SOUNDCRAFT△ MONITOR

USER GUIDE

CE This equipment complies with the EMC Directive 89/336/EEC

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Issue 2

Part No. ZZ2698

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Contents

Introduction to Delta Monitor 1

Precautions & Safety Instructions 2

Connections 3

Installation 5

Module Block Diagrams 9

Module Descriptions, Specifications & Operation 13

Input Module 14

Group Module 17

Master Module 21

Appendices 29

Specification Notes 30

Dimensions 31

Configurations 32

Warranty 33

Glossary 34

Introduction to Delta Monitor

Delta Monitor is a 12 bus monitor console designed to match the high performance of the Soundcraft Series 8000 and Venue Front-of- House consoles.

Developed as part of the Delta range of mixers, Delta Monitor is available in 24, 32 or 40 channel formats based on a rigid single- piece steel frame. Construction is fully modular with rear connectors integral with each module.

There are 10 individual monitor busses and a stereo bus which can serve as a monitor mix for the engineer, a feed for sidefill loudspeakers or as another pair of monitor busses.

The monitor busses feed 5 dual Group Output modules, while a Master module contains summing amps for the Stereo Bus and a mono Wedge output. This module also contains the engineer's monitoring controls and a comprehensive talkback system.

Comprehensive 4 Band Equalisation is provided on the input modules, and twin variable frequency Notch Filters are included on the Group modules.

Precautions and Safety Instructions

General Precautions

Avoid storing or using the mixing console in conditions of excessive heat or cold, or in positions where it is likely to be subject to vibration, dust or moisture. Do not use any liquids to clean the fascia of the unit: a soft dry brush is ideal. Use only water or ethyl alcohol to clean the trim and scribble strips. Other solvents may cause damage to paint or plastic parts.

Avoid using the console close to strong sources of electromagnetic radiation (e.g. video monitors, high power electric cabling): this may cause degradation of the audio quality due to induced voltages in connecting leads and chassis. For the same reason, always site the console power supply away from the unit .

Caution! **In all cases, refer servicing to qualified personnel.**

Handling and Transport

The console is supplied in a rugged cardboard box. If it is necessary to move it any distance after installation it is recommended that this packing is used to protect it. Be sure to disconnect all cabling before moving. If the console is to be regularly moved (e.g. for touring) we recommend that it is installed in a foam lined flight case. At all times avoid applying excessive force to any knobs, switches or connectors.

Power supplies & cables

Always make sure that the power supply has been set to the same source voltage as the mains supply.

Always use the power supply and power cable supplied with the mixer: the use of alternative supplies may cause damage and voids the warranty; the extension of power cables may result in malfunction of the mixing console.

Warning! **Always switch the power supply off before connecting or disconnecting the console power cable, removing or installing modules, and servicing. In the event of an electrical storm, or large mains voltage fluctuations, immediately switch off the PSU and unplug from the mains.**

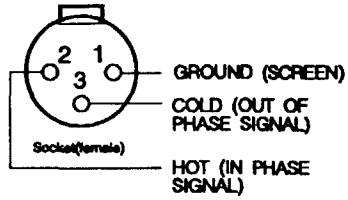
Always ensure that that you use the correct size of power supply for your console. A CPS450 unit is required for all frame sizes.

Connections

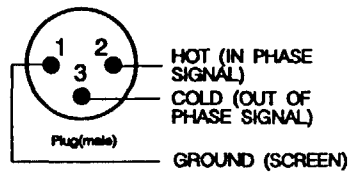
The Delta Monitor Console uses two different types of audio connector, 3 pin XLR (top diagram) and ¼" three pole (A gauge or stereo) jacks. The latter are used in two different configurations, as shown below. The Talkback In/Out connectors are standard 3-pin XLR types, wired in the normal configuration, but it should be noted that these carry a 15V d.c. signalling voltage when Talkback is active. Care should be taken to ensure that you do not plug equipment into these connectors which might be damaged by that d.c. voltage.

The rear frame of the console has standard apertures fitted with blanking panels. Your Soundcraft dealer can supply a variety of mounting plates to fit these, with EDAC(ELCO) multiway connectors, together with looms to link them to the modules.

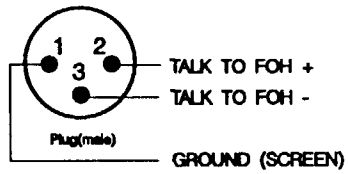
MICROPHONE INPUTS



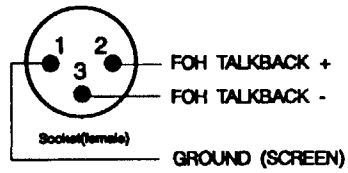
GROUP, STEREO & WEDGE OUTPUTS



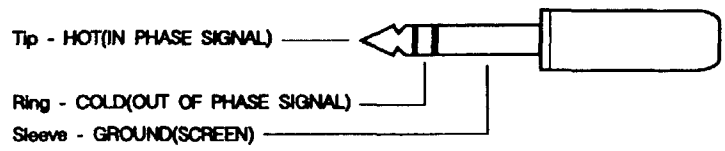
TALKBACK OUTPUT



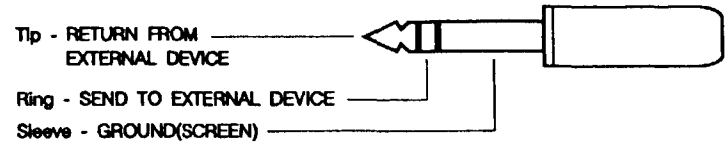
TALKBACK INPUT



¼" 'A' Gauge Stereo Jack Plug used as balanced line input



¼" 'A' Gauge Stereo Jack Plug used as insert send/return



Signal Levels

It is important to supply the correct input levels to the console, otherwise signal-to-noise ratio or distortion performance may be degraded; and in extreme cases damage to the internal circuitry may result. Likewise, on all balanced inputs avoid sources with large common mode DC, AC or RF voltages, as these will reduce the available signal range on the inputs. Note that 0dBu = 0.775V RMS.

The microphone input is designed for use with balanced low impedance (150 or 200 ohm) microphones.

DO NOT use unbalanced microphones or battery powered condenser microphones with the +48V phantom power switched on: degraded performance or damage to the microphone may result.

The sensitivity of the microphone input is variable from -2dBu to -70dBu (for +4dBu at the Stereo Mix outputs), and the maximum input level (balanced) is 2 0dB above the set sensitivity that is, with the gain control at minimum, the maximum input level is +18dBu. Although the microphone input can thus handle some line level signals, we don't recommend this, since the source may be unduly loaded by the low (2kΩ) input impedance, or be damaged by the +48V phantom power.

The line input has a sensitivity variable between -20dBu and +10dBu, and can also handle a maximum input level up to 20dB above the set value. Note that the maximum input level for unbalanced inputs is 4 or 5dB less than that for balanced signals, so very high level unbalanced signals (e.g. loudspeaker outputs of power amplifiers) may cause distortion. The input impedance is approximately 20kΩ, and thus high impedance sources (e.g. electric guitars) may be loaded too heavily. Such sources are best fed through an external DI (Direct Inject) box to the microphone input.

The main outputs of the console (e.g. Stereo mix and group outputs) have a nominal output level of +4dBu, and an impedance of 75ohms. These outputs will deliver full level (+21dBu unbalanced, +27dBu balanced) into loads of greater than 600ohms. Secondary outputs, such as insert sends (all unbalanced) have a nominal output level of -2dBu and a slightly higher output impedance of 200ohms, and will only deliver the full output level of +21dBu into load impedances of greater than 5kΩ.

Installation

Installation

Delta Monitor is designed for reliability, high performance and built to the highest standards. Whilst great care has been taken to ensure that installations are made as trouble-free as possible, care taken at this stage, followed by correct setting up will be rewarded by a long life and reliable operation.

Warning! **Before switching on your Delta Monitor console, check that the mains voltage selector on the power supply unit is set to the correct mains voltage for your area, and that the fuse is of the correct rating. This is clearly marked on the case of the power supply. Do not replace the fuse with any other type, as this could become a safety hazard and will void the warranty.**

Always ensure that you use the correct size of power supply for your console. A CPS450 unit is required for all frame sizes.

Wiring Considerations

A For optimum performance it is essential for the earthing system to be clean and noise-free, as all signals are referenced to this earth. A central point should be decided on for the main earth point, and all earths should be 'star-fed' from this point. It is recommended that an individual earth wire be run from each electrical outlet, back to the system star point to provide a safety earth reference for each piece of equipment.

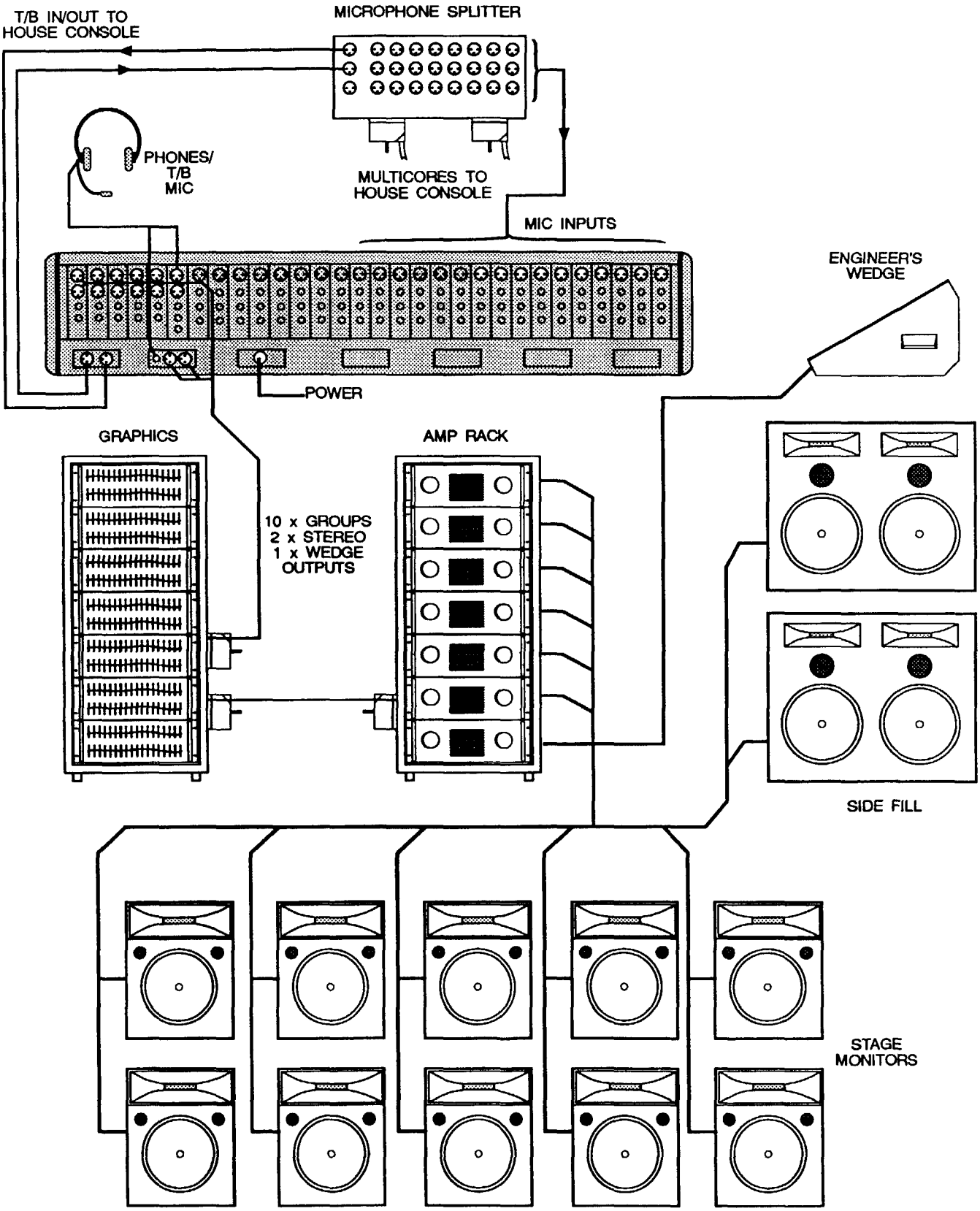
B Install separate mains outlets for the audio equipment, and feed these independently from any other equipment.

C Avoid locating mains distribution boxes near audio equipment, especially tape recorders, which are very sensitive to electro- magnetic fields.

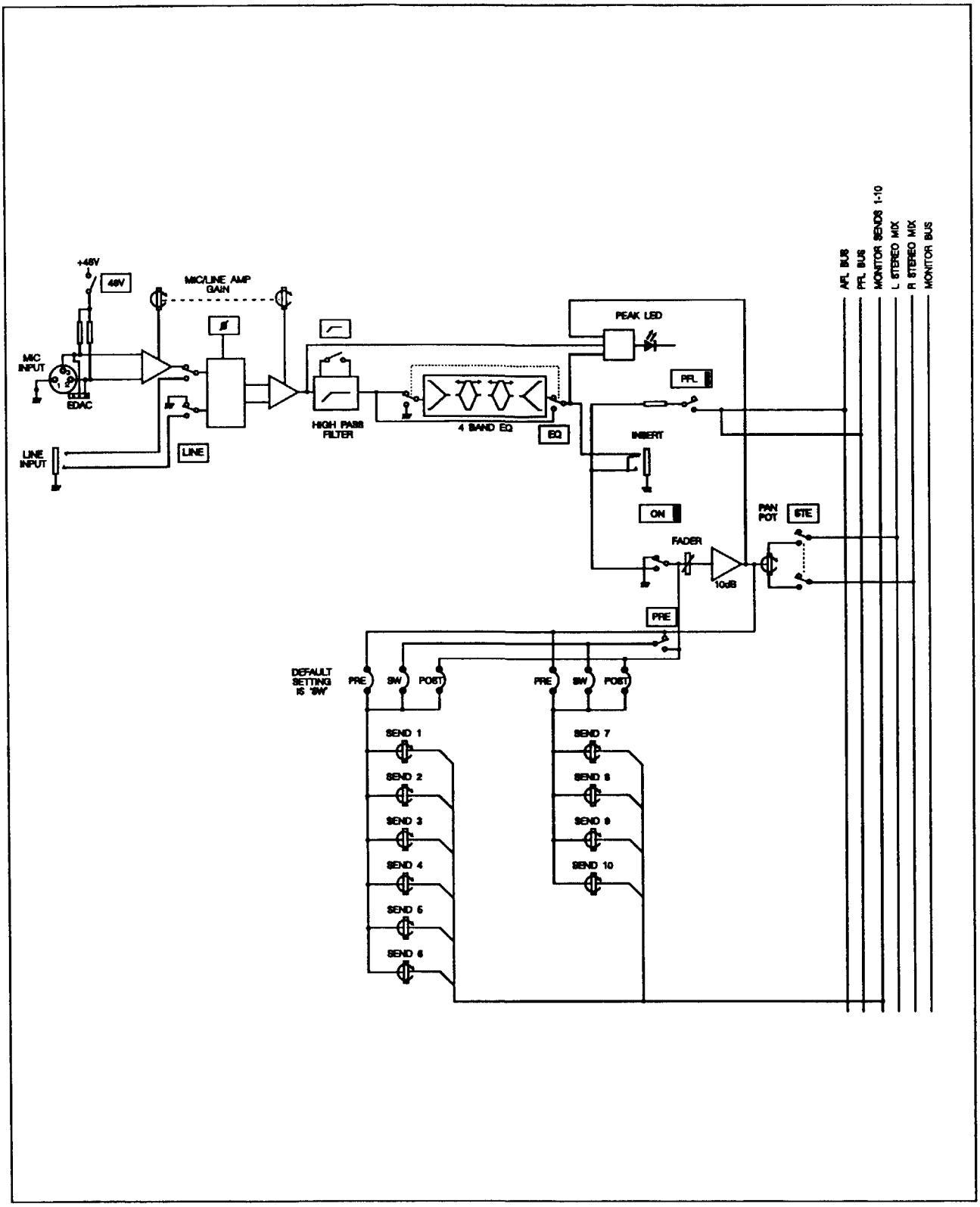
D Where possible ensure that all audio cable screens and other signal earths are connected to ground only at their source.

Examples of use

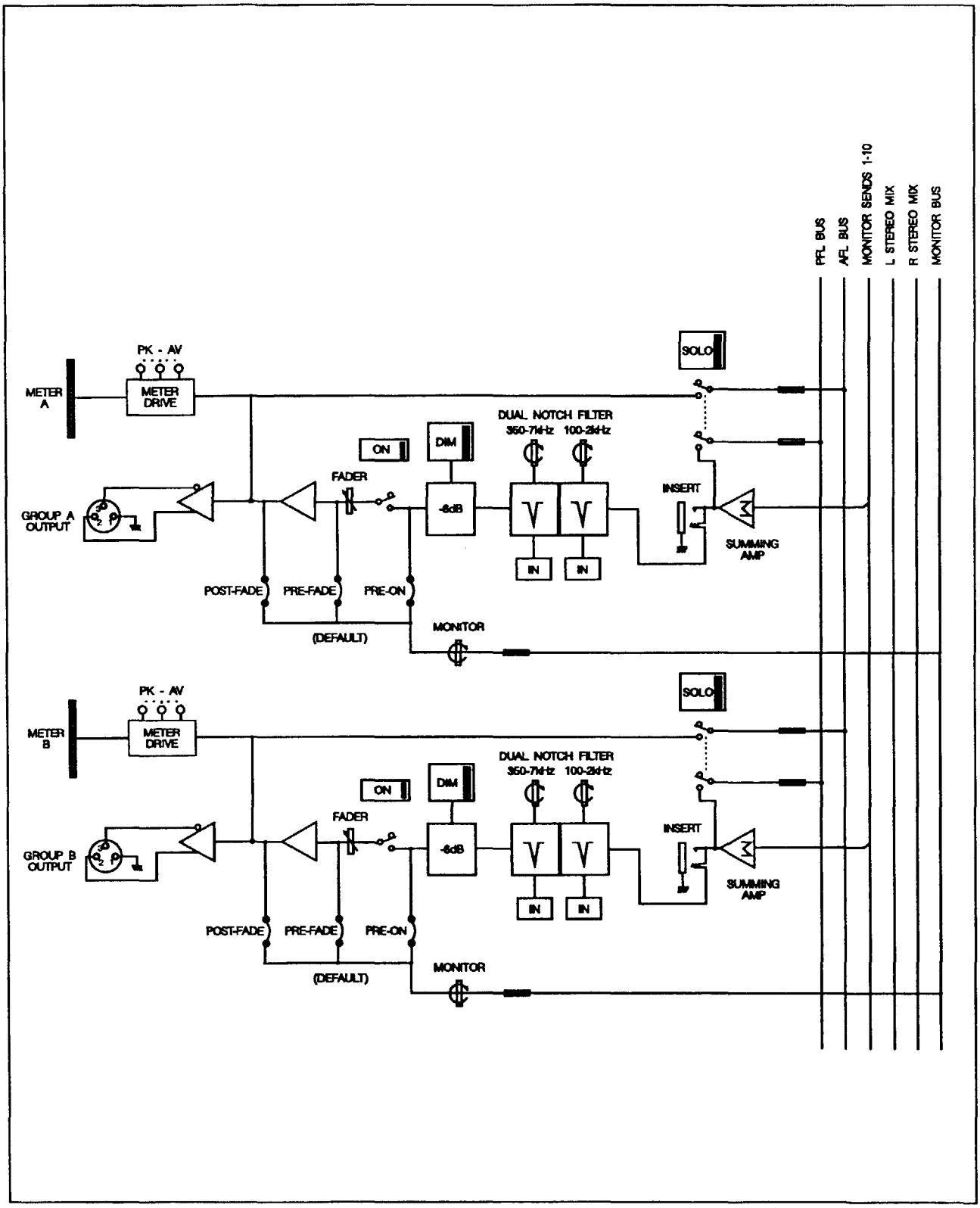
The diagram opposite and overleaf shows a typical application of the Delta Monitor as a Stage Monitor console. This example is of course only a an indication of the unique flexibility of the Delta Monitor, which may be easily reconfigured to ideally suit your particular requirements.


T/B IN/OUT TO
HOUSE CONSOLE
MICROPHONE SPLITTER
PHONES/
T/B
MIC
MULTICORES TO
HOUSE CONSOLE
MIC INPUTS
ENGINEER'S
WEDGE
POWER
GRAPHICS
AMP RACK
10 x GROUPS
2 x STEREO
1 x WEDGE
OUTPUTS
SIDE FILL
STAGE
MONITORS

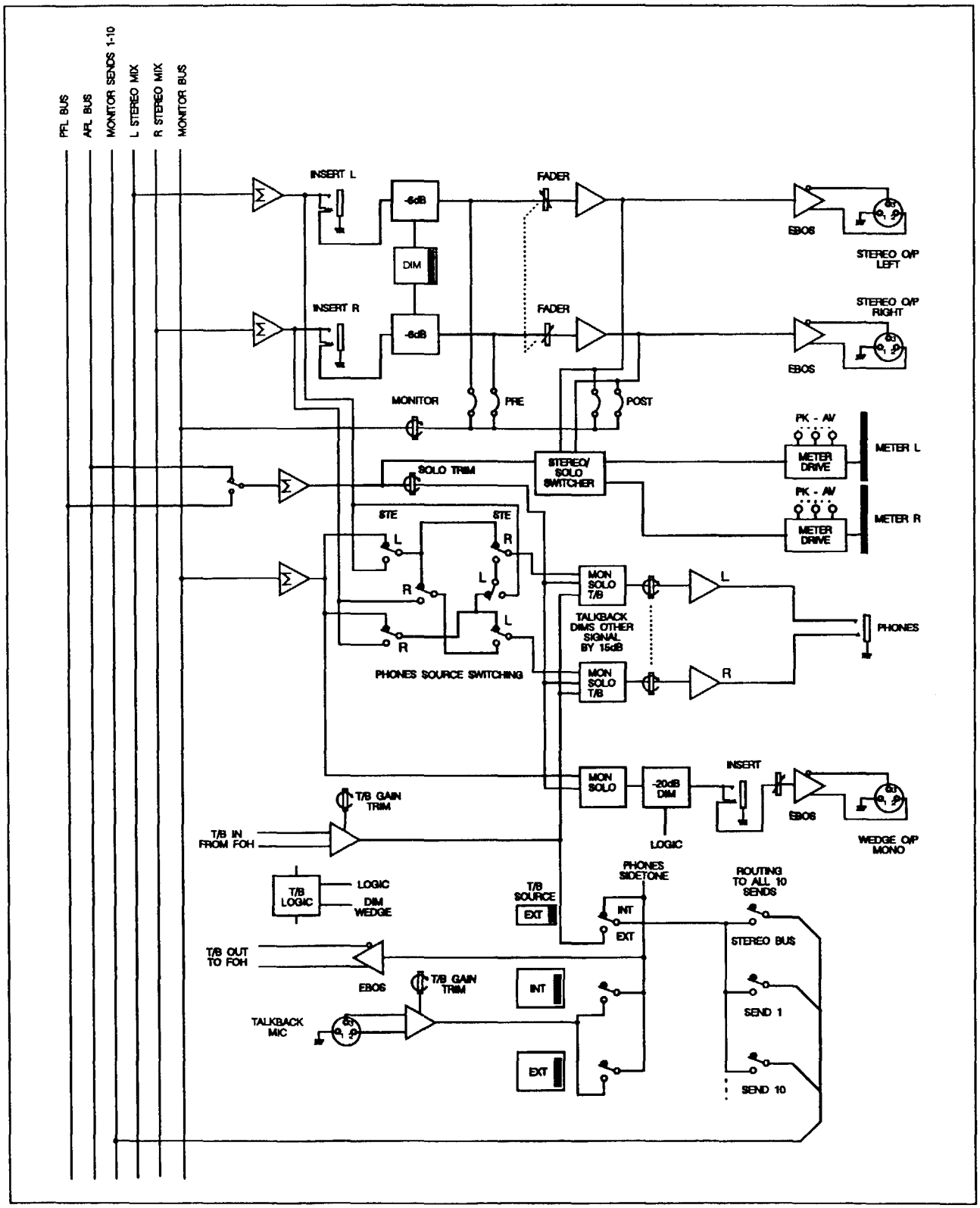
Module Block Diagrams



Input Module Block Diagram

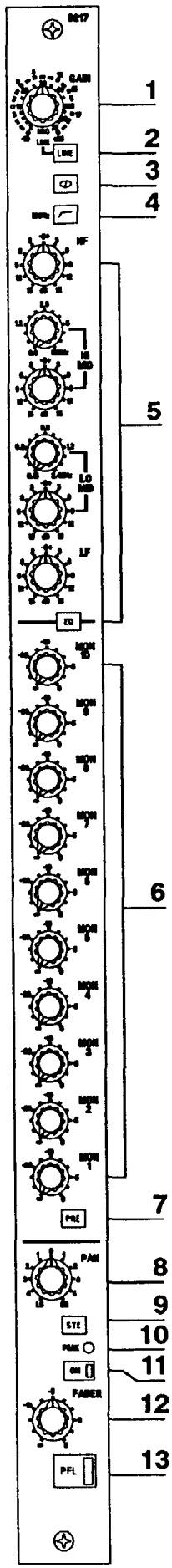


Group Module Block Diagram



Master Module Block Diagram

D217 Input Module



D217 Input Module

Channel Input

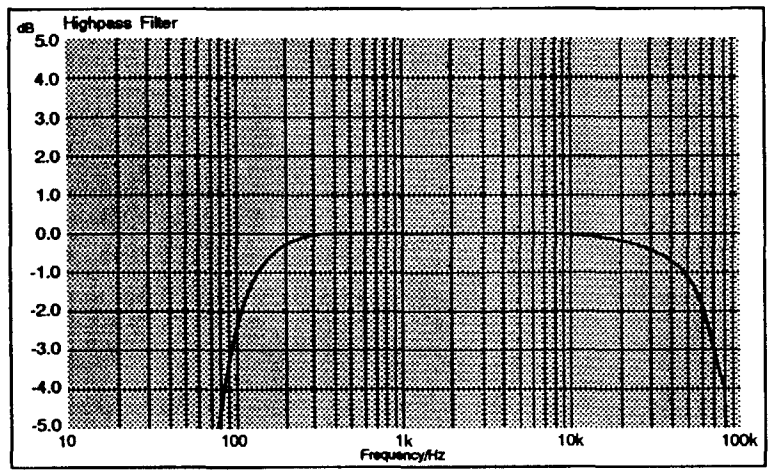
1 GAIN adjusts the sensitivity of both mic and line inputs. Mic input sensitivity: -2dBu to -70dBu. Line input sensitivity: -20dBu to +10dBu.

2 LINE selects the line input to the channel.

3 Ø (PHASE) reverses the phase of the selected input.

4 HI-PASS FILTER inserts a 100Hz second order filter immediately after the input amplifier.

Frequency Response of the Hi-Pass Filter



Equaliser

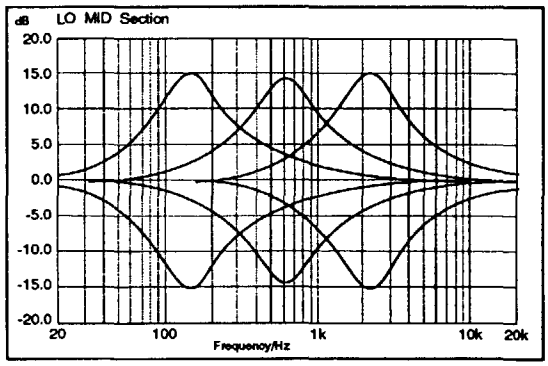
5 The equaliser is a 4-band semi-parametric. HF is +/- 15dB shelving at a fixed frequency of 12kHz. HI-MID is +/- 15dB peaking between 0.6-10kHz. Q=1.5. LO-MID is +/- 15dB peaking between 0.15-2.5kHz. Q=1.5. LF is +/- 15dB shelving at a fixed frequency of 60Hz, with 30Hz VLF rolloff. The cut/boost pots are centre- detented, the centre position giving a flat response. EQ switches the equaliser into circuit.

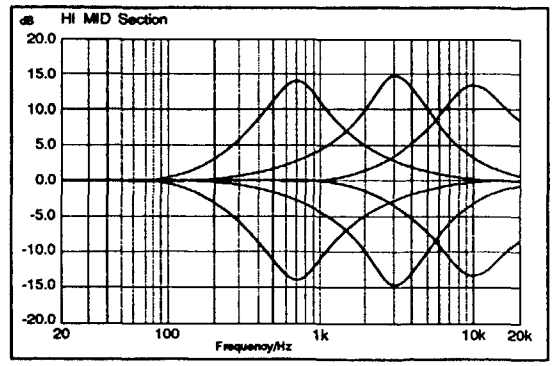
Monitor Sends

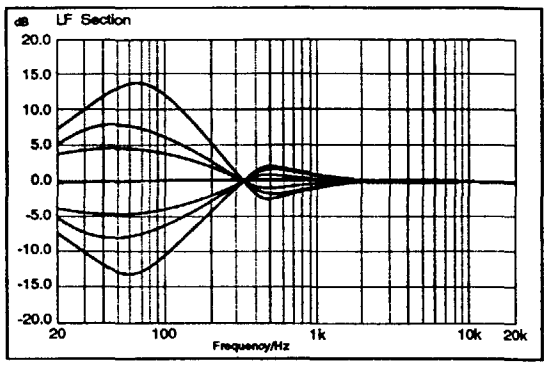
6 Ten Monitor Sends are provided, split into 2 groups. Both groups (1-6 and 7-10) are normally fed Post the Channel Fader, but may be reconfigured by PCB links as Pre-Fade, or following the position of the PRE switch.

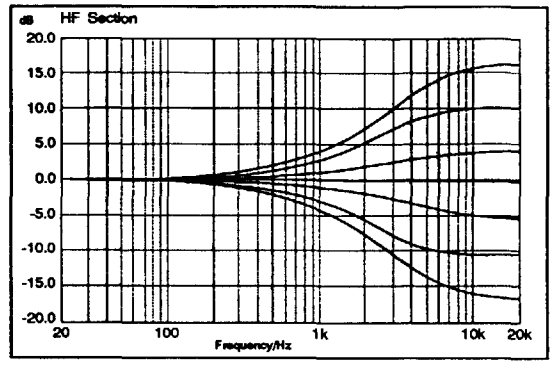
7 The PRE switch puts all selected sends Pre-Fade when pressed, or Post-Fade when released.

Frequency Response Curves of the Equaliser

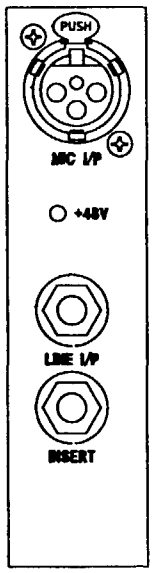








Rear Connector Panel



Mic I/P Female XLR

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

Line Input 3 Pole Jack

Tip	Hot
Ring	Cold
Sleeve	Screen

Insert 3 Pole Jack

Tip	Return
Ring	Send
Sleeve	Screen

Channel Status

8 PAN determines the position of the signal within the stereo image. In the centre position (detented) there is a 4.5dB level drop. Panning fully left or right sends the signal to only the left or right side respectively.

9 The STE switch enables the post-fade feeds to the stereo bus.

10 The PEAK LED illuminates when there is a level of +14dBu at any of the three sensing points. These are the input of the Hi-Pass Filter, the Insert Send and the output of the fader buffer.

11 The illuminated ON switch controls signal status to the monitor and stereo busses.

12 The rotary FADER, with +5dB gain when turned fully clockwise.

13 The large illuminated PFL switch enables the engineer to monitor the the post-insert, pre-fade signal. Signal is fed to both PFL and AFL busses and is subject to the master PFL/AFL selection on the Master module.

A post-EQ insert point is provided. Both the send and the return are unbalanced and at a level of -2dBu.

The microphone inputs have provision for optional EDAC multicore interfacing, which connect in parallel with the mic XLRs.

The rear connector panel is integral to the module and houses all external interface connectors as shown on the left and also carries the +48V phantom power switch for the Mic input.

MICROPHONE INPUT

Electronically Balanced, (Transformer Optional)	
Input Impedance	>2kΩ
Maximum I/P Level	>+18dBu
Sensitivity Range	-2 to -70dBu
CMRR	>75dB @ 50Hz & 10kHz
	>80dB at 1kHz
EIN 200R Source	<-127.5dBu at max gain
Frequency Response	+/-0.5dB 20Hz - 20kHz

LINE INPUT

Electronically balanced	
Input Impedance	>10kΩ
Maximum I/P Level	>+27dBu
Gain Range	-20 to +10dBu
CMRR at max gain	>40dB constant with frequency
EIN 40R Source	<-93dBu at unity gain

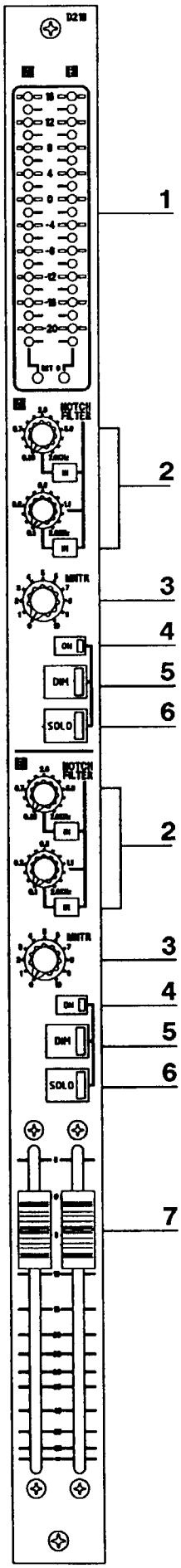
EQUALISER

Boost/Cut Range	+/-15dB
Break Frequencies	HF 12kHz Shelving, 2nd Order
	HI MID 0.6 - 10kHz Peaking. Q=1.5
	LO Mid 0.15 - 2.5kHz Peaking. Q=1.5
	LF 60Hz 2nd Order Shelf
	with 30Hz VLF Rolloff
Highpass Filter	-3dB at 100Hz

GENERAL

Insert Send Level	-2dBu, Unbalanced
Insert Send Max O/P	+20dBu into 2kΩ
Insert Return Impedance	Not less than 5kΩ
ON switch 'off' Ratio	>95dB @ 1kHz, >90dB @ 10kHz
Fader 'off' Ratio	>85dB @ 1kHz, >85dB @ 10kHz
Panpot Cross talk	-70dB @ 1kHz, >65dB @ 10kHz
Send 'off' Ratio	>85dB @ 1kHz, >85dB @ 10kHz
STE 'off' Ratio	>80dB @ 20Hz & 10kHz
	>85dB @ 1kHz
THD. +14dBu at insert	<0.001% @ 1kHz
	<0.009% @ 10kHz

D218 Group Module



D218 Group Module

The Group Module carries two identical sections, the upper one (A) for the odd numbered monitor output, the lower (B) for the even.

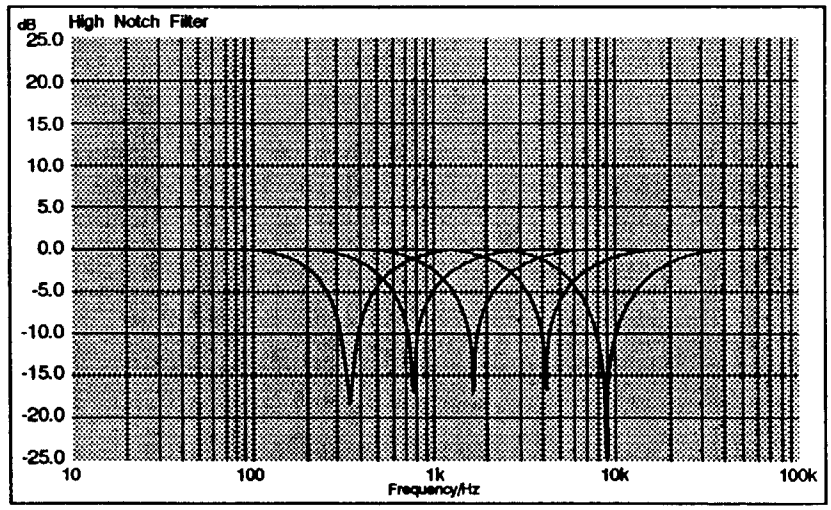
Metering

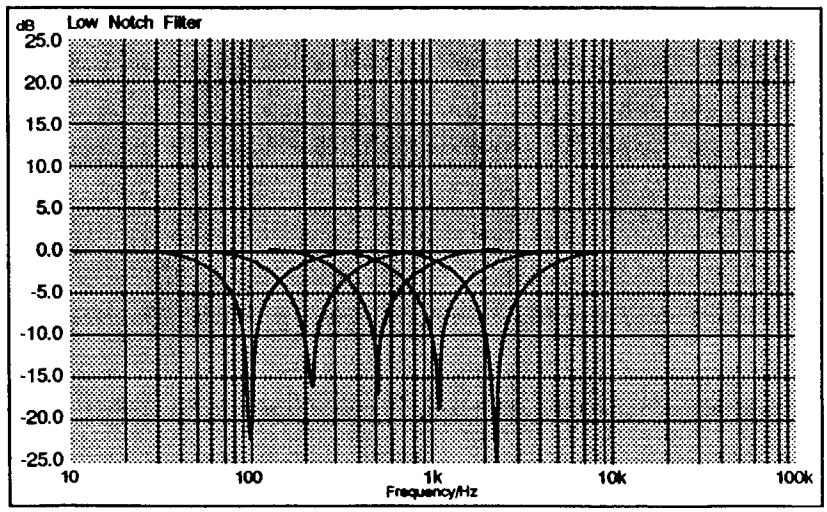
1 Two 20-segment bargraph METER read the output of each group. The meters are programmable by an internal jumper for a PEAK or AVERAGE response.

Filter

2 Each group is provided with a twin variable frequency NOTCH FILTER. The lower band covers a range of 100Hz to better than 2kHz. The upper band covers a range of 350Hz to better than 7kHz. The variable control sets the notch frequency and IN switches the filter into circuit when pressed. Notch depth is at least - 15dB.

Frequency Response Curves of the Notch Filter





Monitoring

3 The MNTR control provides a signal for the engineer's monitor mix which can be sourced from one of three jumper-selectable points. These are :

(a) Pre the ON switch
(b) Post the ON switch, but Pre the fader (factory default)
(c) Post the fader.

Group Status

4 Group ON switch.

5 The non-latching DIM switch introduces a 6dB pad affecting the Group output, Monitor output and SOLO feed to the AFL bus.

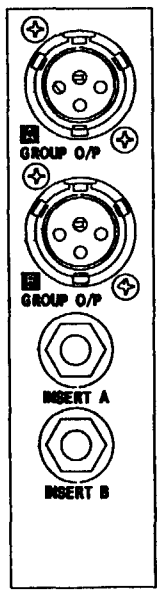
6 SOLO routes the signal to the AFL and PFL busses.

7 The 100mm. Group Fader controls the level of the Group output. Nominal output level is +4dBu.

An insert point is provided in the signal path of the group so that an external processing device can be inserted.

The rear connector panel is integral to the module and house all external interface connectors as shown on the left.

Rear Connector Panel



Group Outputs Male XLR

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

Inserts 3 Pole Jacks

Tip	Return
Ring	Send
Sleeve	Scren

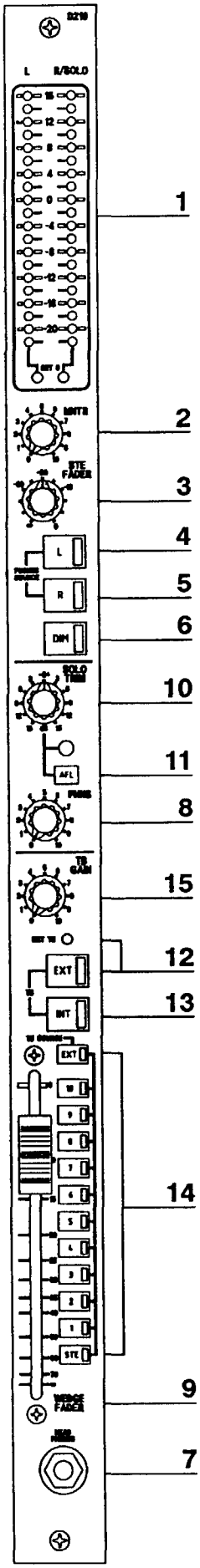
Group Output:

Electronically balanced.	
Nominal output level	+4dBu
Maximum output level	> +26dBu into 600Ω
Output impedance	75Ω
Insert send level	-2dBu, unbalanced.
Insert send max. O/P	+20dBu into 2kΩ
Insert return impedance	Not less than 5kΩ
Group - group crosstalk (1 only)	> 85dBu @ 1kHz, > 75dBu @ 10kHz.
Fader off ratio	> 85dB @ 1kHz, 85dB @ 10kHz.
ON switch off ratio	> 115dB @ 1kHz, > 100dB @ 10kHz.
Frequency response	+/-0.5dB 20Hz - 20kHz.
Group noise: (16 channel Console)	
Fader at 0dB, sends down	-85dBu.
THD	< 0.001% @ 1kHz, < 0.006% @ 10kHz.
Monitor send off ratio	> 85dB @ 1kHz. 75dB @ 10kHz.
Dim switch attenuation-	-6dB.

Notch Filters:

Notch depth	> 15dB.
Frequency	100Hz to better than 2kHz, 350Hz to better than 7kHz.
Bandwidth	1/3 octave @ -10dB.

D219 Master Module



D219 Master Module

Metering

1 The 20 segment LED bargraphs read the Stereo output, except when the SOLO mode is active, when the left meter is muted and the right meter reads the SOLO signal. Internal jumpers select PEAK or AVERAGE response.

Stereo Output

2 The MNTR control provides a send for the engineer's monitor, and is sourced from either the pre-fade output of the DIM switch, or the output of the fader buffers. Pre/Post selection is by means of internal jumpers, and is factory set as Pre-fade.

3 The stereo rotary Fader, with unity gain when fully clockwise.

4,5 The stereo PHONES SOURCE selection provides three possible source settings, according to the switch positions:

(a) With both switches released, Phones are fed by the monitor in mono.

(b) With either L or R depressed, the selected channel feeds the phones in mono.

(c) With both L & R switches depressed the Phones are fed in stereo from the stereo bus.

6 DIM introduces a 6dB pad immediately before the fader.

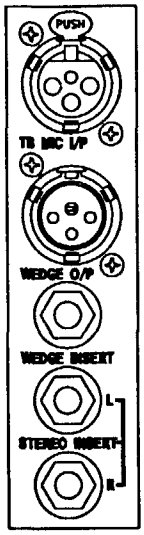
Outputs

Two outputs are provided for the monitor engineer: Headphones, and Wedge (floor speaker).

7 Headphones receives SOLO, Monitor/Stereo (via the L & R switches), and Talkback. SOLO overrides monitor/stereo, and Talkback overrides SOLO. The stereo PHNS control (8) sets overall level. There are 2 phones output sockets that are parallelled, one is on the front panel, the other on an aperture panel at the rear. These outputs are unbalanced.

The Wedge receives SOLO and a mono sum of the monitor/stereo signal. SOLO overrides the monitor. The output of the SOLO/Monitor switcher is sent to the unbalanced Wedge Insert at a level of -2dBu. Typically an external graphic equaliser, notch filter or a 10k ohms volume pedal would be used with the insert. The fader (9) is a 100mm unit with 0dB at the top. The wedge insert jack and XLR balanced output sockets are located on the rear panel of the master module.

Rear Connector Panel



TB Mic Input
Female XLR

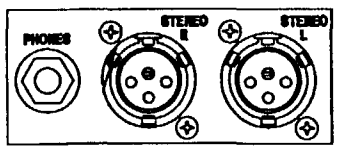
Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

Wedge Output, Stereo
L & R Output Male XLR

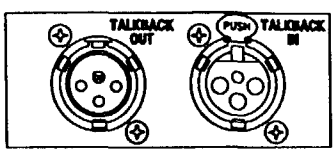
Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

Inserts 3 Pole Jacks

Tip	Return
Ring	Send
Sleeve	Screen



STEREO & PHONES O/P REAR CONNECTOR PANEL



TALKBACK I/O REAR CONNECTOR PANEL

PFL/AFL

10 SOLO TRIM. This allows the SOLO level to be set to a comparable level to the MNTR signal, and compensate for differences in loudness in different sources. The adjacent 5mm red LED indicates when the SOLO system is active.

11 Selection of PFL or AFL is by a switch (AFL) operating directly on the busses. These are summed by a common amplifier followed by a +/-15dB gain trim control.

Talkback

Comprehensive talkback facilities are provided, allowing communication between the following:

Monitor Engineer to House Engineer

- Press EXT TB (12) button. This connects the TB mic and routes the TB signal to the house engineer. Pressing EXT TB puts a +15Vd.c. phantom signal onto the TB output through a pair of resistors, and has the following effect:

  (a) Signals the house console to switch the incoming talkback signal onto the house engineer's phones.

  (b) Dims the monitor wedge by 20dB.

  (c) Injects TB into the phones at a low level for sidetone.

  (d) Lights EXT (12) switch LED.

House Engineer to Monitor Engineer:

- The House console initiates TB signalling by a +15V d.c. phantom signal applied to the monitor console's TB Input. This phantom control signal:

  (a) Switches the incoming talkback signal into the monitor engineer's phones.

  (b) Dims by 15dB all signals (except TB) going to the phones.

  (c) Dims the wedge by 20dB.

  (d) Illuminates the EXT TB (12) switch.

Talkback Out Male XLR

Pin 1	Ground
Pin 2	Talk to FOH +
Pin 3	Talk to FOH -

Talkback In Female XLR

Pin 1	Ground
Pin 2	FOH Talback +
Pin 3	FOH Talkback -

Monitor Engineer to all outputs including Stereo:

- Press INT TB button (13). This actions the following:

  (a) Switches TB to group select buttons via EXT TB SOURCE switch (14), which must not be pressed.

  (b) Wedge dims by 20dB.

  (c) Injects TB into the phones at a low level for sidetone.

  (d) All signals (except the TB signal) going to the phones are dimmed by 15dB.

  (f) Lights INT switch LED (13).

House Engineer to all outputs including Stereo:

The House console initiates TB signalling by a +15V phantom signal applied to the monitor console's TB Input.

- This phantom control signal:

  (a) Switches the incoming talkback signal into the monitor engineer's phones.

  (b) All signals (except the TB signal) going to phone are dimmed by 15dB.

  (c) Dims the wedge by 20dB.

  (d) Illuminates the EXT TB (12) switch.

  (e) TB source switch (14) must be in LOCAL position, ie not pressed.

12 Operation of the EXT switch gives press-to-talk communication.

15 The Talkback Gain control has a range of +20dB to +70dB.

The talkback microphone socket is located on the rear panel of the master module. It is a 3 pin female XLR which will accept a balanced dynamic microphone.

The 2 XLR talkback sockets (one male, one female) are located on an aperture panel.

Stereo Output:

Electronically balanced.	
Nominal output level	+4dBu.
Maximum output level	> +26dBu into 600Ω
Output impedance	75 Ω
Stereo fader off ratio-	90dB @ 1kHz.
Stereo bus noise, fader down, 16 channels routed.	-89dBu.

Insert point:

Nominal level	-2dBu.
Output capability	+20dBu into 2k Ω
Return impedance	> 5k Ω
Max load on insert send	2k Ω
Dim attenuation	-6dB.

Monitor:

Send off-ratio	> -85dBu @ 1kHz.
Wedge Output noise, fader @ 0, All monitor sends down	-85dBu.

Wedge Output:

Electronically balanced.	
Nominal output level	+4dBu.
Maximum output level	> +26dBu into 600 Ω
Output impedance	75 Ω

Insert:

Nominal level	-2dBu.
Output capability	+20dBu into 2k Ω
Return impedance	10k ohms.
Max load on insert send	2k ohms.

Phones Output:

Phones Output capable of	+20dBu into 600 Ω

SOLO:

SOLO trim, Centre detent pot.	+/-15dB.

Talkback:

Microphone	Balanced 200Ω
TB gain	+20dB to +70dB.
Crosstalk on TB routing	> 95dB @ 1kHz, > 80dB @ 10kHz.

Output:

Electronically balanced.	
Nominal output level	+4dBu.
Maximum output level	> +26dBu into 600Ω
Output impedance	75 Ω

System Performance Figures

Total Harmonic Distortion

Measured @ +20dBu, 30kHz Bandwidth, Unweighted

Line Input to Any Output	1kHz: 0.001% 10kHz: 0.007%
Mic Input to Insert Send	1kHz: 0.001% 10kHz: 0.003%

Crosstalk

	Measured @ 1kHz
Channel to Channel	> 95dB
Channel Muting	> 95dB
Routing (Channel to Groups)	> 85dB

Noise

Typical Stereo Output Noise, 40 channels routed	
(Stereo Fader at 0dB)	-86dBu
Group Output	-84dBu
Wedge Output	-84dBu

Frequency Response

Mic or Line Input to Any Output 20Hz to 20kHz	+0,-0.5dB

Metering

20 Segment LED Bargraph	
Selectable, PEAK or AVERAGE reading.	
Calibration Range	'0'dB=-2dBu to +20dBu
Accuracy Relative to '0'dB	+/- 1dB

Levels and Impedances

Input & Output Levels

Mic Input Max Level	+18dBu
Line Input Max Level	+26dBu
Insert Send Max Level into 5kΩ	+21dBu
Insert Send Nominal Level	-2dBu
Group Output Max Level into 600Ω	+26dBu
Group Insert Nominal Level	-2dBu
Group Output Nominal Level	+4dBu
Stereo Insert Nominal Level	-2dBu
Stereo Output Max Level into 600Ω	+26dBu
Wedge Insert Nominal Level	-2dBu
Wedge Output Max Level into 600Ω	+26dBu
Headphones Output Max Level into 600Ω	+20dBu
Internal Operating Level	-2dBu

Input and Output Impedances

Mic Inputs	> 2kΩ
Line Inputs	> 10kΩ
Insert Sends	75Ω
Insert Returns	10kΩ
Outputs	75Ω

Appendices

Specification Notes

SPECIFICATION NOTES AND CONDITIONS

A The console has a nominal output level of +4dBu: all input sensitivities are relative to this: i.e. with line input gain set to '0', an input of 0dBu, will give an output of +4dBu at any group or mix output and, a sensitivity of +4dBu gives unity gain from input to output.

B Noise measurements are taken with 22Hz-22kHz bandwidth, average reading response.

C Distortion measurements are made with an input of +20dBu (line inputs at unity gain) giving an output of +20dBu. The analyser reads THD+N with an average response, over a 10Hz-30kHz bandwidth.

D Frequency response and E.Q. measurements are made with an input of 0dBu to line inputs at unity gain, outputs are quoted relative to 0dBu.

E Crosstalk and rejection measurements are made with an input level of +20dBu (line inputs at unity gain) giving an output of +20dBu on the active signal path. The ratio quoted is relative to +20dBu output.

F Gain tolerance +/-1.5dB or 10% of indicated value, which ever is the greater.

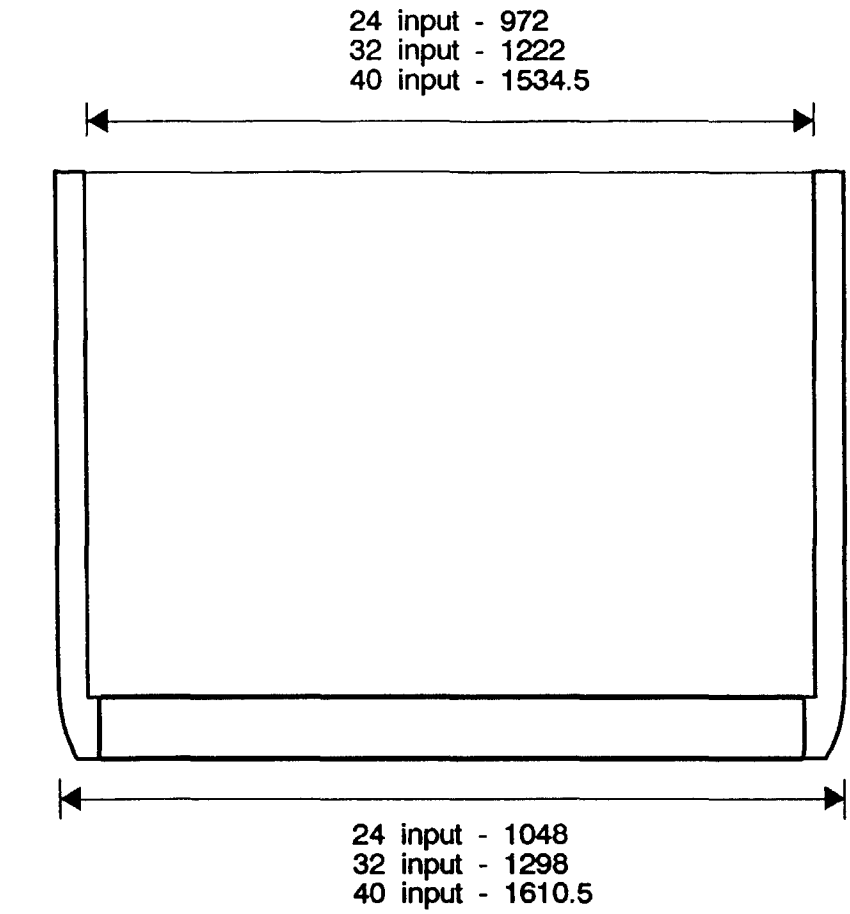
G All crosstalk and rejection figures stated with 16 channels routed to the measured output, where applicable.

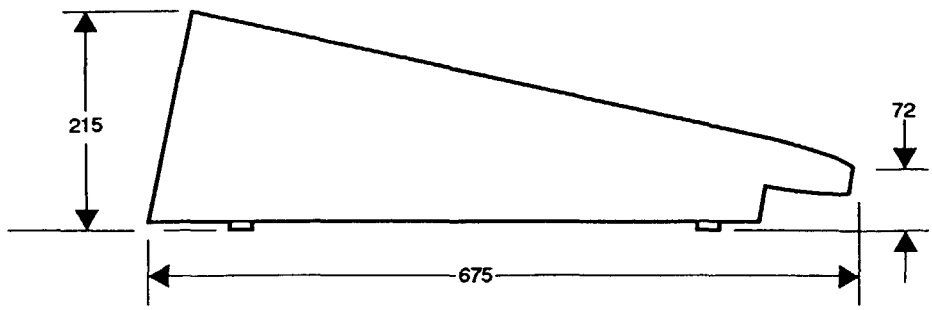
H Mix noise figures are stated in two ways:

- Bus residual noise: Noise measured at the output with faders at unity and no channels routed.
- Mix bus noise: Noise measured at the output with 36 channels routed, faders down.

Dimensions

Delta Monitor Outline Dimensions

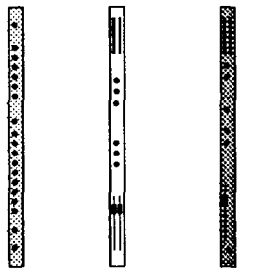




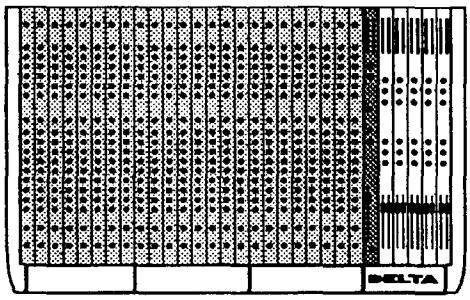
All dimensions shown in millimetres (mm).

Configurations

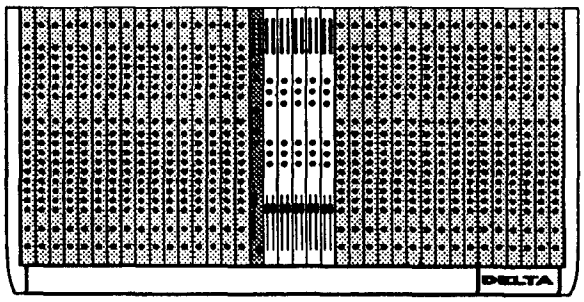
Delta Monitor Modules



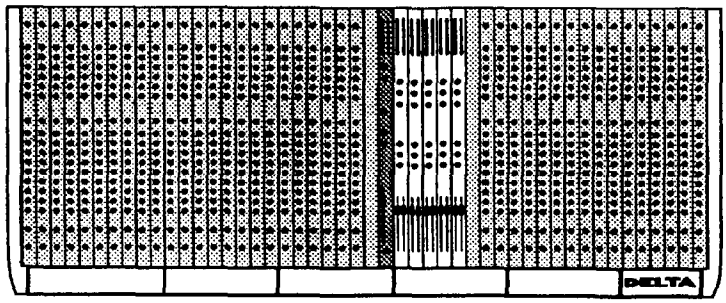
24 Input Frame



32 Input Frame



40 Input Frame



Warranty

1.1 **Soundcraft** means Soundcraft Electronics Ltd.

1.2 **Owner** means the purchaser of the Equipment from Soundcraft or its dealer, who is the legal and beneficial owner at the time the Warranty claim is made.

1.3 **Dealer** means the person other than Soundcraft (if any) from whom the Owner purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft.

1.4 **Equipment** means the equipment sold with this warranty card.

2 If within the period of twelve months from the date of delivery of the Equipment to the Owner, it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the suitability for the purpose for which it has been designed is materially affected, the Equipment or, with the consent of Soundcraft or the Dealer, the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace any defective component. Any Equipment or component replaced will become the property of Soundcraft.

3 Any Equipment or component returned will be at the risk of the Owner whilst in transit (both to and from the Dealer or Soundcraft) and postage and/or delivery charges must be prepaid.

4 This warranty shall only be available if:

a) the Warranty Card has been returned to Soundcraft within thirty days of purchase of the Equipment by the Owner; and

b) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and

c) the Owner has notified Soundcraft or the Dealer within fourteen days of the defect appearing; and

d) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts or carried out maintenance, adjustments or repairs to the Equipment; and

e) the Owner has used the Equipment only for such purposes as Soundcraft recommends, with only such electrical and operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.

5. Defects arising as a result of the following are not covered by this Warranty: mishandling, chemical, electro-chemical, electro-magnetic or electrical influences, accidental damage, Acts of God, neglect, deficiency excess or surges in electrical power, air-conditioning or humidity.

6. The benefit of this Warranty may not be assigned by the Owner.

7. Owners who are consumers should note that their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.

Glossary

auxiliary send	an output from the console comprising a mix of signals from channels and groups derived independently of the main stereo group mixes. Typically the feeds to the mix are implemented on rotary level controls.
balance	the relative levels of the left and right channels of a stereo signal.
clipping	the onset of severe distortion in the signal path, usually caused by the peak signal voltage being limited by the circuit's power supply voltage.
CR (control room) monitors	loudspeakers used by the operator (engineer) in the control room to listen to the mix.
dB (decibel)	a ratio of two voltages or signal levels, expressed by the equation $dB=20Log_{10}(V1/V2)$. Adding the suffix 'u' denotes the ratio is relative to 0.775V RMS.
DI(direct injection)	the practice of connecting an electric musical instrument directly to the input of the mixing console, rather than to an amplifier and loudspeaker which is covered by a microphone feeding the console.
equaliser	a device that allows the boosting or cutting of selected bands of frequencies in the signal path.
foldback	a feed sent back to the artistes via loudspeakers or headphones to enable them to monitor the sounds they are producing.
frequency response	the variation in gain of a device with frequency.
(sub) group	an output into which a group of signals can be mixed.
headroom	the available signal range above the nominal level before clipping occurs.
highpass filter	a filter that rejects low frequencies.
line level signals signals	at a nominal level of -10 to +6dBu, coming from a low impedance source.
pan (pot)	abbreviation of 'panorama': controls levels sent to left and right outputs.
peaking	an equaliser response curve affecting only a band of frequencies i.e. based on a bandpass response.
PFL (pre-fade listen)	a function that allows the operator tomonitor the pre-fade signal in a channel independently of the main mix.
rolloff	a fall in gain at the extremes of the frequency response.
shelving	an equaliser response affecting all frequencies above or below the break frequency i.e. ahighpass or lowpass derived response.
spill	acoustic interference from other sources.
talkback	the operator speaking to the artistes or to tape via the auxiliary or group outputs.
transient	a momentary rise in the signal level.