) = Internal Velocity	0xxxxxxx	x = Range $00-$7f (0-127)
	$02 (2) = Arp Direction	00000yyx	x = On/off (Set=on) yy = 00-up 01-down 10-both 11-random
	$03 (3) = Arp Range	000000xx	xx= 00-1 Oct 01-2 Oct 10-3 Oct
	$04 (4) = Arp Clock Source	000xxxxx	xxxxx= 00000-Internal 00001-LFO 2 00010-Pattern Source 00011-Midi/3 00100-Midi/4 00101-Midi/6 00110-Midi/9 00111-Midi/12 01000-Midi/18 01001-Midi/24 01010-Midi/36 01011-Midi/48 01100-Midi/72 01101-Midi/96 01110-Midi/128 01111-Midi/144 10000-Midi/168 10001-Midi/192
	$05 (5) = Seq Local	00000yxx	xx = 00 - Both 01 - Local Only 10 - Midi Only y = 0=Midi Start/Stop Commands Ignored 1=Midi Start/Stop Commands Actioned

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$06 (6) = Seq Clock Source	000xxxxx	xxxxx= 00000-Internal 00001-LFO 2 00010-Pattern Source 00011-Midi/3 00100-Midi/4 00101-Midi/6 00110-Midi/9 00111-Midi/12 01000-Midi/18 01001-Midi/24 01010-Midi/36 01011-Midi/48 01100-Midi/72 01101-Midi/96 01110-Midi/128 01111-Midi/144 10000-Midi/168 10001-Midi/192
	$07 (7) = Pattern Level	0xxxxxxx	x = Range $00-$7f (0-127)
	$08 (8) = Pattern Control	00000xyz	x = Off/On (set=On) y = VCF Destination Off/On (set=On) z = VCA Destination Off/On (set=On)
	$09 (9) = Pattern Clock Src	000xxxxx	xxxxx= 00000-Internal 00001-LFO 2 00010-Midi/3 00011-Midi/4 00100-Midi/6 00101-Midi/9 00110-Midi/12 00111-Midi/18 01000-Midi/24 01001-Midi/36 01010-Midi/48 01011-Midi/72 01100-Midi/96 01101-Midi/128 01110-Midi/144 01111-Midi/168 10000-Midi/192
	$0a (10) = Midi Channel In	000yxxxx	xxxx = 0-15 for midi channel 1-16 y = set for Omni
	$0b (11) = Midi Channel Out	0000xxxx	xxxx = 0-15 for midi channel 1-16
	$0c (12) = Seq Midi Channel Out	0000xxxx	xxxx = 0-15 for midi channel 1-16
	$0d (13) = Device ID	0000xxxx	xxxx = 0-15 for ID 1-16

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
`	$0e (14) = Local Enable	0000000x	x = Off/On (set=On)
	$0f (15) = Enable MidiCC	0000000x	x = Off/On (set=On)
	$10 (16) = Enable Sysex	0000000x	x = Off/On (set=On)
	$11 (17) = Enable Program Change	0000000x	x = Off/On (set=On)
	$12 (18) = Midi Soft Through	0000000x	x = Off/On (set=Pass Midi) Note - Midi real time (>$F8) will always pass Note - SysEx intended for the 3P will not be passed
	$13 (19) = Soft Through Filter	000000xx	xx = 0 Off - No Filter applied - all midi will pass xx = 1 All Midi with 3P Midi Channel is not passed xx = 2 All CC with 3P Midi Channel is not passed Note - Bank, Panic & MW will still pass with option 2
	$14 (20) = Enable Midi Clock Gen	0000000x	x = Off/On (set=Generate Clock)
	$15 (21) = Enable Clock Display	0000000x	x = Off/On (set=On)
	$16 (22) = Master Slave Control	000000yx	x = Enable (set=Enabled) y = Master/slave select (set=Master)
	$17 (23) = Fine Tune Offset	0xxxxxxx	(0-127) ~+-10 cents (split control centered at $3f)
	$18-$2f (24-47) = Nulls		Not currently Used

$03 (3) Request Tone Edit Buffer Dump	No Data		

$04 (4) Transmit/Receive Tone Edit Buffer Dump Null x 2 + 128 data bytes	2 x Null + 128 bytes data		2 x null bytes sent followed by 128 bytes of data in the following format
	$00-$13 (0-19) = Tone Name	Ascii Bytes	Tone Name
	$14 (20) = DCO1 Wave/Range	0000yyxx	xx = DCO 1 Range 00=16' 01=8' 10=4' yy = DCO 1 Wave 00=Saw 01=Pulse 10=Sqr
	$15 (21) = DCO1 Tune	0xxxxxxx	(0-127) Split Control +-63 (+- 1 octave or +-1200 cents)
	$16 (22) = DCO1 Env Mod Amount	0xxxxxxx	(0-127) Split Control +-63

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$17 (23) = DCO1 LFO Mod Amount	0xxxxxxx	(0-127)
	$18 (24) = Not Used	00000000	Not Used
	$19 (25) = DCO2 Wave/Range	0000yyxx	xx = DCO 2 Range 00=16' 01=8' 10=4' yy = DCO 2 Wave 00=Saw 01=Pulse 10=Sqr 11=Noise
	$1a (26) = DCO2 Tune	0xxxxxxx	(0-127) Split Control +-63 (+-1 octave or +-1200 cents)
	$1b (27) = DCO2 Fine Tune	0xxxxxxx	(0-127) Split Control +-63 (~+- 50 cents)
	$1c (28) = DCO2 Env Mod Amount	0xxxxxxx	(0-127) Split Control +-63
	$1d (29) = DCO2 LFO Mod Amount	0xxxxxxx	(0-127)
	$1e (30) = Not Used	00000000	Not Used
	$1f (31) = DCO Cross Mod	000000xx	xx = 00=off 01=sync 10=metal
	$20 (32) = DCO Mix	0xxxxxxx	(0-127) Split Control +-63
	$21 (33) = DCO Control	00vvwxyz	z = DCO1Env1/2 (set=Env2) y = DCO1LFO1/2 (set=LFO2) x = DCO2Env1/2 (set=Env2) w = DCO2LFO1/2 (set=LFO2) vv = DCO1/2EnvVel 00=off 01=DCO1 10=DCO2 11=Both
	$22 (34) = HPF Level	0xxxxxxx	(0-127)
	$23 (35) = VCF Cutoff	0xxxxxxx	(0-127)
	$24 (36) = VCF Resonance	0xxxxxxx	(0-127)
	$25 (37) = VCF LFO Mod Amount	0xxxxxxx	(0-127)
	$26 (38) = VCF Env Mod Amount	0xxxxxxx	(0-127)
	$27 (39) = VCF Key Mod Amount	0xxxxxxx	(0-127)
	$28 (40) = Not Used	00000000	Not Used
	$29 (41) = Not Used	00000000	Not Used

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$2a (42) = VCF Control	000000yz	z = VCF Env1/2 (set=Env2) y = VCF LFO1/2 (set=LFO2)
	$2b (43) = Env 1 Attack	0xxxxxxx	(0-127)
	$2c (44) = Env 1 Decay	0xxxxxxx	(0-127)
	$2d (45) = Env 1 Sustain	0xxxxxxx	(0-127)
	$2e (46) = Env 1 Release	0xxxxxxx	(0-127)
	$2f (47) = Env 2 Attack	0xxxxxxx	(0-127)
	$30 (48) = Env 2 Decay	0xxxxxxx	(0-127)
	$31 (49) = Env 2 Sustain	0xxxxxxx	(0-127)
	$32 (50) = Env 2 Release	0xxxxxxx	(0-127)
	$33 (51) = LFO 1 Wave	000000xxx	xxx = LFO 1 Wave 000=Sine 001=Triangle 010=Square 011=Saw 100=Reverse Saw 101=Random
	$34 (52) = LFO 1 Rate	0xxxxxxx	(0-127)
	$35 (53) = LFO 1 Delay	0xxxxxxx	(0-127)
	$36 (54) = LFO 2 Wave	00000xxx	xxx = LFO 1 Wave 000=Sine 001=Triangle 010=Square 011=Saw 100=Reverse Saw 101=Random 110=Random 2 (Seq Clock)
	$37 (55) = LFO 2 Rate	0xxxxxxx	(0-127)
	$38 (56) = LFO 2 Delay	0xxxxxxx	(0-127)
	$39 (57) = LFO Control	000000xx	xx = 00=LFO 1 & 2 Normal 01=LFO 1 & 2 Plus
	$3a (58) = Chorus Rate	0xxxxxxx	(0-127)
	$3b (59) = Chorus Control	000000yx	x = Off/On (Set=On) y = Auto/Manual (Set=Auto)
	$3c (60) = VCA Level	0xxxxxxx	(0-127)
	$3d (61) = VCA LFO Mod Amount	0xxxxxxx	(0-127)

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$3e (62) = VCA Control	00000yxw	w = Gate (set=Gate - overrides x) x = Env 1/2 (set=Env2) y = LFO 1/2 (set=LFO2)
	$3f (63) = Not Used	00000000	Not Used
	$40 (64) = Portamento Rate	0xxxxxxx	(0-127)
	$41 (65) = Not Used	00000000	Not Used
	$42 (66) = Load Sequence	000xxxxx	xxxxx = Sequence number to load 0 = do not load Sequence 1-8 = Load Seq # 1-8
	$43 (67) = Load Pattern	000xxxxx	xxxxx = Pattern number to load 0 = do not load Pattern 1 = 16 Load Patt # 1-16
	$44 (68) = Bend Control	0vwwxyzz	zz = DCO Bend 00=off 01=DCO1 10=DCO2 11=Both y = Mix Bend On/Off (set=On) x = Cutoff Bend On/Off (set=On) ww = LFO Bend 00=off 01=LFO1 10=LFO2 11=Both v = VCA Level On/Off (set=On)
	$45 (69) = MW DCO Control	0wxxyyzz	zz = MW DCO Freq 00=off 01=DCO1 10=DCO2 11=Both yy = MW DCO LFO Amount 00=off 01=DCO1 10=DCO2 11=Both xx = MW DCO Env Amount 00=off 01=DCO1 10=DCO2 11=Both w = MW DCO Mix On/Off (set=On)

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$46 (70) = MW VCF Control	000vwxyz	z = MW VCF LFO On/Off (set=On) y = MW VCF Env On/Off (set=On) x = MW VCF Cutoff On/Off (set=On) w = MW VCF Res On/Off (set=On) v = MW High Pass On/Off (set=On)
	$47 (71) = MW VCA Control	000000yz	z = MW VCA Level (set=On) y = MW VCA LFO Amount (set=On)
	$48 (72) = MW LFO Control	000000zz	zz = MW LFO Freq 00=off 01=LFO1 10=LFO2 11=Both
	$49 (73) = MW Chorus Control	0000000x	x = MW Chorus Rate
	$4a (74) = MW Mod Level	0xxxxxxx	(0-127) Split Control +-63
	$4b (75) = AT DCO Control	0wxxyyzz	zz = AT DCO Freq 00=off 01=DCO1 10=DCO2 11=Both yy = AT DCO LFO Amount 00=off 01=DCO1 10=DCO2 11=Both xx = AT DCO Env Amount 00=off 01=DCO1 10=DCO2 11=Both w = AT DCO Mix On/Off (set=On)
	$4c (76) = AT VCF Control	000vwxyz	z = AW VCF LFO On/Off (set=On) y = AT VCF Env On/Off (set=On) x = AT VCF Cutoff On/Off (set=On) w = AT VCF Res On/Off (set=On) v = AT High Pass On/Off (set=On)
	$4d (77) = AT VCA Control	000000yz	z = AT VCA Level (set=On) y = AT VCA LFO Amount (set=On)
	$4e (78) = AT LFO Control	000000zz	zz = AT LFO Freq 00=off 01=LFO1 10=LFO2 11=Both
	$4f (79) = AT Chorus Control	0000000x	x = AT Chorus Rate

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$50 (80) = AT Mod Level	0xxxxxxx	(0-127) Split Control +-63
	$51 (81) = LFO Button Level	0xxxxxxx	(0-127)
	$52 (82) = Voice Assign Mode	00000xxx	xxx = Voice assign Mode 000=Poly 1 001=Poly 2 010=Unison 1 011=Unison 2 100=Mono 1 101=Mono 2
	$53 (83) = Voice Detune Amount	0xxxxxxx	(0-127)
	$54 (84) = Envelope Control	0000000x	x = 0 for Normal Speed Envs 1 for Half Speed Envs
	$55-$7f (85-127)	Not used	All set to $00
$05 (5) Request Tone Dump Bank + Tone	Bank Number	0000000x	x = 0 for tones 1-128 1 for tones 129-155
WARNING! This command will overwrite the current sounding tone with the Tone selected	Tone Number	0xxxxxxx	x = 0-127 for tone 1-128 if Bank Number is 0 0-127 for tone 129-256 if Bank Number is 1 3P transmits a $06 (6) command
$06 (6) Transmit/Receive Tone Dump Bank + Tone + 128 data bytes	Bank Number	0000000x	x = 0 for tones 1-128 1 for tones 129-155
WARNING! This command will overwrite the current sounding tone with the Tone selected	Tone Number	0xxxxxxx	x = 0-127 for tone 1-128 if Bank Number is 0 0-127 for tone 129-256 if Bank Number is 1 3P transmits data in the same format as the $04 Command
$07 (7) Request Pattern Dump Pattern Number	Pattern Number	0000xxxx	x = 0-15 for pattern 1-16 3P transmits a $08 (8) command
WARNING! This command will overwrite the current sounding Pattern with the Pattern selected			
$08 (8) Transmit/Receive Pattern Dump Pattern Number + 29 data bytes	Pattern Number	0000xxxx	x = 0-15 for pattern 1-16

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
WARNING! This command will overwrite the current sounding Pattern with the Pattern selected	$00-$13 (0-19) = Pattern Name	Ascii Bytes	Pattern Name
	$14 (20) = Pattern Byte 1	0000wxyz	w = Pattern Section 16 (set=sounding) x = Pattern Section 15 y = Pattern Section 14 z = Pattern Section 13
	$15 (21) = Pattern Byte 2	0000wxyz	w = Pattern Section 12 (set=sounding) x = Pattern Section 11 y = Pattern Section 10 z = Pattern Section 9
	$16 (22) = Pattern Byte 3	0000wxyz	w = Pattern Section 8 (set=sounding) x = Pattern Section 7 y = Pattern Section 6 z = Pattern Section 5
	$17 (23) = Pattern Byte 3	0000wxyz	w = Pattern Section 4 (set=sounding) x = Pattern Section 3 y = Pattern Section 2 z = Pattern Section 1
	$18-$1b (24-27)	Not Used	
	$1c (28) = Pattern Length	0000xxxx	xxxx = 1-15 (2-16)
$09 (9) Request Seq Dump Seq Number	Sequence Number	0000xxxx	x = 0-7 for Sequence 1-8 3P transmits a $0a (10) command
WARNING! This command will overwrite the current sounding Seq with the Seq selected			
$0a (10)Transmit / Receive Seq Dump Seq Number + 917 data bytes	Sequence Number	0000xxxx	x = 0-7 for Sequence 1-8
WARNING! This command will overwrite the current sounding Seq with the Seq selected	$00 (0) = Seq Length	0xxxxxxx	x = 0 = No Seq Recorded 1-124 = No of Seq Steps
	$01-$14 (1-20) = Seq Name	20 Ascii Bytes	Sequence Name

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
	$15-$395 (21-917) = Seq Steps	128 x 7 (896) Note 1 axxxxxxx Note 2 bxxxxxxx Note 3 cxxxxxxx Note 4 dxxxxxxx Note 5 exxxxxxx Note 6 fxxxxxxx Byte 7 00abcdef	Each Step is 7 bytes xxxxxxx = note number (32-96) Bits a-f are removed from each note byte and placed in the 7th byte. The a-f note bits are then set to zero Note Bytes are $00 (0) if not used Each used step byte is a note number (32-96) and the bits a-f are set if the note has been tied to the previous note.
$0b (11) Request Tone Name Bank + Tone	$00 (0) = Bank Number	0000000x	x = 0 for tones 1-128 1 for tones 129-155
WARNING! This command will overwrite the current sounding tone with the Tone selected	$01 (1) = Tone Number	0xxxxxxx	x = 0-127 for tone 1-128 if Bank Number is 0 0-127 for tone 129-256 if Bank Number is 1 3P transmits a $0c (12) command
$0c (12)Transmit / Receive Tone Name Bank + Tone + 20 data bytes	$00 (0) = Bank Number	0000000x	x = 0 for tones 1-128 1 for tones 129-155
WARNING! This command will overwrite the current sounding tone with the Tone selected	$01 (1) = Tone Number	0xxxxxxx	x = 0-127 for tone 1-128 if Bank Number is 0 0-127 for tone 129-256 if Bank Number is 1
	$00-$13 (0-19) = Tone Name	Ascii Bytes	Tone Name
$0d (13) Request Edit Buffer Tone Parameter 1 Data Byte	$00 (0) - Tone Parameter Number Data format the same as $04 Parameter Number is Data Posn	0xxxxxxx	x = Data Offset Use Data Position for Parameter Number e.g. $15=DCO1Tune 3P transmits a $0e (14) command
$0e (14) Transmit / Receive Edit Buffer Tone Parameter 2 data bytes	$00 (0) - Tone Parameter Number Data format the same as $04	0xxxxxxx	x = Data Offset Use Data Position for Parameter Number e.g. $15=DCO1Tune
	$01 (1) - Parameter Value	0xxxxxxx	Data format depends on Parameter Data format the same as $04
$0f (15) Request Global Parameter 1 Data Byte	$00 (0) - Global Parameter Number	000xxxxx	x = Data Offset Use Data Position for Parameter Number Data format the same as $02 e.g. $0a (10) = Midi Channel In

Table 1.0 Command ID	Data Byte	Data Type Byte details 7 ------- 0	Data Details
$10 (16) Transmit / Receive Global Parameter 2 data bytes	$00 (0) - Global Parameter Number	000xxxxx	x = Data Offset Use Data Position for Parameter Number Data format the same as $02 e.g. $0a (10) = Midi Channel In
	$01 (1) - Parameter Value	0xxxxxxx	Data format depends on Parameter Data format the same as $02 Command
$11 (17) Request Pattern Edit Buffer Dump		No Data	3P transmits a $12 (18) command
$12 (18) Transmit/Receive Edit Pattern Dump Null + 29 data bytes	Null + 29 bytes Data		Data Format is the same is $08 Command (with 0 Pattern Number)
$13 (19) Request Sequence Edit Buffer Dump		No Data	3P transmits a $14 (20) command
$14 (20) Transmit/Receive Sequence Edit Buffer Dump Null + 917 data bytes	Null + 917 bytes Data		Data Format is the same is $0a (10) Command (with 0 Sequence Number)