

Laney

THEATRE SERIES

POWERED MIXERS

USERS MANUAL

MODELS

TH16:2

AND

TH10:2

Laney

Models: TH10:2 & TH16:2

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THANK YOU

We at Laney are extremely pleased that you have selected a THEATRE powered mixer and we wish to reinforce your judgement by ensuring you get off to a flying start by including this comprehensive user manual to assist you in getting to know your equipment.

Before switching on, please read this manual carefully since whilst you may well be an experienced user no two brands are the same, and on reading this manual you will become aware of the subtle advantageous differences that Laney offers over its competitors.

UNPACKING

On unpacking your mixer please check carefully for any signs of damage that may have occurred whilst in transit from the factory, to your dealer. In the unlikely event that there has been damage please repack your unit in its original carton and consult your dealer.

We would strongly advise you to store away your original transit carton since in the unlikely event that some time in the future your unit should develop a fault, you will be able to return it to your dealer for rectification securely packed.

IMPORTANT SAFETY INFORMATION

Your mixer should be fitted with a three pin 'grounded' (or 'earthed') plug. Please make sure that the mixer is powered from a 'grounded/earthed' outlet.

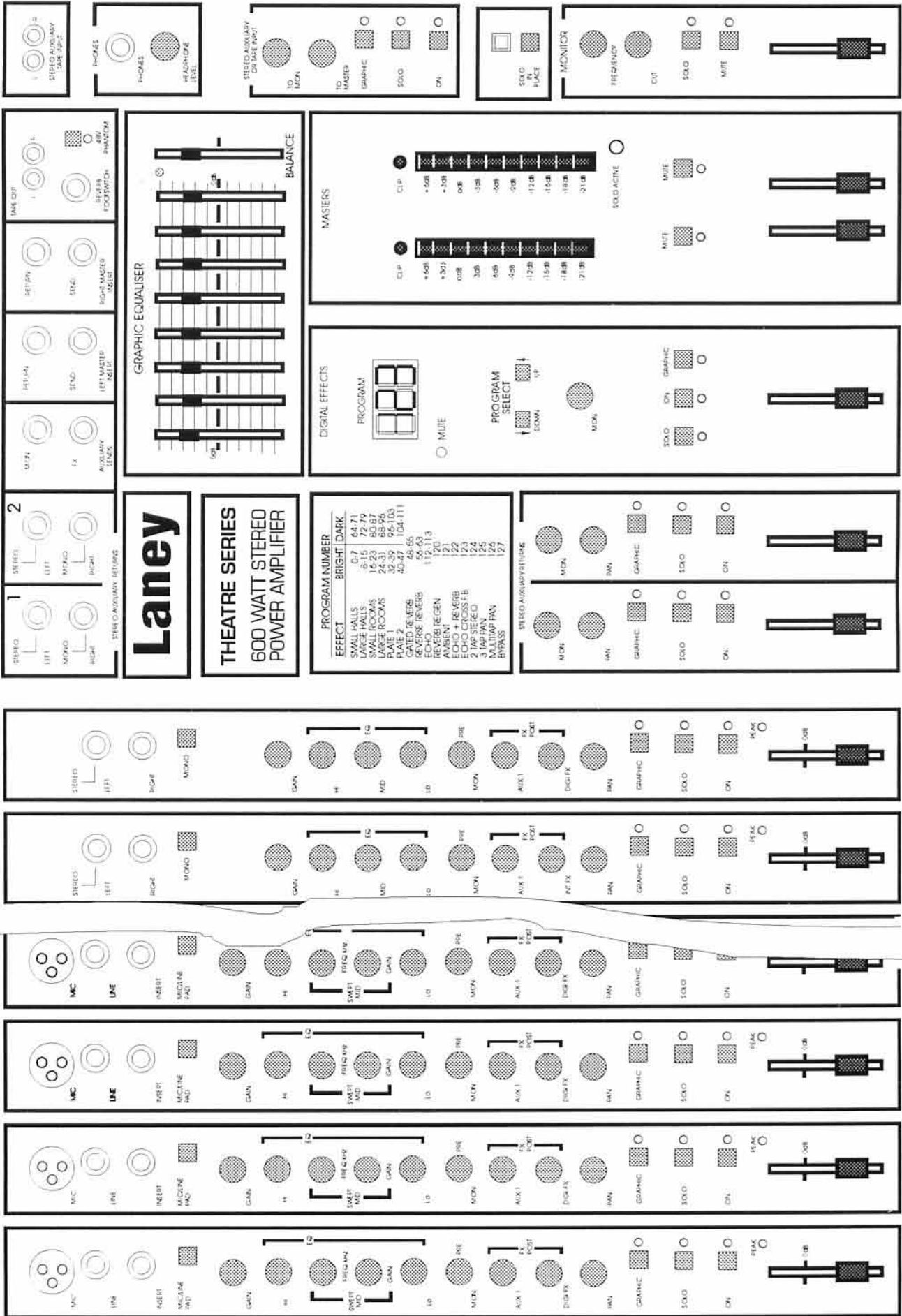
If changing or fitting a plug yourself, ensure that the applicable wiring code is adhered to, for example in the UK the cable colour code for connections are as follows:

EARTH OR GROUND	GREEN/YELLOW
NEUTRAL _____	BLUE
LIVE _____	BROWN

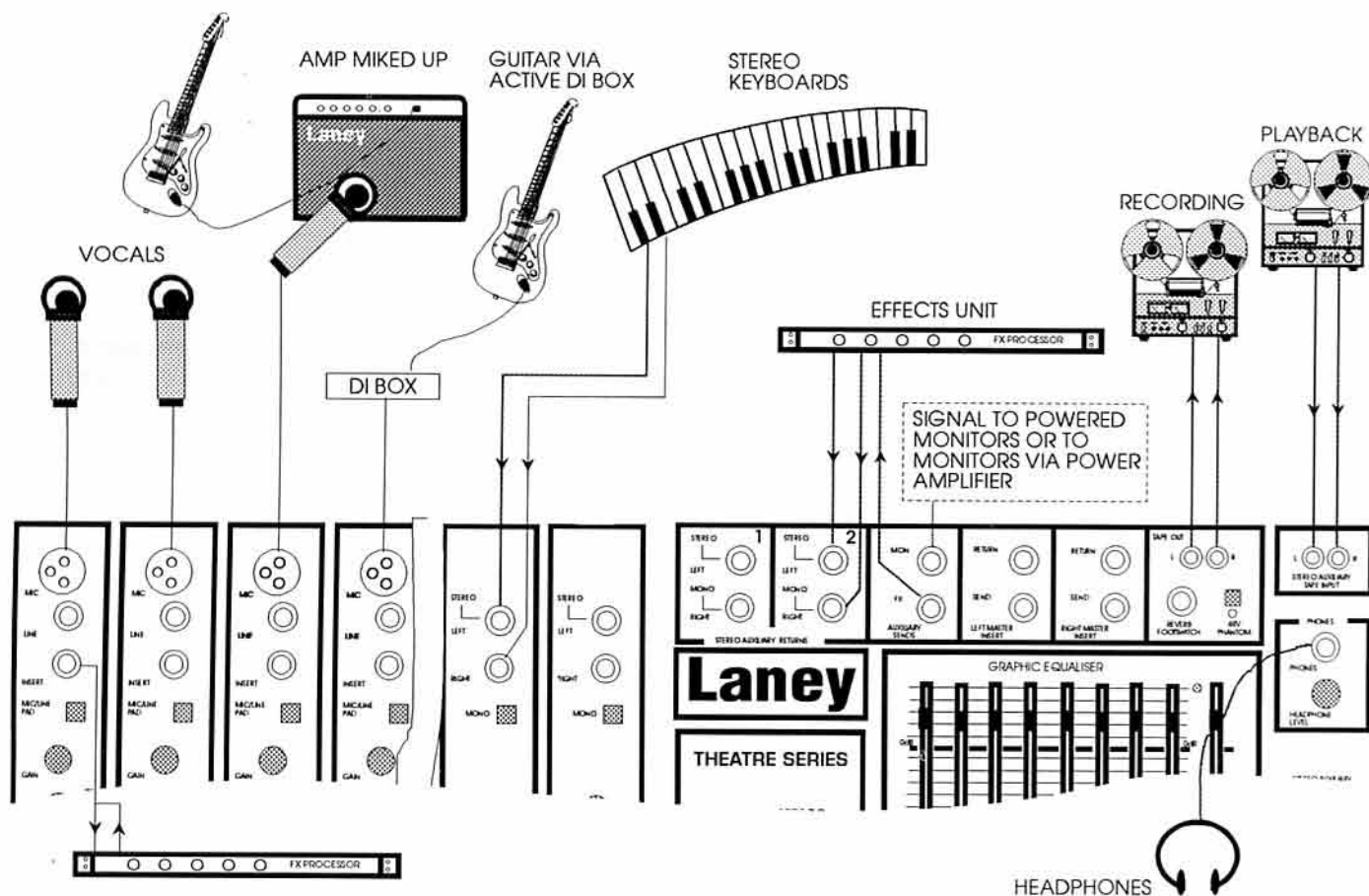
The mixer should never be exposed to moisture or wetness under any circumstances since this would represent a possible shock or fire hazard, and may cause expensive damage to your valuable possession.

In the unlikely event that a fuse should blow, it is imperative that you or your engineer, use a correctly rated replacement.

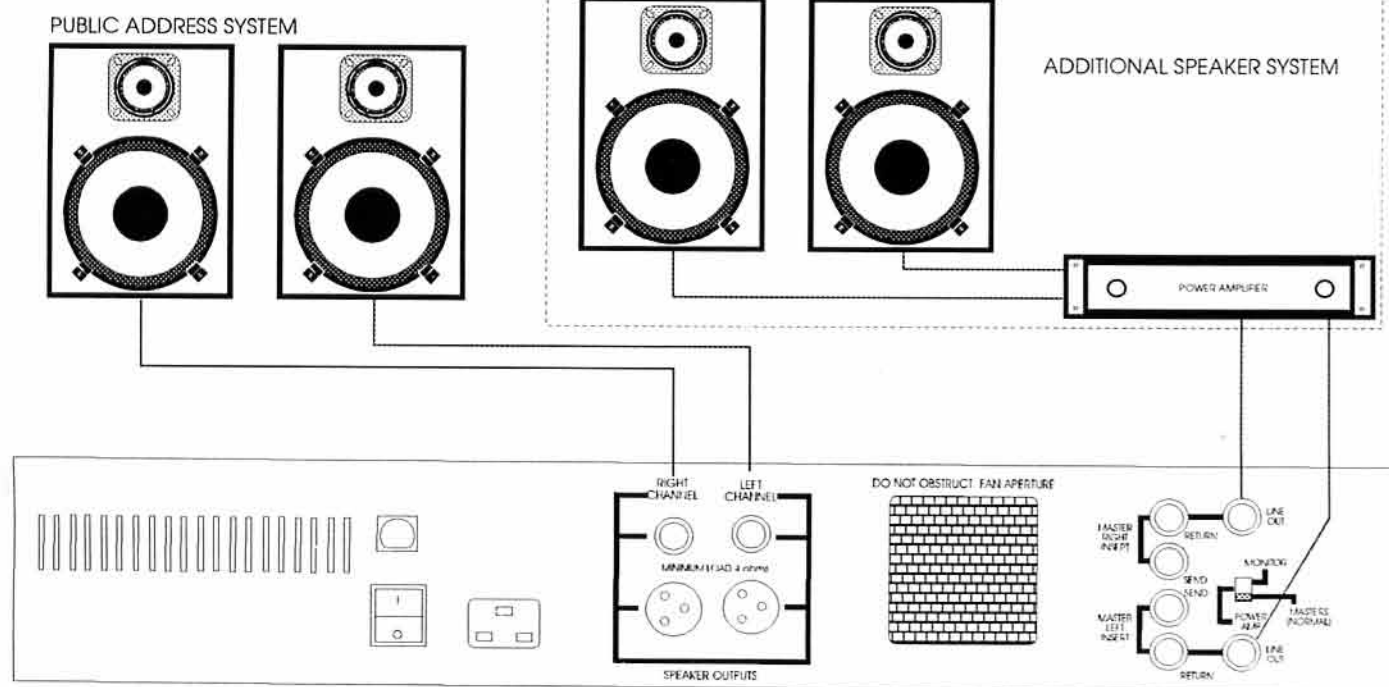
Details of the fuse required is printed on the rear panel of the mixer, please take special care to use a 'time delay' fuse wherever stated.



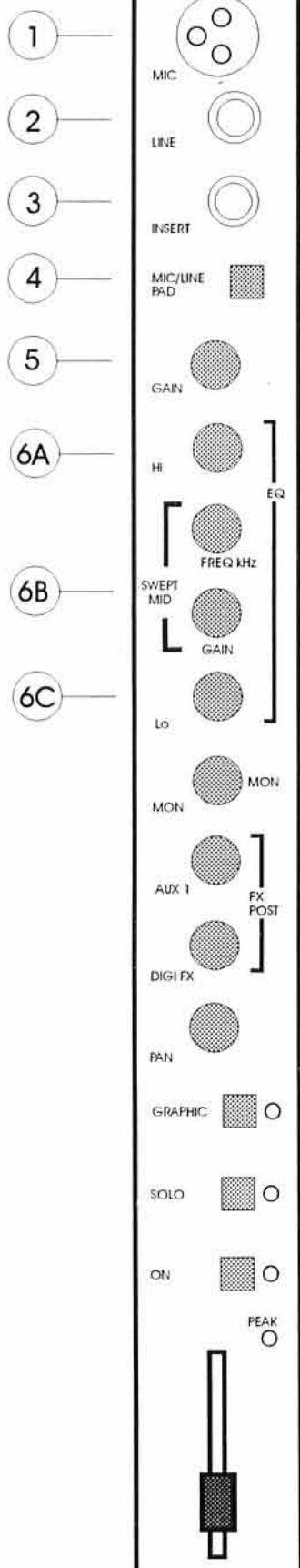
TYPICAL CONNECTIONS



REAR CONNECTIONS



MIC / LINE CHANNEL (MONO)



1) MIC INPUT (XLR)

The Input socket has been designed to accept both balanced and unbalanced signals from microphones with an XLR input connector. Good quality low impedance condenser or ribbon mic's should be used for best performance and these will ensure the best possible results both from hand held vocals or closely miked acoustic instruments. High impedance mic's may of course also be used, however background noise may become unacceptable for delicate vocals.

PHANTOM POWER

48v Phantom Power is available on all 'mic' channels for use with professional condenser microphones. This is globally switched to all mic channels. The switch is located on the fascia. (top right corner, 42)

WARNING

Phantom power must always be switched off when using unbalanced microphones since the voltage present on the connector may damage your microphones

2) LINE INPUT (JACK)

The balanced line inputs are for all line level signals from DI boxes, keyboards, drum and tape machines etc. Before using the line input socket ensure that all microphones in the same channel are disconnected.

3) INSERT

Each mic channel has an 'insert' socket where external FX may be inserted. The insert point is 'post gain' but 'pre EQ'. The insert socket is a stereo jack. (Tip: send and Ring: return),

4) MIC/LINE PAD

This switches to 'Line' input or pads down the Mic signal when the input signal is too high.

5) GAIN

Controls the level of the input signal into the channel.

6) EQUALISATION

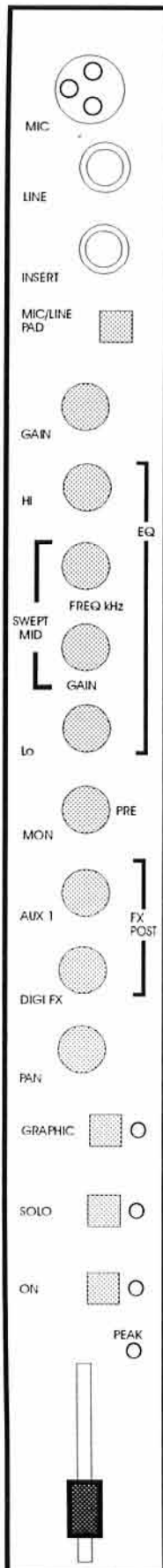
The EQ is a three band system where the Hi (high), swept MID (middle) and Lo (low) frequencies can be individually adjusted.

6A) Hi Set initially in the centre position for a flat EQ response. High frequencies can be boosted by turning the control clockwise thereby enabling a brighter and crisper reproduction of top end frequencies from both vocals and instruments. Should unwanted noises be present such as hiss or distortion then these can be reduced by turning the control anti clockwise thus cutting the frequency response.

6B) MID SWEPT The middle frequencies are controlled by two knobs and these operate together providing a SWEPT MID EQ. The 'gain' control allows 15dB of cut and boost, and the frequency at which this occurs is set by the 'freq' control within the range 550Hz to 5.5kHz. Vocal frequencies are mainly in the middle range.

6C) Lo This control treats the low frequency components and cuts and boosts around the centre flat response position.

MIC / LINE CHANNEL (CON'T)



7) MONITOR

The 'mon' control sets the amount of signal to be sent to the master 'monitor' controls. This is set for pre fader operation and is mainly used for the 'foldback'(monitoring) system. The significance of the monitor signal being pre fade is that the signal is unaffected by the channel fader position.

Should effects such as reverb be required at the stage monitor this can be applied by the 'mon' control in the master Digital effects section. (see setting up)

8) AUX 1

The 'Aux1' control is set for 'after' fader operation and may be used for other effects in addition to the built in digital unit.

9) DIGITAL FX

The built in digital effects unit has 127 programs to select from. The digital FX control determines the level sent to the the internal FX unit. The digital FX send is set for 'after' fader operation. Further information on the digital FX can be found in the 'set up' section.

10) PAN

This control directs the channel signal either right or left thus enabling the position of the channel in the stereo image to be adjusted. EG: When the 'Pan' control is turned fully to the right (clockwise) the audible mixed sound will come totally from the right hand speaker.

11) GRAPHIC

When pressed in the channel signal is directed to the master outputs via the 8 band built in graphic equaliser, the indicator illuminates.

12) SOLO

When the 'solo' is enabled, an after fade signal is sent to the right meter and to the headphones, allowing the channel gain to be set. (the indicator illuminates) Solo signal is after fade but pre mute, so the channel can be set with the channel switched off.

13) ON

The 'on' button allows the channel output signal to be turned on or muted as required. In the unpressed position the channel signal can only be sent to the monitors (pre fader), or soloed.

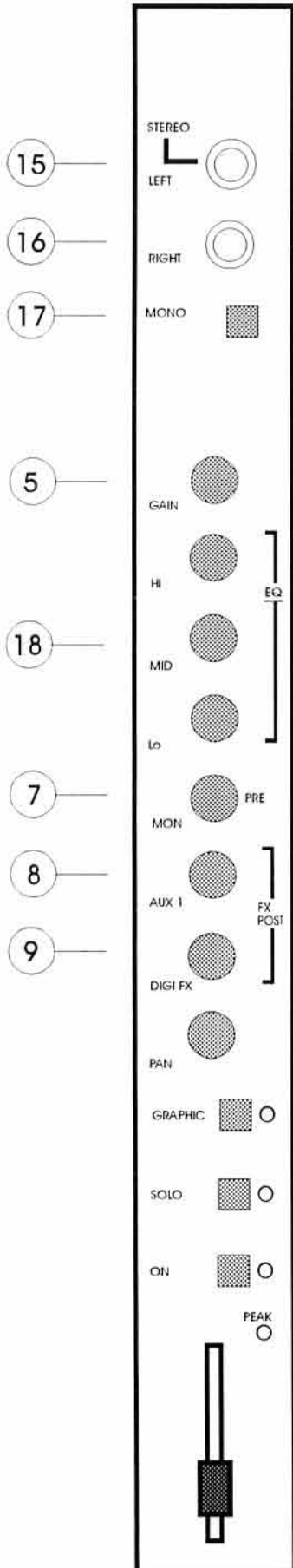
When pressed in the channel signal is then routed to the master outputs and the indicator illuminates.

14) FADER

The individual channel fader, sets the output level of the channel to be sent to the MASTER left and right. The relationship between the 'fader' and the channel 'Gain' control is critical and this is explained more fully in the setting up procedures.

15) PEAK

When the peak lamp illuminates it indicates that the signal level in the channel is approaching clipping distortion.



LINE INPUT CHANNEL (STEREO)

15) & 16) LINE INPUTS

Each stereo channel has two input jack sockets, one stereo (or left) and the other right and each will accept unbalanced line level sources such as keyboards, tape machines and multi effects units.

17) MONO SWITCH

When depressed the left and right inputs are summed together.

5) GAIN

Controls the level of the input signal into the channel.

18) EQUALISATION

Each channel has a three band EQ system where the Hi (high), MID (middle) and Lo (low) frequencies can be individually adjusted.

Hi Set initially in the centre position for a flat EQ response. High frequencies can be boosted by turning the control clockwise thereby enabling a brighter and crisper reproduction of top end frequencies from both vocals and instruments. Should unwanted noises be present such as hiss or distortion then these can be reduced by turning the control anti clockwise thus cutting the frequency response.

MID The 'Mid' control operates in a similar way to that of the 'Hi'. Vocal frequencies are mainly in the middle range.

Lo This control treats the low frequency components and cuts and boosts around the centre flat response position.

7) MONITOR

The 'mon' control sets the amount of signal to be sent to the master 'monitor' controls. This is set for pre fader operation and is mainly used for the 'foldback'(monitoring) system. The significance of the monitor signal being pre fade is that the signal is unaffected by the channel fader position and the effects signal.

Should effects such as reverb be required at the stage monitor this can be applied by the 'mon' control in the master Digital effects section.

8) AUX 1

The 'Aux1' control is set for 'post' fader operation and may be used for other effects in addition to the built in digital unit. This control operates similarly to the monitor control.

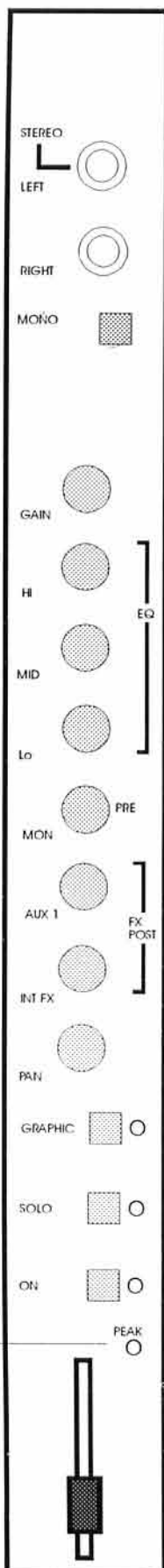
9) DIGITAL FX

The built in digital effects unit has 127 programs to select from. The 'internal effects' control sets the effects signal for each channel individually. Further detailed instructions for use are included in the initial setting up section of this manual.

10) PAN

This control directs the channel signal either right or left thus enabling the position of the channel in the stereo image to be adjusted. EG: When the 'Pan' control is turned fully to the right (clockwise) the audible mixed sound will emanate totally from the right hand speaker.

LINE INPUT CHANNEL (CON'T)



11) GRAPHIC

When pressed in the channel signal is directed to the master outputs via the 8 band built in graphic equaliser and the indicator illuminates.

12) SOLO

When 'solo' is enabled, an after fade signal is sent to the right meter and to the headphones, allowing the channel gain to be set (the indicator illuminates). Solo signal is after fade but pre mute, so the channel can be set with the channel switched off.

13) ON

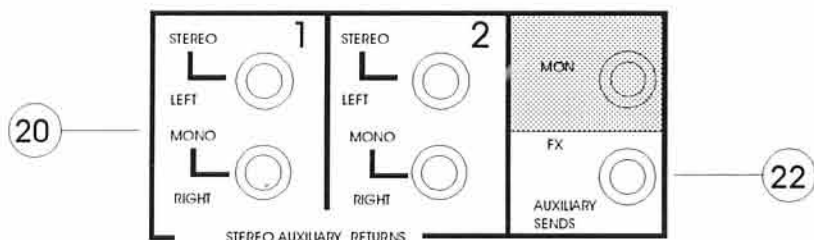
The 'on' button allows the channel output signal to be turned on and off (MUTED) as required. In the unpressed position the channel signal can only be sent to the monitors, (pre fader) and to the headphones (post fader). When pressed in the channel signal is then routed to the master outputs (the indicator illuminates).

14) FADER

The individual channel fader, sets the output level of the channel mix to be sent to the MASTER section. The relationship between the 'fader' and the channel 'Gain' control is critical and this is explained more fully in the setting up procedures.

15) PEAK

When the peak lamp illuminates it indicates that the signal level in the channel is approaching clipping distortion.



THEATRE SERIES
600 WATT STEREO
POWER MIXER

PROGRAM NUMBER		
BRIGHT	BRIGHT	DARK
SMALL HALLS	0-7	64-71
LARGE HALLS	8-15	72-79
SMALL ROOMS	16-23	80-87
LARGE ROOMS	24-31	88-95
PLATE 1	32-39	96-103
	40-47	104-111
GATED REVERB	48-55	
REVERSE REVERB	56-63	
DELAY	112-119	
REVERB REGEN	120	
AMBIENT	121	
ECHO + REVERB	122	
ECHO CROSS FB	123	
2 TAP STEREO	124	
3 TAP PAN	125	
MULTITAP PAN	126	
BYPASS	127	

STEREO AUXILIARY RETURN CHANNEL

10) PAN

This control directs the auxiliary return signal either left or right thus enabling it to be positioned in the stereo image as required. EG: When the 'pan control is turned fully to the right (clockwise) the audible return signal will emanate totally from the right side speaker.

11) GRAPHIC

When pressed in the auxiliary return signal is directed to the 'master outputs' via the eight band built in graphic equaliser. The switch is accompanied by an indicator that illuminates when the 'graphic' is pressed in.

12) SOLO

When the solo is enabled, an after fade signal is sent to the right meter and to the headphones, allowing the channel gain to be set. Solo signal is after fade but pre mute, so the channel can be set with the channel off. An indicator that illuminates when the 'solo' is pressed in.

13) ON

The 'on' switches allow the auxiliary signal to be turned on or muted as required. In the unpressed position the signal can only be sent to the monitors (pre fader), or soloed. When pressed in the signal is then routed to the master outputs and the indicator illuminates.

14) FADER

The individual fader set the output signal level of the auxiliary channel to be sent to the master outputs.

20) AUXILIARY 1 & 2 RETURNS

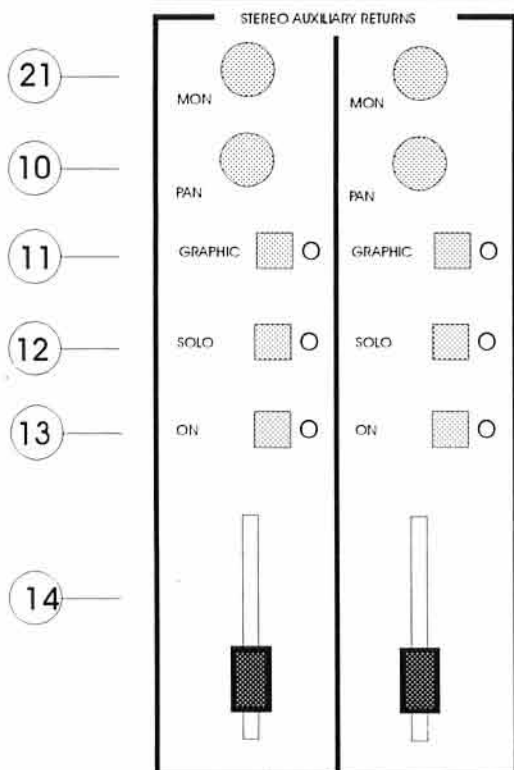
The stereo auxiliary returns receive the return signal from an effects unit or processor. Each return has two inputs, one stereo (or mono left) and the other is mono right.

21) MONITOR

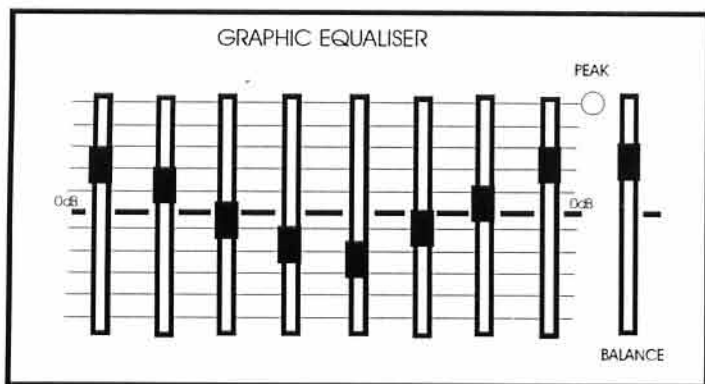
The 'mon' controls sets the amount of signal from the auxiliary returns 1 & 2 to be sent to the master output faders.

22) AUXILIARY SENDS

This is the FX/Aux 1 output. Signal is sent here by all the Aux 1/Fx sends on the mic & stereo output.



GRAPHIC EQUALISER

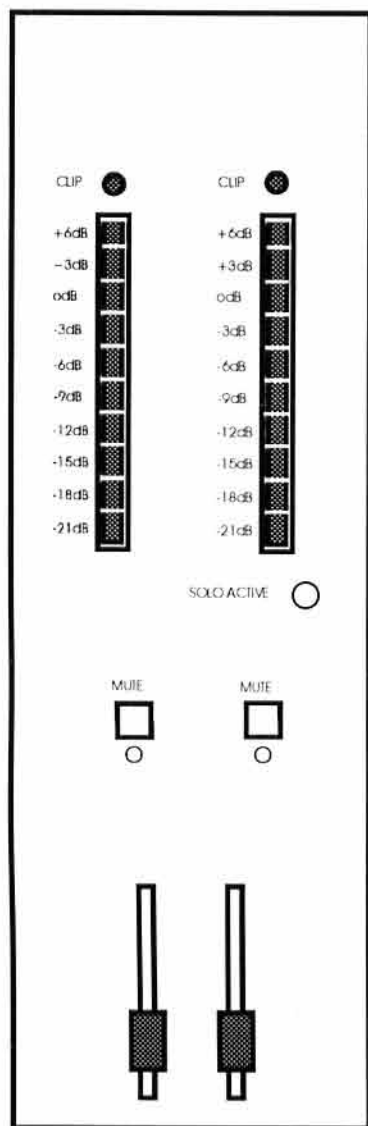


55

55) GRAPHIC EQUALISER

The signal may be routed through the graphic equaliser from any of the inputs. This allows the user to use the graphic equaliser as an 'effect' on a particular instrument, or by assigning all inputs to the graphic, as the 'equalisation' for the PA system.

MASTERS



56

56) MASTER METERS

The 'master meters' show the signal level to the power amplifiers. The right meter shows the 'solo' level when the solo is enabled.

57

57) SOLO ACTIVE

Solo active illuminates when any solo button or buttons are pressed, it shows that the right meter is displaying the solo level and the solo signal is on the headphones.

58

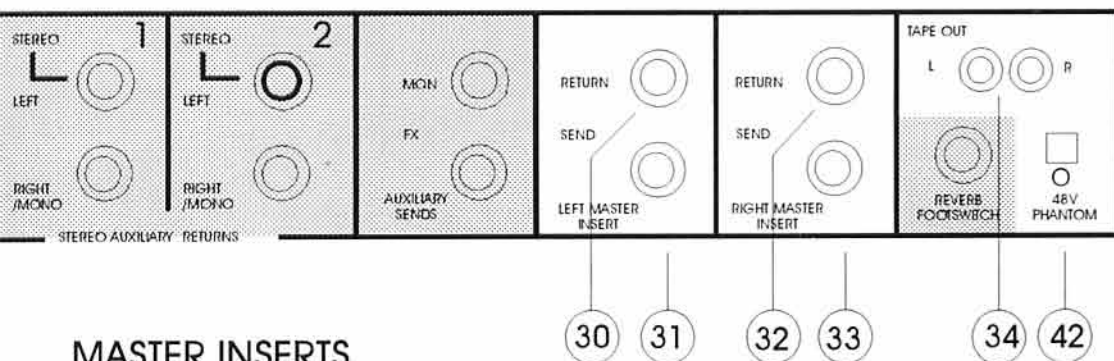
58) MASTER MUTES

These turn off the signal to the power amplifiers. Red lamps illuminate when muted.

59

59) MASTER FADERS

The master faders control the signal level to the power amplifiers and tape output.



MASTER INSERTS

- 30) RETURN
- 31) SEND
- 32) RETURN
- 33) SEND
- 34) TAPE OUT

Phono (RCA) sockets are provided for the connection of tape / Dat machines for recording. The signal level is controlled by the master fader.

STEREO/AUX CHANNEL

- 35) STEREO AUXILIARY / TAPE INPUT

Phono (RCA) sockets are provided for signals from Tape / Dat machines, this input is also suitable for any line level signal.

- 36) TO MONITOR

Controls signal level to monitors.

- 37) TO MASTER

Controls signal level to master faders.

- 38) GRAPHIC

When pressed in the stereo Aux / Tape is directed to the master outputs via the 8 band built in graphic equaliser and the indicator will illuminate.

- 39) SOLO

When 'solo' is enabled, an after fade signal is sent to the right meter and to the headphones, allowing the signal level to the masters to be set. The 'solo' signal is after fade but pre on, so the level can be set with the channel off. The indicator illuminates when 'solo' is pressed in.

- 40) ON

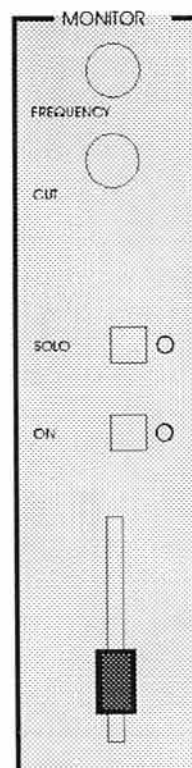
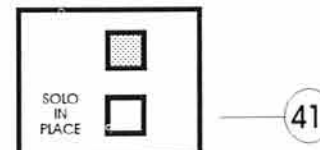
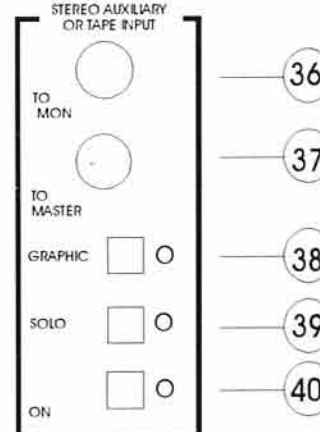
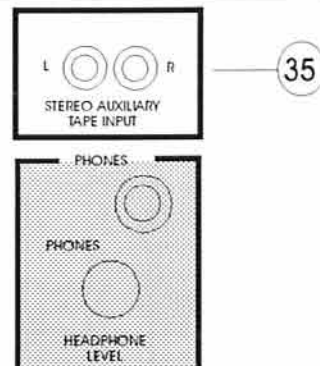
The 'on' button allows the stereo Aux Tape signal to be turned on or off (MUTED) as required. In the unpressed position the channel signal can only be sent to the monitors, (pre fader) and to the soloed (post fader). When pressed in the channel signal is then routed to the master outputs and the indicator illuminates.

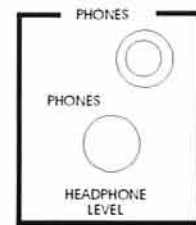
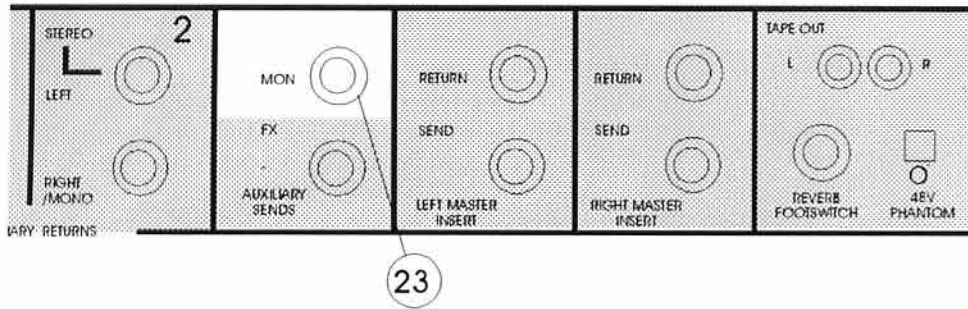
SOLO IN PLACE

- 41) SOLO IN PLACE

Switches the contents of the solo bus to the master left and right outputs, This allows individual channels or groups of channels to be monitored in isolation from the main mix. This is particularly useful during a sound check. See 'setting up details' for more information.

This is a mix destructive feature and it is therefore unwise to enable 'solo in place' during a performance. A large red lamp illuminates when 'solo in place' is enabled.





MASTER MONITORS

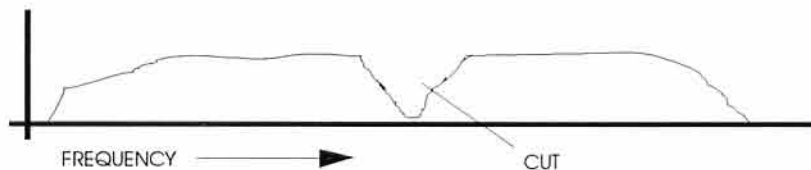
23) MONITOR

The monitor output, should be taken from this jack socket to a power amplifier. The signal level to the monitor speaker is set by the monitor

24) FEEDBACK FREQUENCY

25) CUT

These controls form a notch filter for the reduction of feedback on the monitors. If feedback occurs apply some cut, which should be swept up and down using the frequency control until the frequency of feedback is found, more cut can then be applied to reduce feedback further if required.



26) SOLO

When 'solo' is enabled, an after fade signal is sent to the right meter and to the headphones, allowing the monitor output level to be set. The solo signal is after fade but pre mute, so the monitor output level can be set with the channel muted.

27) MUTE

The 'mute' switch allows the signal to the monitors to be turned on and off as required an indicator illuminates when the monitor signal is muted.

28) FADER

The 'fader' sets the level of the signal to be sent to the monitors.

MONITOR TO POWER AMPLIFIER (on rear panel)

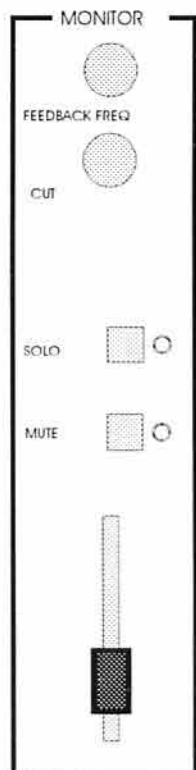
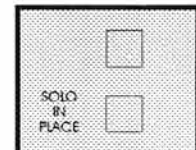
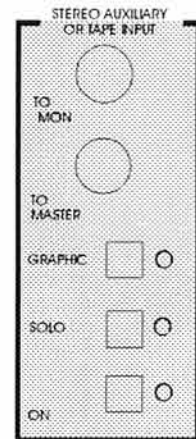
Should you wish to use the mixer as a monitor mixer, the monitor signal can be fed to the internal amplifier using the monitor to power amplifier switch which is located on the rear panel.

61) PHONES

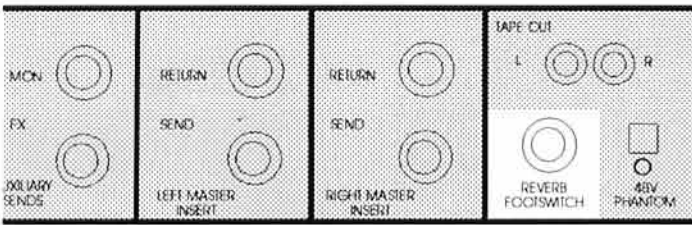
Headphones can be connected here. The signal is controlled by the headphone level control and master faders, if solo is in operation the level is controlled by the solo source and headphone level control.

62) HEADPHONE LEVEL

Adjusts the headphone volume level.



DIGITAL EFFECTS



43) REVERB FOOTSWITCH

A mono footswitch may be connected here and used for turning on and off remotely, the internal digital effects.

PROGRAM NUMBER		
BRIGHT	BRIGHT	DARK
SMALL HALLS	0-7	64-71
LARGE HALLS	8-15	72-79
SMALL ROOMS	16-23	80-87
LARGE ROOMS	24-31	88-95
PLATE 1	32-39	96-103
PLATE 2	40-47	104-111
GATED REVERB	48-55	
REVERSE REVERB	56-63	
DELAY	112-113	
REVERB REGEN	120	
AMBIENT	121	
ECHO + REVERB	122	
ECHO CROSS F.B	123	
2 TAP STEREO	124	
3 TAP PAN	125	
MULTITAP PAN	126	
BYPASS	127	

43

44) PROGRAM NUMBER

A look up table is provided to enable fast and easy selection of the 127 digital effects programs

45) PROGRAM

The selected digital effects program is displayed here.

46) DOWN

47) UP

Programs may be selected either up or down.

48) MUTE

This is illuminated whenever the effects are muted, ie; between program selections by 47 & 48 or by footswitch.

49) MONITOR

Controls the effects signal level to the monitor section.

50) SOLO

When 'solo' is enabled, an after fade signal is sent to the right meter and to the headphones, the indicator illuminates.

51) ON

The 'on' button allows the channel output signal to be turned on and off (MUTED) as required. In the unpressed position the effects signal can only be sent to the monitors (pre fader), or soloed (after fader).

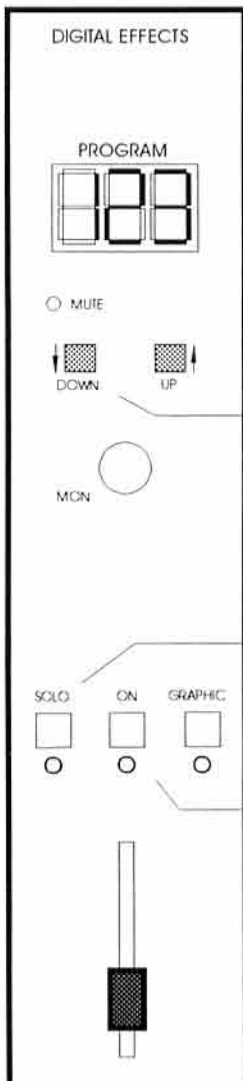
When pressed in the channel signal is then routed to the master outputs and the indicator illuminates.

52) GRAPHIC

When pressed in the effects signal is directed to the master outputs via the 8 band built in graphic equaliser and the indicator illuminates.

53) FADER

Sets the output level of the effects to be sent to the master fader.



45

48

47

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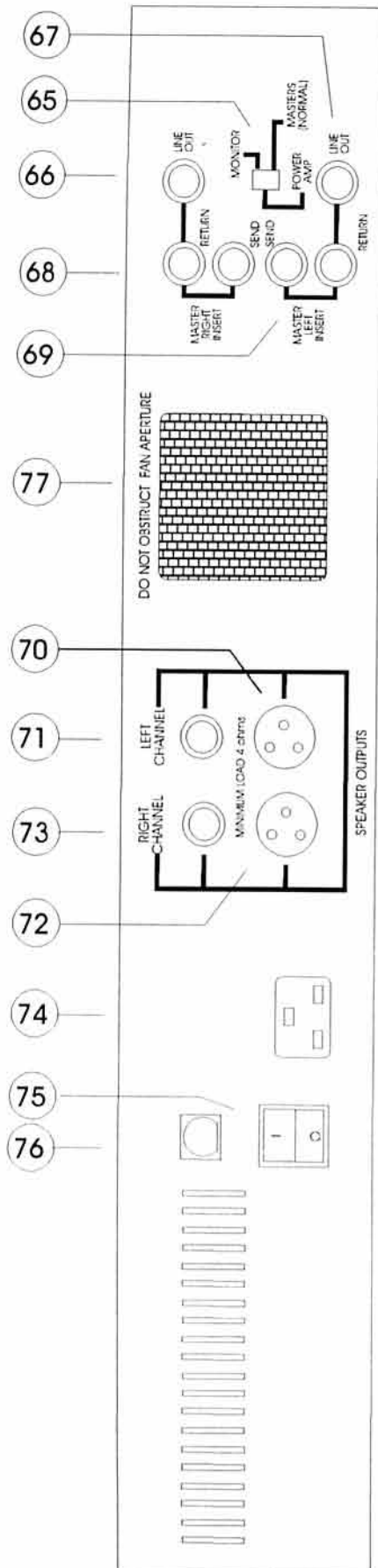
49

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REAR PANEL

65) MONITOR TO POWER AMPLIFIER SWITCH

If you wish to use the mixer as a monitor mixer, the signal to the internal power amplification comes from the monitor section via this switch. The 'line outs' would then be used for the master L & R outputs.

66) LINE OUT (RIGHT)

67) LINE OUT (LEFT)

These are line level outputs driven by the master L & R faders. The line outs can be used for driving additional power amplifiers or mixing desks etc.

68) MASTER RIGHT INSERT

69) MASTER LEFT INSERT

These are a second set of master inserts, they come immediately before the line out in the signal path.

70) XLR LEFT

71) JACK LEFT

72) XLR RIGHT

73) JACK RIGHT

These are the left and right speaker outputs, and are driven either by the master L & R or the monitor section depending on the position of the monitor to power amplifier switch.

Connections should be as follows:

MONO JACK
 TIP: SIGNAL
 SHIELD: GROUND

XLR
 PIN 1: GROUND
 PIN 2: SIGNAL
 PIN 3: NOT CONNECTED

The minimum load impedance should not be less than 4 ohms each channel.

74) MAINS INPUT

Mains power input is connected here, ensure the mains/power lead is always earthed.

75) MAINS POWER SWITCH

The mixer is turned 'on and off' by this switch.

76) FUSE

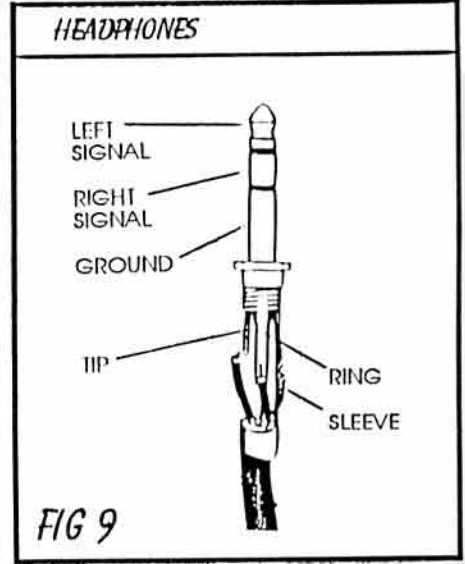
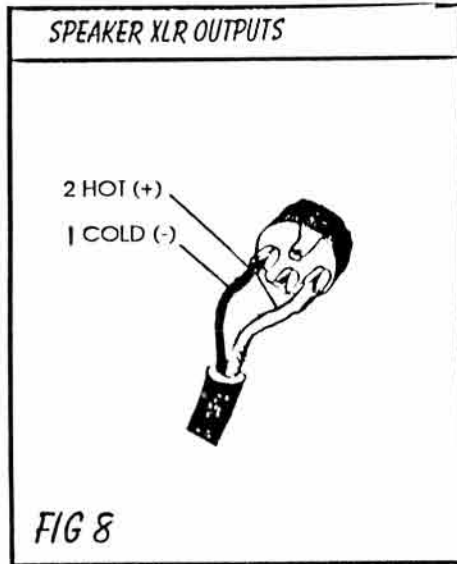
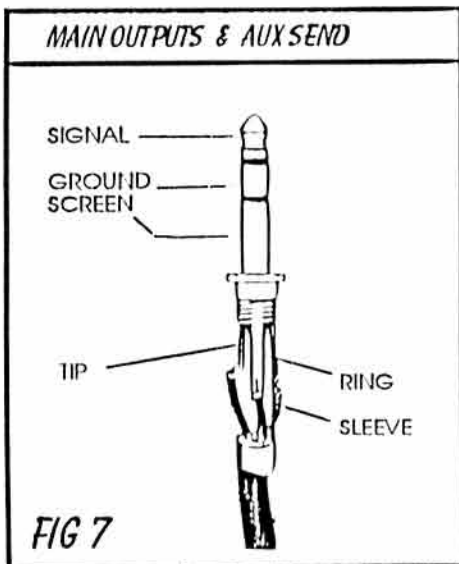
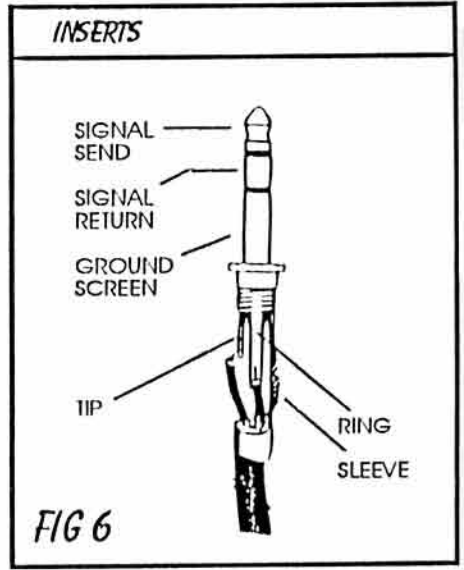
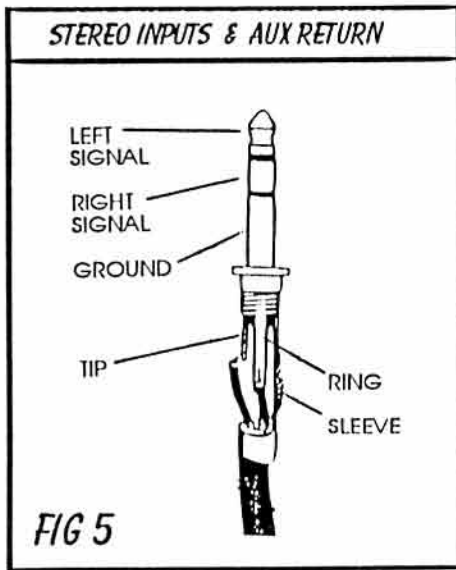
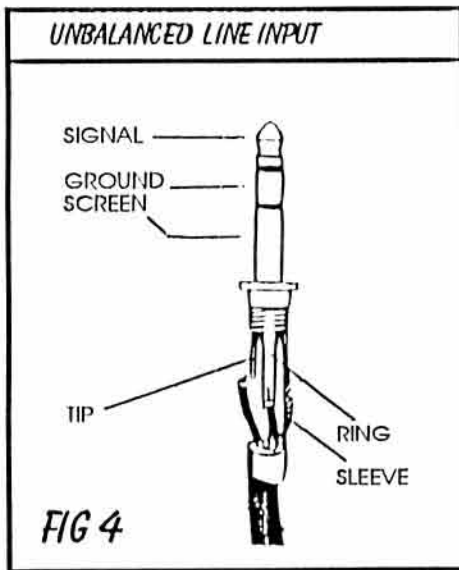
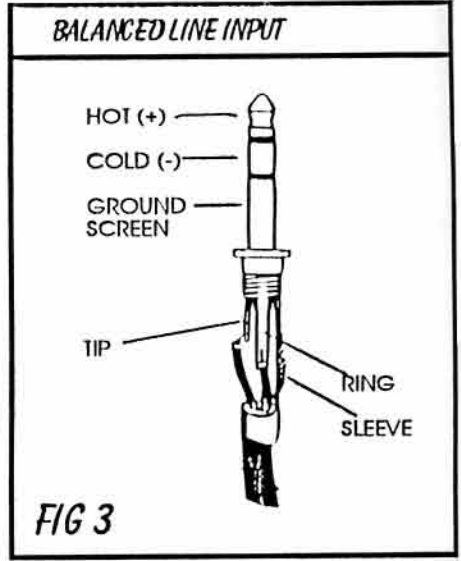
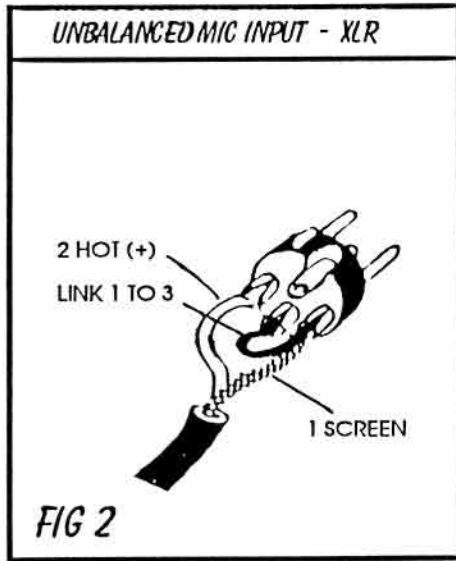
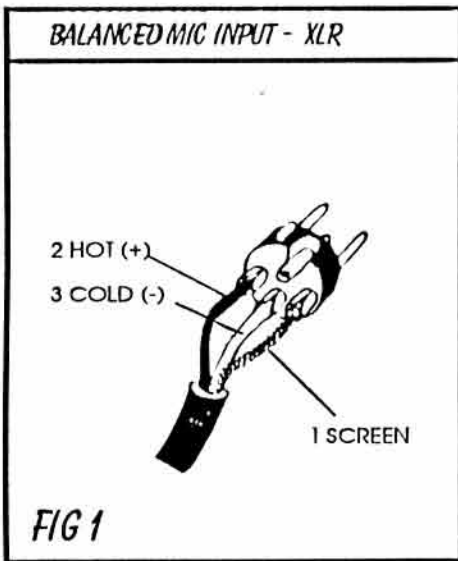
In the event of failure it is imperative that the mains power fuse is replaced with the correct type and rating.

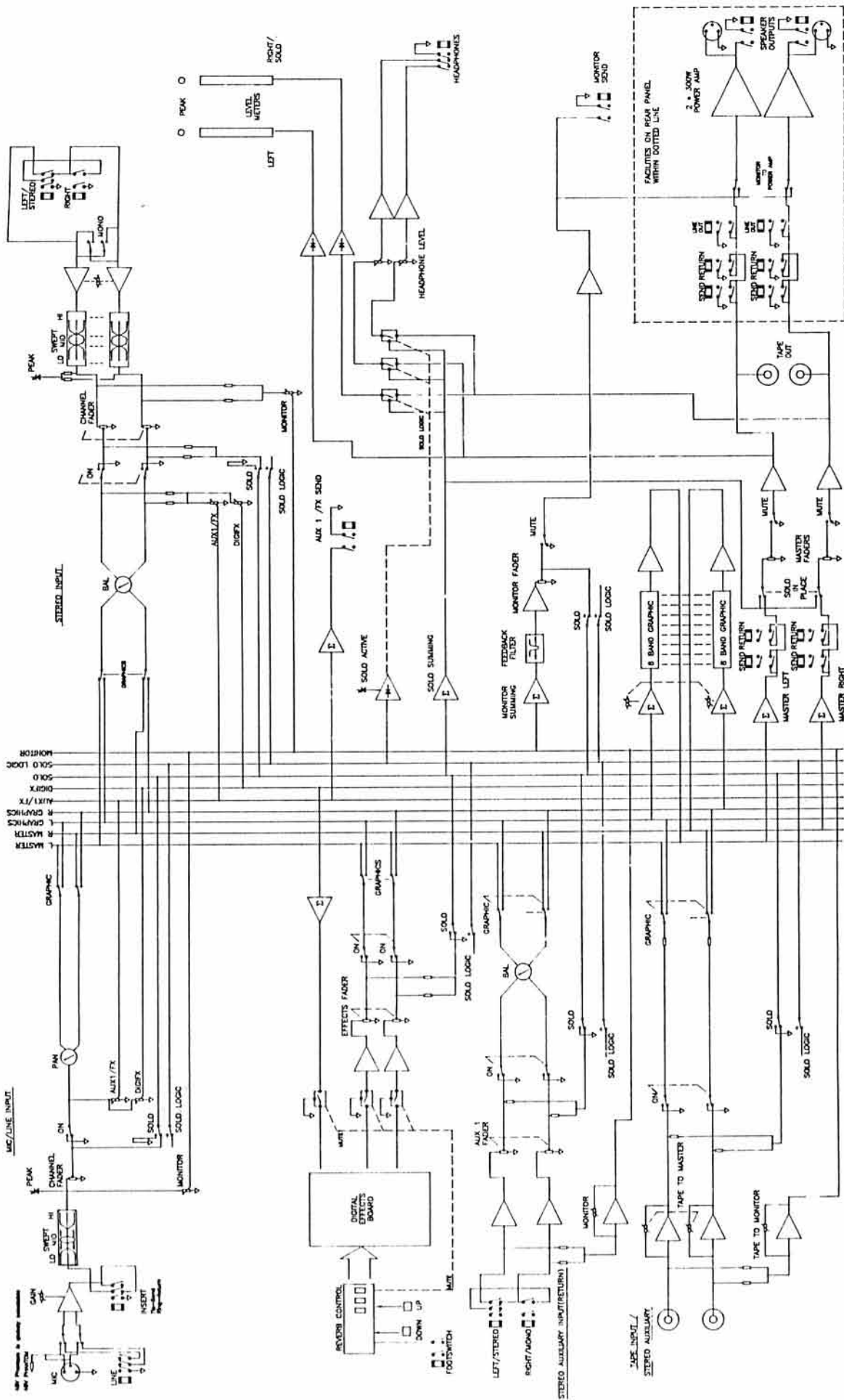
77) FAN APERTURE

This is the air outlet from the mixer and should NEVER be obstructed. Failure to observe this instruction could result in the mixer shutting down due to overheating. In the event of thermal shutdown the mixer should remain powered to enable the fan to continue cooling the unit. After thermal shutdown the mixer will automatically reset when it has cooled to a pre set working level.

Apart from obstruction of the fan aperture overheating may also occur should the input load impedance be below 4 ohms.

LEAD CONNECTIONS





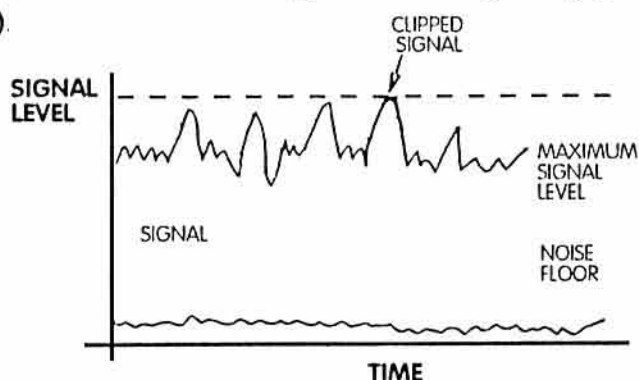
BLOCK PLAN LANEY MODELS: TH10:2 & TH16:2

Introduction

To get the best possible performance from your mixer as with any piece of technology there is a right and a wrong way to use it. Please read this guide as it will enable you to reap the best rewards from your investment.

What Are We Trying To Achieve? ? A Great Sound of course.

But how ! Well basically we are trying to achieve the greatest difference between signal and noise. All mixers have what is called a 'Noise Floor' and our signal has to be as high above this as possible. But as well as trying to get the best possible difference between signal and noise we have to avoid the signal level being too high, otherwise distortion will occur. (see Fig 1).



In the next few pages is a guide to setting up your mixer so that it performs at its best.

1) Setting The Channel

Lets start at the beginning, setting the channel up correctly is one of the most important parts of setting the mixer because if you get this wrong you will end up with a signal which is noisier than it should be or distorted.

- 1.1) Connect your input signal to a chosen channel.
- 1.2) Set input selector to line/mic for mic channels or mono/stereo for stereo channels
- 1.3) Increase the channel fader to 0dB
- 1.4) Enable Solo on the channel (Enabling Solo puts the channel signal on the headphones and on the right master meter)
- 1.5) Now increase the channel gain control and watch the right master meter .Set the gain control so the signal just causes the +6dB lamp to light at peaks in the signal
- 1.6) Now make sure the MASTER FADERS are at minimum ,your speakers are connected ,switch your channel 'ON' and increase the MASTER FADERS (gradually or you may get deafened).Now we are in business.
- 1.7) Adjust the EQ controls on the channel to obtain your required sound .If you find you use a lot of boost in the EQ you may have to reduce the channel gain control so that the signal just causes the +6dB lamp to light on the right master meter .
- 1.8) Simple eh ! now just repeat for all your inputs. Remember too turn each channel off when you have finished setting up the channel and also to disable each channels solo when you have finished

When this is done you have now set the gain of the channel to its best position , so the signal level in the channel is as high above the noise floor as possible without any distortion occurring. If at a later stage the input signal should increase to nearer the clipping/distortion point the peak lamp will illuminate to warn you of this.If this happens reduce your channel gain accordingly.

2) Mutes and On

The mute/on facilities make your mixer very flexible. If you were mixing for 2 or more bands it enables to switch on only channels that are needed. As the 'ON' button comes after the fader, the level of the fader can be set at the sound check so when the channel is needed it is enabled at the correct level.

3) Notes on Stereo Inputs/Stereo Auxiliaries

On our stereo inputs we give the user option of operating in 3 possible modes

3.1) A stereo input going in on a stereo jack

3.2) A stereo input going in on two mono jacks

3.3) As a mono input (ie the mono button enabled/or inputting on the socket labelled mono on the auxiliaries)

You can on the stereo channels sum two mono inputs together if the need arises, these possibilities mean that the stereo inputs cater for the connection of any possible output from instrument/tape /DAT machine.

4) Inserts

On the mic channels an insert point is provided for the addition of any effects such as EQ, reverbs, compressors, gates etc. The insert is on a stereo socket which is configured as tip/send, ring/return and shield/ground.

It is possible to use an insert as a tape send. If you wish to do so, the tip and the ring on the stereo jack plug will need joining together.

5) Soloing and Solo in Place

On all inputs and outputs there is the ability to 'Solo' the signal. When a signal is soloed the signal level is displayed on the right master meter and appears on the headphones. When you are setting up, channel gain or the 'mix' a problem you will probably encounter is trying to keep everybody quiet, we have thought of this, if you enable Solo in Place all the channels will be muted and only ones which are Soloed will appear on master outputs. The Solo signal is then under the control of the channel fader.

6) Monitor Mix

Should you require to make a monitor mix for someone, such as the lead vocalist. On the channel strip is a 'MON' control this sends a signal to the monitor section. The signal sent to the monitor section is unaffected by the channel fader. There are facilities to send a signal to the monitor section from any of the inputs.

In the monitor section there is :-

6.1) A feedback filter to reduce feedback if it occurs

6.2) The monitor can be soloed so the level can be seen on the right master meter and heard on the headphones.

6.3) A Mute to cut the monitor output if required

6.4) A monitor fader to adjust the overall output level

7) Fx Sends (Aux 1 & DIGI FX)

Two Fx sends are provided for your use, Aux 1 is a send to an external FX unit and DIGI FX is a send to the internal digital effects unit. Both sends receive their signal after the fader so the relationship between the clean signal and effected signal remains constant whatever the position of the channel fader.

8) Guide to FX Processors

Various points are provided for connection of effects units to your mixer. This allows you to treat an individual channel (channel insert) or group of channels (use auxiliaries) or the whole mix (use the master inserts). FX processors can be divided into three basic types, a brief introduction to which are provided below -

8.1) Dynamics processors such as compressors, gates and limiters. Gates let signal pass and go into a muted state when there is no signal present. This is useful for muting noisy guitar amps or muting a vocalists intake of breath. There are usually attack, hold and release controls to set the gates opening and closing times. Compressors, limiters and expanders all effect the maximum and minimum excursions of the signal. If you decided to compress a signal its maximum value would be limited. This would allow you to increase the average sound level, again compressors usually have attack, hold and release controls.

8.2) Equalisers can be used to change the tonal characteristic, allowing enhancement of individual/or groups of sounds or compensation for room acoustics. A graphic equaliser is built in which can be used for either of these jobs.

8.3) Reverbs /delay these can; **a)** create the sound of halls and rooms or **b)** delays can create doubling effects or if the delayed signal is changed in phase chorusing and flanging type effects.

9) Digital Effects

An on board digital effects processor is built in for your use. It has 127 programs which are varied enough to cater for most needs. The level to the Master left and right is controlled by the effects fader and the usual soloing and routing facilities are provided (MONO, GRAPHIC, ON).

Soloing is also provided for the digital effects so these can be heard in isolation. This is useful as any distortion occurring in the digital effects can be detected by listening on the headphones. If this does occur you should reduce the DIGIFX sends on the channels and increase the EFFECTS fader.

As a general guide the halls, rooms and plates are good on vocals, but most instruments will also benefit from this effect. Percussive instruments sound good with gated reverbs and reverse reverbs

10) Stereo Auxiliaries/FX returns

Three stereo auxiliaries are provided for the user. They like any other input have full routing and soloing facilities (ie ON, SOLO, GRAPHIC). They are commonly used as FX return but can be used for any line level input. One of the auxiliaries is on phono (RCA) sockets suitable for the connection of DAT/tape machines

11) Graphic Equaliser

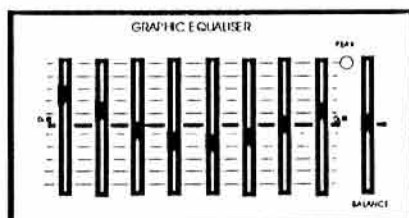
On all inputs there is the option of being routed straight to Master left and right or via the 8 band graphic equaliser. This gives us 2 distinct possibilities :-

11.1) All the inputs could be routed to the graphic, this would mean the equaliser could be used as EQ for the room or hall you were using.

11.2) Or alternatively as equalisation on a particular instrument or vocal. A graphic balance control is provided on the Equaliser. This enables us to set a balance between a channel routed to the graphics or the same channel routed directly to the master left and right. That is if the graphic is set with a lot of sliders boosted and you route a channel to the graphics there will be a jump in signal level, which may not be desired, this can be removed by reducing the graphic balance control.

A Peak lamp is also provided to indicate that distortion /clipping of the signal is approaching. The graphic equaliser is a powerful tool for sound customisation but equally can do serious. As a general rule try to avoid faders that are next to one another from being set very differently. A good start which will work quite well for most venues is a setting known as the 'smiling face', This is shown below.

GRAPHIC EQUALISER



12) Mixing

By now we should have all our inputs connected, channel eq's all set to sound good and no overload problems. This means that it's now time to start mixing. This is probably best done progressively adding a channel at a time to the mix.

12.1) Reduce all your faders to minimum and switch all the channels 'ON' that you are going to use.

12.2) Increase the first channel to between -10dB and 0dB then increase the master faders to a level that gives a comfortable volume. It is sensible to try and keep the channel faders high and then adjust the master faders to suit (to get the best signal to noise ratio).

12.3) As you add each channel in the mix you may wish to adjust each instrument/vocals position in the stereo image. This can be done using the channel pan pot. The level of each instrument/vocal in the mix can be adjusted using the channel fader.

This is done until a satisfactory mix is achieved. It is normal to mix certain instruments left, certain instruments right and the lead vocals central in the mix. It is useful to listen to pre-recorded music to get a feel for where to position instruments/vocals in the mix.

When you are happy with the mix all that you have to do is simply 'MUTE' the master left and right outputs. Switch off and return to the venue for the performance later.

During the performance you will probably have to adjust levels and eq to compensate for changes in venue acoustics as the more people arrive, a singer may move closer to a mic causing clipping of a channel or feedback may occur. A general guide to problems that may occur is provided so most problems can be sorted quite quickly.

13) Master Inserts

Two sets of insert loops are provided for the connection of effects. One set (on the front panel) is before the master fader in the signal path. This allows any noise generated by the fx to be reduced by the master fader and mutes, this makes it more suited to Reverbs which often generate a lot of noise. The other insert loop is located on the rear panel. These are more suited to quieter FX such as graphic equalisers, compressors and limiters which generate less noise. Should your loudspeaker system have a 'controller' this is best connected to the insert loops on the rear panel.

14) Recording

Should you ever wish to record your mix the TAPE OUT sockets are provided. The output level from these sockets is controlled by the master faders

15) Connection as a MONITOR MIXER

If the occasion arises where the mixer needs to be used as a submixer/monitor mixer the output to the main mixer is taken from the LINE OUT sockets on the rear panel. The power amp can then be fed from either the MASTER faders or the MONITOR fader depending on the setting of the MONITOR TO POWER AMP switch, which is located on the rear panel.

The foregoing information should be used in conjunction with the set-up diagrams and other information in this manual..

Trouble Shooting Guide

M1602PD & M1002PD

Below is a simple trouble shooting guide. Should you have problems in either initial setting up or at some future time, check out the the problem by using the following suggestions.

NO SOUND

Is the power on ?

Are the power fuses blown/right type and rating?

Are the correct channels 'ON'?

Are the Master L+R outputs muted?

Are the speakers connected?

Are your connectors wired correctly?

Is the MONITOR TO POWER AMP switch set correctly?

Check Solo in Place is not enabled

Have you connected your inserts correctly?

LOW OUTPUT

Is the channel gain set correctly?

Where is the channel fader set?

Where is the master set?

DISTORTED OUTPUT

Find what is causing the distortion.

Is an input channel clipping? check using peak lamps and solo facilities. If so adjust input gain/eq.

Is graphic overloading ? check using peak lamp on graphic. If so adjust graphic balance control.

NO BASS

Check graphic / channel eq

NO TREBLE

Check graphic / channel eq

NO MONITOR OUTPUT

Is the monitor muted?

Is the monitor fader at minimum?

Are the monitor sends on desired channels turned up?

Are the monitor amps /speakers connected?

NO FX/AUX1 OUTPUT

Are the Aux 1 controls turned up?

Are the channel faders up?

Are the channels turned on?

NOISY OUTPUT

Are unnecessary channels assigned?

Are channel gains set to their optimum?

Are Master faders high and channel faders low ?(Channel faders high, master faders low is best / See setup guide)

GRAPHIC NOT WORKING

Are the desired channels assigned to the graphics ?

Are they switched ON.

Are their faders up ?

RIGHT METER SHOWING BIG DIFFERENCE IN OUTPUT LEVEL

Check all SOLO buttons are out.

TECHNICAL SPECIFICATION

LANEY MODELS: TH10:2 & TH16:2

MIC CHANNEL

XLR

Max gain.....	66dBu
Min gain.....	22dBu
Pad.....	20dBu
Input Impedance.....	2k (balanced) 4k7(unbalanced)

LINE

Max gain.....	20dBu
Min gain.....	-25dBu
Pad 10dBu.....	10dBu
Input Impedance.....	47k (unbalanced) 22k (balanced)
Fader buffer.....	10dBu
Insert level.....	+4dBu (nominal)
EIN (equivalent input noise).....	-129dB (150R source)
Distortion.....	<.01% TYP
Frequency Response.....	25Hz +/-2dBu , 20kHz +/-1dBu
EQ	
Hi +/-12dBu @ 12kHz	
Swept Mid +/-12dBu Sweepable 500Hz-5.5kHz	
Lo +/-12dBu @ 80Hz	

STEREO CHANNEL

Max gain.....	10dBu
Min gain.....	-60dBu
Max input level.....	>50V
Input Impedance.....	22k
Fader buffer.....	10dBu
Distortion.....	<.01% TYP
Frequency Response.....	25Hz +/-2dBu,20kHz +/-1dBu
EQ	
Hi +/-12dBu @ 12kHz	
Mid +/-12dBu @ 2kHz	
Lo +/-16dBu @ 80Hz	
Master Fader Buffer.....	+6dBu

OUTPUT LEVELS.

Aux 1 send.....	+4dBu (nominal)
Mon send.....	+4dBu (nominal)
Master inserts (pre fade).....	0dBu (nominal)
(after fade).....	+4dBu(nominal)
Line out.....	+4dBu(nominal)

POWER AMPLIFIER

Power rating.....	2*300W into 4 Ohms (R.M.S) 2*200W into 8 Ohms (R.M.S)
Distortion.....	<0.03% typical
Input sensitivity.....	+4dBu
Damping factor.....	300 @ 100Hz into 8 ohms
Slew rate.....	60V/uS
Output Connectors.....	Male XLR /each channel Mono Jack /each channel
Protection.....	Short Circuit, Load mismatch, Thermal,DC
Power Requirements	
220/240V ,40/60Hz ,1200W (Preset at factory)	
100/120V ,40/60Hz,1200W (Preset at factory)	
refer to manufacturer /distributor for voltage change	