

Q Series

User Manual

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Q Series Operators Manual
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In line with the company's policy of continual improvement, specifications and function maybe subject to change without notice. This Operator Manual was correct at the time of writing. E&OE.

C O N T E N T S

Section 1.....General Information

Section 2.....Installation

Section 3.....Module Descriptions

Section 4.....Optional Signal Routing

Section 5.....Servicing

Section 6.....Schematics

Section 7.....Spare Parts

Section 8.....Special Modifications

Section 9.....Service Bulletins

Section 1.....General Information

Contents

1.1.....General Information

1.2.....Warranty

1.3.....Specifications

1.1 General Information

The DDA Q Series Mixing consoles are a development of the highly successful S Series models, and are available with a variety of module types to fulfil many applications in sound mixing. Input modules can be standard, stereo or fitted with a Mute Group system, while a choice of output modules with an 8 x 4 matrix or 8 equalised group sends can be fitted.

However, one of the most interesting features of the Q series is the direct output on each channel input. This can be a fixed level output, selectable to be pre or post fader, or alternatively routed via the AUX level control, hence giving the channel module a dedicated adjustable send, which can be used as an effects send or a feed to one track of a multitrack tape recorder.

All DDA consoles are renowned for the integrity of the audio signal path, and the specifications surpass those of many other larger consoles.

Features such as 4 band EQ, up to 8 auxiliary/foldback buses, and 3 band EQ on auxiliary masters make the Q Series an outstandingly versatile range of mixers.

Each is based on the same style of frame with a detachable meter bridge for ease of transportation.

The Power Supply is an external rack-mountable (2U) unit, with voltage selection for 100-120v and 220-240v.

Various options are available which are listed in the specifications, Section 1.3.

1.2 Warranty

1.21. If within the period of twelve months from the date of delivery of the equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship (but no faulty design) to such an extent that the effectiveness and/or the usability thereof is materially affected, the Equipment or the faulty component shall be returned to the Distributor or DDA and subject to the following conditions the Distributor or DDA will repair or at its option replace the defective components. Any components replaced will become the property of DDA.

1.22. Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Distributor or DDA) and postage and/or freight charges must be prepaid.

1.23. This Warranty shall only be available if:-

- i) The Equipment has been properly installed in accordance with the instructions contained in this manual; and
- ii) The End User has notified the Distributor or DDA in writing within 14 days of the defect appearing; and
- iii) No persons other than authorised representatives of DDA or the Distributor have effected any replacement of parts, maintenance adjustments or repairs to the Equipment; and
- iv) The End User has used the Equipment for such purposes as DDA recommends with only such operating supplies as meet DDA's specifications or approval and otherwise in all respects in accordance with DDA's recommendations.

1.24. Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air conditioning or humidity control.

1.25. Benefit of this Warranty may not be assigned by the End User.

1.26. End Users 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.

1.27. DDA shall not be liable for any damage caused to persons or property due to :-

- i) Incorrect usage of the Equipment
- ii) Other equipment attached to the the Equipment, which is not approved by DDA
- iii) Modifications made by non-authorised persons, or by using non-recommended parts, or incorrectly made.

1.3 Specifications

The following specifications are common to all Q Series consoles, and are minimum specifications normally exceeded by all units.

DDA reserves the right to alter the design of the unit or change the specification without notice in the interest of product development.

Frequency Response

Mic to Mix (gain = 55dB)	20Hz - 0.75dB 20kHz - 0.25dB
Line to Mix (gain = 0dB)	20Hz - 0.75dB 20kHz - 0.25dB

Noise (DIN Audio)

Microphone (gain = 55dB, EIN ref 200 ohm)	< - 127dBv
Line (gain = 0dB, 16 inputs)	< - 84dBv

Distortion

Microphone (- 50dBv input, + 4dBv output)	< 0.05%
Line (+ 4dBv input, + 4dBv output)	< 0.05%

Crosstalk

Adjacent channel	1kHz - 90dB
Group to Mix	1kHz - 80dB

Input Impedance

Microphone	> 2kohm
Line	> 10kohm

Output Impedance

All outputs electronically balanced	< 75 ohm
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Output capability

All outputs (to balanced input)	+ 26dBv
Insert Send (unbalanced)	+ 21dBv

Gain

Microphone (Channel input to Mix output)
Line (Channel input to Mix output)

65dB
10dB

Power Requirements

100/110v 50 – 60 Hz
220 – 240v 50 – 60 Hz

Options

Input Transformers (microphone)
Output Transformers (Line)
Floor Stand
Spare PSU with auto switchover system
BBC PPM Meters

Section 2.....Installation

2.1....Unpacking and Assembly

2.2....Wiring Considerations

2.3....PSU Connections

2.4....Audio Connections

Section 2.....Installation

2.1 Unpacking and assembly

The console is supplied completely assembled, with the power supply packed separately.

The crate, once opened, should include two lifting straps, which can be used to assist in lifting the console from the wooden crate without dismantling the whole crate.

It may be that your console was supplied in a flight case, in which case the above does not of course apply.

The meter bridge is normally packed separately in the crate, and should be unpacked and fitted to the console by plugging the two connectors into the corresponding mating connectors on the console. Take care to hold the meterbridge parallel to the console while doing this, as the connectors will not locate correctly otherwise.

The console is now ready for connection to the PSU (supplied separately) and to the audio system.

2.2 Wiring Considerations

To take full advantage of the excellent audio performance of DDA mixing consoles, it is essential that the installation is carried out with care and attention. All audio signals are referenced to the system earth, which must be clean and noise-free, and essentially equipotential. In addition, the earth system integrity is absolutely necessary for safety. Do not disconnect the mains earth wire from each piece of equipment as this could create a hazardous situation. If in doubt consult a competent engineer and your local electricity supply company to ensure that safety regulations are not infringed or negated.

2.21 Decide on a central point for the main earth system and star feed to all mains outlets and equipment racks from this point. Common electrical wiring practice is to daisy-chain earth wires from outlet to outlet, but this is not recommended for audio installations. The location of the earth system star point should be in a convenient, easily accessible position, such as the main equipment rack. The star point must then be connected to the incoming mains earth or in extreme cases to a totally separate technical earth (if local regulations permit).

2.22 Install separate clean and dirty mains outlets, wired individually to the mains distribution box. Use the clean supply for all audio equipment, and the dirty supply for all lighting, vending machines etc. Do not mix the two systems.

2.23 It may be necessary to install an isolating transformer for the clean supply to ensure adequate isolation from mains-borne interference. The isolating transformer must be of adequate current capability and should incorporate a Faraday Shield, connected to the incoming mains earth.

2.24 All audio connecting cables should be good quality twin screened cable. Do not use single screened cable.

2.25 It is very important that the screen is not used as the signal return. Therefore connect the screen at one end only. Connecting the screen at both ends will cause an earth loop into which external hum fields will be induced.

2.26 In areas where high levels of radio frequency interference are present the open end of the screen can be connected to earth through a 0.01 microfarad capacitor. This will appear as a short circuit at high frequencies, and lower the effective shield impedance to earth. However at audio frequencies the reactance of the capacitor will be sufficiently high to not cause an earth loop.

2.27 In general, the screen should be connected at the signal source, and not at the signal destination. The exception to this rule of thumb is when connecting to an unbalanced input or to an electronically balanced input. In these cases the wires being screened are referenced to the destination earth.

2.28 Electronically balanced outputs which are to be operated in the unbalanced mode should be unbalanced at the output connector, not at the signal destination so that the signal current returns to earth via the shortest, least reactive route.

2.29 Rack mounted equipment which has unbalanced inputs and outputs may need to be electrically isolated from the equipment rack and/or other equipment to avoid earth loops. **DO NOT DISCONNECT THE MAINS EARTH.**

Connect all equipment in a logical sequence, starting with the monitor systems, followed by the multitrack and then the stereo machines and the peripheral devices and isolate any earth loop problems as they occur. It is very difficult to rectify a problematical installation after everything has been connected due to interaction between the various earth loops.

2.4 Audio Connections

Most Audio connections are made by standard XLR type 3 pin connectors, wired to the convention of pin 2 hot, ie

Pin 1 - Ground

Pin 2 - Signal +ve

Pin 3 - Signal -ve

All inputs and outputs are electronically balanced. To unbalance an input or output, connect pin 3 to ground (or pin 2 if the device to be connected is wired to the other pin 3 hot convention).

Insert sends and returns are on unbalanced jack sockets, standard 1/4 inch. Normal tip hot, ring ground convention applies.

Where your console has been supplied with specially fitted connectors or multiways, the wiring of these will be found in Section 8, Special Modifications.

Section 3.....Module Descriptions

Contents

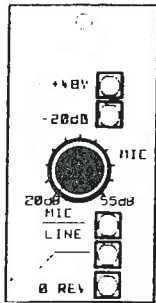
- 3.1.....Standard Input Module
- 3.2.....Mute Group System
- 3.3.....Stereo Input Module
- 3.4.....Matrix Output Module
- 3.5.....PA Output Module
- 3.6.....Master Module
- 3.7.....Aux/Foldback Master Module
- 3.8.....Effects Return Module

3.1 Standard Input Module

The standard input module has independent electronically balanced microphone and line level inputs, providing very low noise, minimal phase shift and excellent common mode rejection performance.

Each channel has separate XLR connectors on the rear panel, both for Mic and Line inputs.

3.1.1 Input Selection



+48v

Phantom power for the majority of capacitor microphones.

-20dB

Input attenuator to prevent input overload from high output capacitor microphones, or to allow the microphone input to be used for line level signals with gain control.

GAIN

The microphone gain pot provides a 35dB control range using a 41 position detented control.

LINE

Input selector between microphone and line level inputs. In the 'up' position, Microphone is selected.

⌊

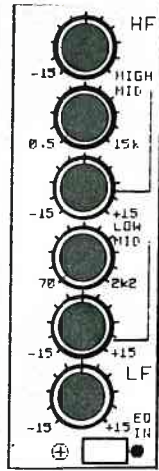
The high pass filter attenuates low frequency signals below 100Hz at a rate of 12dB per octave to eliminate air conditioning noise or stage rumble.

φ

Phase reverse operates on both the microphone and line level inputs, whichever is selected.

3.12 Equaliser

The 4 band equaliser provides high and low frequency shelving sections and 2 sweep frequency mid range sections. The frequency selection controls are detented for easy resetting, and the boost/cut controls are centre detented for quick zeroing.



HF
+/- 15dB at 12kHz with a shelving characteristic.

HIGH MID
+/- 15dB continuously variable between 470Hz and 15kHz. The Q (bandwidth) is 1.5.

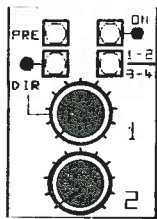
LOW MID
+/- 15dB continuously variable between 70Hz and 2.2kHz. The Q is 1.5.

LF
+/- 15dB at 50Hz with a shelving characteristic.

EQ
Switches the equaliser into the signal path, with led indication.

3.13 Auxiliary Bus System

There are eight auxiliary buses, arranged as four Aux sends and four Foldback sends. The Aux sends are controlled by two level potentiometers, switchable to control buses 1/2 or 3/4. The Foldback sends each have individual level controls.



ON

Switches on the Auxiliary outputs, with LED indication.

PRE

Selects the signal fed to the Auxiliary buses 1-4 to be Pre-fader rather than Post-fader, with LED indication.

DIR

Switches the channel direct output to be controlled by the AUX 1 level potentiometer. The signal can be programmed by links to be pre/post fader, and pre/post cut switch. LED indication.

AUX 1-3

Adjusts the amount of channel signal sent to Auxiliary mix 1 or 3. Normally this signal is post-fader.

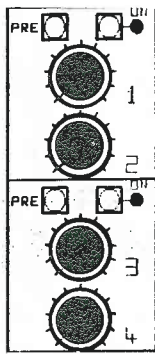
AUX 2-4

Adjusts the amount of channel signal sent to Auxiliary mix 2 or 4. Normally this signal is post-fader.

1-2/3-4

In the up position, this switch sends the signals controlled by the 2 AUX level pots to Aux buses 1 & 2. When down, the signal is sent to AUX buses 3 & 4.

NOTE : When the direct output is controlled by the AUX 1 pot, the AUX 1/3 buses can no longer be assigned on that channel. Only Auxes 2 and 4 can be accessed and signals sent to those buses.



FB 1

Adjusts the amount of channel signal sent to Foldback Mix 1.

FB 2

Adjusts the amount of channel signal sent to Foldback Mix 2.

PRE

Switches the signal sent to Foldback mixes 1 & 2 to be the Pre fader signal, with LED indication.

ON

Switches on the channel signal sent to Foldback Mixes 1 & 2, with LED indication.

FB 3

Adjusts the amount of channel signal sent to Foldback Mix 3.

FB 4

Adjusts the amount of channel signal sent to Foldback Mix 4.

PRE

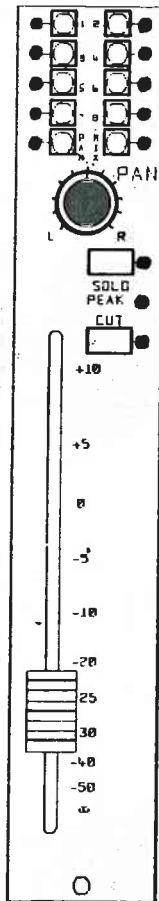
Switches the signal sent to Foldback mixes 3 & 4 to be the Pre fader signal, with LED indication.

ON

Switches on the channel signal sent to Foldback mixes 3 & 4, with LED indication.

All Auxiliary and Foldback controls are selectable by the use of links on the PCB to be pre or post cut as well as pre or post fader where this is not available on front panel switches. N.B Any fader selected to be post fader will automatically be post cut.

3.14 Channel Assignment



1-8

Routes the channel signal to the main output groups 1-8. The channel signal can be routed to any combination of groups.

PAN IN

Switches the Pan pot into circuit, and so pans the channel signal between odd and even groups.

MIX

Routes the channel signal to the main Stereo mix via the pan pot, with led indication.

PAN

Adjusts the channel signal between right and left Stereo mix, and odd and even groups.

SOLO

Selects the pre-fader, pre-cut signal to the main monitors and stereo meters. This operation does not affect the signal outputs from the console. Operation is indicated by an LED on the channel and an LED on the master module.

PEAK

Warns of signal level within 4dB of clipping.

CUT

Cuts all post-fader signals as well as any pre-fader signals which have been optionally linked to be post-cut, with LED indication.

3.2 Mute Group System

A version of the standard input is available with a system of Mute Groups, providing 8 switches to allow any channel to be assigned to any combination of mute sub-groups.

Master Mute switches are provided which when activated will mute all channels currently assigned to that Mute Group.

An led meter of signal input level is also provided on this module.

In all other respects it is identical to the standard module, so refer to section 3.1 for control descriptions.

SAFE

Protects the channel from muting while assigned to any of the Mute Groups, with led indication. This facility can be used to preserve mute group set-ups.

INPUT

A 10 segment led ladder meter indicates the level of the incoming channel signal, with a range of -18dBm to $+9\text{dBm}$. The ladder is comprised of three different colour led's to give the operator a quick visual indication of signal level range. The signal take-off point can be internally linked to be pre or post-fader.

1

Assigns the channel to mute group 1, with led indication.

2-8

As above, for Mute Groups 2 to 8.

3.21 Use of the Mute Groups

Once the channel has been assigned to any or all of the mute groups, the Master Mute for the group(s), located on the stereo master module, will mute all channels assigned to that group, unless their SAFE button has been depressed.

This mute function obviously allows one key to control a number of channels at once, such as choir mics, scene changes etc.

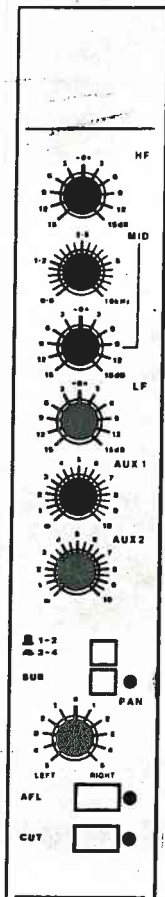
3.3 Stereo Input Module

The Stereo Input Module provides a means of connecting stereo sources into the groups or mix bus, with single controls for EQ, level etc.

The insert points are not stereo, and the Mic Input XLR is used as one channel of the Stereo Input, and the Line Input XLR as the other channel. Labels are provided to mark the sockets accordingly.

3.4 PA Output Module

The output module contains two identical sets of output controls. The Equaliser is in the path of the group output.



HF
+/- 15dB at 10kHz with a shelving characteristic.

MID
+/- 15dB continuously variable between 600Hz and 10kHz. The Q (bandwidth) is 1.5.

LF
+/- 15dB at 100Hz with a shelving characteristic.

AUX 1
Adjusts the amount of output signal sent to Auxiliary mix 1.

AUX 2
Adjusts the amount of output signal sent to Auxiliary mix 2.

3-4
Selects the output signal to be sent to Auxiliaries 3 & 4 rather than 1 & 2.

SUB
Selects the output signal to the stereo mix via the pan pot, with LED indication.

PAN
Adjusts signal between right and left stereo mix.

AFL
Selects the output signal to the main monitors and master meters, with local and master LED indication.

CUT
Mutes the post level control signals, with LED indication.

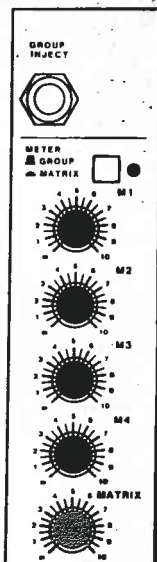
3.5 Matrix Output Module

The Matrix output module comprises of three sections; the Group Output, the Matrix outputs, and an Effects Return.

On the Q Series, the Matrix system provides 8 inputs (from the Group output signals) to four Matrix Outputs, each with a master level control.

The Effects Return section provides a 3 band EQ, and can also be used for monitoring.

3.51 Group Injection



GROUP INJECT

Allows direct injection of an external signal onto the Sub Group mix bus. In order that the level of the incoming signal matches the internal working level of the console, the signal should be injected via a series resistor. For an incoming signal level of +4dB the series resistor should be 22kOhms.

3.52 Matrix System

METER

Selects the meter to indicate Group Output or Matrix Output signal level.

M1

Adjusts the amount of Group Output signal sent to Matrix mix 1.

M2

Adjusts the amount of Group Output signal sent to Matrix mix 2.

M3

Adjusts the amount of Group Output signal sent to Matrix mix 3.

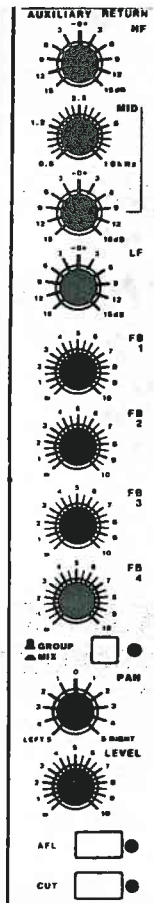
M4

Adjusts the amount of Group Output signal sent to Matrix mix 4.

MATRIX

Controls the level of the Matrix Output. Only Sub Group outputs 1-4 will have this master matrix level control.

3.52 Effects Return Section



HF

+/- 15dB at 10kHz with a shelving characteristic.

MID

+/- 15dB continuously variable between 600Hz and 10kHz. The Q is 1.5.

LF

+/- 15dB at 100Hz with a shelving characteristic.

FB 1

Adjusts the amount of Effects Return signal sent to Foldback mix 1.

FB 2

Adjusts the amount of Effects Return signal sent to Foldback mix 2.

FB 3

Adjusts the amount of Effects Return signal sent to Foldback mix 3.

FB 4

Adjusts the amount of Effects Return signal sent to Foldback mix 4.

GROUP/MIX

Selects the Effects Return signal to Groups or Stereo mix via level control and pan pot. When selected to Group the signal of Effects Return 1 or 2 is routed to Groups 1 and 2, Effects return 3 or 4 to Groups 3 and 4 etc.

PAN

Adjusts the signal level between the Stereo mix left and right, and between odd and even Groups.

LEVEL

Adjusts the level of signal sent to the Stereo mix or Groups.

AFL

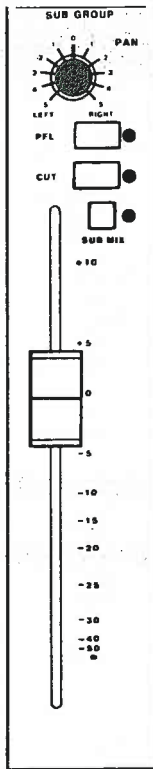
Selects the post level pot signal to the main monitors and the stereo meters. Operation is indicated by an adjacent LED on the Master module.

CUT

Cuts the Effects Return signal, with LED indication.

Foldback sends are normally fed from Effects Returns but can be changed to Group Outputs by links on the PCB.

3.53 Sub Group



PAN

Adjusts the Group signal between the Stereo left and right mix buses, when sub-mix is selected.

PFL

Selects the pre fader group signal to the main monitors and to the stereo meters. Operation is indicated by an adjacent LED and an LED on the Master module.

CUT

Cuts all post fader Group signals with LED indication.

SUB MIX

Selects Group output signal to Stereo mix via the pan pot, with LED indication.

Section 4.....Optional Signal Routing

Contents

- 4.1.....General Information**
- 4.2.....Standard/Q – Mute Input Module links**
- 4.3.....Matrix Output Module links**
- 4.4.....PA Output Module Links**
- 4.5.....Effects Return Module links**

4.1 General Information

This section deals with the internal links the user may adjust in order to change signal paths within the console. The prime example of this is to create the pre-fader signal to be pre or post the cut switch.

Reference may be given to the circuit diagrams, which can be found in Section 6.

4.3 Matrix Output Module

Foldback buses 1 and 2 derive their signal feed from the pre-fader signal of either the Effects Return signal, or the Group Output.

Foldback buses 3 and 4 derive their signal feed from the post fader signal of the two signals as above.

Selection of this is by wire link on the module PCB. Additionally, the Effects return pre-fader signal can be linked as either pre or post the CUT switch.

To select the signal, link the appropriate holes as marked on the PCB,ie

GROUP PRE
GROUP POST
AUX RETURN PRE
AUX RETURN POST

To determine whether the Effects Return signal is pre or post the CUT switch, make the required setting on the links marked:

PRE CUT
POST CUT

4.4 PA Output Module

On the PA Output module, the group output signal sent to the Auxiliary busses can be selected to be either pre- or post-fader.

Selection of this is by wire link on the module PCB.

For Post-fader, link "POST"

For Post-cut, link "PRE 1".

For Pre-cut, link "PRE 2".

The modules are preset at the factory for "PRE 1", ie post-cut.

Each group can be set as required.

4.5 Effects Return Module

On the Aux Return module, the signal fed from the return input to the Auxiliary busses can be selected from pre- or post-level control, by a switch on the module.

The signal can also be set to be pre- or post-cut by changing a wire link on the module PCB.

For Post-cut, link "PRE 1".

For Pre-cut, link "PRE 2".

This link applies individually to each Aux Return Input.

Section 5.....Servicing

5.1....Mechanical Servicing

5.2....Meter Bulb Replacement

5.3....Alignments and Adjustments

5.4....Power Supply

5.1 Mechanical Servicing

The frame and construction of the Q Series console allows easy and quick maintenance of all parts. Should it be necessary to replace any mechanical components not covered in this manual, please contact DDA.

5.11 Module Removal

Removal of a module is straightforward, and involves removing the screws located at the top and bottom of the module with a cross-head screwdriver.

Once the screws are removed, the module can be gently lifted away from the frame.

Now carefully remove the bus connector (ribbon) by releasing the strain release clips at each end of the connector and pulling the connector away from the module PCB.

Finally, carefully disconnect the molex plugs which connect the module to the rear panel.

Replacement is a straightforward reversal of the above process.

5.2 Meter Bulb Replacement

5.21 Original meters

To replace a meter bulb, it is easier if the meterbridge is detached from the console and the rear panel of the meterbridge removed first.

Now to access the bulb, gently unclip the bezel from the meter, with a small screwdriver. It is advisable to replace both bulbs in the meter as the second may be damaged while working on its own.

5.22 New Style Meters

(July 90 onwards)

It is not necessary to remove the meter panel to replace a blown bulb.

Remove the meterbridge rear covers, which will expose the rear of the meters. There is a small brass nut retaining a spring clip, which in turn keeps the bulb in place, and in circuit via the spring pressure. To replace the bulb, loosen the brass nut, and slide the spring clip to one side. Remove the bulb, and replace it. Carefully slide the spring clip back into place and tighten the brass nut. Make sure that the spring clip pressure is sufficient to keep the bulb in place and in good contact.

5.32 Meter Adjust

On the output module, there is a trim pot which adjusts the sensitivity of the VU meter. This pot is shown on the relevant PCB layout in Section 6.

Adjustment is straightforward.

From the internal oscillator route a 1kHz sine wave signal to the outputs and adjust the fader to give an output of +4dB. The meter can now be adjusted to read 0 VU.

This can also be used to set the meter at 0 VU for other operating levels if desired.

If the console has been fitted with PPM's, follow the procedure given in Section 8, which deals with special options and modifications.

Note: Before adjusting the meters, the output balancing should first be checked if any component has been replaced on the module. This is not necessary for a change of meter.

5.33 Group Output balance

Also on the output module is the adjustment potentiometer for the group output balance. Consult the appropriate PCB layout for the relevant part. To adjust, follow the procedure detailed below.

Connect two 1kohm resistors across the hot and cold signals of the group output. From the centre tap of these connect a voltmeter to ground (see drawing CD1008).

Set the output balance trim pot for minimum output at 1kHz.

5.34 Group Output Gain

The gain of the group output stage (fixed at the factory) can be adjusted by changing the value of resistor R2 (see drawing CD1008).

To increase the gain, lower the value of R2.

5.4 Power supply unit

The Q Series power supply is a fully regulated linear type circuit, using monolithic devices.

Should repair be necessary, the only adjustment required may be the setting of the +18V and -18V rails, accomplished using the trim pots located on the PCB.

Section 6.....Schematics

This section contains full circuit diagrams and PCB component layouts.

All drawings are copyright DDA 1989. They may not be copied or reproduced in any form without the consent in writing of DDA.

Section 7.....Spare Parts List

7.1....Mechanical Parts

7.2....Electronic Parts

7.3....Module Assemblies

7.1 Mechanical parts

7.11 Pots/Faders

4K7 Dual pot	POT01 - 0001
10K Inverse log pot	POT01 - 0002
10K Log pot	POT01 - 0003
10K Log dual pot	POT01 - 0004
47K Linear pot	POT01 - 0005
100K Inverse log dual pot	POT01 - 0006
P&G Fader, mono	POT03 - 0002

7.12 Switches

SUN 2 pole	SWT01 - 0001
4 pole	SWT01 - 0002
6 pole	SWT01 - 0003
SUJ 2 pole	SWT01 - 0004
4 pole	SWT01 - 0005

7.13 Meters

VU Meter	MTR01 - 0002
BBC PPM Meter	MTR02 - 0004

7.14 Connectors

XLR Male, 3 pin chassis	CON02 - 0003
XLR Female, 3 pin chassis	CON02 - 0004
Jack socket, mono	CON02 - 0001
Jack socket, stereo	CON02 - 0002
PSU Connector, chassis male	CON05 - 0001
PSU Connector, chassis female	CON05 - 0002
PSU Connector, free male	CON05 - 0003
PSU Connector, free female	CON05 - 0004
IEC Mains connector, chassis (incorporates fuse holder)	CON04 - 0002
Ribbon connector, bus, 40 WAY	CON03 - 0004
Ribbon connector, bus, 34 WAY	CON03 - 0018
Audio connector, 8 way AMP F.	CON01 - 0002

7.15 Knobs

P&G Fader knob, WHITE	FRN04 - 0008
P&G Fader knob, RED	FRN04 - 0007
P&G Fader knob, YELLOW	FRN04 - 0006
SUN switch cap, GREY	FRN03 - 0003
SUN switch cap, BLACK	FRN03 - 0002
SUN switch cap, RED	FRN03 - 0001
SUJ switch cap, GREY	FRN03 - 0005
SUJ switch cap, BLUE	FRN03 - 0006

Control knob, DARK GREY BODY	FRN05 - 0001
Control knob, GREY BODY	FRN05 - 0002
Control knob cap, DARK GREY	FRN05 - 0003
Control knob cap, GREY	FRN05 - 0004
Control knob cap, RED	FRN05 - 0005
Control knob cap, BLUE	FRN05 - 0006
Control knob cap, GREEN	FRN05 - 0007

7.16 Fixings

Module fixing screw	HWR01 - 0015
Module fixing washer	HWR02 - 0004

7.17 Fuses

6.3 A	CSM02 - 0007
3.15 A	CSM02 - 0002
250 mA	CSM02 - 0002

7.2 Electronic parts

7.21 Integrated Circuits

TL071	SEM06 - 0001
TL072	SEM06 - 0002
TL074	SEM06 - 0003
5534	SEM06 - 0004
5532	SEM06 - 0009

7.22 Transistors

BC182	
BC212	SEM04 - 0004
BC184	SEM04 - 0005
2SB737	SEM04 - 0003
BC441	SEM04 - 0006
BC461	SEM04 - 0007
2N3055	SEM04 - 0008
PN3055	SEM04 - 0001
KBL02	SEM04 - 0002
261 - 491	SEM03 - 0002
	SEM03 - 0001

7.23 Diodes

1N4148	
IN4002	SEM02 - 0001
ZENER, 12V	SEM02 - 0002
ZENER, 56V	SEM02 - 0003
ZENER, 25V	SEM02 - 0004
ZENER, 4.7V	SEM02 - 0005
ZENER, 5.8V	SEM02 - 0006
ZENER, 9.1V	SEM02 - 0007
ZENER, 22V	SEM02 - 0008
	SEM02 - 0009

7.24 Indicators

VU Meter bulb	LMP01 - 0002
LED, Red	SEM01 - 0002
LED, Green	SEM01 - 0001

Section 8.....Special Modifications

This Section is reserved for notes of any non – standard modifications which have been made to this console.

Section 9.....Service Bulletins

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