

# WHOLEHOG

***Handbook***

**Version 1.10 Supplement**

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# Introduction

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This supplement covers the additional features of the Wholehog v1.10 software. It is designed to be read in conjunction with the v1.09 manual.

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## What's new in release 1.10

### Midi control

The Midi/Timecode card option is now available. This card will transmit console actions as midi "note on" and "note off" messages. The card can also receive midi messages and use them as though they were console actions. Midi show control and midi timecode is not implemented.

---



Need to install Midi/Timecode card.

---

### Timecode control

The Midi/Timecode card will also receive all forms of Longitudinal timecode (24fps, EBU, SMPTE, SMPTE/NTSC). Using the new timecode window, console actions, stacks and masters can all be cued at specific timecode frames. Timecode can also be simulated using the internal timer.

---



Need to install Midi/Timecode card.

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### Improved macro programming

The confusing macro catalogue control buttons have been converted into the more familiar "New", "Save", "Save As" format.

Macro events can now be recorded in "absolute" mode. This avoids all the menu swapping and scrolling that was done before, and speeds macros up considerably. The mode is selected by default - swap to "relative" by clicking on the "Absolute" screen button. "Relative"

mode is the old style of recording used in 1.09, although the confusing Page menu anomaly has been removed.

A full playback reset event has been added, and, finally, a "macro done" message is displayed after a macro has finished running.

### Trackball mode button moved

To make room for the Timecode menu option, the "Trackball mode" control button has been moved from F7 to F8.

## Using Midi

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Midi control is a way of triggering the console remotely or even automatically.

The console can transmit midi messages as you operate a show. These messages can be recorded on a sequencer, edited if necessary, and then sent back to the console. When the console receives them, it interprets them back into key presses and other console actions. It is as though you were there pressing the buttons yourself.

---

### Midi control screen

```
Midi In
-----
On
Off
Channel: 0
('0' is omni)

Midi Out
-----
On      Reset Prog
Off     Reset Play
Channel: 0
```

---

### Transmitting midi

1. Connect your midi recorder or sequencer input to the midi output socket on the back of the Wholehog control rack.
2. Under the "Setup" menu, select "Midi". The Midi Control Screen will appear.
3. Under "Midi Out", choose the midi channel you wish to transmit on by selecting the channel box and typing in a number between 1 and 16.
4. Under "Midi Out", click on "On".

The console will now transmit all console actions down the midi channel. You can now shut the window; midi output will still continue.

To turn off, click on "Off".

### Reset codes

It is useful to transmit "Reset" codes at the beginning of a midi controlled sequence. This is to make sure that the console is put into a "known" state before starting the midi playback. Otherwise, the midi messages might not have the desired effect.

Use "Reset Prog" to clear the programmer and "Reset Play" to reset all masters to off, step 1.

---

### Receiving midi

1. Connect your midi recorder or sequencer output to the midi input socket on the back of the Wholehog Control rack.
2. Under the "Setup" menu, select "Midi".
3. Under "Midi In", select the midi channel you wish to receive on by selecting the channel box and typing in a number between 0 and 16. If you use "0", you will receive midi from all 16 midi channels.
4. Under "Midi In", click on "On".

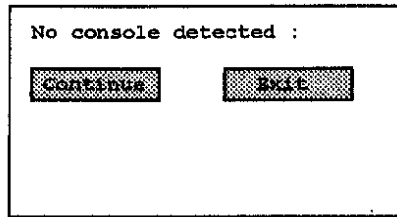
The console will now receive midi messages and use them as console actions. You can now shut the window; midi input will still continue. To turn off, click on "Off".

You can still manually activate cues and faders if you need to, even when midi input is occurring.

### Operating with no console

Once you have programmed your midi sequencer correctly, it is possible to run the Wholehog with no console.

Disconnect the console cable, and reboot the control rack. During the startup sequence, the following screen will come up:



Click on "Continue". The control rack will now only accept input from midi (or timecode). Turn on midi input, start the sequencer and your show will playback

### Changing the midi code map

You will sometimes have to alter the way console events translate into midi "note on / note off" messages. This will be necessary if you want the Wholehog to trigger other equipment requiring specific midi notes, or if the midi sequencer you are using is unable to accept the default Wholehog midi notes.



For advanced users

The console event / midi note translation is controlled by a text file called "codes.dat". This is located in your show directory. To edit it:

1. Drop to DOS by pressing "Control" "Pause" together on the control rack keyboard.
2. Press "Return" until you see the DOS prompt "C:\>"
3. Change to your show directory by typing "cd showname" and pressing "Return". "Showname" is the name of your show.
4. Open the file "codes.dat" by typing "edit codes.dat" and pressing "Return". You should now see the table as listed at the end of this chapter.

#### To change a midi code:

1. Move to the correct table line.
2. Using the coding details below, calculate your new numbering scheme, and overwrite the numbers you want to change.

3. Make sure that the number does not clash with any other midi code, otherwise the console will abort with the message "Overlapping midi codes in codes.dat" when you try to reboot. A common mistake is to forget to take account of the "I/N" ranges adding to the number and making it overlap with another.
4. Save the file, exit the editor, and reboot.

Use the TOOLS window event display to check that the WHOLEHOG is receiving the correct messages.

#### Table format:

"Code"	Internal Wholehog event reference number
"Index"	Internal event index number, eg fader number, menu number or wheel number. The value given denotes the maximum index number. eg 20 indicates index numbers 0-19.
"Number"	Internal event number, eg additional index number for menu buttons, or values for faders and parameter wheels.
"Status"	This is the corresponding Midi status message, written in hexadecimal.
"Data1"	First midi data byte (eg note number), written in decimal.
"I/N"	Denotes whether a range of numbers are used for "Data1". "." indicates that only the number given is used, "I" indicates that the Wholehog "Index" is added to the number given, resulting in a new "Data1" value; "N" indicates the same, but for Wholehog "Number".
"Data2"	Second midi data byte (eg velocity), written in decimal.
"I/N"	Denotes whether a range of numbers are used for "Data2". Same format as for "Data1".

#### Interpreting midi codes: examples

1. Slider active on for slider 1:  
The console knows this as SLIDER\_ACTIVE\_ON, slider 0 (all console internal numbering schemes start at 0).  
Looking in the table gives STATUS = hex 90 = decimal 144.  
DATA1 = decimal 48 + slider number 0 = 48.  
DATA2 = 1.  
Therefore the default codes are decimal 144, 48, 1.
2. Slider active on for slider 2:  
As above, codes are 144, 49, 1.
3. Intensity fader 1 moved up to 255 (full):  
SLIDER\_MOVED, slider 0, number 255.  
This uses an index offset at DATA1 and a number offset at

DATA2 for the fader value. Unfortunately, this system is designed for use with midi systems, and the max value for DATA1 or DATA2 is 127. In order fit in number 255, divide by 2. So, 255 becomes 127. Codes are 160, 0, 127.

### Midi code cap table (codes.dat)

CODE	INDEX	NUMBER	STATUS	DATA1	I/N	DATA2	I/N	COMMENTS
0	0	0 00	0 .	0 .	0 .	0 .	0 .	NO_EVENT
1	20	255 A0	0 I	0 N	0 N	127 .	0 N	SLIDER_MOVED
2	0	28 90	0 N	0 N	0 N	127 .	0 N	MASTER_B_ON
3	0	28 90	0 N	0 N	0 N	0 .	0 .	MASTER_B_OFF
4	0	255 A0	20 .	0 N	0 N	0 .	0 .	INTENS_MOVED
5	0	255 A0	21 .	0 N	0 N	0 .	0 .	QFADER_MOVED
6	4	3 B0	12 I	0 N	0 N	0 .	0 .	MASTER_LATCH_ON
7	4	3 B0	16 I	0 N	0 N	0 .	0 .	MASTER_LATCH_OFF
8	20	0 90	28 I	127 .	0 N	0 .	0 .	SLIDER_FLASH_ON
9	20	0 90	28 I	0 .	0 N	0 .	0 .	SLIDER_FLASH_OFF
10	20	0 90	48 I	127 .	0 N	0 .	0 .	SLIDER_ACTIVE_ON
11	20	0 90	48 I	0 .	0 N	0 .	0 .	SLIDER_ACTIVE_OFF
12	0	0 90	108 .	127 .	0 N	0 .	0 .	DBO_ON
13	0	0 90	108 .	0 .	0 N	0 .	0 .	DBO_OFF
14	20	0 90	68 I	127 .	0 N	0 .	0 .	SLIDER_NEXT_ON
15	20	0 90	68 I	0 .	0 N	0 .	0 .	SLIDER_NEXT_OFF
16	20	0 90	88 I	127 .	0 N	0 .	0 .	SLIDER_BACK_ON
17	20	0 90	88 I	0 .	0 N	0 .	0 .	SLIDER_BACK_OFF
46	0	0 B0	23 .	0 .	0 N	0 .	0 .	INSERT_ON
48	0	0 30	24 .	0 .	0 N	0 .	0 .	CHANGE_PAGE_ON
50	0	0 30	25 .	1 .	0 N	0 .	0 .	DELETE_ON
51	0	0 30	25 .	0 .	0 N	0 .	0 .	DELETE_OFF
52	0	0 B0	26 .	0 .	0 N	0 .	0 .	BLIND_ON
54	10	0 B0	27 .	0 I	0 N	0 .	0 .	PB_PARAM_ON
56	16	0 B0	28 .	0 I	0 N	0 .	0 .	PB_MODE_ON
58	0	0 B0	29 .	0 .	0 N	0 .	0 .	PSTOP_ON
60	0	0 B0	30 .	0 .	0 N	0 .	0 .	PGO_ON
62	0	0 B0	31 .	0 .	0 N	0 .	0 .	KNOCK_OUT_ON
64	12	255 B0	32 I	0 N	0 N	0 .	0 .	P_WHEEL_MOVED
65	0	255 B0	44 .	0 N	0 N	0 .	0 .	PB_PARAM_MOVED
66	0	0 B0	45 .	0 .	0 N	0 .	0 .	SAMPLE_ON
68	0	0 B0	46 .	0 .	0 N	0 .	0 .	EDIT_ON
70	0	0 B0	47 .	0 .	0 N	0 .	0 .	BUILD_ON

72	0	0 B0	48 .	0 .	0 N	0 .	0 .	CLEAR_ON
74	0	0 B0	49 .	0 .	0 N	0 .	0 .	INVERT_ON
76	0	0 B0	50 .	0 .	0 N	0 .	0 .	ODD_ON
78	0	0 B0	51 .	0 .	0 N	0 .	0 .	ALL_ON
80	12	0 B0	52 .	0 I	0 N	0 .	0 .	KEYPAD_ON
82	0	0 B0	53 .	0 .	0 N	0 .	0 .	KEYDEL_ON
84	4	0 B0	54 .	0 I	0 N	0 .	0 .	P_SCROLL_ON
85	4	0 B0	55 .	0 I	0 N	0 .	0 .	P_SCROLL_OFF
86	2	4 B0	56 N	0 I	0 N	0 .	0 .	WHEEL_MDKEY_ON
88	2	0 B0	60 .	0 I	0 N	0 .	0 .	MENU_TOG_ON
90	0	0 B0	61 .	0 .	0 N	0 .	0 .	HIGHLIGHT_ON
92	6	3 B0	6 I	0 N	0 N	0 .	0 .	MENU_SCROLL_ON
94	0	0 B0	62 .	0 .	0 N	0 .	0 .	MACRO_ON
96	0	0 B0	63 .	0 .	0 N	0 .	0 .	COPY_ICBF_ON
98	0	0 B0	64 .	0 .	0 N	0 .	0 .	WHOOFS_ON
100	2	0 B0	65 .	0 I	0 N	0 .	0 .	SL_MODE_ON
102	0	0 B0	66 .	0 .	0 N	0 .	0 .	KEYPAD_ENTER_ON
104	3	0 B0	67 .	0 I	0 N	0 .	0 .	PB_PARAM_STEP_ON
107	6	7 B0	0 I	0 N	0 N	0 .	0 .	MENU_B_OFF
110	0	0 B0	20 .	0 .	0 N	0 .	0 .	ASSIGN_ON
112	0	0 B0	21 .	0 .	0 N	0 .	0 .	APPEND_ON
114	0	0 B0	22 .	0 .	0 N	0 .	0 .	MERGE_ON
136	0	0 B0	121 .	0 .	0 N	0 .	0 .	PROG_RESET
137	0	0 B0	123 .	0 .	0 N	0 .	0 .	OP_RSET

# Macros

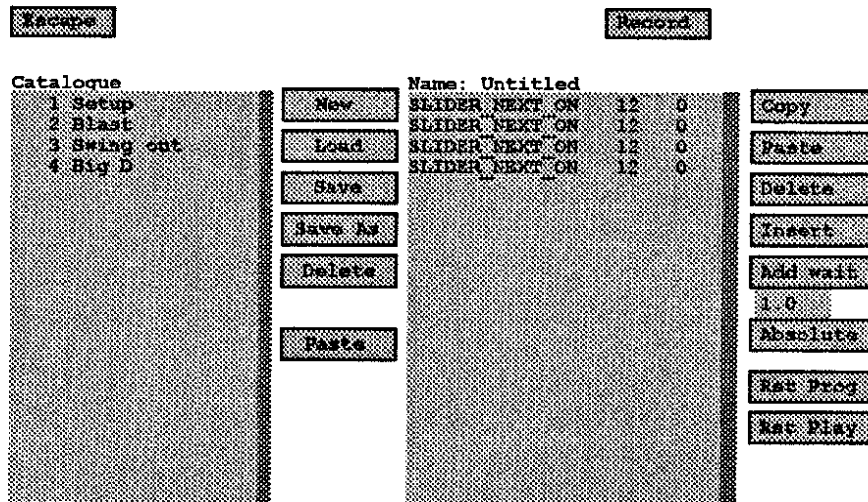
This chapter replaces the description given in the v1.09 manual. Macros have been made easier to use in v1.10, so a full description is given here.

In simple terms, macros allow you to record a sequence of console actions, and then play them back as many times as you like just by accessing the macro.

Macros can be used, for example, to

- Set up quick pages from global stacks
- Perform multi-part cues
- Program palettes quickly
- Use a macro instead of changing pages (quicker)

## Macro editor screen



## Making a macro

Before you can use a macro, you first have to record it. This is done using the Macro Editor Screen:

1. Make sure Macros are unlocked by choosing "Lock" under the "Hog" menu, and opening the "Macros" lock. The key is "fruit".
2. Select "Macro" under the "Make" menu. The Macro Editor Screen will appear.


The screen is divided into two parts:

- on the left, the Macro Catalogue looks after all the macros stored in your show, and lets you load them, save them, etc.
- on the right, the Macro Edit box displays macros, and lets you add to them and edit them.

## Recording

The first step in making a macro is to record the console actions that you want to play back using the macro. To do this:

1. Setup the console in the state you want to start from.
2. Click on "Record".
3. Perform the console actions. You will see them listed out in the Edit Box. See the section "Macro Actions" for a detailed description.

 The console may not perform all the actions as you record them. For instance, all editing functions such as "Assign, Append, Insert, and Merge" are only recorded and are not performed. They will be performed when you playback the macro.

4. Click anywhere on the screen to turn off recording.

## Saving

If you made no mistakes, then you can go ahead and save this macro:

1. Click on "Save"
2. Type in a name for your macro

3. Click on "Ok"

#### **Playing back**

You cannot playback a macro until it has been saved.

1. Note the number next to macro in the Macro Catalogue. This is the macro number.
2. Using the programmer keypad, type in the macro number.
3. Press "Macro". The macro now executes. A "Macro Done" message is displayed in the programmer window when it is finished.

---

#### **Editing macros**

If you want to make changes, you can record more actions into any point of the macro by selecting the place and recording. Use "PgUp" and "PgDn" to scroll the Edit Box.

Make use of the Edit Box features to move actions around, copy them, delete them, etc:

- Copy: click and drag the mouse to select a range of actions in the Edit Box, then click on "Copy". The actions have been copied into a pasteboard ready for pasting.
- Paste: click on the action where you want to paste, and click on "Paste". The actions you copied will be pasted before the action you chose.
- Delete: select the actions you want to delete, and click on "Delete".
- Insert: toggle between Insert and Over /W (Overwrite) modes by clicking on "Insert". When inserting, new events that you Record or Paste or Read In will be inserted into the macro. When overwriting, they will replace events that are already there.
- Add Wait: adds an event that will cause the macro to wait a specified number of seconds before proceeding. Enter the time (to 1/10th sec) in the box below the Add Wait button. Note that the delay period will be displayed in 256ths of a second in the macro event.

- Absolute: toggle between Absolute and Relative recording modes by clicking on "Absolute". Absolute recording mode records the precise selections you make, independent of any menu scrolling or display swapping. We recommend that you use this mode for your macros. Relative mode records button pushes relative to menu scrolls, etc; it is useful for performing actions within menus. You can use both modes within one macro.



Scene master button actions are not accessible in Absolute mode. Use Relative mode to access them.

---

- Reset Prog, Reset Play: as in the Midi Screen, these two buttons add reset programmer and reset playback events to the macro.

#### **Macro catalogue**

The catalogue shows all the macros that you have made. It lists all the macro numbers for playing them back.

Macros with a number larger than 900 or more are system macros, and cannot be replaced or deleted. Currently, there are no system macros.

Your macros are all accessible through the Macro catalogue. Use it to open and edit old macros, delete macros and combine them.

- New: starts a new macro.
- Load: click on a macro in the catalogue, then click on "Open". The macro will be placed in the Edit Box ready for editing.
- Save: saves the macro in the Edit Box.
- Save As: lets you save the macro in the Edit Box to a different macro.
- Delete: select the macro you want to delete and click on "Delete".
- Paste: select a macro, click on "Paste". The macros actions will be pasted into the macro in the Edit Box.



---

## Macro actions

The way macro events are displayed can be somewhat cryptic. They correspond to the specific events that have been recorded. Also, the way that an action is displayed depends on whether you are using Absolute or Relative mode.

### Menus

In absolute mode, the menu choice will appear like

```
SET_GSTACK      5      0
```

This means that you have selected global stack number 5. Menu numbering schemes start at 0.

In relative mode, menu choices will appear like

```
MENU_B_OFF      1      *0
```

The first number corresponds to the each bank of seven buttons. The 5th bank from the left is bank 1. The second number specifies which button. The top one is 0. The asterisk reminds you that this is scroll dependent. The page menu now works the same way, not as described in the v1.09 manual.

The first four menu button banks will be recorded as

```
MASTER_B_ON     12     21
MASTER_B_OFF     12     21
```

The 12 will not change. The second number records the button number in the four banks as a whole. You therefore get button numbers from 0 to 27.

### Swap menus

Swap menus is ignored in Absolute mode since it is redundant. In relative mode, rather than recording a specific button push when you press "Swap Menus", the macro will record which set of menus you have chosen. When you replay the macro, the same set will be accessed.

### Parameter wheels

These are recorded as you move them. The first number represents the wheel number (from 0 to 12; 12 is the Playback Controller

wheel). The second number represents the movement from -128 to 127. If you move over this amount, a second line will be produced.

Due to the way parameter wheels have built in acceleration depending on how fast you move them, macros will rarely replay the way that you recorded them. It is better to experiment and find a numeric value that performs what you want it to do, and then record wheel movements to this number.

### Faders

```
SLIDER_MOVED    0      158
QFADER_MOVED    21     160
INTENS_MOVED    20     255
```

Movements of the faders and quadrant fader are recorded as you move them. The action will be recorded only with the last value received, rather than with a series of intermediary values as well. This number is stored as the second number. The first number for faders (SLIDER\_MOVED) is the fader number 0-19, otherwise it is unused.

## Using Timecode

Timecode is a special signal that can be recorded onto an audio or video tape. It is used to synchronise control equipment so that the correct actions are performed at the right point in the music or video.

With the Midi/Timecode card fitted, the Wholehog can read in timecode and use it to trigger cues.

If a Midi/Timecode card is not fitted, or if a timecode signal is not available, the Wholehog can generate its own internal timecode that can be used to simulate an external signal.

### Overview

The way that the Wholehog triggers cues to timecode is very similar to the way that macros work. In fact, the "cuelist" that the Wholehog uses is just a macro, but with timecode frame numbers attached to each macro action.

As the console receives a timecode frame, it scans its cuelist to see if any frame numbers match. If they do, it performs the actions at that frame number.

As a result, creating a timecode cuelist is almost identical to creating a macro. Therefore, a good understanding of recording, editing and using macros will be assumed in this chapter.

### Making a timecode cuelist

Before you can use a cuelist, you first have to record it. This is done using the Timecode Screen. Select "Timecode" under the "Make" menu. The Timecode Screen will appear.

From your experience with macros, you will recognise a catalogue that looks after all the cuelists stored on your console, and lets you open them, save them, etc.

Also, the Edit box displays the current cuelist. As well as allowing you to edit the cuelist the same way as macros, it also lets you program the timecode frames.

### Timecode screen

The screenshot shows the Timecode screen interface. At the top, it displays "Status: Stopped" and "Timecode in: Stopped". Below this are two sets of buttons: "Play", "Stop", and "Record" on the left; and "Simulate Timecode" with sub-buttons "Set", "On", and "Off" on the right. To the right of these buttons, it shows "Jumps: Do" and "NTSC 30". The top right corner displays "00:00:00.00 D30".

The main area is a "Cuelist Catalogue" table with columns for "Frame", "Cues", and "Name: Untitled". The table contains the following data:

Frame	Cues	Name: Untitled
00:00:30.00	SLIDER NEXT ON	12 0
00:00:31.12	SLIDER NEXT ON	12 0
00:00:32.01	SLIDER NEXT ON	12 0
00:00:33.00	SLIDER NEXT ON	12 0

Below the table are buttons for "New", "Load", "Save", "Save As", and "Delete". At the bottom left is a "Paste Cues" button. At the bottom right, there is a timecode display "00:00:30.00" and a label "<- Edit selected frame". On the far right, there is a vertical menu with buttons for "Copy", "Paste", "Delete", "Move to", "Absolute", "Add special cues:", "Reset Prog", and "Reset Play".

Unique to the Timecode Screen are the controls at the top. On the left, you have the cuelist play, stop and record buttons. On the right, you have timecode simulation buttons.

The top line displays the cuelist and timecode status. The number at right displays the timecode format detected. "D30" would indicate 30 frames per second, drop frame.

### Recording

The first step in making a cuelist is to record the console actions that you want to play back to the timecode. To do this:


1. Setup the console in the state you want to start from.
2. Connect the timecode input into the back of the Wholehog control rack.
3. Select the timecode format you are using by clicking in the "Fps:" option list at top. Use the scroll bar to access all options. Note: NTSC 30 corresponds to 30 fps drop frame.

4. Click on "Record".
5. Start the timecode tape. You should see the timecode changing on the top line.
6. Perform the console actions. You will see them listed out in the Edit Box, together with the timecode frame. The action display format is the same as for macros.
7. Click anywhere on the screen to turn off recording.

If you made no mistakes, then you can go ahead and save this cue list by clicking on "Save".

#### Playing back

1. Rewind the timecode tape.
2. Click on "Play"
3. Start the tape. The cue list will playback synchronised to the timecode. The Edit Box will scroll as actions are executed. You can use "Esc" to close the Timecode screen during playback - the cue list will still playback okay.
4. Click on "Stop" to stop playback, or just stop the tape.

 You can only playback a cue list that is in the catalogue by loading it first. Remember to reset the FPS format after a load.

When playing back, sometimes you may want to stop the tape, fast forward to a new section, and then continue playing. By default, the console will play all the cues in between. To prevent this, click on the "Skip" option under "Jumps:".

#### Simulating timecode

You can turn a timecode simulator on or off by clicking on "On" or "Off" in the "Simulate Tcode" control box. Preset the timecode time by clicking on an action in the Edit Box, and clicking on "Set".

#### Operating with no console

As with Midi, a correctly programmed cue list will allow you to playback a show without a console attached (see Midi chapter), triggering cues from a timecode source.


Also, in conjunction with the timecode simulator, you can trigger cues yourself without having a console present. This acts as a crude backup system for console failures.

---

#### Editing cue lists

The Edit Box allows you to make changes to the cue list. You can record additional actions, or edit timecode frames, or copy, paste, delete, etc.

- Changing a timecode frame: select the frame to be changed, then press the right cursor key on the control rack keyboard. A character cursor will move along the frame edit box at the bottom of the screen. Use the cursor keys to get to the wrong digit, press "Delete" to delete it, then type in a new one and hit return.

 The cue list will always be sorted in order of timecode frame. Therefore, if you edit a timecode frame, the associated action may change position within the cue list.

- Copy, Paste, Delete: work the same way as macros. When you paste a series of actions into a point in the cue list, the inserted timecode frames will be set to start from that point.
- Move to: select a range of actions to move, use the timecode box below the "Move to" button to type in a new timecode, then click on "Move".
- Absolute: toggle between Absolute and Relative recording modes.
- Reset Prog, Reset Play: insert reset actions.

#### Cue list catalogue

The catalogue shows all the cue lists that you have made. All the catalogue functions work the same way as the Macro Catalogue.

---

#### Timecode specification

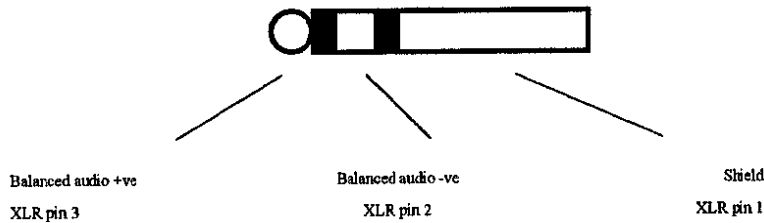
##### Formats

All formats are LTC - VITC not supported:

FILM 24 frames per sec  
 EBU 25 frames per sec  
 SMPTE 30 frames per sec  
 NTSC 30 frames per sec + drop frame

**Timecode input**  
 Balanced audio - automatic gain, isolated audio ground.  
 0.25" stereo jack.

**Connector pinout**



**Appendices**

**CMOS settings**

For Wholehog desks supplied with American Megatrends Inc. 11/11/1992 BIOS (PAT38M m/board), the following amendments apply to pages 121-123 (Resetting System Data) of the v1.09 manual.

There are three tables of settings that need to be input/checked in the case of CMOS battery failure:

**Standard CMOS Setup**

This is unchanged from the table on the bottom of page 121. The hard disc settings are;

- For 80 Mbyte hard drives: Type 47, 98 1, 10, 0, 981, 17, (81Mb)
- For 120 Mbyte hard drives: Type 47, 93 6, 16, 0, 936, 17, (124Mb)
- For 131 Mbyte hard drives: Type 47, 100 2, 8, 0, 1002, 32, (125Mb)

As before, use "Up / down " cursor keys to select fields and "PgUp / PgDn" keys to change values. When you've finished changing values, press "Esc" to return to the main menu.

**Advanced CMOS setup**

This has now changed and should be input as follows:

Typematic Rate Programming:	Disabled
Typematic Rate Delay (msec):	250
Typematic Rate (Chars/Sec):	10
Above 1 MB Memory Test:	Enabled
Memory Test Tick Sound:	Disabled
Memory Parity Error Check:	Enabled
Hard Disc Type 47 RAM Area:	0:300
Wait For (F1) If Any Error:	Enabled
Numeric Processor Test:	Disabled

Floppy Drive Seek At Boot:	Disabled
System Boot Up Sequence:	A:,C:
System Boot Up Speed:	High
External Cache Memory:	Enabled
Internal Cache Memory:	Disabled
Password Checking Option:	Setup

Video ROM Shadow C000,16K:	Enabled
Video ROM Shadow C400,16K:	Enabled
Adaptor ROM Shadow C800,16K:	Disabled
Adaptor ROM Shadow CC00,16K:	Disabled
Adaptor ROM Shadow D000,16K:	Disabled
Adaptor ROM Shadow D400,16K:	Disabled
Adaptor ROM Shadow D800,16K:	Disabled
Adaptor ROM Shadow E000,16K:	Disabled
Adaptor ROM Shadow E400,16K:	Disabled
Adaptor ROM Shadow E800,16K:	Disabled
Adaptor ROM Shadow EC00,16K:	Disabled
System ROM Shadow F000,64K:	Enabled
BootSector Virus Protection:	Enabled

#### Advanced chipset setup

This should not need be altered as default settings are used throughout, however these settings should be:

AUTO Config Function:	Enabled
Hidden Refresh:	Disabled
Slow Refresh:	Enabled
Single ALE Enable:	No
Keyboard Reset Control:	Enabled
Master Mode Byte Swap:	Disabled
AT Cycle Wait State:	Disabled
Fast Decode Enable:	Disabled
I/O Delay On Back to Back:	Disabled
Non-Cacheable Block-1 Size:	Disabled
Non-Cacheable Block-1 Base:	0 KB
Non-Cacheable Block-2 Size:	Disabled
Non-Cacheable Block-2 Base:	0 KB
Cacheable RAM Address Range:	64 MB
Video BIOS Area Cacheable:	No
AUTO AT Wait State:	Enabled

#### Saving CMOS settings

1. Choose "Write to CMOS and Exit"
2. Answer exit prompt with a "Y" and press "Return" to save settings and boot up the console.