

# THE APPENDICES

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## ***Appendix 1: Upgrading the system software***

Infection Music strongly recommends that you read through this section before you attempt to perform any kind of software upgrade.

Software revisions provide bug fixes and functional enhancements. Whilst every effort is made to remove bugs during our product testing and quality assurance procedures, data may be lost or corrupted during software updates. We therefore strongly recommend that you make a copy of your sequencer data before you perform any kind of software update. You can do this using the MIDI system exclusive transfer utilities detailed elsewhere in this manual.

You will need the following equipment before you begin:

- 1) A host computer - either a PC running Windows 95, Windows 98, Windows 2000 or Windows XP or a Macintosh running OS7.1 to OS9.3 or Mac OSX - with a suitable MIDI interface
- 2) A software update utility or computer-based sequencer package able to load standard MIDI System Exclusive Files
- 3) The software update itself

Software updates and utility programs can be downloaded from the Infection Music web pages at <http://www.infectionmusic.co.uk>

Software upgrades are available in two formats:

- 1) MIDI System Exclusive file
- 2) Standard MIDI file

If you are not familiar with upgrading musical instruments in this manner, do not have a suitable MIDI interface or do not have access to a download utility, then

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we strongly recommend that you ask a qualified service engineer to upgrade the product for you.

### ***Upgrading ZEIT's Firmware***

There are two phases to the update:

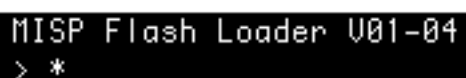
#### **Part One: Preparation**

- 1) Check with the list of approved MIDI interfaces detailed under the *software upgrades* section on the Infection Music web site to ensure that your interface is suitable for upgradin *ZEIT*.
- 2) Preserve all sequence data using the system exclusive utilities detailed elsewhere in this manual
- 3) Download the relevant software package from the Infection Music Web site to your host computer
- 4) Disconnect any MIDI cables connected to *ZEIT*'s MIDI Out and MIDI Thru ports. Software update information is automatically forwarded via the MIDI Thru port and could upset downstream instruments
- 5) Connect the MIDI Out port of the host computer to *ZEIT*'s MIDI In port
- 6) Ensure that the only application program running on the host computer is the update program itself
- 7) Ensure that MIDI clock signals have been switched off because these messages can upset the data transfer
- 8) Check that the transfer program can find and load the update file before you proceed

When you have completed all of the above steps you can upgrade the software.

#### **Part Two: Upgrading the software**

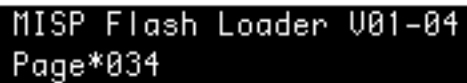
- 1) Switch off the power to the sequencer
- 2) Press and hold the Reset and Play/Stop buttons together
- 3) Switch on the power to the sequencer
- 4) The sequencer will start up in the MISP Loader and the display will appear as follows



```
MISP Flash Loader V01-04
> *
```

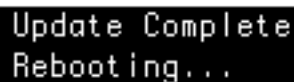
- 5) Tell the host computer to send the update file

- 6) The sequencer will display the current page number and the cursor (\*) will flash



```
MISP Flash Loader V01-04
Page*034
```

- 7) If the page number does not display then please check the MIDI connections
- 8) If the transfer succeeds then the sequencer will display the following message



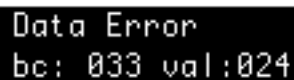
```
Update Complete
Rebooting...
```

- 9) The sequencer will then boot up into the new application

### ***Troubleshooting***

If a problem occurs you will see an error message. Write down the error message and any error codes that are displayed for later reference. One of the following messages may be displayed:

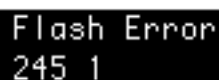
#### **Data Transmission Errors**



```
Data Error
bc: 033 val:024
```

This indicates a data transmission error. The most probable cause is either a bad connection or another program attempting to update the MIDI port. Make sure that no other applications are accessing the MIDI ports then check your connections and try again.

#### **Flash Memory Errors**



```
Flash Error
245 1
```

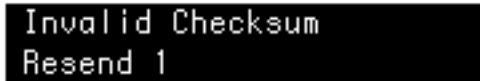
This indicates a possible fault with *ZEIT*'s microprocessor because the update utility was unable to write to the microprocessor's FLASH memory. Repeat the update procedure and see if the problem occurs again. If so, try increasing the period of time between system exclusive messages. It could be that the host computer is sending data too quickly for *ZEIT* to receive properly. If the problems

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persist, then contact Infection Music or your normal support service for further advice.

### Checksum Errors



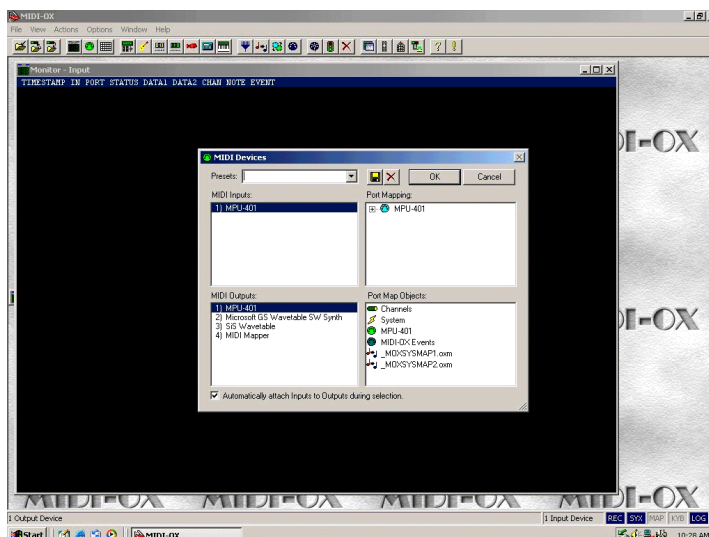
This is almost certainly caused by a bad MIDI data connection. Check your connections, check that no other application is attempting to write to your MIDI port and check that nothing except the host computer is connected to *ZEIT*'s MIDI In port. If you're using a MIDI distribution box or a MIDI Merge box of any type then please remove it from the link and try again.

### PC Users: Settings for MIDI Ox

One of the best utilities we've found for upgrading *ZEIT* is *MIDI Ox*, a freeware program available from <http://www.midiox.com>. We strongly recommend this superb program.

To use *MIDI Ox* in the upgrade process, follow these steps.

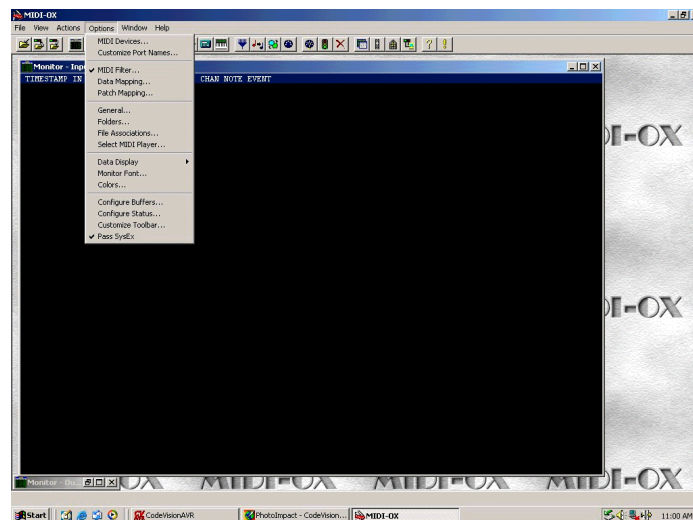
Step 1: Make sure that *MIDI Ox* has recognised your MIDI Interface



Click on the *MIDI Devices* icon and look at the list of available devices. Make sure that your interface appears in the list. If not then you will not be able to proceed with the upgrade. If this happens then you can use *MIDI Ox*'s troubleshooting guide to help remedy the problem.

In the above image, *MIDI Ox* has recognised an *MPU 401*-style device attached to the host PC's game port.

### Step 2: Enable System Exclusive messages

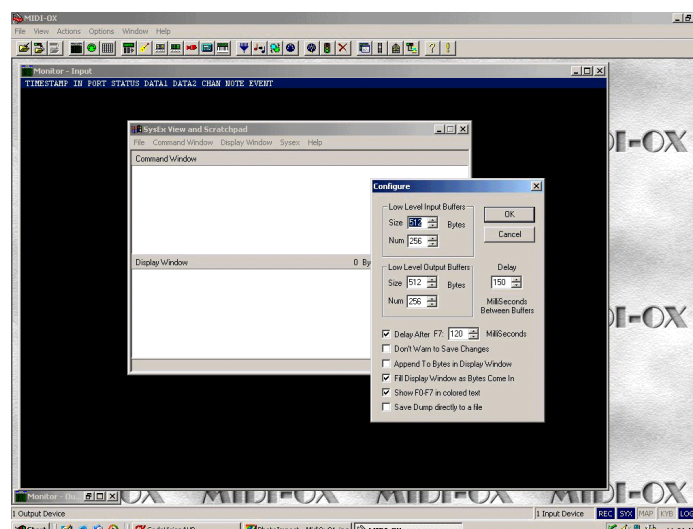


Select the *Options* menu and make sure that *Pass SysEx* is ticked.

### Step 3: Configure the buffers

Click on the *Send File* option in the menu bar. The *Send-File* sub-window will appear and will invite you to send a file straight away. You should select the *Cancel* option because the first step will be to set up the *transfer options*.

Select the *SysEx* menu and click on the *Configure* option.



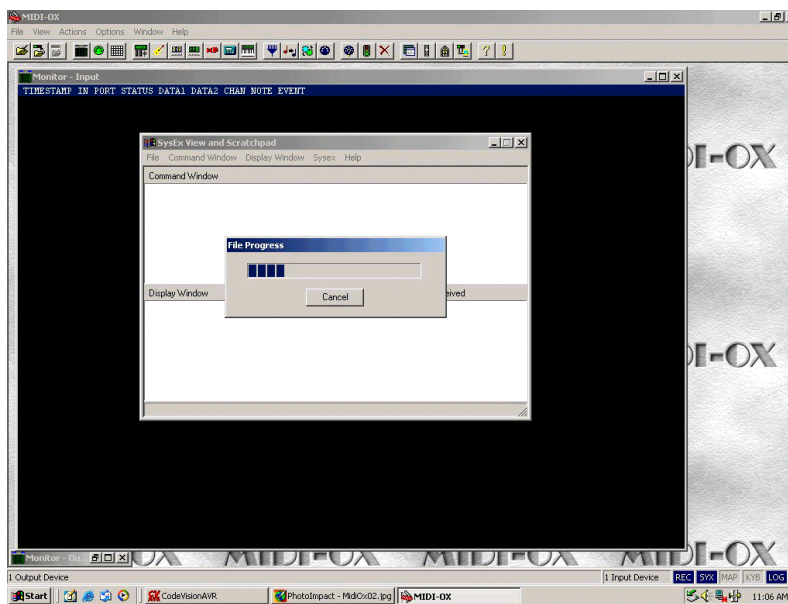
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Configure the *low-level input and output buffers* so that they are long enough to accommodate *ZEIT's* data messages. A setting of 512 bytes is the recommended minimum. Set the number of *input* and *output buffers* to 16 so that *MIDI Ox* has sufficient resources available.

Next configure the *delay between buffers* to between 150 and 250 milliseconds. A delay is required so that *ZEIT* can write the new program data to its FLASH memory before the arrival of the next packet. If the delay isn't long enough then you might see *Flash Errors* or *Bad Page* messages on *ZEIT's* display.

Step 4: Download the program



Click on *Send* and wait for the program to download. *MIDI Ox* will send between 450 and 500 pages of data and this may take several minutes. Please be patient and make sure that the download completes and that no *Bad Page* or *Flash Error* messages appear on *ZEIT's* display. If you see any of these messages then please consult the *Troubleshooting* section above.

## ***Appendix 2: MIDI Controller definitions***

The following is a list of MIDI controllers as defined in the official MIDI Specification produced by the MIDI Manufacturer's Association (MMA).

Manufacturers are not required to follow this specification or fully implement it in their devices though nearly all do. The MIDI Implementation Chart in the back of your synthesiser's manual should tell you which MIDI controllers are supported.

### **List of Standard MIDI Continuous Controllers (CCs)**

- |    |   |
|----|---|
| 0  | Bank Select (MSB) Program changes                       |
| 1  | Modulation Wheel (or Joystick positive polarity) (MSB)  |
| 2  | Breath controller (or joystick negative polarity) (MSB) |
| 4  | Foot Pedal (MSB)  |
| 5  | Portamento Time (MSB)                                   |
| 6  | Data Entry (MSB)  |
| 7  | Volume (MSB)  |
| 8  | Balance (MSB)   |
| 10 | Pan position (MSB)                                      |
| 11 | Expression (MSB)  |

The group below are sometimes "hard assigned" to faders and knobs on your synth. They are usually set as a default but you can change them to match your other synthesisers.

- |    |   |
|----|---|
| 12 | Effect Control 1 (MSB)                        |
| 13 | Effect Control 2 (MSB)                        |
| 14 | Undefined                                     |
| 15 | Undefined                                     |
| 16 | Ribbon Controller or General Purpose Slider 1 |
| 17 | Knob 1 or General Purpose Slider 2            |
| 18 | General Purpose Slider 3                      |
| 19 | Knob 2 General Purpose Slider 4               |
| 20 | Knob 3 or Undefined                           |
| 21 | Knob 4 or Undefined                           |

Controllers 22 to 31 are undefined and available for use by synthesisers that let you assign controllers. With careful programming you can set them up in a consistent way so that all of your instruments will react in the same way. For example if you always assign 22 to Knob A and you always assign Knob A to filter cut-off, then all your programmable synthesisers will sweep the filter when you

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turn knob A no matter what synth is selected on that channel in your sequencer. This works until you get a synth that hard assigns filter cut-off to controller 74, as many General MIDI synths do. To make it more confusing, some synths will let you assign filter cut-off to controller 22 but will still let the synth react to controller 74.

Controller 32 Bank Select (LSB) - it is critical that you do not assign this controller to any other function unless, of course, you like random bank changes running through your song.

These following controllers may or may not be implemented in your synth. Most likely they are not.

- 33 Modulation Wheel (LSB)
- 34 Breath controller (LSB)
- 36 Foot Pedal (LSB)
- 37 Portamento Time (LSB)
- 38 Data Entry (LSB)
- 39 Volume (LSB)
- 40 Balance (LSB)
- 42 Pan position (LSB)
- 43 Expression (LSB)
- 44 Effect Control 1 (LSB) Roland Portamento on and rate
- 45 Effect Control 2 (LSB)

Controllers 46-63 may be in use as the LSB for controllers 14-31 in some devices, but this is rare. This group typically controls pedals.

- 64 Controller Hold Pedal (sustain pedal)
- 65 Portamento (on/off)
- 66 Sustenuto Pedal (on/off)
- 67 Soft Pedal (on/off)
- 68 Legato Pedal (on/off)
- 69 Hold 2 Pedal (on/off)

This next group controls parameters on some synths. Here's where you need to closely inspect your MIDI implementation chart to see what's going on. Synths with lots of knobs may "hard assign" them to specific knobs. If you can use 71 and 74 for frequency and resonance, it's a good idea to do so. On the Korg Triton for example, controllers 71-74 are hard assigned to the knobs. If you set your more freely assignable Proteus to respond the frequency cut-off on CNTL 74, then your rig is more consistent.

- 70 Sound Variation



- 71     Resonance (aka Timbre)
- 72     Sound Release Time
- 73     Sound Attack Time
- 74     Frequency Cut-off (aka Brightness)
- 75     Sound Control 6
- 76     Sound Control 7
- 77     Sound Control 8
- 78     Sound Control 9
- 79     Sound Control 10
- 80     Decay or General Purpose Button 1 (on/off) Roland Tone level 1
- 81     Hi Pass Filter Frequency or General Purpose Button 2 (on/off) Roland Tone level 2
- 82     General Purpose Button 3 (on/off) Roland Tone level 3
- 83     General Purpose Button 4 (on/off) Roland Tone level 4

Controllers 84-90 are undefined and typically available for use by synthesisers that let you assign controllers.

Controllers 91 and 93 are active on nearly all general MIDI.

- 91     Reverb Level
- 92     Tremolo Level
- 93     Chorus Level
- 94     Celeste Level or Detune
- 95     Phaser Level

**The following controllers are usually reserved for data entry. We recommend that you do not send MIDI Controller Type to any of these values.**

- 96     Data Button increment
- 97     Data Button decrement
- 98     Non-registered Parameter (LSB)
- 99     Non-registered Parameter (MSB)
- 100    Registered Parameter (LSB)
- 101    Registered Parameter (MSB)

These controllers are reserved. You should not use these in normal practice.

- 120    All Sound Off
- 121    All Controllers Off
- 122    Local Keyboard (on/off)
- 123    All Notes Off
- 124    Omni Mode Off
- 125    Omni Mode On

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126	Mono Operation
127	Poly Operation

### Appendix 3: ZEIT MIDI menu summary

As a quick reference for *ZEIT* users, the following is a summary list of all the *ZEIT* menu pages organised by page group, number, purpose and individual parameter/function.

Note that parameters/functions shown *in italics* are read-only and cannot be amended.

#### The Sequence Menu

Pg No.	Page Purpose	Parameter/Function
30	Rename Sequence	Input/rename sequence title
31	Load Sequence	Select/load named sequence
32	Save Sequence	Save current sequence
33	Lock/Unlock Sequence	Select sequence name  Locked/Unlocked sequence selector
34	Direction/Clock/Active	Direction of sequence  Clock rate  Active/Mute sequence selector
35	Sequence Transpose	Master transpose amount  Keyboard transpose on/off selector
36	MIDI Parameters	MIDI program number  MIDI channel number  MIDI volume level
37	Root Note & Octave Range	Root Note  Octave range
38	Force-to-Scale & Effects Send	Force-to-Scale status on/off selector  Effects Send status on/off selector
39	Sequence Modulation	Pitch modulation percentage  Velocity modulation percentage

### The Note Editor Menu

Pg No.	Page Purpose	Parameter/Function
01	Note Pitch	Note pitch value (one for each step)
02	Note Velocity	Note velocity value (one for each step)
03	Root Note	Root note value (one for each step)
04	Gate Length	Gate length value (one for each step)
05	Active Steps	Step active selector (one for each step)
06	Skipped Steps	Step skipped selector (one for each step)
07	Start Step/End Step	Sequence start step number Sequence end step number
08	Effects Send	Effects send selector (one for each step)

### The Controller Editors

Pg No.	Page Purpose	Parameter/Function
10	Controller Type	MIDI Controller type number
11	Controller Modulation	Controller modulation direction Controller modulation depth Controller modulation on/off selector
12	Controller Values	Continuous Controller value (one for each step)
13	Controller Step Active	Step active yes/no selector (one for each step)
14	Controller Step Skipped	Step skipped yes/no selector (one for each step)
15	Controller Start/End Step	Controller Start Step number Controller End Step number

### The Step Editors

Pg No.	Page Purpose	Parameter/Function
09	Step Cut	Select Start Step point Select End Step point
0a	Step Copy	Select Start Step point Select End Step point
0b	Step Paste	Select Start Step point Select End Step point

**The Step Editors**

Pg No.	Page Purpose	Parameter/Function
0c	Step Repeat	Select Start Step point Select End Step point
0d	Step Clear	Select Start Step point Select End Step point

**The Transform Menu**

Pg No.	Page Purpose	Parameter/Function
40	Transform Rotate	Select Start Step point Select End Step point
41	Transform Flip	Select Start Step point Select End Step point
42	Transform Invert	Select Start Step point Select End Step point
43	Transform Merge	Select Start Step point Select End Step point
44	Transform Note Wrap	Lower note limit Upper note limit
45	Randomise	Randomise amount
47	Morph Destination	Destination sequence name
48	Morph Set-up	Loop forwards/alternate/off selector Dwell count
49	Morph Status	Morph on/off selector

**The LFO/Sweep Generator Menu**

Pg No.	Page Purpose	Parameter/Function
50	LFO Rate/Depth	LFO modulation rate LFO modulation depth
51	LFO Oscillator Waveshape	LFO waveshape selector Oscillator synchronisation on/off selector
52	LFO Data Offsets	LFO Time Offset LFO Depth Offset

### The LFO/Sweep Generator Menu

Pg No.	Page Purpose	Parameter/Function
53	Sweep Generator Levels	Start Level percentage Target Level percentage End Level percentage
54	Sweep Generator Time	Sweep Generator time value Select Sweep Generator mode
55	Sweep Generator Enable/Disable	Sweep Generator running/disabled selector Sweep Generator output level
56	Sweep Generator Modulation Routing Note/Pitch	Sweep Generator note modulation on/off selector Sweep Generator pitch modulation on/off selector
57	Sweep Generator Modulation Routing CC1/CC2	Sweep Generator CC1 modulation on/off selector Sweep Generator CC2 modulation on/off selector

### The Step Input Menu

Pg No.	Page Purpose	Parameter/Function
e0	Step Time Input	Note pitch value (one for each step)
e1	Step Time Input Set-up	Step-Time/Real-Time input mode selector Auto-skip on/off selector
e2	Arpeggiator On/Off	Arpeggiator on/off selector
e3	Arpeggiator Set-up	Arpeggiator mode selector Arpeggiator Latch mode on/off selector
e4	Tap-Tempo Status	Tap-Tempo status on/off selector
e5	Tap-Tempo Set-up	Tap-Tempo mode live/count-in selector Tap-Tempo count-in beats value
e6	Tap-Tempo Live	<i>Calculated Tap Tempo</i> <i>Calculated count-in beats</i>

**The Patch Edit Menu**

Pg No.	Page Purpose	Parameter/Function
80	Patch Rename	Input/rename patch title
81	Load Patch	Select/load named patch
82	Save Patch	Save current patch
83	Patch Quick Select Bank Number	Save all dependants

**Force-to-Scale**

Pg No.	Page Purpose	Parameter/Function
6a	Load Scale	Select/load named scale
6b	Scale Edit	Edit scale values (one for each note)
6c	Rename Scale	Input/rename scale title
6d	Save Scale	Save current scale

**The Keyboard Menu**

Pg No.	Page Purpose	Parameter/Function
71	Keyboard Active Range	MIDI receive (rechannelised) channel External keyboard lower note value External keyboard upper note value
72	Keyboard Transpose Function	Keyboard root note value <i>Keyboard lower note value</i> <i>Keyboard upper note value</i>
72	Keyboard Trigger	Keyboard Trigger Mode Keyboard Trigger Note

**The MIDI Effects Processor**

Pg No.	Page Purpose	Parameter/Function
60	Repeat/Note Parameters	Repeat count value Note pitch change per repeat Note velocity change per repeat
61	Effect Delay Time	First repeat delay time (seconds)

### The MIDI Effects Processor

Pg No.	Page Purpose	Parameter/Function
		First repeat delay time (MIDI clock cycles)
62	Effect Synchronisation	“Sync Delay to Tempo” on/off selector “Sync Delay to Tempo” interval selector
63	MIDI Parameters and On/Off	Effects unit force-to-scale on/off selector  Effects unit MIDI channel number Effects unit bypass on/off selector

### The Composer

Pg No.	Page Purpose	Parameter/Function
a0	Select Song	Select/load named song
a1	Rename Song	Input/rename song title
a2	Composer Status	Composer on/off selector
a3	Select Track	Select/load named track
a4	Rename Track	Input/rename track title
a5	Track Data	Track Length (in parts) Track Active On/Off Select Track Loop On/Off Select
a6	Track Loop	Part number for track loop re-start Part number for track loop point Track Loop Repeat Count
a7	Select Part/Seq	Part Number Sequence Number
a8	Edit Part	Part loop repeat count Part loop transpose amount per repeat
a9	Song Status	<i>“Now playing” sequence</i> <i>“Now playing” part repeat count</i> <i>“Now playing” part transpose amount</i>

### The MIDI Menu

Pg No.	Page Purpose	Parameter/Function
95	MIDI Device Number	Set unit MIDI device number



**The MIDI Menu**

Pg No.	Page Purpose	Parameter/Function
96	MIDI Forwarding Flags	Forward Pitch Bend On/Off Select Forward Program Change On/Off Select Merge MIDI On/Off messages with Output Stream on/off selector
97	Sequence Number Load Range	Lower MIDI program number for sequence number change Upper MIDI program number for sequence number change
98	Patch Number Load Range	Lower MIDI program number for patch number change Upper number for MIDI program change number change
99	Transmit System Exclusive Sequence	Send selected sequence data via SysEx message Send all sequences via SysEx protocol
9a	Transmit System Exclusive Patch	Send selected patch data via SysEx message Send all patches via SysEx protocol

**The Quick Select Menu**

Pg No.	Page Purpose	Parameter/Function
87	Rename Quick Select Bank	Input/rename song title
88	QSB Button Number & Record Type	Select QSB button number Select QSB button record type
89	QSB Data Set-up	Set data value for selected data type

**The System Setup Menu**

Pg No.	Page Purpose	Parameter/Function
90	Internal/External Sync	Select internal/external timing synchronisation
91	Controller Strip One Set-up	Select assignment for "Normal" mode Select assignment for "Shift" mode
92	Controller Strip Two Set-up	Select assignment for "Normal" mode Select assignment for "Shift" mode
93	Quick Select Status Set-up	Quick Select on/off selector

