mfx3 plus
DIGITAL AUDIO WORKSTATION

Installation Manual 19" Rack

Part Number: MAN14R
Document No: 112
September 1997

Ref: INSTALL-R.PM6

fairlight™
THE BENCHMARK IN DIGITAL AUDIO

Cautions & Safety Requirements

Safety Instructions

1.	**Read Instructions**	All the safety instructions should be read before the device is operated.
2.	**Retain Instructions**	The safety and operating instructions should be retained for future reference.
3.	**Heed Warnings**	All warnings on the device and in the operating instructions should be adhered to.
4.	**Follow Instructions**	All operating and use instructions should be followed.
5.	**Water and Moisture**	The device should not be used near water - for example, near bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool etc.
6.	**Carts and Stands**	The device should be used with a cart or stand that is recommended by the manufacturer
7.	**Ventilation**	The device should be situated so that its location or position does not interfere with its proper ventilation. For example, the device should not be situated on a bed, soft rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
8.	**Heat**	The device should be situated away from heat sources such as radiator, heat registers, stoves or other appliances (including amplifiers) that produce heat.
10.	**Mains Power Cords and Attachment Plugs**	The equipment has an auto-sensing Power supply unit for sensing the mains supply circuit voltage and can be operated under various Mains Supply Voltages (100/110/220/240V). Only mains power cord and attachment plugs approved by the standards authority in the country of use should be used to connect the equipment to the alternate supply circuit voltage. A list of Recommended Mains attachment Plugs and Mains Power Cords for use in various countries throughout the world is attached.
10.	**Grounding or Polarization**	Precautions should be taken so that the grounding or polarization means of the device is not defeated.
11.	**Mains Power Cord Protection**	Mains Power cords should be routed so they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the device.

Cautions & Safety Requirements

Mains Plugs & Mains Power Cords

The following lists the recommended Mains Plugs and Mains Leads types for use in various countries throughout the world.

Mains Attachment Plugs	
Standards applicable for Mains Plugs	**Country**
ASTA BS1363 1984	UK
BS546, 1950	India, Kenya, Nigeria, Kuwait Parts of Asia and the Far East
IEC695-2-1 & NF-USE	France & Belgium
DIN49441 & CEE 7 Sheet VII	Europe
SEV	Switzerland
CEI23-16	Italy

Mains Power Cords	
Standards applicable for Mains Leads	**Country**
CSA22.2 No.42 & UL498	North America & Japan
ASE 1011 (1959)	Switzerland
CEI 2316	Italy
SRAF 1962	Denmark
AS3112-1990, NZSS198-1967	Australia, New Zealand, Fiji, Papua New Guinea, Republic of China

Cautions & Safety Requirements

EMC Warning:

The MFX 3^{plus} Rack and MFX3^{plus} Console conform to EMC directive 89/336/EEC standard Class A EN55022 EN50082.1.1995 And may affect domestic electronic equipment.

Installers should be aware of the requirements under The EMC directive that complete installations must conform and not just the individual pieces of equipment.

For information on correct procedures please refer to The following titles;
Noise Reduction Techniques In Electronic Systems
By Henry W .Ott
EMC
By Tim Williams.

Caution:

To reduce the risk of fire, replace only with the same manufacturer , type and rating fuse. U.L. listed or recognised fuse to be used only.

Rack Fuse Rating:

125v @ 6.3 Amps
240v @ 3.15 Amps

Mains Cables:

All external cables are to be of U.L. listed or recognised type only.

Cleaning:

Do not use alcohol based cleaners on the MFX Console or Rack. A soap based solution is recommended. Ensure that the cloth is thoroughly wringed before attempting to wipe any panel or faceplates. Do not spray cleaning agents directly onto the MFX Console or Rack. Apply to a cloth and then to the unit being cleaned.

Contents

MFX.

Courtesy Todd AO

1.0 Introduction

Congratulations on choosing the Fairlight MFX3plus
Digital Audio Editing system.

Fairlight's MFX3plus system offers the ultimate in speed and ease for recording and editing audio, as well as all the software you need to manage your work flow, your sound libraries and your storage resources.

Like all Fairlight audio products, MFX3plus has been designed from the ground up to do audio. It is a multiprocessor architecture that uses a true multitasking, real time Disk Operating System, designed specifically for the needs of large digital audio files and real time graphical display of the audio. This is integrated into a multi-layered "object-based " editing environment that is uniquely fast and easy to use, with video machine control built into the editing functionality, virtually eliminating the need to type in time codes.

MFX3plus has a fine pedigree. It is the eighth model of Digital Audio Workstation from the company that introduced the first commercial system capable of playing and editing digital audio waveforms, in the mid seventies. MFX3plus is Fairlight's sixth model of disk recorder and is operationally and architecturally distinct from any other disk based product, mainly due to major proprietary features in both hardware and software.

An ongoing commitment to development will continue to keep MFX3plus at the leading edge of audio production tools, while maintaining the richness of features and friendliness of its user interface. With a clear direction towards the all digital world of the future, MFX3plus is today's solution for audio post, during the 90's transition from analog to digital and beyond.

Fairlight has shown time and again the value of an open architecture to protect the investment of it's users. This has allowed the continued enhancement of the basic platform to include the latest in audio technology with minimal cost, disruption and re-education.

The MFX3plus system has been designed with a great deal of attention to reliability. To ensure that the operation of your system is flawless from the first session please follow the installation directions outlined in this manual.

The scope of the work involved is such that it should be performed by a suitably technically qualified person, under anti static conditions. If you have not received prior training on the correct installation of the MFX3plus system it is recommended that you contact you nearest distributor to arrange installation. Incorrect installation will void the conditions of warranty and lead to possible delays before the system is up and running.

Customers should be aware that MFX2 files can be imported into MFX 3plus, however the reverse is not possible. Thus if the facility has a number of systems it is advisable that upgrades be purchased for any existing MFX2 systems.

References will be made to some options available on the MFX3plus which may not pertain to your system.

Your investment in Fairlight puts you at the leading edge of productivity, now and in the future.

2.0 Unpacking

2.1 Pre Installation Questionnaire

Please ensure the pre-installation questionnaire has been filled out and returned to your dealer, prior to commencement of the system installation. For copy see Attachment 7.

2.2 Static

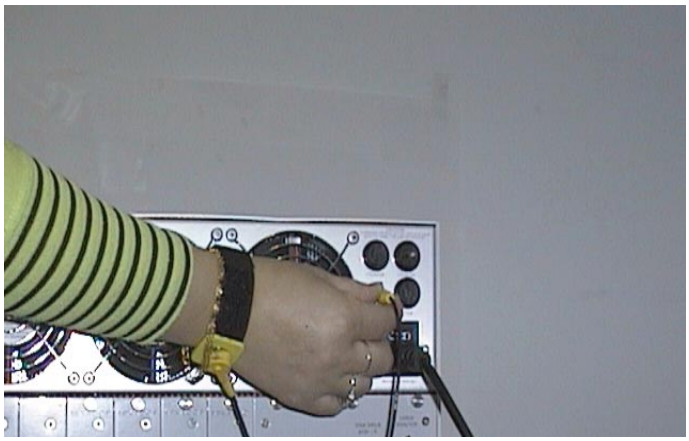
Please take note that all Fairlight manufactured electronic modules are static sensitive and should be handled under anti static conditions. When working on a system always ensure that you have an anti static lead connected and that the system is connected to ground through an earth lead.

Never work on the system while powered up unless you are authorised by Fairlight to do so. As a matter of practice always touch the external chassis of the system before opening the front panel or going to disconnect cables. If cards are not handled under anti static procedures your machine may sustain damage which could either cause a complete failure or may cause intermittent crashes and subsequential system failure.

When handling cards please ensure that they are placed in anti static bags when not in the system. For shipment purposes electronic modules should be placed in an anti static bag and then suitably surrounded with loose packaging materials in a solid card board box. Cards shipped to Fairlight without the correct anti static packaging will have their warranty voided. If you have any enquiries on this matter please feel free to contact your local Fairlight office.

Finally, we at Fairlight take pride in the product we design, build and support. Through supporting system in a quality manner we have been able to keep CMI systems running for near on 20 years, and we look forward to doing so for your system.

Connecting an antistatic strap



2.3 Unpacking Area

It is advisable that before any installation work is attempted that the system be unpacked and the contents thereof verified. A sizeable area approximately 3 meters square should be suitable. Using the basic packing list attached record the items you have received and the serial number where applicable. This will both help you when you have to make an enquiry (having the relevant details logged in your Installation manual), and in the event of a packing omission. At this stage do not power up the system, nor remove electronic modules from the system, as damage may occur if not handled correctly.

2.4 Component Check List

The following is a generic list of items that are shipped with a typical system. It is not meant to reflect all systems nor all possibilities, however, all items are required if the system is to be commissioned. Please place a tick in this manual against the items you have received.

Please tick items received.

Item	Brief Description	Qty	Received √
Mainframe	Containing Digital & Analog Cards	1	☐
MFX Console	User Interface	1	☐
MFX Power Supply	External Power Supply	1	☐
User Manual	Operational Outline	1	☐
Installation Manual	Guide To Installation	1	☐
Mouse	Mouse	1	☐
MFX Cable	Console Cable	1	☐
Video Cable	10m Video Extension Cable	1	☐
9 Pin Cable	Sony Machine Control Cable 5m	1	☐
D Connector Set	Digital & Analog Connector Set	1	☐
T Shirt – White		2	☐
T Shirt – Black		2	☐
Registration Form	Details Of Shipped System	1	☐
Power Cable	IEC Power Cable	1	☐
SCSI Terminator	SCSI Buss Termination	1	☐
Exabyte Tape	Software Installation Tape	1	☐

If you have not received all of the above items please contact your dealer immediately and the item will be dispatched with utmost urgency.

2.5 Mainframe

The mainframe is packed in the largest of the two boxes supplied with each new system. It is typically packed in a brown, cardboard box measuring 500 * 600 * 500 mm. As the mainframe is quite large and heavy it is strongly recommended that it is removed from the box and packing by two persons. Avoid sharp knocks to the unit as damage may occur to the electronic modules contained inside.

2.6 MFX Console

The MFX console is packed in a white box measuring 650 * 470 * 380 mm. All accessories and cables are normally packed in this box with the MFX console itself, such as the video cable, the MFX cable etc.

3.0 Environment

The system is designed to be operated in a clean air-conditioned environment. Generally, an area comfortable for people (19°C - 20°C) should be suitable. The rack mounted units and disk drives, use fans for ventilation. Users may find it desirable to install these units away from the operator/MFX console location. Note that cable lengths, as detailed in "External Cables" should be taken into account when planning the installation.

Make sure that the rack units can access cool air through the opening on the back near the base, and expel warm air from the fans near the top. As with all computer systems, the Fairlight will operate more reliably if static generating floor coverings are avoided.

Do not fit unit into closed Rack except where ducted air is forced through the Rack. Do not run Rack whilst it is on the ground as it will accumulate dust which will eventually cause a failure which will not be covered by Warranty.

The mainframe unit is normally installed in a suitable 19" rack which is at least 600 mm deep, or has an open back section. It is recommended that external hard drives be mounted on a rack tray, above or below the mainframe unit.

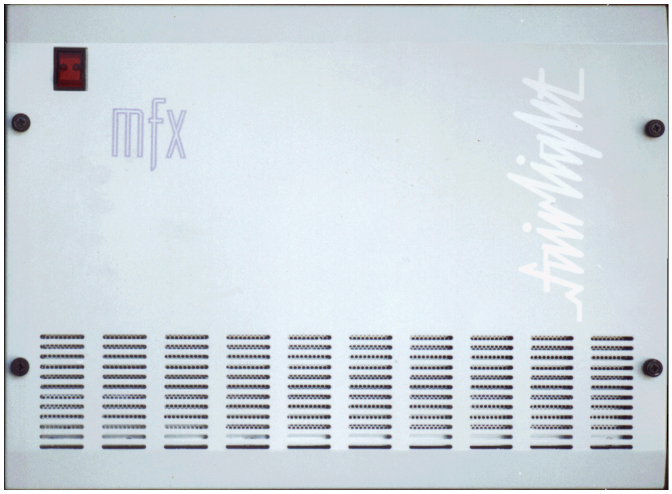
Please Avoid:
- Fitting mainframe where air circulation will be restricted.
- Installing mainframe close to heat sources.
- Installing in dusty or damp area.
- Installing in unstable situation or area subject to vibration.
- Installing in area with strong magnetic or electric fields.

4.0 Installing The System

The following section covers the installation of the mainframe and console units and the associated interconnections and cables. A block diagram is included for reference purposes (Attachment).

4.1 Rack

The mainframe unit, takes up 8 RU, when fitted into a 19” rack. It operates from either 100-120v or 200-250v, 50-60Hz with the mains inputs being auto- switching, as such there are no switches to be set. At least two people are required to fit the Mainframe into a 19” rack as the unit is quite heavy. If available it is suggested that a third person be made available for the initial fitment into the rack, such that a person can guide the Mainframe into the rack, from the rear. The Mainframe should be fitted such that there are no restriction to the ventilation, at the rear of the unit. If external SCSI devices are to be connected it is recommended that these be placed on a rack tray above or below the Mainframe.
It should be noted that typically the Mainframe unit is fitted with a boot drive with SCSI I.D. “ 0 ”(although the boot drive can be at any ID). As the Mainframe uses fans for its forced ventilation system, these generate an amount of ambient noise. The Mainframe should be located in an air conditioned machine room away from the studio and other heat generating equipment.



1. Install Mainframe into 19” Rack unit. (Requires removal of front panel)

2. Ensure that the mains switch is in the off position, and then connect the input power lead.

3. Connect the printer cable to the 9 Pin D connector on the RIO panel of the Mainframe. The connector is marked as “Modem”.

4. Remove the front dress panel by undoing the four thumb screws.

5. Using an anti static strap connect yourself to the mainframe chassis.

6. Using a small Phillips screwdriver open up the front RFI panel and ensure that all the cards are firmly seated into their respective slots by pushing on the card ears at the top and bottom of each card.

7. Replace the RFI panel and front panel on the mainframe.

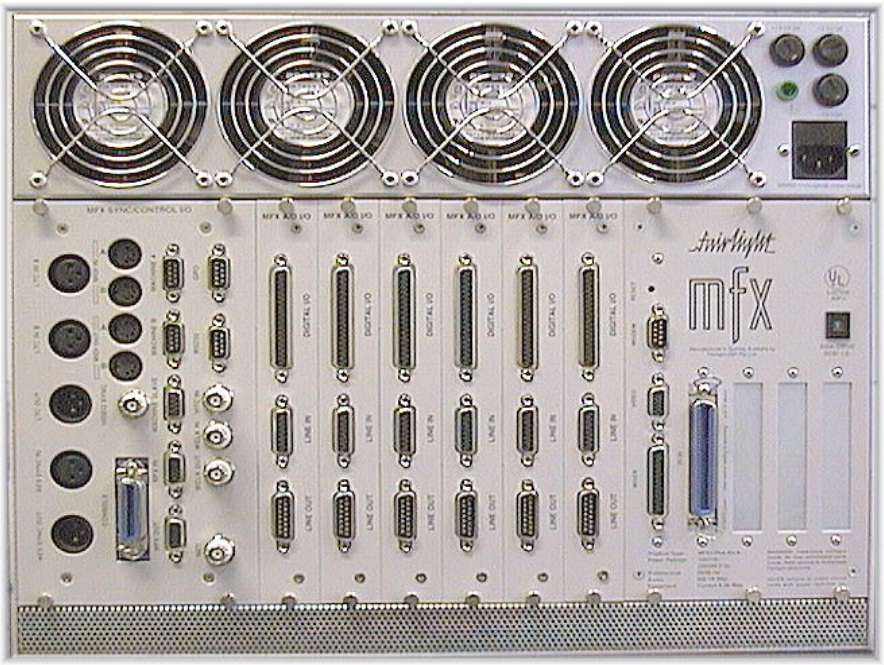
8. Connect the 15 way D connector of the Video cable to the " Video Monitor " connector on the RIO panel of the Mainframe.

9. Connect the MFX Console cable to the Mainframe at the 24 way Centronics connector located on the Sync I/O module at the rear left of the Mainframe.

10. Connect any external SCSI drives and ensure that the last device is terminated. Ensure that the SCSI I.D.'s are not in conflict with each other.

11. Connect all Sync input cables such as LTC, Word clock, Black burst etc.

12. Connect all digital/audio input/output cables



4.2 MFX Console And Monitor

1. Place the Console at a suitable location close to the mixing desk.

2. Connect the MFX cable to the 37 Pin D connector on the rear of the Console.

3. Connect the mouse to the 9 Pin D connector on the rear of the Console. Please note that the mouse is no longer required. By holding the shift key when selecting "X-Point" it toggles between horizontal and vertical adjustment of the crossfade parameters.

4. Connect the MFX Console power supply to the MFX Console and then connect the mains power to the MFX Console power supply .

5. Once all connections have been made to the MFX Console, it can be powered up safely, at the power board or wall outlet.

Note: To avoid noise on the system and earthing problems, it is advisable that the mains source for the Mainframe also be the mains source for the MFX Console.

4.3 External And Internal SCSI Devices

The Mainframe unit is designed to accept one 3.5” drive in the rear section. Typically the boot hard drive will be installed into the Mainframe itself, inside the rear rightmost (RIO) panel. When connecting external devices ensure that their SCSI ID does not conflict with devices fitted into the Mainframe. There is a SCSI ID switch on the rear SCSI panel for changing the SCSI ID of the internal boot drive. It is possible for Fairlight to install 3 * 3.5” drives in the front of the Mainframe however these drives should be ordered as installed when placing an order with Fairlight.

Typically Exabyte drives should be set to ID “ 5 ” when connected to the Fairlight. It is recommended that a rack tray be fitted either above or below the Mainframe to hold external SCSI devices. The last device on the chain should be terminated with all other devices being looped through. Optical devices when attached should be set to ID “ 3 ”.

4.4 External Cable Length Considerations

The following table indicates the maximum length of cables useable.

Cable Name	Recommended	Maximum
Video Cable The length of this cable is monitor dependant.	10 metres	20 metres - Monitor Dependent
MFX Console Cable	10 metres	20 metres
9 Pin Control Cable	5 metres	30 metres
External SCSI Cables	1 metre, each cable	4 metres total length

5.0 System Power-Up

Before you switch on power.
Check that all cables are firmly seated in their connectors.
Do not connect cables or SCSI devices while system is powered up.

5.1 MFX Console

Once the mouse and MFX cables have been connected the MFX Console can be powered up. Turn on the power switch (at the source) and the Console will boot up. The green LC display to the top right of the Console should display zero's on the top display (right hand side) and the lower display should display "MFX3" with the software revision beneath. If the LCD does not light up ensure that the power is turned on at the source. If the Console display lights up, and an error message is displayed, it will be necessary to download the software to the Console as described under " Software And Disk Information ".

5.2 Mainframe

The powering up of the Mainframe is the most critical part of the installation exercise. By spending extra time at this stage, before power is applied, checking all connections and SCSI devices, the potential for damage to the system will be reduced.

1. Ensure all SCSI cables and terminators are connected.
2. Power up all SCSI devices.
3. Verify monitor cable is connected and thence power up the monitor.
4. Ensure all Sync Input/Output cables are connected and secure.
5. Turn down the master faders on the mixing console.

6. Ensure all digital and analog Input / Output cables are connected and secure.

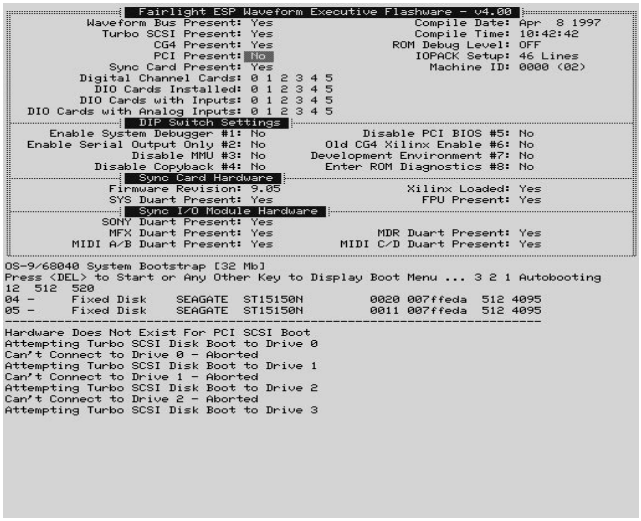
7. Ensure MFX Console cable is connected and secure.

8. Ensure 9 pin control cable is connected and secure.

9. Power up the Mainframe via the switch on the front panel.

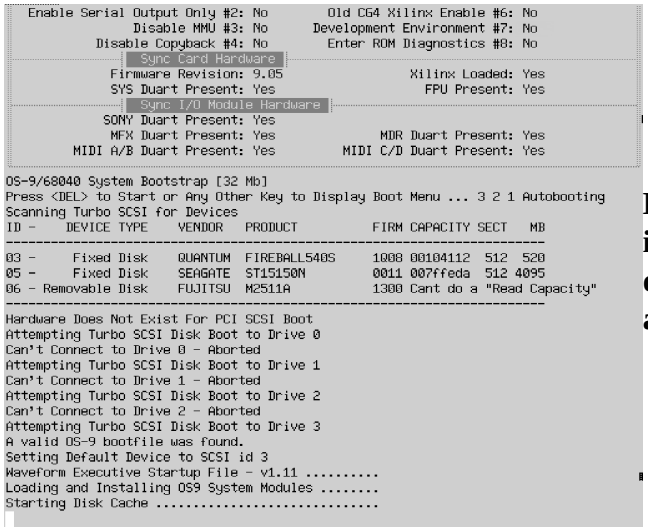
10. Power up the MFX Console, if not already powered up.

At this point the system is booting up if all has gone to plan. Initially you will observe a gray and blue text screen, containing system configuration information. The system will continue booting until the Disk recorder is loaded. This will take approximately 29 seconds. Excellent !



Typical Boot Screen showing 0 through 5 ESPDCC's fitted, ie 24 Channels

If a problem is encountered and the system does not boot up you should take note of the boot screen details as these will prove useful if it is necessary to contact Fairlight. If the problem is related to the SCSI devices you may see the following;



Boot Screen indicating boot device found at ID 3.

In the above picture it is apparent that the system cannot find a boot drive and has scanned positions 0 through 2 without success. If no boot drive is found after passing through ID 6 the system will reset itself and re scan the SCSI buss. If this occurs check all SCSI devices, termination and cables as there may be a simple problem in this area. In this example the system has found a boot drive at ID 3.

5.3 Possible Boot Problems & Solutions.

5.3.1 Checking For Installed Software On A Drive.

The following procedure will allow you to verify that software has been installed on a Drive with SCSI I.D. XX, where XX is the number of the Drive you wish to check, i.e. /SCXX.

1. Power up the system as per normal.
2. Press the < Space Bar > as soon as possible to bring up the ROM Menu.
3. At the prompt type “ROM” then press < Return >
4. The system will boot to the Wave Exec Rom and allow you to perform a limited set of commands.
5. Type “ DIR /SCXX ” where XX is the SCSI I.D. of the drive you believe has software installed.
6. You should see the following. The upper case indicates directories and the lower case indicates files; CMDS ETC SYS USR dd.bf machine release.list startup.user startup.osk30 14_1_13.GZ startup.dev
7. The above files are not in order and will vary in order depending on the system . The directories should always bee present on all systems.
8. The software version as indicated is an example. Software files are in the format 14_X_XX.GX. As such you may have a different version or even multiple versions. This is not a problem.
9. If none of the files nor directories exist then software has not been installed on the drive.
10. Install software from Exabyte or another drive as explained in this manual.

5.3.2 System Fails To Boot From A Hard Drive.

If your system fails to boot from a hard drive which you believe has software on it, the following procedure may be of assistance.

1. Reboot the system and press the < Space Bar > as soon as is possible.
2. You should see a small menu with the following prompt;
   “ Select a boot method from the above menu: ”
3. Type “SCANTS” then press < Return >
4. Check that the drive you are attempting to boot from is detected.
5. If detected there is probably a boot sector problem on the Drive or the Drive may not have software installed.
6. If not detected, then check all SCSI connections and that the drive is powered up.

5.3.3 System Stops At MFX Picture.

If after powering up your new system it appears to stop at the point where the MFX picture is displayed the following should correct the problem.

1. Type “QUIT” < Return >
2. Answer “Y” to the question.
3. Type “MFXLOAD” < Return >
4. Allow the Mainframe to load software into the MFX Console. The Console will reset itself when finished.
5. Reboot the system by typing “RESTART” < Return >
6. The system should now boot through to the Disk Recorder.

If the above procedure fails please press the < Blue > key and then the < ESC > key. Take note of the last 6 lines and with a brief explanation of the problem, fax to you local Distributor or Fairlight office for further assistance.

6.0 Functional Check List

Once the system is running you will want to verify that it is functioning correctly, the following tests should be done before the system is given a final OK :

6.1	All channels audio in/out, distortion at 32k, 44K1, 48K(0.006% or better)		☐
6.2	All channels digital in/out, distortion at 32K, 44K1, 48K (As per source)		☐
6.3	All channels audio out, noise floor (-89dB or better)		☐
6.4	All channels digital out, noise floor (-110dB or better)		☐
6.5	All channels record	(15 minute test)	☐
6.6	All channels playback	(15 minute test)	☐
6.7	DC offset on audio out's		☐
6.8	Verify WCLK synchronisation mode		☐
6.9	Verify Video synchronisation mode		☐
6.10	Verify LTC synchronisation on Port A		☐
6.11	Verify LTC synchronisation on Port B		☐
6.12	Verify 9pin control on Port A	(M1 button on)	☐
6.13	Verify write to each SCSI device respectively		☐
6.14	Perform MFX Console software load		☐
6.15	Backup small project to backup device and restore		☐
6.17	Reboot system 4 times with 5 minute break between boots		☐
6.18	Verify that monitor has been adjusted to display full screen		☐
6.19	Set the correct time for your region using "Setime"		☐

7.0 Software And Disk Information

The following information is for reference **only**. New systems have all operating system software loaded and should be operational at power up. The system will boot from the hard disk provided (drive zero is /SC00). If you have any questions regarding software or hard disks, please contact your dealer.

7.1 Software Updates From Exabyte

To update software from Exabyte when no Rev 14 drives are available;

1. Ensure that an Exabyte drive is connected and set to ID 5
2. Power up the Exabyte drive
3. Place the Exabyte software tape in the drive.
4. Power up the Mainframe.
5. Press the < Space Bar > immediately on powering up the system. You may need to press the < Space Bar > a few times. The aim is to stop the system booting from a hard drive if one is connected.
6. The displayed prompt is " Select a boot method from above menu: ".
7. Type " ROM " < Return > to boot to Wave Exec Rom.
8. Type " Upgrade -T " < Return>. This tells the system to boot from the Exabyte at ID 5.

Follow the procedure as appears on the screen. You will be asked if you want to reformat the drive. Answer **NO** to this if there are projects you require on the drive.

Alternative method if you already have Rev 14 software on an existing connected drive.

1. Boot the system and quit to the Shell from the Project page.
2. The displayed prompt is " # ".
3. Type " Upgrade " < Return >.
4. Follow the prompts and select the drive you wish to install software to.
5. Follow the steps as they appear on the screen again noting that you do not need to reformat the drive when asked during the process, particularly if you have existing work you require.

It is recommended that if you are installing software for the first time to a drive, that you ensure that there are no required projects on the drive so that the drive can be reformatted.

7.2 Exabyte Eliant Drive

Ensure unit is powered up and tape is inserted before powering up Mainframe

All software copies are created on 8500 units to ensure compatibility with 8500, 8505 and 8700, 8705 & Eliant units.

7.3 MFX Console Software Load.

(For reference only. A system software update will load the MFX Console software)

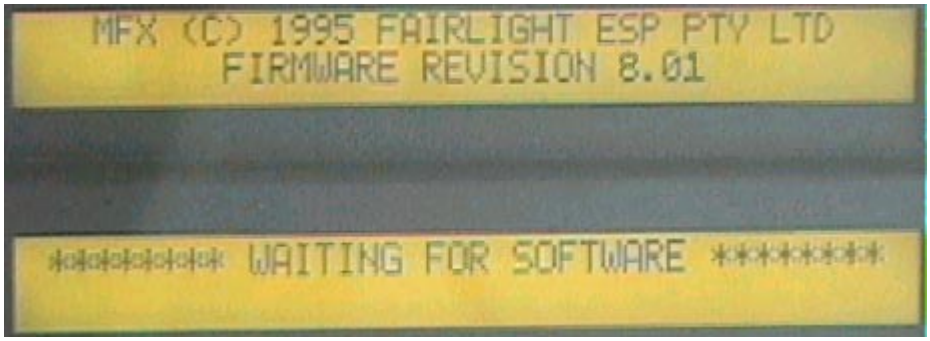
To reload software into the MFX Console the following procedure should be used;

1. Allow system to boot to the Project page. If system does not boot to this point press < CNTRL & Q > during the boot process.

2. Type MFXLOAD and press < Return >.

3. The system will automatically load software to the MFX Console and reset the Console when finished.

On releasing " Blue " and " + " and " - "

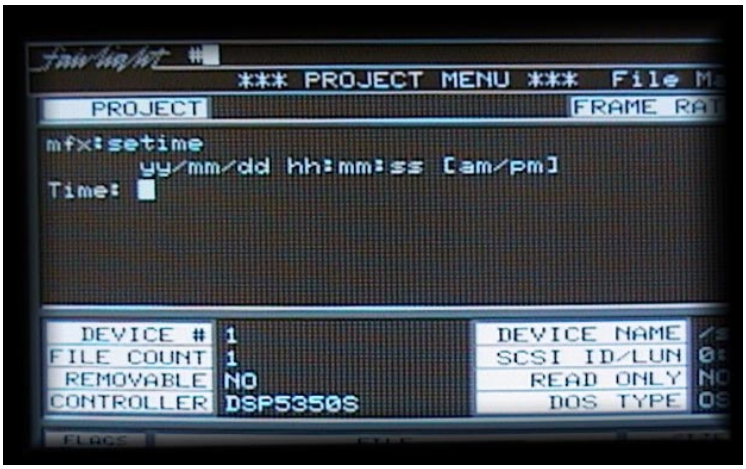


7.4 Setting The Time

To change the time and date information:

1. Allow system to boot to the Project page.
2. Type " # " and press < Return >
3. Type " Setime " and press < Return >
4. Enter the time in the format displayed with correct placement of Colons and forward slashes etc.
5. Press <CNTRL > and < RETURN >.

The clock should now show the correct time and date



7.5 Installing Internal Hard Drives

With Rev 14 metalwork and above it is possible to install hard drives in the front and rear of the Mainframe. The major improvements over older version of metalwork are that a fan has been added to increase cooling and the drive mounting is now horizontal. Fairlight has a policy of mounting hard drives horizontal whenever possible, as research has suggested that vertical mounting may contribute to earlier than normal drive failure.

7.5.1 Mainframe Front

Part 1

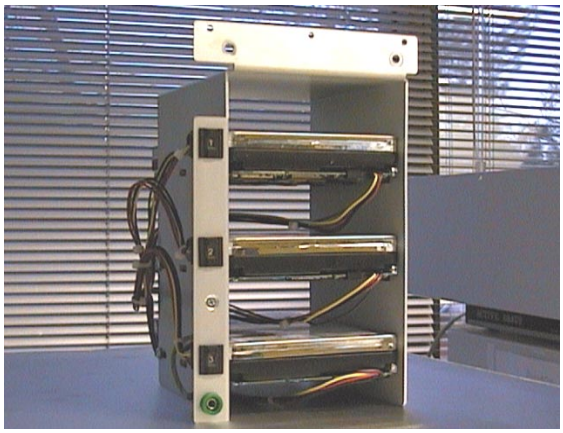
To install hard drives in the front of the Mainframe please follow these steps;

1. Power down the system and leave the power lead connected.
2. Remove the front dress panel via the four thumb screws.
3. Remove the front screen to gain access to the drive and card area.
4. Remove the four screws holding in the drive mount bracket. This is to the left of the Mainframe.
5. Remove the drive mounting bracket from the system and place on suitable workbench.

Drive Bracket Removed From Mainframe

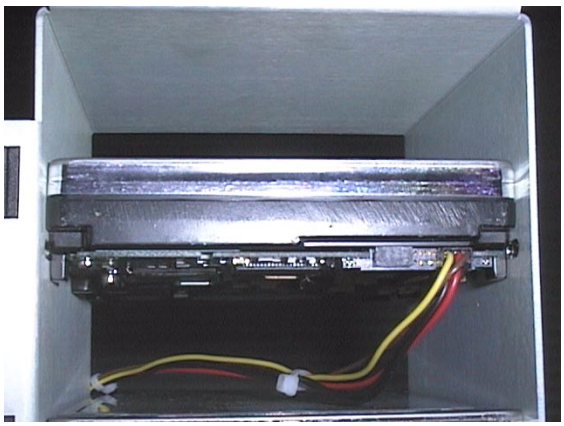
Part 2

1. As per the procedure outlined in " Setting Up SCSI Hard Drives " check that the Hard drives to be mounted are set up correctly.
2. Taking care to note the orientation of the SCSI cable in the front of the Mainframe, mount the drives into the bracket.



Part 3

1. Connect the SCSI ID cable as per the manufacturers instructions. Ensure that SCSI ID's do not conflict with each other or existing drives connected to the system. A drive may not be seen if its ID conflicts with another SCSI device.
2. Re install the bracket assembly back into the Mainframe ensuring that you have connected power leads and the 50 way SCSI lead to all fitted drives.
3. Before reinstalling the screen and the front dress panel power up the system and determine that all your newly fitted and existing drives are detected.



SCSI ID Cable Connected

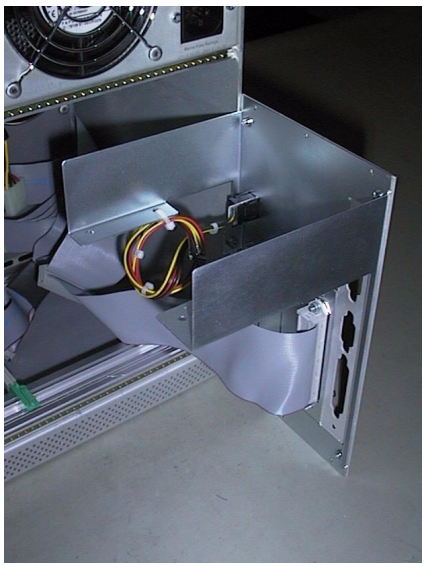
Below we see the completed assembly with power, SCSI and SCSI ID cables connected. Again, please ensure that no two SCSI ID's are the same. That the SCSI drives are **not** internally terminated. That the drives termination power is configured as being, from the buss.

Installed And Tested

7.5.2 Mainframe Rear

Part 1

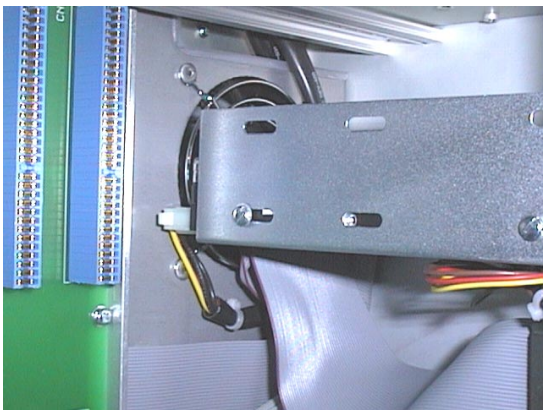
1. Power down the system and leave the power lead connected.
2. Remove the rear RIO panel by removing the six thumb screws.
3. As the SCSI cable is attached to the panel you will not be able to remove it fully from the Mainframe.



Bare Bracket - Rear RIO Panel

Part 2

1. Check that the drive you are about to install has been set up correctly, as per " Setting Up SCSI Hard Drives ".
2. Mount the drive in the bracket with the appropriate screws.
3. Mount the drive to the rear of the bracket as much as possible to maximise clearance when fitted into the Mainframe. Take note of the orientation of the SCSI cable such that you do not need to twist it when connecting to the drive.
4. Attach the SCSI ID cable and power cable.
5. Mount the complete assembly back into the Mainframe.
6. Check the SCSI ID of the newly mounted drive for conflicts with other SCSI devices on the SCSI Buss. Typically this should be set to I.D. 0, i.e. Boot Drive.
7. Test system for correct detection of the newly mounted hard drive.



Internal View Of SCSI Assembly When Fitted

7.5.3 Checking For Newly Installed SCSI Devices

Once you have mounted all external and internal SCSI devices, the following will aid you in determining if they are all detected.

1. Ensure that the Mainframe is completely re-assembled and that there are no loose cables.
2. Power up the Mainframe and Console.
3. Press the SPACE BAR once a gray display is seen. If you miss the time window in which the Space bar must be pressed, simply reboot and try again.
4. The displayed prompt is " Select a boot method from the above menu: ".
5. From the prompt type " SCANTS " < RETURN >.
6. Observe that all SCSI devices are detected.
7. You may need to run this command a couple of times as some drives are much slower to boot than the MFX.
8. If a SCSI device is not seen, power down the system and check all SCSI ID's and that the SCSI and power cables are connected.

7.6 Hard Disk And SCSI I.D.

A system must have at least one hard disk. For the disk recorder application (MDR), this disk must be a Fairlight approved drive and installed by your Fairlight dealer. Warranty may be voided if incorrect peripheral installation causes system failure.

A maximum of 7 storage devices may be attached to the SCSI bus. SCSI I.D.'s can be 0 through to 6. SCSI I.D. 7 is reserved for the Turbo SCSI card. All cabling to SCSI devices must be kept as short as possible and have a SCSI terminator plugged into the last drive in the chain. Some disks have SCSI terminating resistors in place and this should be checked and resistors removed when extra disks are being added to the system. Lower transfer rates and SCSI errors will result if this bus is not correctly terminated.

Set the SCSI I.D. of the device to the next available address. On some disks this will be an external switch with a number indicating the SCSI I.D. or you may have to set some jumpers on the disk interface card attached to the disk. Please refer to the specific disk manual for this information. The SCSI I.D. can be a number between 1 and 6. As a matter of consistency we would use even I.D. numbers for disks and odd I.D. numbers for backup/ removable media devices. The default SCSI I.D. for an Exabyte tape backup device must be SCSI I.D. 5 (/SC50).

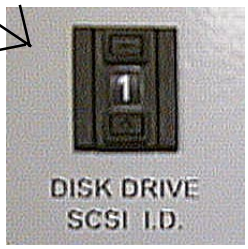
Having set the SCSI I.D. and checked all connections, turn the system ON. During the boot process the system will interrogate the SCSI bus to ascertain what devices are connected. This information will be displayed on the screen. If the SCSI ID and device information does not appear, check all connections and address information.

When adding a hard disk to the system you must format the disk for Fairlight operation. This can be done by referring to the procedure “ Setting Up SCSI Hard Drives ”.

It should be noted that the maximum length of external SCSI cables must be less than 4 meters. This includes the approximate 1/3 meter internal to each external box.

We recommend that the boot drive is set to I.D. 0

Set the **Exabyte** I.D. to I.D. 5 only.



Set **Optical** drives to I.D. three. This is the standard and allows easier debugging when a problem occurs.

Ensure that only last device on SCSI chain is terminated. Drives should be set up with SCSI termination power from SCSI BUSS and SCSI termination disabled

7.7 Setting up SCSI Hard Drives

(Only necessary for a new drive or one that generates CRC errors)

MFX Rev 14 drives can be low level formatted on a standard SCSI PC. Once the drive has been formatted, running the Diskinit command on the drive via the MFX will allow correct operation. Alternatively, with most drives just running the Diskinit command as follows will work successfully;

> Exit the Disk Recorder by typing 'QUIT' < Return > 'Y'
> The displayed prompt is " # ".
> DISKINIT /SCX0 –V=1024 –C=128 < RETURN >.
> (Where 'X' is the SCSI address of the device)

If a new boot drive is attached to the system the DISKINIT command can be run from system ROM, i.e. you do not need to boot from a drive with software. The following procedure outlines the steps;

1. Connect the drive that requires set-up.
2. Power up the MFX.
3. Press the SPACE BAR immediately on power up.
4. The displayed prompt is " Select a boot method from the above menu: ".
5. Type " ROM " < Return >. This will cause the system to boot from Rom.
6. Type the Diskinit command as outlined above.
7. The drive will be set up for software.

If after you have completed the above, you wish to install software from Exabyte complete the following;

1. Place the Exabyte tape in the Exabyte drive.
2. The displayed prompt is "#".
3. Type " UPGRADE –T " < Return >.
4. Follow the prompts and select the desired drive.
5. Software will be installed and the system will reboot.

Before connecting the drive to a system ensure that there are no SCSI ID conflicts, i.e. that a drive is not already connected with the ID of the drive you are about to connect.

Drives being set-up to be used on the MFX3^{plus} should have all internal termination's and termination power turned off. In MFX3^{plus} applications the termination power is supplied by the MFX3^{plus}. Termination is achieved by use of external terminators on the last device on the chain.

SCSI busses should be terminated at the beginning and end of the chain only. In MFX3^{plus} the SCSI card is supplied terminated and as such you only need to terminate the last attached drive.

7.8 Setting Up Removable Media

To set up optical drives for use on the MFX3^{plus} it is not necessary to format the media. All that is required is that the following command be run on the media;

DISKINIT /SCX0 –C=128 –V=1024 –Z –N=”Name” (eg Boot)

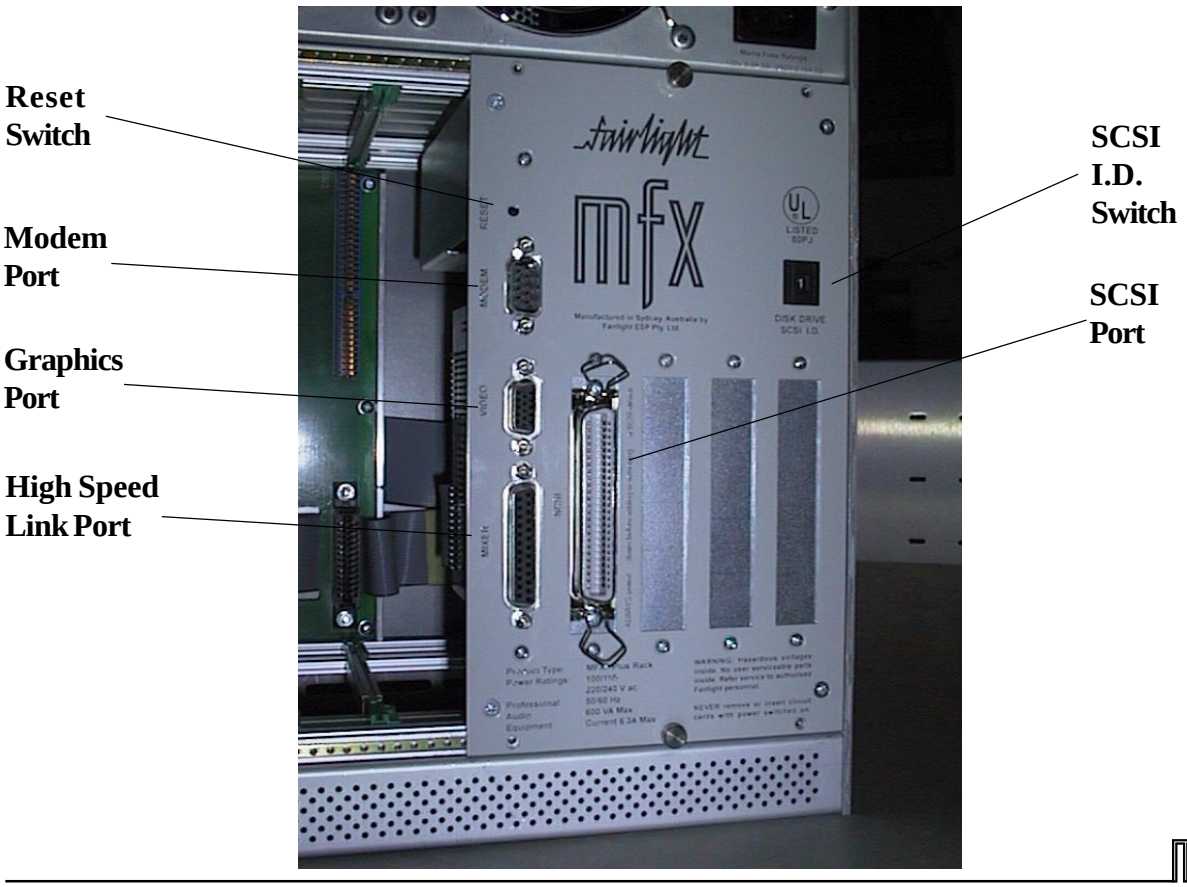
This command must be run from the shell so you will need to quit from the disk recorder to the shell. When media is not in use it is strongly recommended that the media is ejected from the drive to ensure that the media is not deteriorated due to the level of heat in the drive itself. Keep media away from strong magnetic fields and direct sunlight.

7.9 Plug And Play Note

The MFX3^{plus} system automatically detects new SCSI devices. For example if an Optical drive is connected at boot up and the media is not present the device will be seen on the Project page, however it will indicate no media. On placing a suitable formatted media in the drive the device will become available for use. Hard drives will also be automatically detected if they are installed correctly in plug and play assemblies such as the Micropolis unit.

Please avoid connecting external devices by breaking the SCSI chain while the system is running as it can either crash the system or if a project is open lead to project corruption

7.9.1 RIO Panel



8.0 Connection & Signal Specifications

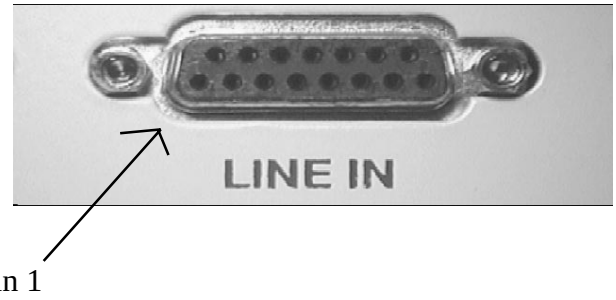
8.1 Analog Input / Output

Inputs

Connectors	1x 15 pin D-mini Female
Input	Balanced
Input level	+22 dBu max
Input sensitivity	-10 dBu / +4 dBu switched
Input attenuation range	14 dB to -99 dB
Input impedance	> 10K ohm
Pin 1	Frame Ground
Pin 2	IN 1 GND
Pin 3	IN 2+
Pin 4	IN 2-
Pin 5	IN 3 GND
Pin 6	IN 4+
Pin 7	IN 4-
Pin 8	NC
Pin 9	IN 1+
Pin 10	IN 1-
Pin 11	IN 2 GND
Pin 12	IN 3+
Pin 13	IN 3-
Pin 14	IN 4 GND
Pin 15	NC

Audio input cables should be wired using male connectors as the MFX input is a female connector as seen below.

View of analog in connector



Outputs

Connectors	1x 15 Pin D-mini Male
Output	Electronic Balanced Differential
Output Level	+22 dBu max at 0 dB digital full scale (nominal +4 dBu)
Output impedance	< 55 ohms
Output load	600 ohms minimum
Pin 1	Frame GND
Pin 2	OUT 1 GND
Pin 3	OUT 2 +
Pin 4	OUT 2 -
Pin 5	OUT 3 GND
Pin 6	OUT 4 +
Pin 7	OUT 4 -
Pin 8	NC
Pin 9	OUT 1 +
Pin 10	OUT 1 -
Pin 11	OUT 2 GND
Pin 12	OUT 3 +
Pin 13	OUT 3 -
Pin 14	OUT 4 GND
Pin 15	NC

Audio output cables should be wired using female connectors as the MFX output is a male connector as seen below.

View of analog out connector

Pin 1

8.2 Digital Input/ Output

AES / EBU INPUT

Connector	37 way D-mini Female
Channels	2 x Stereo pairs per I/O Module
Sample Rates	44.1 KHz , 48.0 KHz, 32 KHz, 44.056 KHz
Input Type	200 mv Differential Minimum
Input Level	+22 dBu Peak

Pin 17	AES IN 1 GND
Pin 18	AES IN 2-
Pin 19	AES IN 2+
Pin 35	AES IN 1-
Pin 36	AES IN 1+
Pin 37	AES IN 2 GND

AES / EBU OUTPUT

Connector	37 way D-mini Female
Channels	2 x Stereo pairs per I/O Module
Sample Rates	44.1 KHz, 48 KHz, 32 KHz, 44.056 KHZ
Output level	4.3v Minimum

Pin 14	AES OUT 1 GND
Pin 15	AES OUT 1-
Pin 16	AES OUT 1+
Pin 32	AES OUT 2-
Pin 33	AES OUT 2+
Pin 34	AES OUT 2 GND

SPDIF INPUT

Connector	37 way D-mini Female
Channels	2 x Stereo pairs per I/O Module
Sample Rates	44.1 KHz, 48 KHz, 32 KHz, 44.056 KHz
Input level	200 mv minimum

Pin 12	SPDIF IN 1
Pin 13	SPDIF IN 2
Pin 30	SPDIF IN 1 GND
Pin 31	SPDIF IN 2 GND

SPDIF OUTPUT

Connector	37 way D-mini Female
Channels	2 Stereo pairs per I/O Module
Sample Rates	44.1 KHz, 48 KHz, 32 KHz, 44.056 KHz
Output Level	0.5v p-p
Pin 10	SPDIF OUT 1
Pin 11	SPDIF OUT 2
Pin 28	SPDIF OUT 1 GND
Pin 29	SPDIF OUT 2 GND

YAMAHA

Connector	37 way D-mini Female
Channels	2
Sample Rates	44.1 KHz, 48 KHz, 32 KHz, 44.056 KHz
Output Level	3.3v p-p differential
Pin 7	Yamaha Y2 DATA 2+
Pin 8	Yamaha Y2 DATA 1+
Pin 9	Yamaha Y2 WCLK +
Pin 25	Yamaha Y2 DATA 2-
Pin 26	Yamaha Y2 DATA 1-
Pin 27	Yamaha Y2 WCLK -

GROUND & NO CONNECTIONS

Connector	37 way D-mini Female
Pin 1	GND
Pin 2	NC
Pin 3	NC
Pin 4	NC
Pin 5	NC
Pin 6	NC
Pin 20	NC
Pin 21	NC
Pin 22	NC
Pin 23	NC
Pin 24	NC

Use male connector when assembling cable looms.

View of digital input/output connector

8.3 MFX3 Synchronisation

8.3.1 LTC And AES Synchronisation

LTC IN A LTC input A
XLR Female -20 dBm to +10 dBm

Pin 1 GND
Pin 2 IN +
Pin 3 IN -

LTC IN B LTC input B
XLR Female -20 dBm to +10 dBm

Pin 1 GND
Pin 2 IN +
Pin 3 IN -

IMPORTANT NOTE: Unbalanced loads should be connected to Pin 1 Ground and Pin 2 Signal. Pin 3 should **not** be connected to ground.

LTC OUT LTC output
XLR Male 0 dBm

Pin 1 GND
Pin 2 OUT+
Pin 3 OUT -

AES SYNC IN DARS sync input
XLR Female

Pin 1 GND
Pin 2 IN +
Pin 3 IN-

AES SYNC OUT DARS sync output
XLR Male

Pin 1 GND
Pin 2 OUT +
Pin 3 OUT -

8.3.2 Midi And Video Sync

MIDI IN A	**MIDI IN B**
5 pin DIN 180	5 pin DIN 180
Pin 1 NC	Pin 1 NC
Pin 2 NC	Pin 2 NC
Pin 3 NC	Pin 3 NC
Pin 4 IN+	Pin 4 IN+
Pin 5 IN-	Pin 5 IN-

MIDI OUT A	**MIDI OUT B**
5 pin DIN 180	5 pin DIN 180
Pin 1 NC	Pin 1 NC
Pin 2 GND	Pin 2 GND
Pin 3 NC	Pin 3 NC
Pin 4 OUT+	Pin 4 OUT+
Pin 5 OUT-	Pin 5 OUT-

VIDEO IN	Video sync input
BNC	1v p-p 75 Ohms terminated

SONY AND MULTI MFX

MFX IN and MFX OUT are for chaining multiple MFX systems using pin-to-pin cable. This function has not been implemented in software due to it's obsolescence through networking

MFX OUT		**MFX IN**	
DB15 VGA Female		DB15 VGA Female	
Pin 1	GND	Pin 1	GND
Pin 2	TXS-	Pin 2	RXM-
Pin 3	RXS-	Pin 3	TXM-
Pin 4	ZTPS-	Pin 4	ZTPM-
Pin 5	WCLKS-	Pin 5	WCLKM-
Pin 6	NC	Pin 6	NC
Pin 7	TXS+	Pin 7	RXM+
Pin 8	RXM+	Pin 8	TXM+
Pin 9	ZTPS+	Pin 9	ZTPM+
Pin 10	WCLKS+	Pin 10	WCLKM+
Pin 11	NC	Pin 11	NC
Pin 12	NC	Pin 12	NC
Pin 13	NC	Pin 13	NC
Pin 14	NC	Pin 14	NC
Pin 15	NC	Pin 15	NC

8.3.3 Sony 9 Pin

SONY A DB9 Male		SONY B DB9 Male		SONY SLAVE DB9 Female	
Pin 1	GND	Pin 1	GND	Pin 1	GND
Pin 2	TX-	Pin 2	TX-	Pin 2	RX-
Pin 3	RX+	Pin 3	RX+	Pin 3	TX+
Pin 4	GND	Pin 4	GND	Pin 4	GND
Pin 5	Frame sync	Pin 5	Frame sync	Pin 5	Frame sync
Pin 6	GND	Pin 6	GND	Pin 6	GND
Pin 7	TX+	Pin 7	TX+	Pin 7	RX+
Pin 8	RX-	Pin 8	RX-	Pin 8	TX-
Pin 9	GND	Pin 9	GND	Pin 9	GND

WCLK IN
BNC
word clock sync TTL input
1 HCMOS load

WCLK OUT
BNC
word clock sync TTL output
max 1 TTL load

VITC IN
BNC
1v p-p, 75 Ohms terminated

8.4 General Purpose Outputs And Serial Port

GPO
DB9 Male
General Purpose Outputs
Open Collector 30v max, 40 mA max

Pin 1	GND
Pin 2	GPO1
Pin 3	GPO2
Pin 4	GPO3
Pin 5	GPO4
Pin 6	GPO5
Pin 7	GPO6
Pin 8	GPO7
Pin 9	GPO8

SERIAL	Serial Port
DB9 Male	RS232
Pin 1	NC
Pin 2	RX
Pin 3	TX
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	NC (RI)

ETHERNET Implementation In Progress
8 pin RJ45 socket

8.5 Mainframe Connections

8.5.1 MFX Console Connections

D37 Connector Female. Male on cable.

Pin 1	Gnd	Pin 20	
Pin 2	Gnd	Pin 21	
Pin 3	NC	Pin 22	
Pin 4	NC	Pin 23	
Pin 5	NC	Pin 24	CMI Data
Pin 6	MFX data	Pin 25	
Pin 7	KBD232	Pin 26	Midi In D -
Pin 8	Midi In D +	Pin 27	MIDI Out D-
Pin 9	Midi Out D +	Pin 28	422 CTS
Pin 10		Pin 29	Key -
Pin 11	Key +	Pin 30	TX422 -
Pin 12	TX422 +	Pin 31	TX422 -
Pin 13	RX422 +	Pin 32	
Pin 14		Pin 33	Gnd
Pin 15		Pin 34	
Pin 16		Pin 35	
Pin 17		Pin 36	EDL Comms Rx
Pin 18		Pin 37	EDL Comms Tx
Pin 19			

SCSI INTERFACE Single ended SCSI port
50 way Centronics

8.5.2 Video Connections

VIDEO MONITOR VGA standard video 512 x 512 resolution
DB15 VGA Female Hsync 45.8kHz Vsync 75Hz

Pin 1	RED
Pin 2	GREEN
Pin 3	BLUE
Pin 4	GND
Pin 5	GND
Pin 6	GND
Pin 7	GND
Pin 8	GND
Pin 9	NC
Pin 10	GND
Pin 11	GND
Pin 12	NC
Pin 13	HSYNC
Pin 14	VSYNC
Pin 15	NC

8.5.3 Printer Setup

Baud-Rate 38K4 or 9K6, 8 bits, 1 stop bit, No Parity; Xon/Xoff handshake**.**
SERIAL INPUT printers ONLY. EPSON ESC/P - 9 pin protocol or ESC/P2 - 24 pin protocol (preferred). A suitable printer is the Canon BJ-330 fitted with the BJIF-3020 serial interface card.

Fairlight		Printer (eg. EPSON SQ1170) BJ-330	
RS232 Female		D25 Male	
Pin	Name	Pin	Name
1	N/C		
2	RxD	2	TxD
3	TxD	3	RxD
4	DTR	6	DSR
5	Gnd	7	Gnd
6	DSR	20	DTR
7	RTS	5	CTS
8	CTS	4	RTS
9	N/C		

All other pins unused.
To change the printer configuration, type <esc> 'S' from the Disk Recorder.
Change the printer parameters with the mouse.

8.5.4 Modem Port

9 Pin D Female

Serial Port

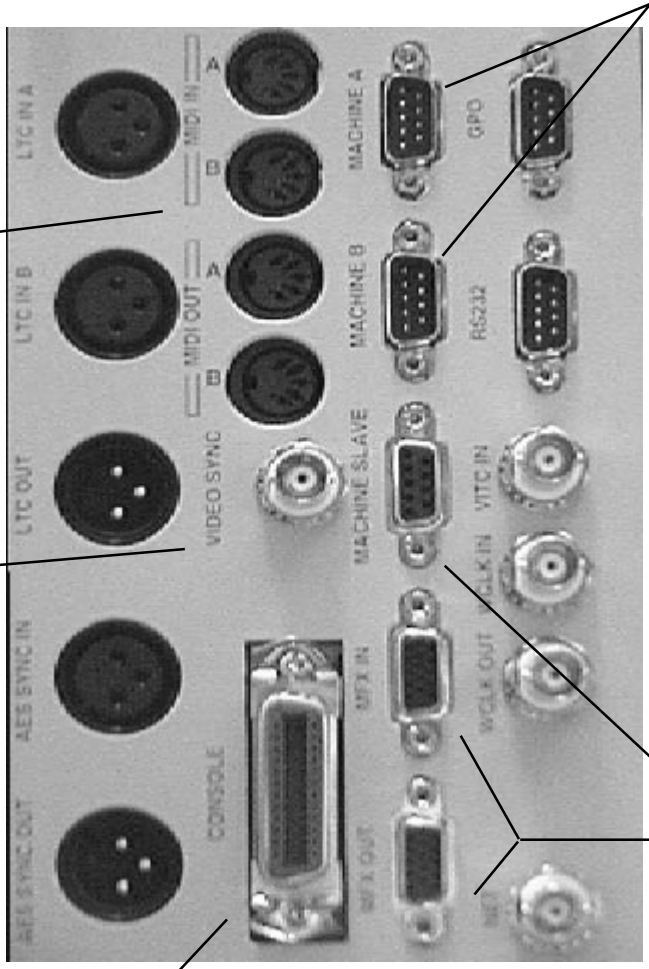
Pin 1	COMMSDCD
Pin 2	COMMSRX
Pin 3	COMMSTX
Pin 4	COMMSDTR
Pin 5	COMMSGND
Pin 6	COMMSDSR
Pin 7	COMMSRTS
Pin 8	COMMSCTS
Pin 9	NC

8.5.5 High Speed Link Port

25 Pin D Female

HSSL Cable is 25 Pin Ribbon to 25 Pin ribbon males on each end.

Pin 1	HSSLGND
Pin 2	RCVFF-
Pin 3	RCVCLK-
Pin 4	RCVDAT-
Pin 5	RCVWR-
Pin 6	NC
Pin 7	NO
Pin 8	XMTFF-
Pin 9	XMTCLK-
Pin 10	XMTDAT-
Pin 11	XMTWR-
Pin 12	NC
Pin 13	SYNC-
Pin 14	RCVFF+
Pin 15	RCVCLK+
Pin 16	RCVDAT+
Pin 17	RCVWR+
Pin 18	NC
Pin 19	XMTFF+
Pin 20	XMTCLK+
Pin 21	XMTDAT+
Pin 22	XMTWR+
Pin 23	NC
Pin 24	NC
Pin 25	SYNC+

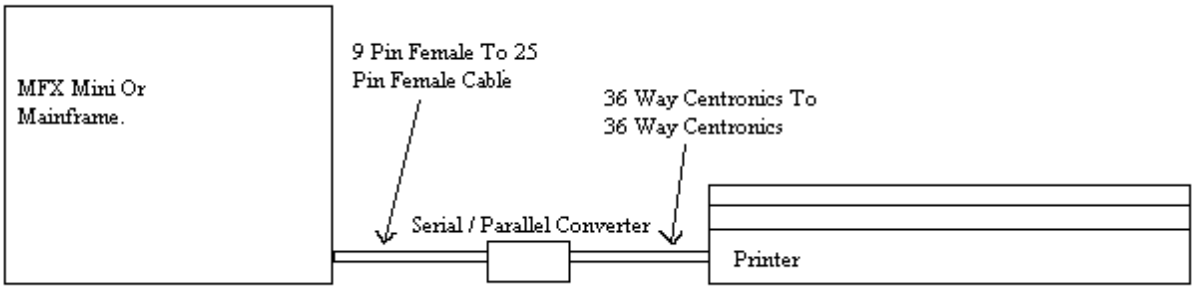


8.6 Analog Performance

Distortion measured through system	0.01% max	0.005% typical thd @ 1KHz
Noise floor measured through system	-89 dBu max	-90 dBu typical 20-20KHz

9.0 Printer Information

The MFX3^{plus} uses a serial protocol for print data. The baud rate however is software selectable between the two settings of 38K4 and 9K6 only. Thus if you have a 19K2 serial printer it is advisable that you not run at 9K6 and rather purchase a serial to parallel converter as described in the following section. The following diagram illustrates how this works.



9.1 Serial Data & Connection Information

Baud-Rate 38K4 or 9K6, 8 bits, 1 stop bit, No Parity; Xon/Xoff handshake**.**
SERIAL INPUT printers ONLY. EPSON ESC/P - 9 pin protocol or ESC/P2 - 24 pin protocol (preferred). A suitable printer is the Canon BJ-330 fitted with the BJIF-3020 serial interface card. Where a printer is not capable of running serially at 38K4. It is recommended that a serial to parallel converter is used.

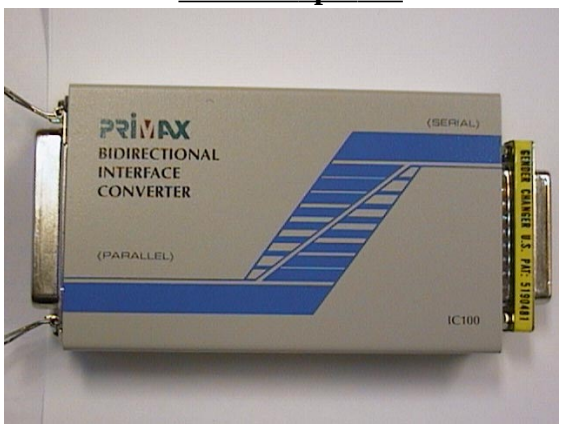
Fairlight		Printer (eg. EPSON SQ1170) BJ-330	
RS232 Female		D25 Male	
Pin	Name	Pin	Name
1	N/C		
2	RxD	2	TxD
3	TxD	3	RxD
4	DTR	6	DSR
5	Gnd	7	Gnd
6	DSR	20	DTR
7	RTS	5	CTS
8	CTS	4	RTS
9	N/C		

All other pins unused.
To change the printer configuration, type <esc> 'S' from the Disk Recorder.
Change the printer parameters with the mouse.

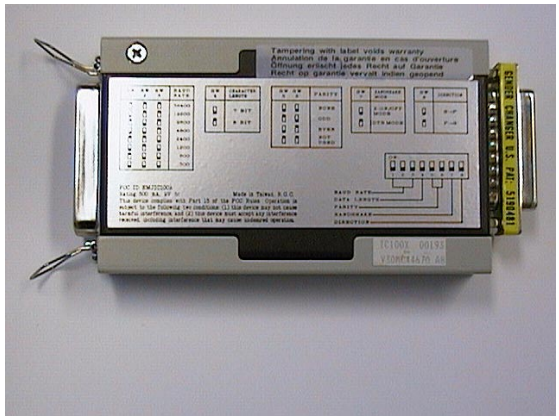
9.2 Primax Bidirectional Interface Converter

The Primax Bidirectional Interface Converter is a serial data to parallel data converter. When use on the serial printer output from the MFX3^{plus} , it allows the use of parallel printers and also allows printers with 19K2 or lower baud rates to use the higher 38K4 baud rate through converting the signal to a parallel signal.

Primax Top View



Primax Bottom View Showing Switch Settings



Primax Side View Showing Correct Switch Settings For MFX

10.0 Hints and Suggestions

1. It is recommended that power for the Rack and MFX Console and Monitor be sourced from not only the one phase but also the same power outlet. This will help eliminate any ground noise that may be generated by a loaded circuit.

2. A modification is required to be performed on the video buffer board if cable length's longer than 10 meters are required. This will allow standard lengths of video (15 way) cable to be joined end to end. Details are available from Fairlight.

3. The recommended sync mode on the Fairlight is video sync. The same source of video sync should be connected to video machines and dat tape machines.

4. When connecting a Fostex Dat player always press stop directly after the unit has been selected. All tapes must be pre striped with time code prior to recording materials. The internal frame rate of the dat is 33fps thus by pre striping at the desired frame rate you will not experience the lockup problems that are caused by not pre striping. To arm tracks on the dat select A1-4 on the setup menu.

5. When connecting a Betacam unit to the Fairlight ensure that the Fairlight is set-up to arm tracks D1-24 rather than A1-4. This applies irrespective of whether or not you intend to record analog or digital in.

6. Always ensure that all cards in the digital section of the Fairlight are firmly seated before powering up. This is only necessary after shipment or when a unit has been transported. It will be necessary to remove the front dress panel and the inner screen to gain access to the cards.

7. Only authorised personnel should be allowed to attempt repair work on your Fairlight. If in doubt gain approval by contacting your local distributor or Fairlight office. Fairlight provides technical and operational training on request.

8. If your mouse does not appear to function ensure that the switch is set to option 3 rather than 2.

9. Where possible ensure the mains supply to the MFX is filtered and regulated

If you have performed an installation and have come across a point or two that you believe will help others out in commissioning a system please put pen to paper and fax on + 61 2 9975 6744. Mark to the attention of the Support Manager and mention that you are submitting a technical tip for the manual.

11.0 What To Do If Your System Has A Problem

11.1 Under Warranty

You may contact your dealer or Fairlight directly. We can, with your assistance, diagnose the problem area. You can replace the faulty card with one from your spares kit or we can arrange to send you a replacement card either from our stock in Sydney or from one of our international spares facilities. Fairlight will invoice you the full list price value of the shipment. Fairlight will issue a credit note of the same value upon the receipt of the faulty card. Fairlight will prepay for the outward freight of the replacement card. Return freight of the faulty card shall be prepaid by the consignee. Please refer to the warranty document for further details.

11.2 Out Of Warranty

Contact you nearest Fairlight distributor or company with the details of the problem. An exchange card facility is available whereby the faulty card is returned to the distributor or Fairlight company and an exchange card is dispatched overnight. Alternatively spare cards can be purchased and the faulty card can be repair with an associated repair card charge.

11.3 General

It is important that **all cards** in your system be at the **current revision level**. Please contact your dealer or Fairlight if you have any questions regarding this. As a matter of course Fairlight issues all changes to dealers as soon as they have been implemented on new and upgrade production machines.

A simple call to your dealer once a month to check on any progress can sometimes save time and money.

Thank you once again for choosing the MFX3^{plus} as your digital audio workstation.

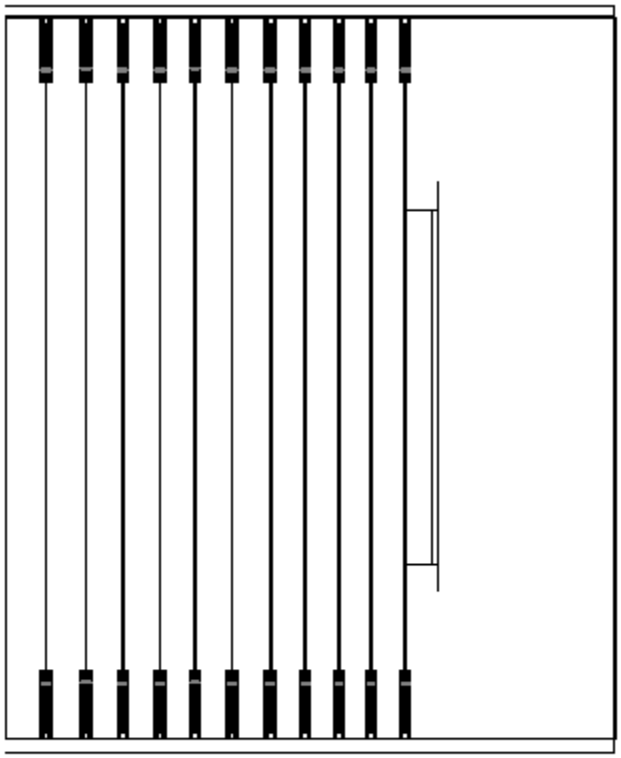
The following Technical Support staff should be the contact points you use, when seeking assistance;

Australasia	**Europe**	**America**	**Japan**
Edwin Hughes. *Support Engineer*	Karl Walters *Support Manager*	Steve Pasek *Service Manager*	Kenji Fukuda *Director*
Barry Archibald *Support Engineer*	Carlos Rincon *Support Engineer*	Johnny Kudlacek *Support Engineer*	John Gavin *Technical Manager*
		Andrew Brent *Technical Director*	Brett Chambers *Service Manager*
		Phillippe Guichard *Product Specialist*	Kenichi Kagotani *Support Engineer*

Attachment 1 Card Placement Guide

The following drawing indicates the recommended location for cards when installing MFX 3 upgrades. Slot 9 should contain address " 0 " ESPDCC with card addresses incrementing to the left and finishing with address " 5 " ESPDCC in slot 5. The Sync card must always be placed in slot 1, it will not function in any other slot.

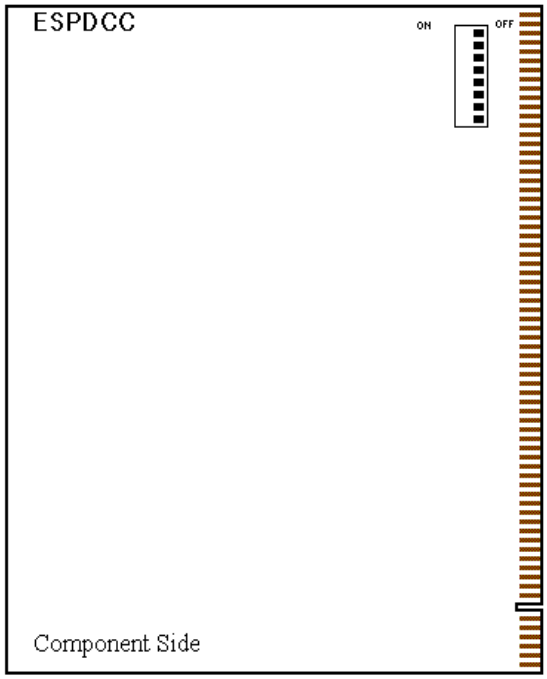
DCCU

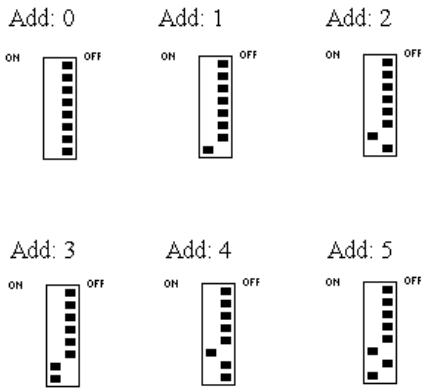


This Drawing not drawn to scale - use for illustration purposes only.

Slot Number	Part Number & Description	
1	ESPSYN	Sync Card
2	ESPDCC	Digital Mixing Card - Fame
3	ESPDCC	Digital Mixing Card - Fame
4	ESPDCC	Digital Channel Card
5	ESPDCC	Digital Channel Card
6	ESPDCC	Digital Channel Card
7	ESPDCC	Digital Channel Card
8	ESPDCC	Digital Channel Card
9	ESPDCC	Digital Channel Card
10	ESPTS1	Turbo SCSI Card
11	ESPWX	Waveform Executive Card
12	ESPCG4	Colour Graphics 4 Card
13	PCI – Option	
14	PCI – Option	
15	PCI – Option	
16	PCI - Option	

Attachment 2 ESPDCC Addressing





Right hand ESPDCC card in Rack is I.D. 0
Termination resistors are fitted to I.D. 0, only
RN1 = 220 ohm
RN3 = 330 ohm

In the above diagram " Add: " refers to the card address. As addresses 0 through 5 are the only legal settings for this switch no other options are shown. Ensure no two cards in any system have the same address as this will cause major conflicts. In Fame Systems two Mix cards will be added. These cards are addressed as 6 and 7 respectively.

Please note that the ESPDCC card set at address "0" must have termination resistors fitted. If changing card addresses please ensure that the termination resistors are fitted to the card at address "0".

Attachment 3 Notes Page

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Attachment 4 Warranty Policy

Warranty Policy

Standard Fairlight Warranty Policy

- New Systems
- Upgrades
- Spare Cards
- Exchange Cards

This is a return to base warranty. Fairlight may at it's discretion perform site visits.

a. All implied conditions and warranties which may by law be excluded in relation to the supply of products or provision of services by Fairlight ESP are hereby excluded, the exclusion, of which would render the agreement incorporating these Conditions between Fairlight ESP and the Customer void or voidable or Fairlight ESP liable to a penalty or which may not by the terms of relevant State Legislation be excluded or modified, then such conditions or warranties shall apply.

b. In connection with the supply by Fairlight ESP to the Customer of any goods or services, where, any legislation provides for redress in the event of Fairlight ESP breach of a condition or warranty, whether statutory or otherwise, then the Customer's sole remedy for any such breach shall at the option of Fairlight ESP be limited to;

(i) the replacement of goods or the supply of equivalent goods; or
(ii) the repair of goods; or
(iii) the payment of costs of replacing the goods or acquiring equivalent goods; or
(iv) the payment of costs of having the goods repaired; or
(v) the re-supply of services; or
(vi) the payment of costs of having the services supplied again.

c. Fairlight ESP shall not be liable for the cost of removal and reinstallation or loss or time due to failure of a component or system of it's products other than stated in Clause b.

d. Subject to any provision of relevant State legislation which may not be excluded or modified, Fairlight ESP will not be liable for any costs, claims, damages or demands arising from any personal injury, loss or damage to products whatsoever occurring as a result of either the act or omission of Fairlight ESP, its distributors or agents and in no case will Fairlight ESP be liable for consequential loss or damage.

e. Subject to the provisions of this document, if systems or parts fail, supplied as new parts, within a period of 12 months of purchase, due to faults in manufacture, these parts are warranted as per Clause b. When returning faulty units, the Customer must provide product number, invoice number and date, product serial number and a description of the product failure.

f. Subject to the provisions of this document, if system parts which have been Upgraded or Modified as part of an Upgrade, fail, within a period of 90 days, these parts are warranted as per Clause b. When returning faulty units, the Customer must provide product number, invoice number and date, product serial number and a description of the product failure.

g. Subject to the provisions of this document, if system parts which have not been Upgraded or modified, fail, and which are not new parts supplied as part of the Upgrade, and are not OEM accessories supplied with the original system, and are not system power supplies, within 90 days of an Upgrade being performed, then Fairlight ESP warrants these parts as per Clause b. When returning faulty units, the Customer must provide product number, invoice number and date, product serial number and a description of the product failure.

h. Subject to the provisions of this document, if part fail, supplied as new spare parts, within a period of 12 months of purchase, due to faults in manufacture, then Fairlight ESP warrants these parts as per Clause b. When returning faulty units, the Customer must provide product number, invoice number and date, product serial number and a description of the product failure.

i. Subject to the provisions of this document, if exchange parts, fail, within a period of 12 months of purchase, then Fairlight ESP warrants these parts as per Clause b. When returning faulty units the Customer must provide, Product number, Invoice number and date, Product serial number, and a description of the fault.

j. This warranty is void if Fairlight ESP determines, in its sole business judgment, the defect to be the result of abuse, neglect, alteration, or attempted repair by unauthorised personnel.

k. The several clauses which constitute or evidence this warranty shall be taken as mutually explanatory and anything contained in one but not in another shall be equally binding as if contained in all. Any ambiguity, discrepancy or inconsistency shall be explained by Fairlight ESP upon reference thereof in writing to Fairlight ESP by the Customer or on discovery thereof by Fairlight, who shall thereupon direct the Customer as to the interpretation to be followed. If the Customer finds any such ambiguity, discrepancy or inconsistency he shall immediately refer it in writing to Fairlight ESP.

l. Fairlight Shall not be liable for failure to perform it's obligations if the failure arises from circumstances beyond it's control, including but not limited to fire, explosion, strikes, lock - outs or any other industrial disputes, failure or refusal of it's supplier to supply the goods, inclement weather, acts of God, Governmental action, in no such event shall the Customer be entitled to damages of any kind for late performance or failure to perform.

m. Fairlight ESP specifically disclaims any and all implied warranty of merchantability or of fitness for a particular purpose. The buyer acknowledges and agrees that in no event shall the company be liable for any special, indirect, incidental or consequential damages, or for injury, loss or damage sustained by any person or property, that may result from this product failing to operate correctly at any time.

n. Subject to the provisions of this document, Extended Warranty is valid for a period of 12 months from date of purchase. Fairlight manufactured parts only, are warranted as per Clause b. When making a claim the Customer must provide Extended Warranty number, system invoice number and date, product serial number and a description of the product failure. Extended Warranty does not cover non Fairlight manufactured products, nor Customs duties, nor insurance, nor storage fees. The Warranty covers travel within 30Km of your Distributor or regional Fairlight office. Travel beyond 30Km will incur standard travel and possibly accommodation charges.

o. Where it is required that a Fairlight personnel travel for a period greater than 1 hours the customer must bear the cost of travel and accommodation as agreed with the Support dept of the relevant office. All charges to the customer will bear the invoiced cost to Fairlight for "In warranty " work. " Out of warranty " travel charges may be marked up by the relevant office. Please contact your local office for details.

Notes Page

Attachment 5 Registration Form

Warranty and User Registration

Please enclose this page in an envelope and post to address indicated below
Mark attention " Customer Support Department "
Or
Fax reverse side on +61 2 9975 6744
Marked attention " Customer Support Department "

Good reasons to register.

Free software updates, notification of new releases, features and upgrades.
Priority customer status.
We appreciate your effort in conforming with this request.

Fairlight ESP Pty Ltd (A.C.N. 003 628 297)
Telephone: +61 2 9975 1230 Facsimile: +61 2 9975 1368
P.O. Box 942, Brookvale, NSW, 2100, Australia.
Unit B, No 5 Skyline Place, Frenchs Forest, Sydney, Australia, 2086.

Customer Registration Details

Name: _____

Job Title: _____

Company: _____

Address: _____

_____

Country: _____

Post Code/ Zip: _____

Tel: _____ *Fax:* _____

Comments: _____

Dealer: _____

Dealer Contact Name: _____

Rack Serial Number: _____

Console Serial Number: _____

Date Purchased: _____

Installed By: _____

Software Revision: _____

Does Your System Have The Following: *Exabyte* _____ *Optical* _____

Att: Manager, Customer Support

Customer Support Dept

Attachment 6 Quality Issue Notification Form

Please fax to Fairlight Sydney on +61 2 9975 6744 at your earliest convenience.
Attention : Manager, Customer Support

Reporters Name:

Company:

Contact Details:

Ph:_____

Fax:_____ **Mobile:**_____

Dated: __/ __/ 19___

Issue: Missing items: ☐ Other: ☐
Faulty Items: ☐
Damaged Items: ☐

Criticality:
System Unusable: ☐
Partially Useable: ☐
Annoyance: ☐

Reported By:
Customer: ☐ Distributor: ☐ Technical Support: ☐ Production: ☐ Testing: ☐ R&D: ☐

System Configuration:

Rack: ☐
Mini: ☐
Upgrade: ☐

Software Revision: 14._._____

MFX 3 Channels Fitted: _____

OFFICE USE ONLY **Log No:** _____

System Registration Details: (If Available)

System Serial Number: _____

Year Purchased / Upgraded: _____

Description Of Issue:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please Outline The Ramifications Of The Issue?

_____
_____
_____
_____
_____

OFFICE USE ONLY:

R&D Manager: ☐ Production Manager: ☐ Marketing Manager: ☐ Date Received: __/___/___.
Service Manager: ☐ Operations Manager: ☐ Name: _____ Date Processed: __/___/___.

This form must always be directed to the Support Department and marked to the attention of the " Support Manager "

Attachment 7 System Fault Log

Reporters Name:

Contact Details:

Company:

Dated: __/ __/ 19___

Ph:_____ **Fax**:_____ **Mobile:**_____

Reported By:
Customer: ☐ Distributor: ☐ Technical Support: ☐ Production: ☐ Testing: ☐ R&D: ☐

System Configuration:

Rack: ☐ Software Revision: 14._._____
Mini: ☐
Dual Rack: ☐ MFX 3 Channels Fitted:
Upgrade: ☐
Dual ACCU ☐ CMI Channels Fitted:

OFFICE USE ONLY **Log No: _____**

System Registration Details: (If Available)

System Serial Number:

Year Purchased / Upgraded:

Description Of Problem:

Please take note of last four lines of Blue page: _____

Is The Problem Reproducible ? Describe ?

Operation Mode When Problem Occurred: Playing: ☐ Recording: ☐ Editing: ☐ No Of Tracks:

Sample Rate:	☐ 32000	☐ 44056	☐ 44100	☐ 4800					
House Sync:	☐ INT	☐ AES	☐ WCLK	☐ VIDEO	☐ VITC				
Frame Rate:	☐ 24	☐ 25	☐ 29.97 DF	☐ 29.97ND	☐ 30 DF	☐ 30ND			

Recovery: Actioned On ----- Console: ☐ Rack: ☐ Both: ☐
Soft Reset: ☐ Hard Reset: ☐ Close Project: ☐ " Blue Stop " ☐ Went Away: ☐

Criticality: System Unusable: ☐
Damaged project: ☐ Annoyance: ☐

OFFICE USE ONLY:
R&D Manager: ☐ Production Manager: ☐ Marketing Manager: ☐ Date Received: __/___/___.
Service Manager: ☐ Operations Manager: ☐ Name: _____ Date Processed: __/___/___.

This form must always be directed to the Service Department and marked to the attention of the " Service Manager "

Attachment 8 Preinstallation Questionnaire

Studio Name:	**Installation Manager:**
Product Type:	**Serial Number:**

This document is designed to aid you, our valued customer, in ensuring the smooth and timely installation and commissioning of your new MFX 3 system. Please tick the appropriate boxes and return to your dealer ASAP.

Please tick if the following are present and correct:

√

Are all relevant building works complete ie (Gyprock, concrete, plaster, blockwork). ☐
Building work is a source of dust and moisture, both which can seriously affect system operation and reliability.

Is the flooring complete ie. (Carpeting, Tiling, Ducting). ☐
All work generating of vibration or moisture or dust, must be completed before and installation can be considered. The warranty may be invalidated and the system mean time before failure may be reduced, if this is not strictly adhered to.

Have all mains cables and breakers been installed, in both the Machine room and Studio. ☐
It is recommended that the same power source be used for both the mainframe and the console. This can be achieved by installing a power run from the machine room mains to the console, as the power source for the console.

Have you received the pre-install connector kit. ☐
The installation manual contains all pinout information required to allow cable assembly.

Is the Studio and Machine room wiring installation complete. ☐

Are all cables terminated and is all cable ducting accessible. ☐

Has the studio earthing been installed, are all earthing cables identifiable. ☐

Are all signal cables earthed at one end only. ☐
To avoid earth loops it is recommended that all signal cable shields be connected to ground at one end only.

Has the air conditioning system been running for one to two days prior to installation. ☐
The air condition must be run prior to installation in order that the dust be purged from the rooms and air conditioning ducts themselves.

Continued Over Page

Has the loading placed on the air conditioning by the system installation been considered. ☐

A clean, dust free and low humidity environment with an ambient temperature of 19°C or lower is recommended.

Will all external system interfacing have been completed. ☐

All Multitrack sends and returns, audio and video tie lines, sync sources and video distribution etc.

Are the Console and Mainframe installed. ☐

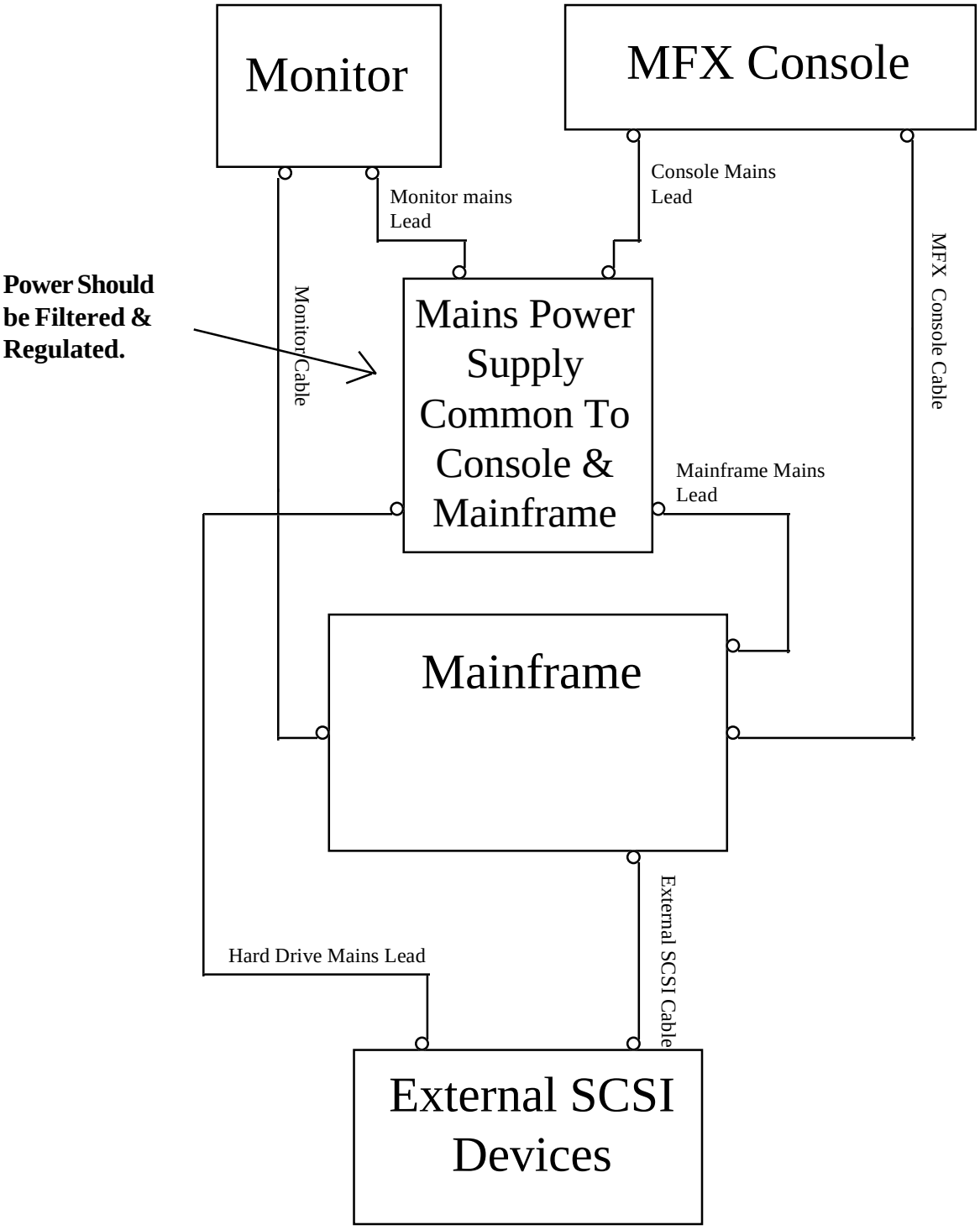
Are all audio and video tape machines installed and tested. ☐

Are all video monitors installed and tested. ☐

Notes:
1. Please do not attempt to power up any part of the MFX 3 system, unless you have approval from your local distributor or Fairlight ESP. Powering up and testing are an integral part of the commissioning exercise, and are critical in ensuring a smooth problem free commissioning.
2. Ensure that no electronic assemblies are handled without Anti Static precautions

Attachment 9 Installation Power Diagram

MFX 3 System Interconnections Diagram



It is strongly advisable that the one source of power be used for both the MFX console and the Mainframe.

Attachment 10 Printer Tips

There is an undocumented feature which allows you to print different tracks of a project at different times but still maintain a sheet size relationship between the different print jobs. The problem is that when you really only want to print the first 8 tracks of a project the machine still takes into account clips on tracks 9-24 and spaces the printing accordingly. This can be undesirable. The solution is to first disable the tracks you don't want, in the Disable menu, then go to the Print menu and select the tracks you do want to print, select the range and then print.