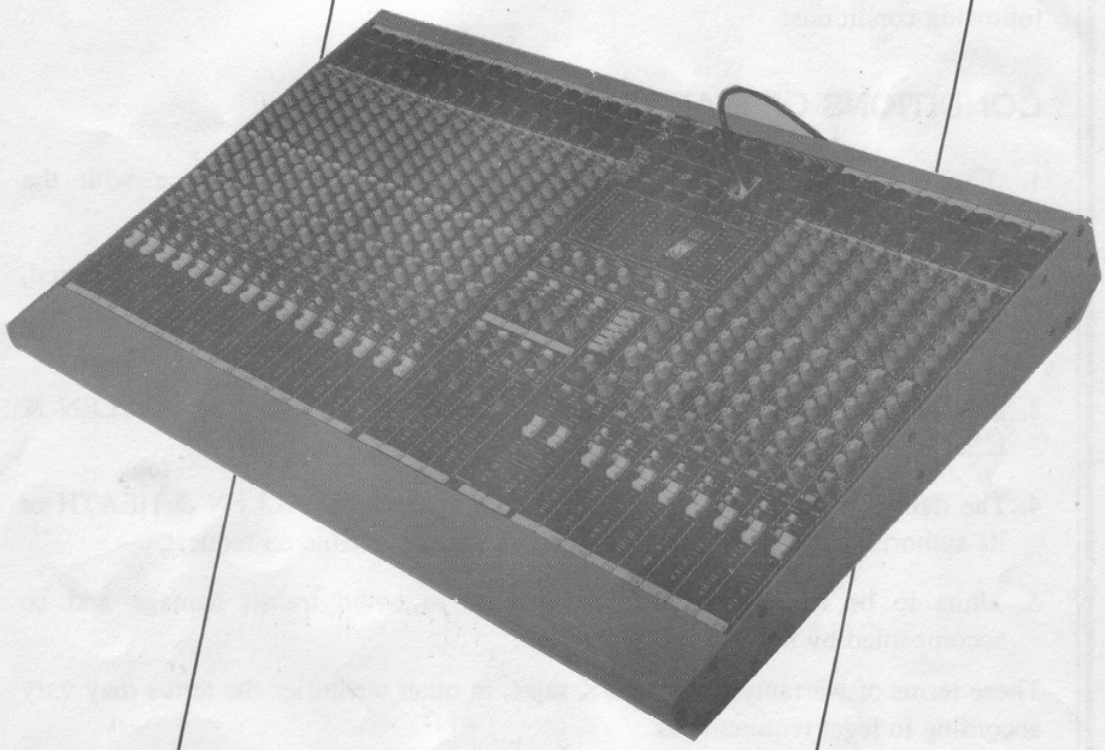
ALLEN & HEATH

GL3

LIVE CONSOLE



USER GUIDE

PUBLICATION AP0150

LIMITED ONE YEAR WARRANTY

This product has been manufactured in the UK by ALLEN & HEATH BRENELL LTD and is warranted to be free from defects in materials or workmanship for a period of one year from the date of purchase by the original owner.

To ensure proper validation and handling of warranty services please return the WARRANTY REGISTRATION CARD enclosed with this product.

To ensure the high level of performance and reliability for which this equipment has been designed and manufactured please read the User Guide before use.

In the event of a failure notify and return the defective unit to ALLEN & HEATH or its authorised agent as soon as possible for repair under warranty subject to the following conditions:

CONDITIONS OF WARRANTY:

1. The equipment has been installed and operated in accordance with the instructions in the User Guide,
2. The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by ALLEN & HEATH.
3. Any necessary adjustment, alteration, or repair has been made by ALLEN & HEATH or its authorised agent,
4. The defective unit is to be returned carriage prepaid to ALLEN & HEATH or its authorised agent and proof of purchase made available on request,
5. Units to be returned should be packed to avoid transit damage and be accompanied by the Power Supply Unit.

These terms of warranty apply to UK sales. In other territories the terms may vary according to legal requirements.

ALLEN & HEATH AGENT:

FACTORY:

ALLEN & HEATH BRENELL LTD
Kernick Industrial Estate
Penryn
Cornwall TR10 9LU

GL3 USER GUIDE

INTRODUCTION

The **GL3** continues ALLEN & HEATH's commitment to provide high quality audio mixing consoles engineered to meet the exacting requirements of today's audio business. It brings you the latest in high performance technology and offers the reassurance of over two decades of console manufacture and customer support.

This user guide presents a quick reference to the function, application and installation of the **GL3**. For further information on the basic princilples of audio system engineering please refer to one of the specialist publications available from bookshops and audio equipment dealers.

Whilst we believe the information in this guide to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

SERVICE AND TECHNICAL SUPPORT

Under normal conditions the **GL3** does not require user maintainance or internal calibration. Any service work required should be carried out by qualified service personnel only.

We are able to offer further product support through our worldwide network of approved dealers and service agents. To help us provide the most efficient service please would you return your completed **WARRANTY REGISTRATION** card, and enter the following details below to be quoted in any communication regarding this product.

CONSOLE serial number: PSU serial number:

SAFETY WARNING !

Mains electricity is dangerous and can kill. Mains voltage is present in the power supply unit but not the console itself. Do not remove the power unit cover. Check your mains wiring and earthing before switching on.

If you need to fit a plug to the power unit mains lead connect as follows:

BROWN = LIVE BLUE = NEUTRAL GREEN/YEL = EARTH (GND)

DO NOT REMOVE THE POWER UNIT MAINS EARTH CONNECTION!

The console chassis is connected through the DC power lead and power unit to mains earth to ensure your safety. A chassis earth terminal is provided on the console for safety earthing of other equipment in the system if necessary. Audio 0V is not connected to mains earth within the console. This should be done via the audio interconnection cables observing methods that avoid problem ground loops.

PRECAUTIONS

To preserve the working life and looks of your console please observe these simple precautions:

- **AC POWER:** Connect the console only to the specified ALLEN & HEATH power supply unit. Check the power supply label for the correct AC mains voltage setting. Allow adequate space around the unit for ventilation.
- **CONNECTIONS:** Use audio connectors and cables only for their intended purpose. Do not connect any source of AC or DC power to the console audio connectors. Do not connect the output of power amplifiers directly to the console.
- **CLEANING:** Avoid the use of chemicals, abrasives and solvents. The control panel is best cleaned with a soft brush and lint-free cloth. To remove stubborn marks (such as chinagraph pencil) isopropyl alchohol may be used.
- **LUBRICATION:** The faders, switches and potentiometers are lubricated for life. The use of electrical lubricants on these parts is not recommended.
- **DIRT, DUST, SMOKE and MOISTURE:** Prevent damage to the moving parts, such as faders and potentiometers, and cosmetics by avoiding drinks spillage, tobacco ash and smoke, and exposure to rain and condensation. Protect from excessive dirt and dust.

EARTHING THE AUDIO SYSTEM

The console chassis is connected to mains earth via the power unit. **FOR SAFETY REASONS NEVER REMOVE THE POWER UNIT MAINS EARTH.** The console audio 0V is not connected to mains earth within the console. To prevent mains born and external interference pickup on the audio signal it is important that this audio 0V is connected to a good noise-free mains earth, either through the audio cable screens or by linking to a local "star point" earth. Note that the chassis earth terminal is mains earth and not audio 0V. Multiple earth paths cause earth (ground) loops which may result in audible hum and interference. These may be avoided by making sure that there is only one path to earth from each piece of equipment, disconnecting audio cable screens at one end if necessary.

INTERCONNECTIONS

Where possible use balanced connections for the channel INPUTs and GROUP, L-R and MONO outputs to minimise noise pick-up. Avoid running audio cables near to mains or lighting cables or thyristor dimmer units, power supplies etc. These may cause audible hum and buzz. The use of low impedance sources significantly reduces interference pickup.

Always use balanced cables when connecting to phantom powered microphones. **MAKE SURE THAT THE +48V SWITCHES ARE OFF (FLUSH WITH PANEL) WHEN THE CHANNEL INPUT XLRS ARE CONNECTED TO NON-PHANTOM POWERED OR LINE SOURCES.**

Connect as follows:

- Balanced output to Balanced input - Connect cable screen at destination only.
- Balanced output to Unbalanced input - Connect screen at source only. Link the -ve output to 0v at the output connector.
- Unbalanced output to Balanced input - Connect cable screen at destination only. Link the -ve input to 0V at the input connector.

ADJUSTING THE LEVELS

For best performance it is important that the console signal levels are adjusted for "normal operating level". If too high the signal peaks will be clipped resulting in a distorted sound, and if too low the signal-to-noise ratio is reduced resulting in excessive background hiss.

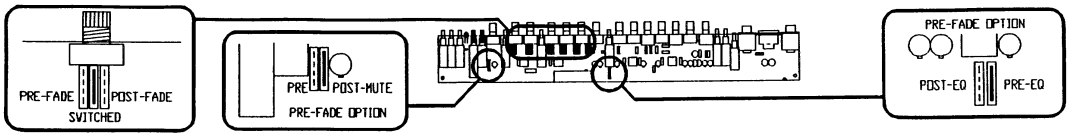
For best results operate the console with the output meters averaging '0' or just below and allowing the occassional high level passage to peak into the red. This results in a nominal console output level of +4dBu. It is advisable to use an attenuator pad if you are connecting these outputs to equipment which operates at a much lower level. Simply reducing the fader settings (and hence meter levels) to compensate may result in excessive background noise and breakthrough due to the reduced signal-to-noise ratio.

The console PFL (pre-fade listen) / AFL (after-fade listen) system lets you listen to and check the level of signals at different points in the signal path without affecting the main outputs. Use the channel **PFL** switches to set up the input levels. This overrides the phones/monitor outputs with the pre-fader channel signal and displays its level on the **RIGHT METER**. Adjust the channel **GAIN** controls for an average '0' reading on the meter. Use the group and L-R **PFL** switches to check the pre master fader mix level. Adjust the channel faders for optimum mix level. The normal operating setting of the faders is position '0', allowing 10dB of boost to the top of travel.

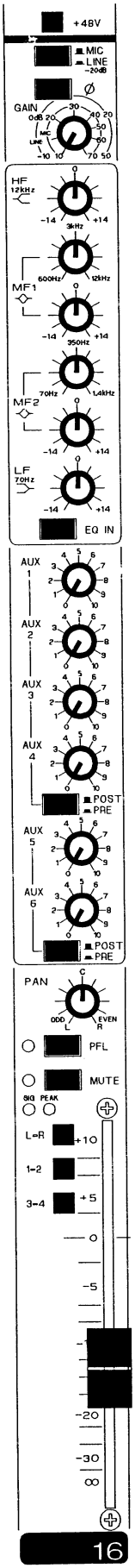
The red channel and group, L-R **PEAK** indicators give instant warning of potential signal overload. These turn on 5dB before clipping. Reduce channel gain or fader settings as appropriate. The green channel **SIG** indicators show the presence of signal greater than -20dBu pre fader.

CHANNEL AUX SEND OPTIONS

Aux 1-4 and aux 5,6 are switched pre or post fader using panel switches to satisfy most applications without the need to access internal circuits. Pre-fade is set pre-EQ and post-mute as standard. Alternative settings may be configured by removing the base and resoldering link options on the channel circuit boards. This work should only be undertaken by competant technical personnel.



INPUT



MATCHING THE INPUT

A wide-ranging padless input pre-amplifier matches the connected audio source to the console to ensure optimum performance.

Individual **+48V** microphone phantom power switches are recessed to avoid accidental operation. **MIC/LINE** selects a balanced mic or line XLR source. Connecting to the additional 1/4" jack line input automatically overrides the XLR line input. **PHASE** reverses input signal polarity to correct phase differences often encountered in multiple microphone placement or due to reverse wired interconnecting cables.

The normalled **INSERT** socket provides a pre-EQ -2dBu break point for inserting an external signal processing device into the channel path. This may also be wired as a pre-fade direct output by linking send to return in the plug.

4-BAND EQUALISER

Shelving HF, LF and two wideband peak/dip mid sweeps provide 14 dB of cut and boost.

EQ IN switches the equaliser in or out of the channel path. Centre detents set the response flat.

6 AUX SENDS

6 individual sends with 1-4 and 5,6 switchable pre/post fader provide effects and foldback sends for F.O.H., or monitor mix sends for ON-STAGE console operations. Internal options set pre-fade (pre/post EQ and pre/post mute) and fixed (unswitched) pre or post if required.

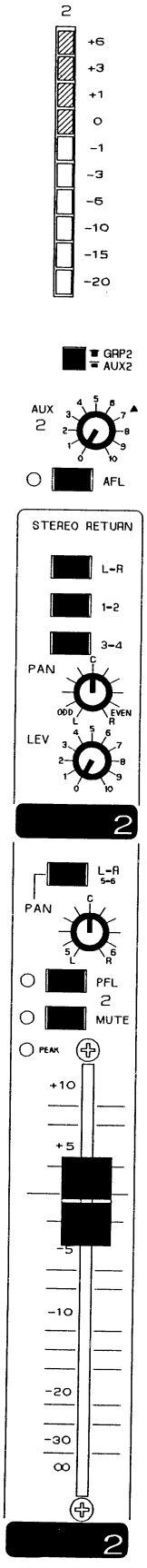
ROUTING

Centre detented **PAN** positions the signal between L (odd) and R (even) of the selected groups/L-R mix. The 100mm long throw **FADER** provides a further 10dB boost above the normal '0' operating position. **MUTE** switches the channel off.

CHECKING THE SIGNAL

A green **SIGNAL** LED provides dynamic indication of pre-fade signals above -20dBu. The red **PEAK** LED warns of potential overload 5dB before clipping at any of 3 key points in the channel path. Pressing **PFL** routes the pre-fade signal to the console monitor/meter system to check sound quality and gain setting.

GROUP



F.O.H. OR STAGE MONITOR?

The recessed **STAGE MONITOR MODE** switch determines the way in which the group signal path is arranged.

For conventional **FRONT-OF-HOUSE** operation (switch up) the group mix is routed to the main signal path through **INSERT**, **FADER** and **MUTE** switch to the balanced **XLR** output, while providing subgrouping, **PFL** monitoring, **PEAK** warning and bargraph metering. The related aux mix routes through the rotary **SEND MASTER** level control to the 1/4" jack aux output, with **AFL** monitoring available, to provide an effects or foldback send.

With the switch pressed (using a pen tip or similar) the signal path is optimised for **ON-STAGE** operation. This feeds the aux mix through the main signal path to provide a full feature balanced stage monitor send. The group mix is disabled in this mode. Comprehensive aux signal checking is available with both pre-fader PFL and post-fader AFL. The rotary **SEND MASTER** '0dB cal' mark indicates the correct setting for 'one at a time' AFL monitoring. Alternatively this control may be used to adjust the level in an engineers **WEDGE MONITOR MIX** available from the console **MONO** output.

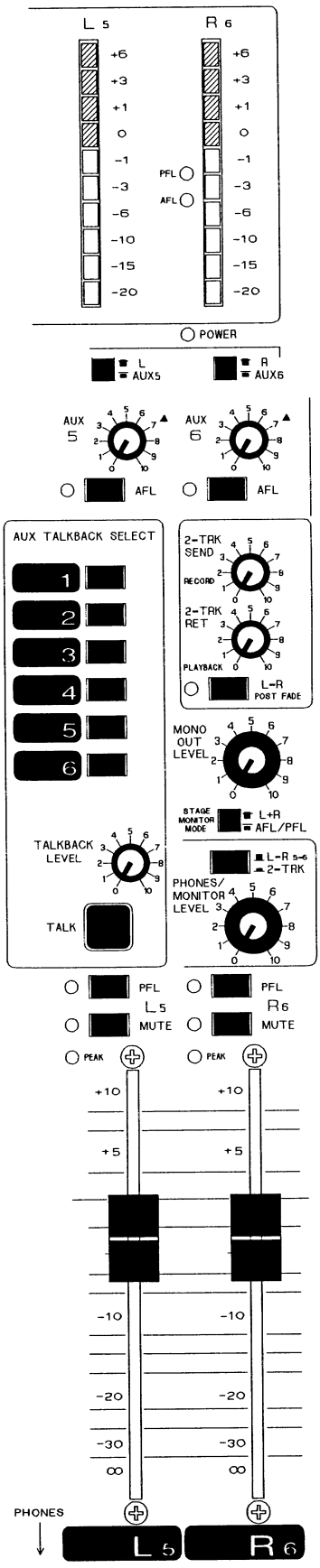
STEREO RETURN

Used for returning processed signals from external effects devices or as additional line level inputs, this section features level and centre detented pan controls, full routing matrix, and separate 1/4" jack left and right inputs. Only plugging into the left jack normals the signal to both left and right for mono sources.

SUBGROUPING

Pressing **L-R** routes the group (or aux) signal to the stereo mix to combine several sounds together under one 'master' fader. Adjusting **PAN** positions the group within the stereo image and enables both mono or stereo subgrouping. Together with the group **MUTE** switch this feature allows 'scene' switching which is especially useful in live sound application.

MASTER



MONITORING THE SYSTEM

Peak reading LED bargraph meters display the group/L-R (or aux) signal levels. '0' indicates the correct operating level for optimum performance and represents +4dBu at the balanced outputs.

The **PHONES/MONITOR** section allows the engineer to listen to L-R (aux 5-6) or 2-TRACK return using up to two pairs of stereo headphones or monitor speaker system while displaying the selected source on the L and R meters.

Pressing any **AFL** or **PFL** switch interrupts left and right of the monitor with the signal and displays AFL (AFL active LED on) or PFL (PFL or AFL+PFL LED on) on the R meter only.

2-TRACK RECORD AND REPLAY

2 pairs of phono connectors allow convenient connection to a 2-track recorder such as cassette or DAT, and provide separate **SEND** and **RETURN** level controls and replay monitoring. The send may also be used as an additional unbalanced L-R output with independent level control.

INTERMISSION PLAYBACK

Pressing **L-R** routes the 2-track return to L-R post-fader allowing the console to be set up with the L-R faders down while playing intermission programme through the main outputs.

MONO FILL OR WEDGE MIX?

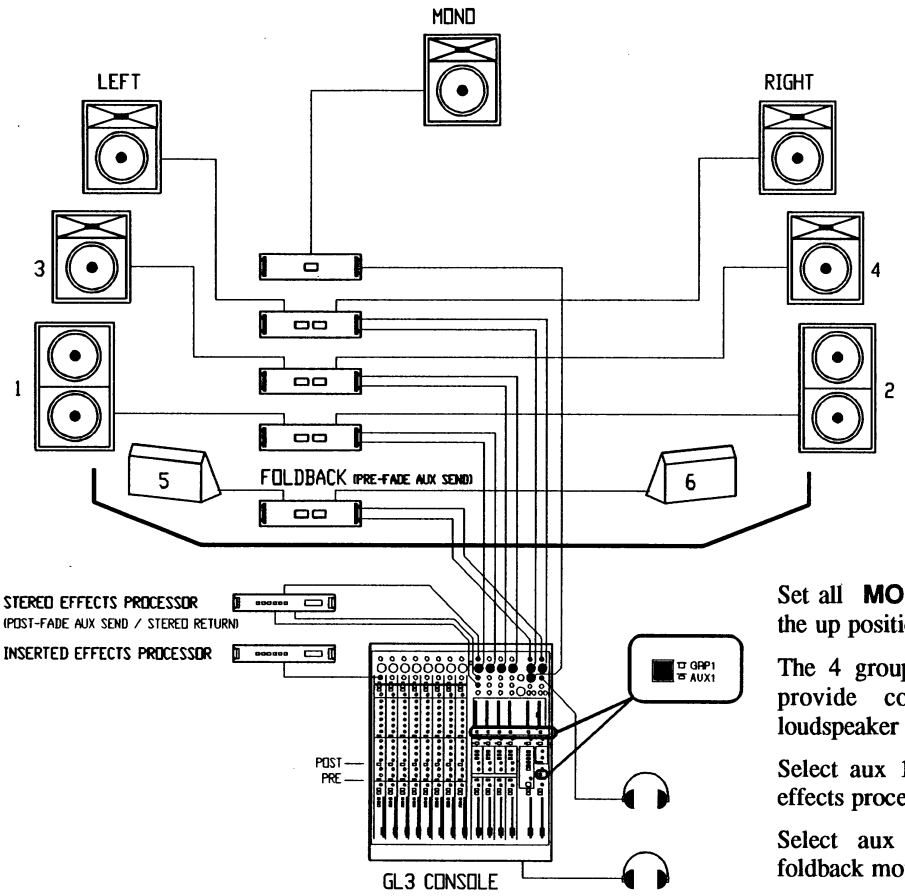
The recessed **STAGE MONITOR MODE** switch determines the function of the balanced mono output. For **F.O.H.** applications (switch up) the main L and R outputs are summed to drive a centre 'mono fill' speaker system.

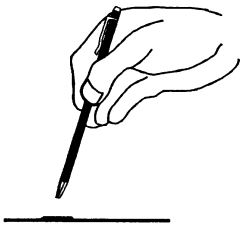
For **ON-STAGE** operation (switch pressed) this output becomes AFL interrupted by PFL to drive an engineers **WEDGE MONITOR** system. The wedge mix is created by pressing the required aux **AFL** switch combination and adjusting the **SEND MASTERS** for the desired mix. In this mode the mono output is dimmed by 16dB when **TALK** is pressed thus avoiding wedge loudspeaker feedback.

TALKBACK TO AUX

Individual pre-select switches and the large momentary **TALK** switch lets the engineer talk to any combination of the 6 aux mixes using a plug in gooseneck microphone.

FRONT-OF-HOUSE





The **MONITOR MODE** switches are recessed to avoid accidental operation. Use a pen tip or pointed object to operate these.

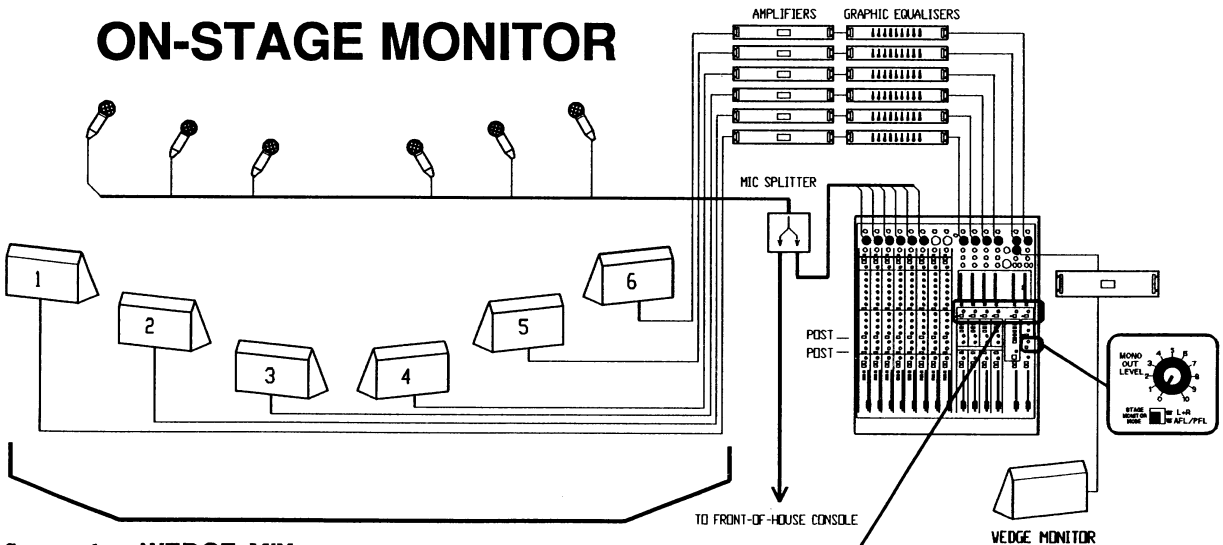
Set all **MONITOR MODE** switches to the up position (flush with panel).

The 4 groups, L, R and Mono outputs provide control of 7 independent loudspeaker systems.

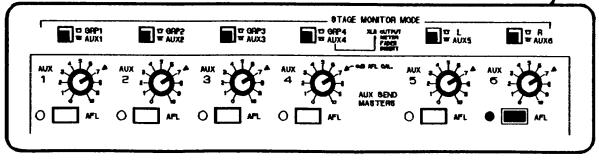
Select aux 1 to 4 post-fade to access 4 effects processing devices.

Select aux 5 and 6 pre-fade for 2 foldback monitor sends.

ON-STAGE MONITOR

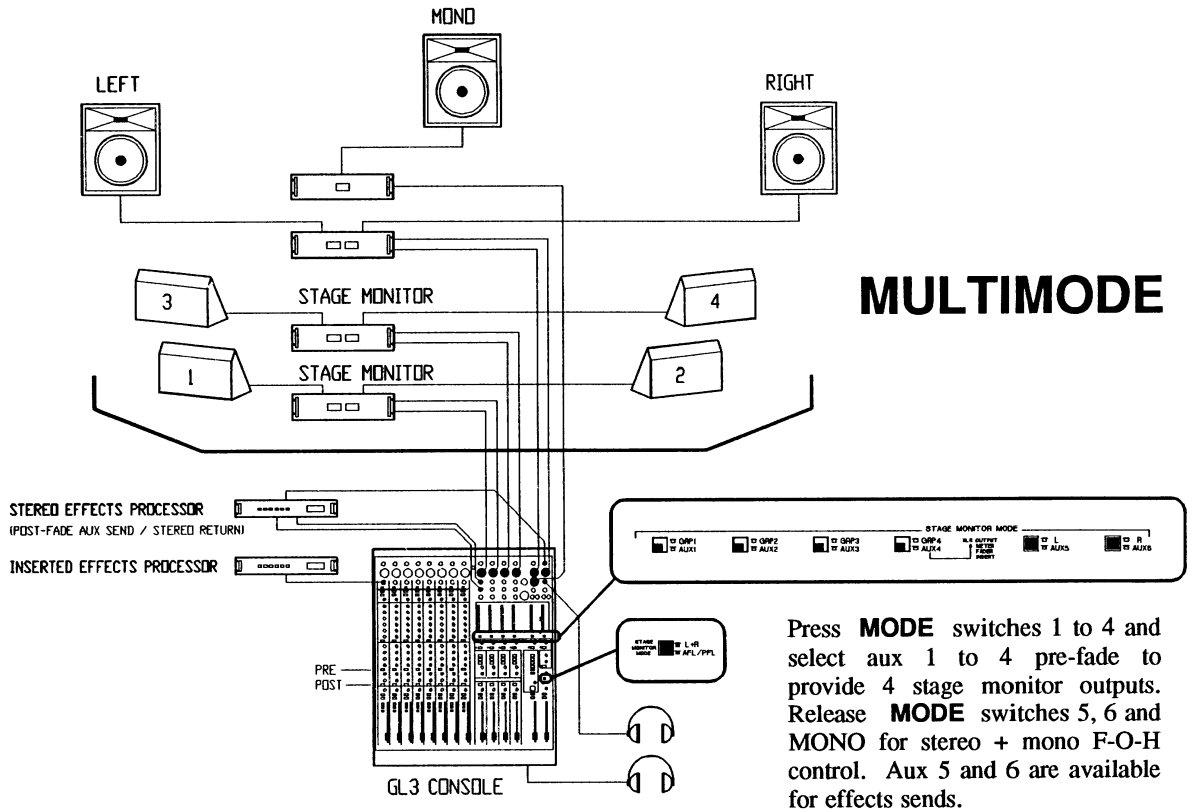


Set up the **WEDGE MIX** by pressing the **AFL** switches and adjusting the **SEND MASTER** levels. For single **AFL** selection set the level controls to '0dB cal'.



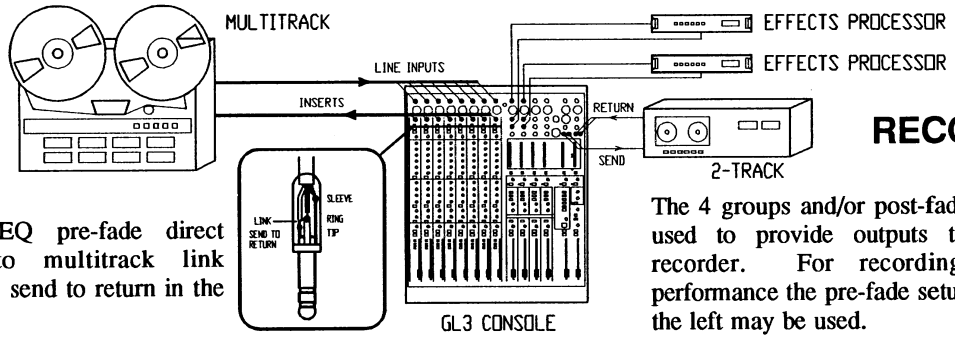
Press all **MONITOR MODE** switches (to below panel).

Select all aux sends post-fade. Aux 1 to 6 provide 6 independent monitor mixes.



MULTIMODE

Press **MODE** switches 1 to 4 and select aux 1 to 4 pre-fade to provide 4 stage monitor outputs. Release **MODE** switches 5, 6 and MONO for stereo + mono F-O-H control. Aux 5 and 6 are available for effects sends.

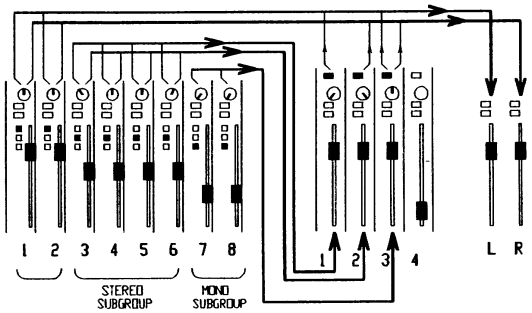


RECORDING

For pre-EQ pre-fade direct output to multitrack link **INSERT** send to return in the jack plug.

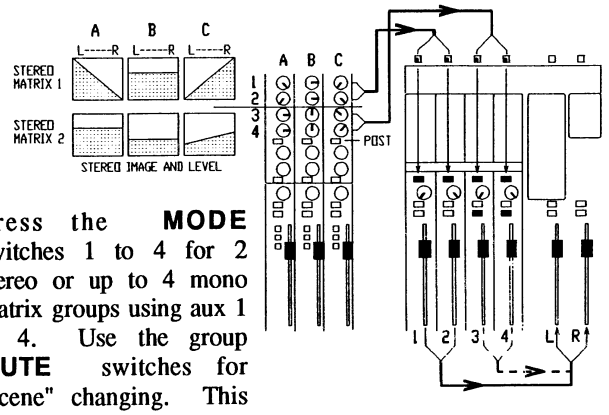
The 4 groups and/or post-fade aux sends are used to provide outputs to a multitrack recorder. For recording during live performance the pre-fade setup shown here at the left may be used.

CONVENTIONAL SUBGROUPING

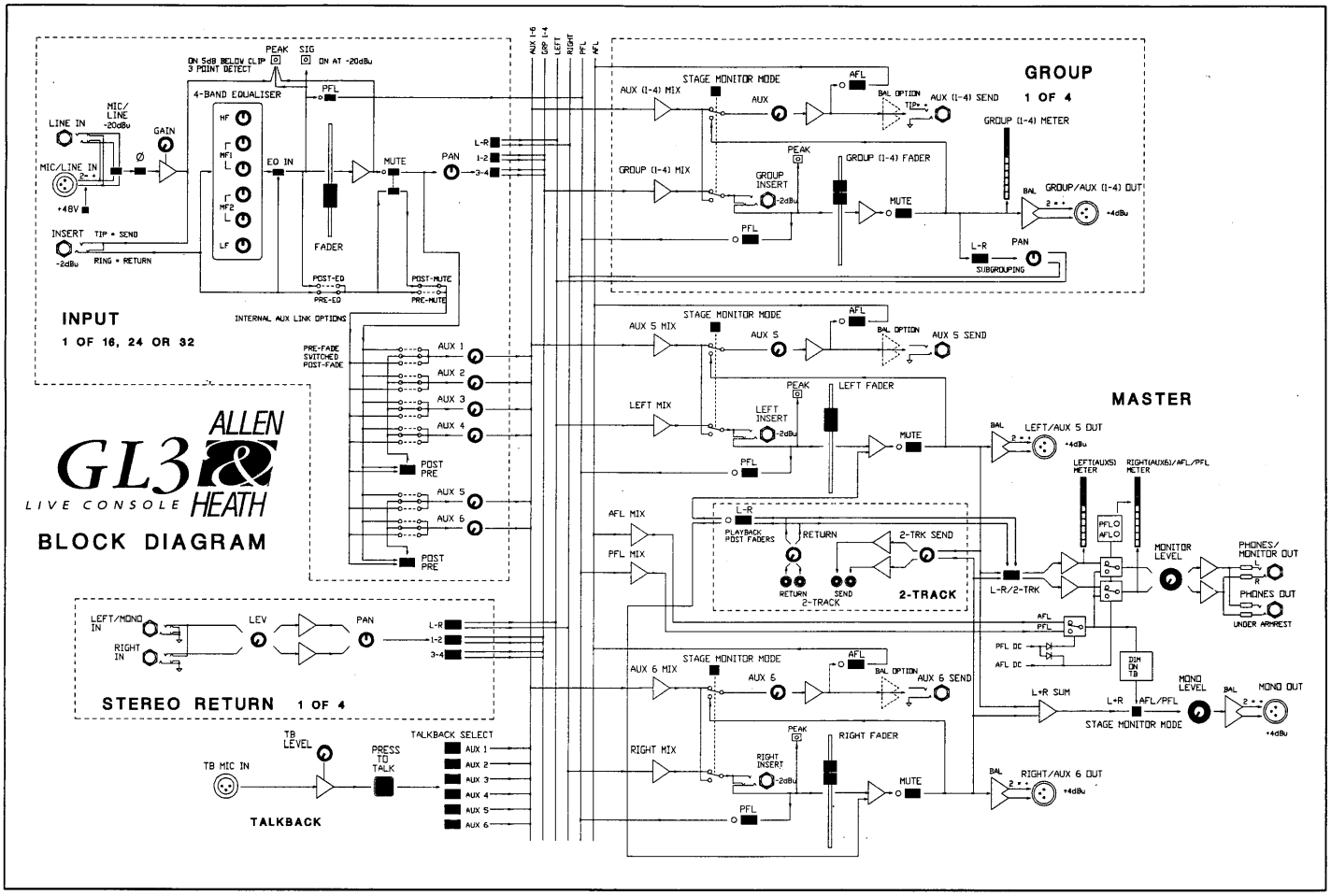


This example shows a stereo subgroup set up on groups 1-2, and a mono subgroup on group 3. Press the group **L-R** switches and adjust the **PAN** controls to position the signal in the subgroup and L-R mixes. Set the **MODE** switches up (flush with panel)

MATRIX SUBGROUPING



Press the **MODE** switches 1 to 4 for 2 stereo or up to 4 mono matrix groups using aux 1 to 4. Use the group **MUTE** switches for "scene" changing. This feature allows different level and pan settings for each group.


ALLEN & HEATH
GL3
LIVE CONSOLE
BLOCK DIAGRAM
INPUT
1 OF 16, 24 OR 32
LINE IN
MIC/LINE IN
MIC/LINE -20dBu
+48V
GAIN
Ø
PEAK
SIG
ON 5dB BELOW CLIP 3 POINT DETECT
ON AT -20dBu
4-BAND EQUALISER
HF
MF1
MF2
LF
EQ IN
PFL
FADER
MUTE
PAN
L-R
1-2
3-4
INSERT
TIP = SEND
RING = RETURN
-2dBu
POST-EQ
PRE-EQ
POST-MUTE
PRE-MUTE
INTERNAL AUX LINK OPTIONS
PRE-FADE SWITCHED POST-FADE
AUX 1
AUX 2
AUX 3
AUX 4
POST PRE
AUX 5
AUX 6
AUX 1-6
GRP 1-4
LEFT
RIGHT
PFL
AFL
GROUP
1 OF 4
STAGE MONITOR MODE
AUX (1-4) MIX
AUX
AFL
BAL OPTION
TIP+
AUX (1-4) SEND
GROUP (1-4) METER
GROUP (1-4) MIX
PEAK
GROUP INSERT
-2dBu
GROUP (1-4) FADER
MUTE
PFL
BAL
GROUP/AUX (1-4) OUT
+4dBu
L-R
PAN
SUBGROUPING
AUX 5 MIX
AUX 5
AUX 5 SEND
LEFT MIX
LEFT INSERT
LEFT FADER
LEFT/AUX 5 OUT
MASTER
LEFT(AUX5) METER
RIGHT(AUX6)/AFL/PFL METER
AFL MIX
PFL MIX
PLAYBACK POST FADERS
RETURN
2-TRK SEND
SEND
2-TRACK
L-R/2-TRK
PFL/AFL
MONITOR LEVEL
PHONES/ MONITOR OUT
PHONES OUT
UNDER ARREST
AFL DC
PFL DC
DIM ON TB
L+R SUM
L+R
AFL/PFL
MONO LEVEL
MONO OUT
AUX 6 MIX
AUX 6
AUX 6 SEND
RIGHT MIX
RIGHT INSERT
RIGHT FADER
RIGHT/AUX 6 OUT
LEFT/MONO IN
RIGHT IN
LEV
STEREO RETURN
1 OF 4
TB LEVEL
TB MIC IN
PRESS TO TALK
TALKBACK
TALKBACK SELECT