

TAC
Scorpion II
OPERATOR'S MANUAL

SERIAL NUMBER.....

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1:1) General Description of the Scorpion II:

The TAC Scorpion II is a low-cost, multi-purpose 8, 12 or 16-buss desk which offers unbeatable sonic performance, facilities and construction. The main applications for which the Scorpion II is intended are multitrack recording, broadcast production, and concert sound reinforcement.

The Scorpion II is a fully modular console utilising a hard bussing system (Printed Circuit Board) to interconnect the modules, via standard computer backplane connectors fitted with gold-plated pins.

The modules and bussing system are housed in a folded steel chassis which is of exceptionally strong and rigid construction, and is of a much more advanced design than is normally found in mixing desks of this price range.

All the input and output connectors are mounted on the rear panel of the mixer and are connected to the individual modules by ribbon cables fitted with locking connectors.

The console features a module bay inclined at an angle of 10 degrees, with the fader panel horizontal and a separate penthouse-type meter hood which houses the LED meters.

An armrest is fitted in front of the faders, and the console is trimmed with decorative woodwork.

The console functions are spread across several modules. These are:-

- S1001 Mic/Line input channel, 4 aux sends;
- S1101 Mic/Line input channel, 8 aux sends;
- S1201 Stereo Line input channel;
- S2001 Master Auxiliary Send/Return module;
- S3301 Subgroup/Monitor mix/Equaliser module;
- S3101 Subgroup/Dual monitor mix module;
- S3201 Subgroup/8x8 Matrix output module;
- S4001 Master monitor/Stereo Buss module;

1:2) General Description of the Modules:

S1001 Mic/Line Input Channel:

Microphone and line inputs; 4 band swept mid-frequency equaliser; 4 auxiliary sends with pre/post switching; panpot and 8/16 buss and stereo routing switches; Mute, Pfl (pre-fade listen); An overload (peak reference) LED is fitted.

S1101 Mic/Line Input Channel:

This module is the same as the S1001, but features 8 auxiliary sends on four dual concentric pots.

S1201 Stereo Line Input Module:

This module provides a stereo Line input, with 3 band equaliser, 4 auxiliary sends (i.e. 2 stereo sends), routing to 16 busses and a separate stereo buss, mute, PFL and an overload (peak reference) LED.

S2001 Master Auxiliary Send/Return Module:

Each module has two master auxiliary send outputs for auxiliary busses with equalisation and AFL controls; one line level auxiliary return input for effects signals, with 2 auxiliary sends fitted with pre/post switching, 8/16 buss and stereo routing, panpot, Mute and PFL controls.

Consoles with 4 aux sends have 2 modules fitted, giving outputs for 4 auxiliary master sends and 2 returns; consoles with 8 aux sends have 4 modules fitted, giving outputs for 8 aux master sends and 2 returns.

S3301 Subgroup/Monitor Mix Module + Equalizer:

Panpot, Mute and AFL controls for the subgroup fader; input select for Buss/Tape monitoring to provide monitor mix inputs when using multitrack recorder, with auxiliary sends for foldback or echo on monitors; equaliser in monitor signal path.

S3101 Subgroup/Dual Monitor Mix Module:

Panpot, Mute and AFL (After fade listen) controls for the subgroup fader; two independent input selects for Buss/Tape monitoring, to provide monitor mix inputs when using a multitrack recorder, with auxiliary sends for foldback or echo on monitors.

During mixdown or in sound reinforcement applications the inputs may be used for additional effects returns.

S3201 Subgroup/ 8x8 Matrix Output Module.

Panpot, Mute and AFL (after fade listen) controls for the subgroup fader; 8 individual matrix sends (matrix signal is derived pre or post subgroup fader); Matrix output fader with Mute and AFL controls; Equaliser, switchable between subgroup and matrix.

8 S3201 modules are fitted, giving an 8x8 output matrix.

NOTE It is not possible to have different types of group modules on the same console, or to retrofit group modules of a different type to a console.

S4001 Master Monitor/Stereo Buss Module.

Master output stereo buss with Mute control; talkback system controls; master monitor section with Mono, Mute, Level control and Input select switchbank; Pfl master level control; auxiliary monitor output; oscillator.

1:3) General Description of the Chassis:

The Scorpion II is available in various configurations, there being four standard chassis sizes:

- 27 modules (denoted S)
- 43 modules (denoted L)
- 53 modules (denoted X)
- 45 modules with patchbay (denoted XPB)

The S chassis gives a configuration of 16/8/2 or 20/4/2 which, by using different subgroup modules, provides the following options:

- 16/8/2 + 8, with eq on monitors (S3301)
- 16/8/2 + 16 (S3101)
- 16/8/2 + 8x8 matrix (S3201)
- 20/4/2 + 4 with eq on monitors (S3301)

The L chassis gives configurations of 24/16/2, 28/12/2, 26/12/2, 30/8/2 or 32/8/2 which by using different subgroup modules, provides the following options:

- 32/8/2 + 8 with eq on monitors (S3301)
- 32/8/2 + 8x8 matrix (S3201)
- 32/8/2 + 16 (S3101)
- 30/8/2 + 8 with eq on monitors and 8 aux sends (S3301)
- 30/8/2 + 8x8 matrix and 8 aux sends (S3201)
- 30/8/2 + 16 with 8 aux sends (S3101)
- 24/16/2 + 16 with eq on monitors (S3301)
- 24/16/2 + 32 (S3101)
- 28/12/2 + 24 (S3101)
- 26/12/2 + 24 with 8 aux sends(S3101)

The X chassis gives configurations of 40/8/2, 32/16/2 and 36/12/2, which by using different subgroup modules gives the following options:

- 40/8/2 + 8 with eq on monitors and 8 aux sends (S3301)
- 40/8/2 + 8x8 matrix and 8 aux sends (S3201)
- 40/8/2 + 16 with 8 aux sends (S3101)
- 40/8/2 + 8 with eq on monitors, 4 aux sends (S3301) + 2 blanks
- 40/8/2 + 8x8 matrix and 4 aux sends (S3201) and 2 blanks
- 40/8/2 + 16 with 4 aux sends (S3101) and 2 blanks
- 32/16/2 + 8 with eq on monitors, 4 aux sends (S3301)+ 2 blanks
- 32/16/2 + 32, 4 aux sends (S3101) and 2 blanks
- 36/12/2 + 24 with 8 aux sends (S3101)
- 36/12/2 + 24 with 4 aux sends (S3101)

The XPB chassis gives configurations of 32/8/2, 24/16/2 and 28/12/2, which by using different subgroup modules gives the following options:

- 32/8/2 + 16 with 8 aux sends (S3101)
- 32/8/2 + 16 with 4 aux sends (S3101) and 2 blanks
- 24/16/2 + 16 with eq on monitors and 4 aux sends (S3301)
- 28/12/2 + 24 with 8 aux sends (S3101)
- 28/12/2 + 24 with 4 aux sends (S3101) and 2 blanks

Foldback versions of the Scorpion II are available in all three chassis sizes in the following configurations:

- 18/8 with EQ on groups (SFB2001) in an S chassis
- 18/8 without EQ on groups (SFB2101) in an S chassis
- 30/12 with EQ on groups (SFB2001) in an L chassis
- 30/12 without EQ on groups (SFB2101) in an L chassis
- 40/12 with EQ on groups (SFB2001) in an X chassis
- 40/12 without EQ on groups (SFB2101) in X chassis

1:4) General Description of the LED/VU Metering System:

The Scorpion II is provided with 15 segment LED display metering. Each meter is calibrated from -30dB to +4dB.

All versions of the Scorpion II have 3 individual meters for Left Right and PFL/AFL signal. The ballistics of the Left Right and PFL/AFL meters may be selected to either Peak or VU by a switch on the S4001 master monitor module.

The 8-buss version has 8 buss/tape reading meters as standard, the 12-buss version has 12 buss/tape reading meters as standard and the 16-buss version has 16 buss/tape reading meters. When using S3101 Dual monitor subgroup modules 16, or 24, or 32 buss/tape reading meters are fitted as standard.

The inputs to the 8 (12 or 16) buss meters will follow the "BUSS/TAPE/FX" monitor input selection switch (off Buss/off Tape) on the S3301 /3101 modules, hence the meter will read the signal you are listening to.

When using S3101 modules in a 8 buss desk the 16 buss/tape meters will read as follows; in buss, meters 1-8 read sub group 1-8 output, meters 9-16 read direct output from input channels 9-16. In tape, meters 1-8 read tape return 1-8, meters 9-16 read tape return 9-16.

When using S3101 modules in a 12 buss desk the 24 buss/tape meters will read as follows; in buss, meters 1-12 read sub group 1-12 outputs, meters 13-24 read direct out from input channels 13-24. In tape meters 1-12 read tape return 1-12, meters 13-24 read tape return 13-24.

When using S3101 modules in a 16 buss desk with 24 buss/tape meters, the meters will read as follows; in buss, meters 1-16 read sub group outputs 1-16, while meters 17-24 read direct out from input channels 17-24. In tape, meters 1-16 read tape return 1-16, while meters 17-24 read tape returns 17-24.

When using S3101 modules in a 16 buss desk with 32 buss/tape meters, the meters will read as follows; in buss, meters 1-16 read sub-group outputs 1-16, while meters 17-32 read direct out from input channels 17-32. In tape, meters 1-16 read tape return 1-16, while meters 17-32 read tape returns 17-32.

On the L, X and XPB chassis, 2 or 3 VU meters are available as an option to meter left and right outputs from the S4001 module, and PFL/AFL. When 3 VU meters are fitted, these replace the left, right and PFL/AFL LED meters. The VU meters are illuminated from the rear by means of a 12v bulb.

On all 8 buss versions of the console housed in L, X, or XPB chassis sizes, there is an 11 VU meter option. These meters monitor busses 1-8, stereo L and R and PFL/AFL. The inputs to the 8 buss meters follow the "BUSS/TAPE/FX" monitor input selection switch on the S3301/S3101 modules as described above for the LED meter version.

All VU metering of the group busses is not possible on 12 or 16 buss versions of the console due to space limitations on the meter hood.

On consoles fitted with 11 VU meters, no LED meters are supplied.

2:0) CONNECTOR DETAILS:

2:0 a) S1001/S1101 Input Module:

Microphone Input: XLR Female; 1K Ohm input impedance for 200-600 Ohm microphones;

Pin 1 = screen;

Pin 2 = + phase;

Pin 3 = - phase:

Line input: 6.35mm stereo jacksocket; 10K Ohm input impedance; balanced.

Sleeve = screen;

Tip = + phase,

Ring = - phase.

For unbalanced input, connect signal to tip, ring + sleeve to screen.

Insert: 6.35mm stereo jacksocket; output impedance less than 100 Ohms; input impedance 10K Ohms

Sleeve = screen;

Tip = send;

Ring = return.

Direct output: 6.35mm stereo jacksocket; output impedance less than 100 Ohms;

Sleeve = screen;

Tip = 0dB;

Ring = -12dB.

2:0 b) S1201 Stereo Line Input Module

Line Input: Inputs L and R 2x6.35mm jacksockets 10K Ohm input impedance; balanced

Sleeve = screen

Tip = + phase

Ring = - phase

For unbalanced inputs, connect signals to tip, ring and sleeve to screen.

Insert: Left insert = 6.35mm jacksocket. Right insert = 6.35mm jacksocket

Sleeves = screen

Tips = send

Rings = return

2:0 c) S2001 Auxiliary Send/Return Module:

Sends: XLR Male; output impedance less than 100 ohms;

Pin 1 = Screen;
Pin 2 = 0dB;
Pin 3 = -12dB.

Return: XLR Female; input impedance 10K Ohms;

Pins 1 + 3 = screen;
Pin 2 = signal.

2:0 d) S3301 Subgroup/Monitor Mix module + EQ:

Buss output: XLR Male; output impedance less than 100 Ohms;

Pin 1 = screen;
Pin 2 = 0dB;
Pin 3 = -12 dB.

Insert: 6.35mm stereo jacksocket; output impedance less than 100 Ohms: input impedance 10K Ohms

Sleeve = screen;
Tip = send;
Ring = return.

Tape/FX return: 6.35mm stereo jacksocket; input impedance 10K Ohms;

Sleeve = screen;
Tip = 0dB;
Ring = -12dB.

2:0 e) S3101 Subgroup / Dual Monitor Input Module:

Buss output: XLR Male; output impedance less than 100 Ohms;

Pin 1 = screen;
Pin 2 = 0dB;
Pin 3 = -12dB.

Inserts: 6.35mm stereo jacksocket; output impedance less than 100 Ohms; input impedance 10K Ohms
Sleeve = screen;
Tip = send;
Ring = return.

Tape/FX return: 6.35mm stereo jacksocket; input impedance greater than 10K Ohms;

Sleeve = screen;
Tip = lower monitor section;
Ring = upper monitor section.

Note: The inputs to both monitors are on the TIP and RING contacts of the same stereo jacksocket, therefore the dual level selection for 0dB or -12dB operation is set up from a switch inside each module.

2:0 f) S3201 Subgroup/ 8 x 8 Matrix Module:

Buss output: XLR Male; output impedance less than 100 Ohms;

Pin 1 = screen;
Pin 2 = 0dB;
Pin 3 = -12dB.

Insert: 6.35mm stereo jack socket; output impedance less than 100 Ohms; input impedance 10K Ohms

Sleeve = screen;
Tip = send;
Ring = return.

Matrix output: 6.35mm mono jacksocket; output impedance less than 100 Ohms;

Sleeve = screen;
Tip = 0dB (nominal level).

2:0 g) S4001 Master monitor / Stereo Buss Output Module:

Stereo buss outputs: XLR Male; output impedance less than 100 Ohms;

Pin 1 = screen;
Pin 2 = 0dB;
Pin 3 = -12dB.
(Separate sockets for Left & Right)

Stereo buss inserts: 6.35mm stereo jacksocket; output impedance less than 100 Ohms; input impedance 10K Ohms;

Sleeve = screen;
Tip = send;
Ring = return.
(Separate sockets for Left & Right).

Stereo tape inputs: 6.35mm mono jacksocket; input impedance 5K Ohms;

Sleeve = screen,
Tip = signal.
(Separate sockets for Left & Right: Two pairs).

Monitor outputs: 6.35mm mono jacksocket; output impedance less than 100 Ohms;

Sleeve = screen,
Tip = signal.
(Separate sockets for Left & Right).

Auxiliary monitor outputs: 6.35mm mono jacksocket; output impedance less than 100 Ohms;

Sleeve = screen,
Tip = 0dB
Ring = -12dB
(Separate sockets for Left & Right).

Oscillator: 6.35mm stereo jacksocket; less than 100 Ohms output impedance;

Sleeve = screen;
Tip = +4dB (0VU);
Ring = -56dB (-60VU).

Talkback: 6.35mm stereo jacksocket; output impedance less than 100 Ohms;

Sleeve = screen;
Tip = signal;
Ring = control line. When Talk is depressed ring is connected to earth.

Headphone outputs: 6.35mm stereo jacks; Two jacks wired in parallel for use with headphones of impedance 200 to 600 Ohms;

Tip = Left;
Ring = Right.

2:0 h) DC Power Input:

Connector: 4 pin XLR Male;

Pin 1 = 0V
Pin 2 = +16.8V
Pin 3 = -16.8V
Pin 4 = +48V phantom power

2:1) How to Connect the Scorpion II for Live Sound Reinforcement:

The principle of live sound reinforcement is to control the level and timbre of the instrument, vocal or recorded programme signals, create a suitable balance between them and project the mixed signals out to the audience at the desired overall level, in order to create a high quality performance.

In the case of Concert sound reinforcement, it may be necessary for the musicians to recreate, in a live situation, a stereo reproduction of music which they have previously recorded and hence, may need the facility for using extensive outboard effects equipment which require careful control of signals both to and from the units. This situation is optimised by the use of the auxiliary send and return modules (S2001).

In the case of Theatre sound reinforcement, apart from sharing the same needs of outboard effects equipment control, it may be necessary to have the ability for extensive signal routing to various speaker enclosures in the auditorium, in order to create an aural atmosphere and thereby enhance the performance. This situation is optimised by the use of the Subgroup and Subgroup/Matrix output modules S3301 and S3201 modules.

In each of the above cases, the number of available input and output connectors situated on the rear panel of the console, will depend upon the chassis size and the types of modules fitted. All connectors on the rear panel are labelled with their relative functions and also indicate which contact carries which signal. Below is a list of functions and their relative input or output sockets:-

Microphone signals:

Female XLR connectors labelled "MIC". One socket per S1001 (or S1101) module.

High Level Input signals:

Jacksocket labelled "LINE". One socket per S1001 (or S1101) module.

Signal control devices:(compressor/limiters):

Jacksocket labelled "INSERT". One socket for both send and return signals per S1001 input module, one socket for each S3301/3101/3201 subgroup module, and one socket each for left and right stereo buss outputs (S4001 module).

Signal Feeds to Outboard Effects Equipment or On-Stage Monitors (Foldback):

Male XLR connectors labelled "AUX SENDS". Two sockets per S2001 module.

Return signals from outboard effects equipment or off tape:

Female XLR connectors labelled "RETURN". One socket per S2001 module. (Alternatively, S1001 LINE inputs may be used or where S3101 Dual Monitor modules are fitted, the upper monitor section may also be used via jacksockets labelled "TAPE/FX". One socket per S3101 module.

NOTE where S3301 modules are fitted, it is only possible to use the "TAPE/FX" inputs when the SUBGROUP is not being fed to stereo.

Main Stereo output to the amplification system:

Male XLR connectors labelled "L BUSS" and "R BUSS". Individual sockets fed from the S4001 module.

Programme signal monitoring:

Headphone jackssocket below the armrest at the right hand end of the console. Two parallel sockets are fitted.

Communications:

Jackssocket for talkback signal feed and control line labelled "T/B". (Generally Theatre sound reinforcement applications)

Signal feeds to various amplifier/speaker enclosures:

Male XLR connector labelled "BUSS" 1 - 8(16) as applicable. One socket per S3301/3101/3201 module.

Extra Matrix signal feeds to various amplifier/speaker enclosures:

Jackssocket labelled "MATRIX 1" to "MATRIX 8". One socket per S3201 module.

2:2) How to Connect the Scorpion II for Studio Use:

Whilst the basic operational procedures of sound mixing are very similar between Live sound mixing and Studio sound mixing, there are several important differences which must be catered for when designing a universally acceptable console, such as the Scorpion II, in order to satisfy the needs and requirements of the mixing engineers who work in both fields. The most obvious differences in the studio environment being the presence of the multitrack/stereo tape recorders and the absence of the large amplifier/speaker enclosures of sound reinforcement systems.

In principle, the object of studio sound mixing can be given two categories:

- a) The recording of individual signals onto the multitrack tape recorder.
- b) The reduction of these individual signals into stereo and recording the "mix" onto the 2 track or stereo tape recorder.

In order to achieve the best possible results in both categories, it is essential to be able to listen to (monitor) the signals at any time during the various processes, in order to maintain a high standard of quality throughout the whole operation. This situation is optimised by the use of the S3301/3101 subgroup/monitor mix modules, in conjunction with the S4001 master monitor/stereo buss module.

The S3301/3101 subgroup/monitor mix modules serve two purposes:-

- 1) The subgroups are the source of the signals to be recorded.
- 2) The monitor mix sections monitor the signals which are either being sent to tape or being played back from the tape for the purpose of recording extra programme material (overdubbing).

The Scorpion II is supplied as either an 8, 12 or 16 buss console. This enables it to be used with either 8, 12 or 16 track tape recorders, but 24 or 32 track machines may also be easily utilised by repatching the connectors from busses 1-16 into inputs 17-24 or 17-32 at the tape recorder. The dual monitor facility of the S3101 group module on a 16 buss console provides monitoring of up to 32 tape tracks.

In each of the above cases, the number of available input and output connectors situated on the rear panel of the console, will depend upon the chassis size and the types of modules fitted. All connectors on the rear panel are labelled with their relative functions and also indicate which contact carries which signal. Below is a list of functions and their relative input or output sockets:-

Microphone Signals:

Female XLR connectors labelled "MIC". One socket per S1001/S1101 module.

High Level Input Signals:

Jacksocket labelled "LINE". One socket per S1001/S1101 module.

Signal Control Devices: (Compressor/Limiters):

Jacksocket labelled "INSERT". One socket for both send and return signals per S1001/S1101 input module, one socket for each S3301/3101/3201 subgroup module, and one socket each for left and right stereo buss outputs (S4001 module).

Signal Feeds to Outboard Effects Equipment or Musicians Headphone Monitoring (foldback):

Male XLR connectors labelled "AUX SENDS". Two sockets per S2001 module.

Return Signals from Outboard Effects Equipment:

Female XLR connectors labelled "RETURN". One socket per S2001 module. (Alternatively, S1001 LINE inputs may be used.)

Multitrack Signal Feeds:

Male XLR connector labelled "BUSS" 1 - 8 (12 or 16) as applicable. One socket per S3301/S3101 module.

Multitrack Playback Signal Returns:

Jacksocket labelled "TAPE/FX" 1 (9 or 13) - 8 (16 or 24) as applicable. One socket per S3301 module. One socket wired for 2 inputs per S3101 dual monitor module.

NOTE: The "TAPE/FX" sockets are also wired to the break contacts of the LINE INPUT jacksockets to enable the input channels (S1001/S1101) to be used to control the tape playback signals during mixdown to stereo.

Monitor mix section 1, will be wired to line input 1: monitor mix section 2, will be wired to line input 2 and so on, depending upon the number of monitor mix sections fitted to the console.

Insertion of a jackplug into the line input socket will cut off the tape playback signal and allow the line input to receive the inserted signal.

2 Track (Stereo Tape) Signal Feeds:

Male XLR connectors labelled "L BUSS" and "R BUSS". Individual sockets fed from the S4001 module.

2 Track (Stereo Tape) Playback Signal Returns:

Jacksockets labelled "TAPE 1 L" and "TAPE 1 R". Individual sockets for left and right signals. A second pair of sockets are fitted for playback signals from a second 2 Track machine labelled "TAPE 2 L" and "TAPE 2 R".

Programme Signal Monitoring:

Jacksockets labelled "MON". Individual sockets for left and right control room monitor amplifier/speaker feeds. Also a pair of paralleled stereo headphone jacksockets below the armrest at the right hand end of the console.

Auxiliary Programme Monitor Outputs:

Jacksockets labelled "AUX MON". Individual sockets for left and right auxiliary monitor amplifier/speaker feeds.

Communications:

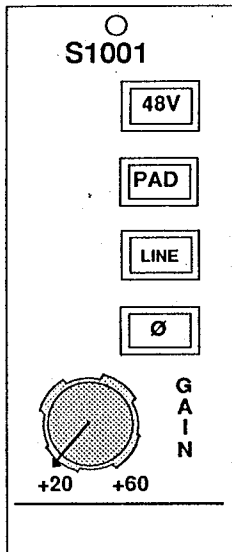
Jacksocket for talkback signal feed and control line, labelled "T/B".

3:0) S1001/S1101 MIC/LINE INPUT MODULE

The S1001/S1101 input module is a 30mm wide (approx) single module panel containing all the relevant functions and controls which are pertinent to the manipulation of each individual input signal. The fader is mounted on a separate panel directly below and in line with the module.

3:1) Input Amplifier Section:

The Microphone and Line level inputs are selected using the "LINE" switch, which selects the Line input when depressed. The microphone and line inputs are electronically balanced. The Line input is used for high-level sources, such as the output from a tape recorder or an effects device.



The gain control functions for both inputs. In Mic, the gain range is +20dB to +60dB, whilst in Line, the gain range is -10dB to +30dB.

The external power supply unit is fitted with Phantom power (+48V DC) which is available at the Mic input XLR connector when the "48V" switch is depressed. Phantom power is used to feed condenser type microphones thus obviating the need for external Mic power supplies and internal Mic batteries. Normally phantom power does not harm dynamic microphones.

NOTE: If phantom power is switched on or off when the microphone input channel is active, a "click" or "thump" will be heard. This is because you are interrupting a standing DC voltage directly on the Mic input socket. Similarly, switching from MIC to LINE whilst phantom power is switched on, will have the same result for the same reason. This is not a fault.

The "PAD" switch, when pressed, drops the MIC input signal by 20dB.

The Phase "Ø" switch reverses the phase of the input signals to the Mic/Line amplifier. Thus, if a microphone or tape recorder playback output were wired out of phase, this switch enables you bring it back into phase with the other inputs without rewiring.

3:2) Setting the Input Gain:

To set the correct Mic input gain, you should first of all set the channel fader to "0" (unity gain) on its scale. Until you are used to setting up levels, work with the equaliser out of circuit. Press the "PFL" switch on the channel and observe the signal peaks on the "PFL" meter whilst adjusting the Mic input gain control. The signal peaks should reach approximately "0" on the meter scale.

By doing this, you will optimize your signal-to-noise ratio and obtain a good clean signal at the output of the desk. Once you are used to setting up levels in this way, you can start to use the equaliser (if you feel it is needed). The equaliser adds a further dimension to the need for level adjustment, but the same general procedure of watching the Pfl signal at the meter can be followed. If the output of the microphone is too great and you experience overloading, either re-position the microphone (it may be too near the signal source) or put the 20dB pad in circuit. This will reduce your input signal level and allow you a greater range of adjustment.

When mixing down, you will replay the multitrack tape through the Line amplifier and into the channel. Normally the Line gain control will be set at "0" on the pot scale, (Unity Gain). If your replay signal level needs further adjustment, it may be trimmed up or down using the Line gain control.

3:3) The Equaliser:

The equaliser is a 4-band semi-parametric device with swept frequency midrange controls. The control ranges are as follows:-

HF : +/-15dB boost/cut, switch-selectable to either of two turnover frequencies, 6KHz or 12KHz;

MF1: +/-15dB boost/cut, with bandcentre swept over the range 500Hz to 18KHz. Two Q (slope) factors may be selected, either 4dB or 8dB/octave.

MF2: +/-15dB boost/cut, with bandcentre swept over the range 100Hz to 5KHz. Two Q (slope) factors may be selected, either 4dB or 8dB/octave.

LF : +/-15dB boost/cut, switch-selectable to either of two turnover frequencies, 60Hz or 120Hz.

All boost/cut pots are centre indented at the "0" (unity gain) position.

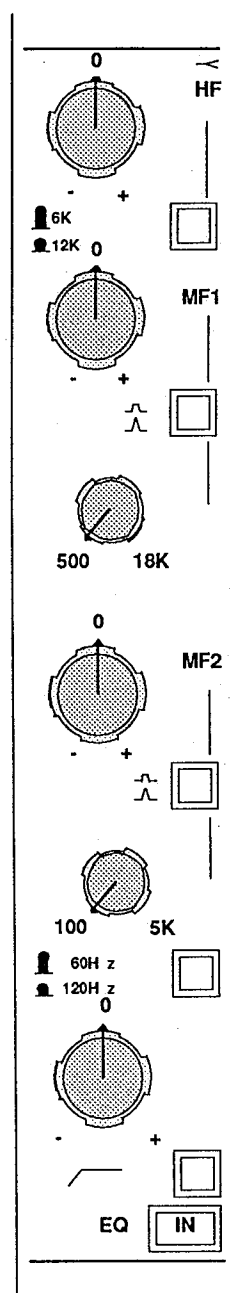
A High Pass filter is fitted in the equaliser section, with a roll-off rate of 12dB/octave below 120Hz. The signal is 3dB down at 120Hz, 12dB down at 60Hz (one octave down), and 24dB down at 30Hz (two octaves down), relative to 120Hz. The High Pass filter is used to get rid of unnecessary low frequency signals. A typical application would be to tighten up a bass drum, wherein the High Pass filter would take out any "flab" and the MF2 control could be used to boost the signal at around 100Hz. Another possible use for the high pass filter is to roll off the low frequency noise on vocals.

An eq in/out (bypass) switch is fitted. Depress the switch to bring the equaliser into circuit.

The equaliser on the Scorpion II may be used with radical effect on the signal. Until you are used to it, the following frequency settings should be selected:

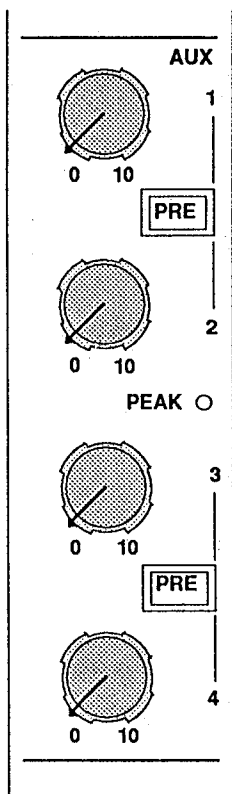
HF : 6kHz
MF1: 1kHz
MF2: 250Hz
LF : 60Hz

Starting from this point, your ears should quickly tell you how to adjust the frequency bandcentres to make the sound fit your requirements. Equalisation, however, is no substitute for recording the best possible signal in the first place. There are two major considerations, the technical and the artistic. It is important to ensure that the signal is technically satisfactory i.e. there are no buzzes, hums, spillage, overloading or distortion at any point in the signal chain. Artistically speaking, you should commence with the final concept of the music borne in mind, and record sounds which require no further equalisation or signal processing. If this is done, then you will be able to use the Scorpion equaliser to be creative rather than using it to try and compensate for deficiencies in the recording.



3:4) Auxiliary Sends:

The S1001 channel has 4 independent rotary auxiliary sends.



S1101 has 8 independent auxiliary sends on 4 dual concentric rotary pots. The outputs from the sends are summed in the S2001 modules.

Auxiliary sends have two primary functions:

- a) To send signals from the channel to effects devices, such as reverbs, digital delays, etc...
- b) To provide foldback for the musicians.

On the S1001, auxiliary sends 1-2 and sends 3-4 are switchable pre or post fade as pairs by means of a switch labelled "PRE". On the S1101, the 8 auxiliary sends are switchable pre or post fade in groups of four.

When the sends are in "pre" mode, movements of the channel fader will not affect the output from the sends. When the sends are in "post" mode, fader movements will make the output of the sends vary in direct proportion to the fader movements. The sends are in "pre" mode when the switch is depressed.

Thus, if you wished to add reverb to the signal in the channel you were operating, and you wanted the reverb to fade with the dry (non-reverb signal), you would set the respective auxiliary sends post-fader. As you moved the fader down, so the reverb would fade with it.

On the other hand, if you were using the sends for foldback (musicians headphone monitoring), you would set them pre-fader, since you may need to move the fader without disturbing the levels you had sent to the musicians.

When mixing down to stereo, various effects devices will be fed from the auxiliary busses, so you may choose which device you send to, by simply

selecting whichever buss feeds the device of your choice and adjusting the auxiliary send level control until the desired effect is achieved.

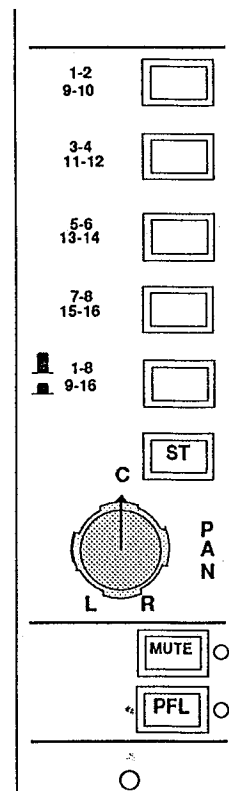
3:5) Fader, panpot, Mute and PFL:

The Fader is a high quality 100mm travel unit of robust mechanical construction and is the main control used for the fine level adjustments which may be required during recording, and is especially important as the fine balance control for each individual musical signal which is being mixed into stereo.

Located above it is the main Panpot. This allows panning between odd and even (and Left & Right) busses as selected by the routing. Like all panpots on the console, it is centre-indented for fast location of the middle position, and is -3dB at centre.

The main channel "MUTE" switch when pressed, cuts all outputs from the channel. An LED indicator by the switch will illuminate when the switch is operated, to give a visual indication of Mute status.

The "PFL" (pre-fade listen) switch, normally latching, allows you to listen to the channel signal pre-fader and hence, set up the correct gain structure through the channel circuit before the signal is fed to any of the outputs which are post fader.



The "PFL" switch is also pre- the "MUTE" switch in the circuit, thus, even if the channel is muted, you can hear if there is signal present. The "PFL" meter will give you a simultaneous visual indication of signal level when the "PFL" switch is operated.

An overload LED labelled "PEAK" is fitted just below the Pfl switch, which illuminates when the post-equaliser signal reaches 4dB below clipping point, ie, at +18dB. Illumination of the Peak LED does not necessarily mean that the channel signal is distorting, your ears will tell you this, it is a visual warning that your musical signal peaks are rising close to the clipping point.

3:6) Routing:

The routing switches enable the signal from the channel fader to be sent via the panpot, to one or more of the group buss outputs or to the main stereo output.

The busses are selected through a bank of 4 switches which are labelled 1-2 (9-10), 3-4 (11-12), 5-6 (13-14) and 7-8 (15-16) respectively. They access the 16 group busses in pairs, using the bank select master switch (labelled 1-8 / 9-16), and the panpot.

When the bank select master is not pressed, the 4 routing switches will send the fader signal to busses 1 - 8. When the bank select master is pressed, the 4 routing switches will send the fader signal to busses 9 - 16. Thus, if you want to send the signal to track 16, press the bank select switch, the routing button labelled "9 - 16", and turn the panpot hard right. (Left corresponds to odd-numbered busses, and Right corresponds to even-numbered busses).

On 8 buss versions of the console, pressing the bank select master mutes the outputs of the channel to the group busses, but does not mute the channel, leaving the auxiliary sends open.

On 12 buss versions, the switches normally assigned to routing to busses 13-14 and 15-16 have no function.

Care should be taken to turn the panpot in the correct direction for the group buss you have selected, otherwise you will not hear the signal.

To address the stereo output, all you have to do is press the switch labelled "ST". It is, of course, possible to select any 8 group busses in a bank, and the stereo buss at the same time.

Consoles that have a Matrix are always 8 buss. In these versions, the bank select switches may be used to address the matrix directly from the input channel. When the bank select master is not pressed, the 4 routing switches will send the fader signal to busses 1-8 as usual. However, pressing the bank select master and routing the signal to "group 9" will in fact address matrix send 1; routing the signal to "group 10" addresses matrix send 2 and so on to "group 16" which addresses matrix send 8.

In consoles with a matrix and 8 aux sends, it is only possible to address matrix sends 1-4 selecting groups 9-12. It is not possible to address matrix sends 5-8 directly from the input channels as the extra busses are occupied by aux sends 5-8.

The group busses are summed in the S3101, S3201 and S3301 modules. Thus, when you select buss 2 for example, your signal will go to mix buss 2, which has its output controlled by group fader 2.

The group outputs control the signals which feed the multitrack tape recorder.

The stereo buss is summed in the S4001 module with the stereo output faders controlling the signals which feed the 2 track (stereo) tape recorder.

When you are mixing down you will normally send the fader signals directly to the stereo buss, but it is possible to use the group faders as subgroups for controlling a number of similar signals i.e. the drumkit and then passing their outputs into stereo. The uses of subgrouping are described in greater detail in section 5:0.

As so many configurations of Scorpion II are available, it would be impractical to outline all the options open to the recording engineer in the space available here. Although 24 track recording is possible using most console formats, the most effective is probably the Scorpion configured 28:12:2:24. This allows full 24 track monitoring using the S3101 group modules, while leaving 4 input channels "free" for effects returns where the full facilities of EQ etc are required.

On a 16 buss Scorpion, 24 track recording may be achieved by feeding tracks 1-16 on the tape machine from group outputs 1-16 on the Scorpion. Signals to tracks 17-24 will be fed from the direct post fader outputs from channels 17-24 on the rear of the console. This will of course mean, that channel 17 always feeds track 17 and so on, whilst tracks 1-16 may be fed from any input module via the routing.

On the X chassis Scorpion, it is possible to configure the modules such that 32 track recording is achieved. Tracks 1-16 will be fed from group outputs 1-16 (S3101 modules), the signals to tracks 17-32 being once again fed from the direct outputs from channels 17-32 on the rear of the console. Full 32 track monitoring is thus available on mixdown, assuming that the console is a 32-16-2 with 16 S3101.

On SF chassis size Scorpion desks it is only possible to have 8 group busses, but by using direct outputs 9 - 16, and fitting S3101 modules, 16 track recording can be achieved.

An alternative arrangement to using direct outputs would be to hard wire the group outputs to 2 tracks of the multitrack tape recorder e.g. in 16/8/2 format, wire group output 1 to tracks 1 and 9, group output 2 to tracks 2 and 10 and so on through to group 8 wired to tracks 8 and 16. To record on the chosen track, simply route the signal to group buss which feeds it and switch the chosen track into "record mode" on the tape machine.

3:7) Insertion Point:

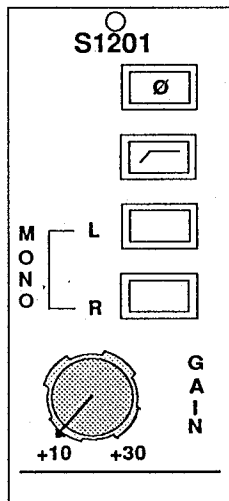
Whereas auxiliary sends are used to feed effects devices which may be used on more than one signal i.e. reverb or echo (delay) and which only require slow or occasional changes in input level, inserts are principally used for introducing fast gain control devices (ie compressor-limiters, expander-gates) into the channel circuit.

The channel insert is after the equaliser and is terminated in a stereo jack. The tip of the jack is insert send, whilst the ring is return to the input of the fader.

4:0) S1201 STEREO LINE INPUT MODULE

The S1201 Stereo Line input module is a 30mm wide (approx) single module panel containing all the relevant functions and controls pertinent to the manipulation of each stereo line input to the console. The stereo fader is mounted on a separate panel directly below and in line with the module.

4:1) Input Amplifier Section:



Both Line inputs to the module (Left and Right) are electronically balanced with an impedance of 10K ohms. Gain is controlled for both inputs from the same rotary pot, and covers the range -10dB to +30dB

The Switch marked MONO L allows the Left input signal to be routed equally to both Left and Right channels of the stereo module.

The switch marked MONO R allows the Right input signal to be routed equally to both Left and Right channels of the stereo module.

If Both switches marked MONO L and MONO R are pressed at the same time, a mono sum of the left and right inputs is fed equally to both sides of the stereo module.

A Roll-Off switch is provided which selects a 120Hz, 12dB/octave High-Pass Filter which may be used to eliminate any undesirable low frequency noise.

A Phase Reversal switch "Ø" is provided to reverse the phase (polarity) of both the Left and Right signal sources.

4:2 The Stereo Equaliser:

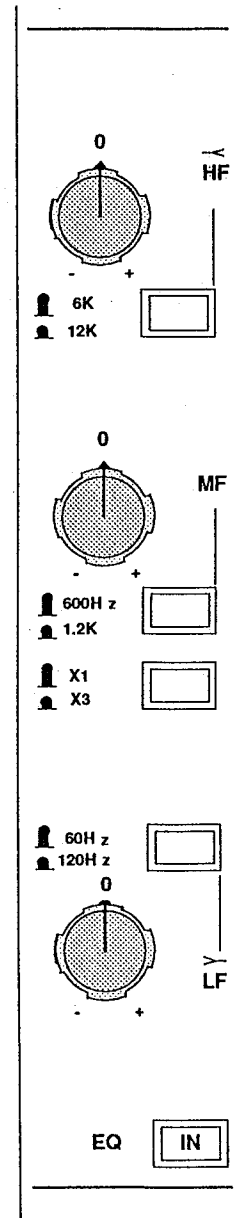
The module is provided with a three band stereo equaliser which affects both channels of the module. The control ranges are as follows:

HF: +/- 15dB, with switched turnover points 6KHz/12KHz

MF: +/- 15dB, with switched turnover points 600Hz/1.2KHz; with x3 control, 1.8KHz or 3.6KHz.

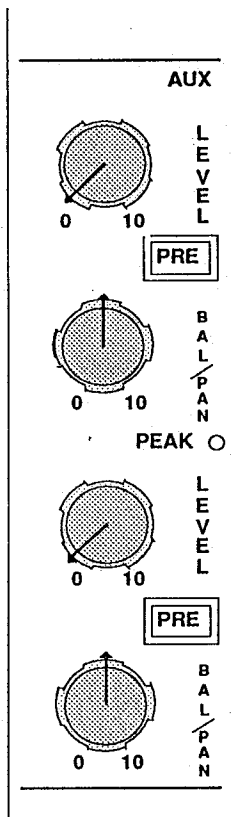
LF: +/- 15dB, with switched turnover points 60Hz/120Hz.

An EQ bypass switch is fitted. Depress the switch to bring the EQ into the circuit.



4:3) Stereo Auxiliary Sends:

Two stereo auxiliary sends are fitted, each consisting of Level, Pan and Pre/Post switch.



Stereo Send 1 is panned across auxiliary busses 1 and 2

Stereo Send 2 is panned across auxiliary busses 3 and 4

The Pre/Post switches operate in a similar manner to the equivalent functions on the S1000/S1100 modules.

4:4) Fader, Mute, PFL and Overload:

A 100mm track length stereo fader is used, situated on a separate fader panel immediately below and in line with the module, with a Mute which cuts the output from both channels.

The PFL switch provides a mono sum of Left and Right signals.

The stereo Overload indicator indicates if signal level exceeds +18dBv on either Left or Right channels.

4:5) Routing:

The routing system employed on the stereo module is similar to that used on the mono input modules S1001/S1101. However, the Left input signal is routed to the Odd-numbered busses, whilst the Right input signal is routed to the Even-numbered busses.

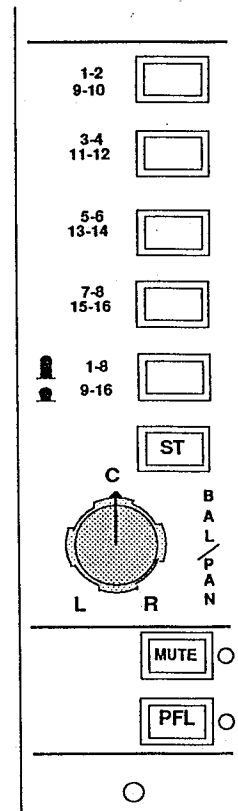
The Balance/Pan control is -3dB at centre.

4:6) Insertion Points:

Separate Left and Right inserts are provided, accessed via stereo jacks mounted on the backpanel.

There are no Direct Outputs from the module

It is not possible to mount stereo line input modules in tape return module positions. Thus in an 8 buss single monitor console, stereo modules cannot be fitted to input module positions 1-8. In an 8 buss dual monitor console, they cannot be fitted to the first 16 module positions. In a 16 buss single monitor console, they cannot be fitted in input module positions 1-16, in a 16 buss dual monitor, they cannot be fitted to input module positions 1-32, and so on.



5:0) S2001 AUXILIARY MASTER SEND/RETURN MODULE:

The S2001 modules are approx 30mm wide and contain all the relevant controls for sending music signals both to and from external effects equipment.

Each S2001 Auxiliary Master module contains 2 auxiliary sends, summed from all the input modules on the console. The levels of these sends are controlled by two independent rotary pots.

Thus two S2001 modules are fitted to Scorpions with S1001 input modules (i.e. 4 auxiliary sends), whereas 4 S2001 modules are fitted to Scorpions with S1101 input modules (i.e. 8 auxiliary sends).

Each S2001 module has one auxiliary high-level input for an effects device return.

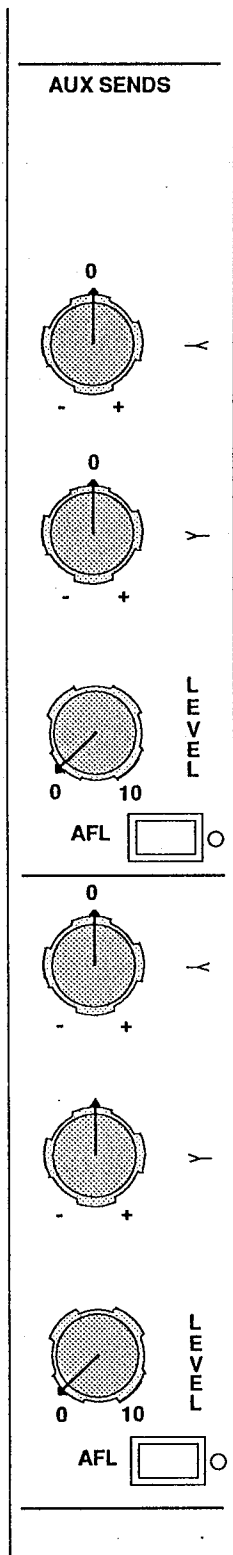
The return signal level is controlled by a fader.

5:1) Master Auxiliary Send:

Each master send has a rotary level control which has 6dB extra gain above the unity gain point (approximately 1 o'clock on the travel of the pot). During normal operation, you will set the send master at the unity gain position, as this gives an overall reference point from which to work.

Each master send has an "AFL" (after-fade listen) switch. This is similar to Pfl (Pre-fade listen), except that the signal is taken after the level control pot. Thus, if you listen on your monitor speakers, as you turn the level pot up and down, the Afl level will vary directly and a visual indication of the level will be displayed on the Pfl/Afl meter.

Each master send also has its own 2-band equaliser. The controls are :
 HF : +/-14dB -shelving with a turnover point at 10KHz;
 LF : +/-14dB -shelving with a turnover point at 100Hz.



5:2) Auxiliary Returns:

The returns are high-level (Line level) inputs suitable for Effects devices or the outputs of stereo tape recorders. Each return is similar to a normal input channel, except with reduced facilities. They are however, fitted with a panpot and routing buttons which function in exactly the same way as those on the S1001 modules. This allows you to record effects signals on the multitrack and stereo tape recorders.

The input level gain may be adjusted using the recessed trim pot. This has a gain range of 20dB. No eq is fitted to the returns, but there are two auxiliary sends with their own pre/post switch, which allow the Effects return signal to be routed into Auxiliary master busses 3 & 4.

There are two reasons for having auxiliary send controls on the Auxiliary return sections. These are:-

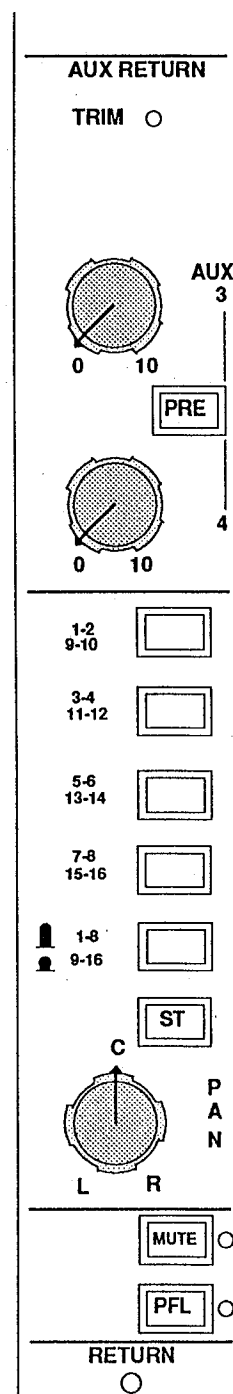
a) If musicians foldback is taken from the input channels, it will be "dry", i.e. without reverb. It can be helpful to the musicians to have some reverb on the foldback signal to enhance it. This can be achieved by feeding some of the reverb output signal into the auxiliary send master busses 3 & 4 which would feed the foldback amplifier/headphone system.

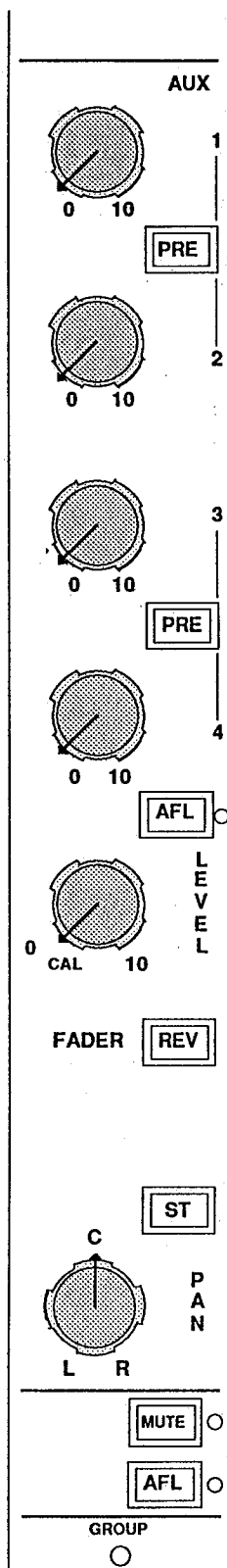
b) Certain special effects can be obtained from some types of equipment by feeding some of the output back into the input often termed "spin". This is achieved by feeding the effects device output via the auxiliary send pots back into the auxiliary master buss which is feeding it, although careful level adjustments must be made in order to avoid the "loop" becoming unstable and causing feedback (howling or oscillation). This method of operation is in fact less important, because many pieces of effects equipment now have this facility built into them.

The auxiliary return signals are routed to the output busses by an identical switching and panpot system to that provided on the S1001 input channel.

The output level of the return is controlled by a 100mm fader, which has Mute and Pfl switches which also function in the same way as those on the S1001 input.

The effects return signal may thus be routed to any output of the desk, so that if you want to record a signal with effects (often termed "wet"), then you will have no difficulty in doing so.





6:0) S3301 SUBGROUP / BUSS OUTPUT / MONITOR MIX MODULE + EQ MODULE:

The S3301 module is approx 30mm wide and combines four functions:

- a) Subgrouping;
- b) Buss outputs for sending signals to tape;
- c) Monitor mix for monitoring signals during recording;
- d) Additional effects return (utilising the monitor mix section).

The module is divided into two sections, the fader section and the monitor mix section. The fader is identical to those used on the S1001 modules and a "MUTE" and "AFL" switch are fitted. The monitor mix section is fitted with a rotary level control with a "CAL" (unity gain) position, a switch labelled "BUSS / TAPE/FX" which selects the monitor input, a panpot which feeds the stereo buss via stereo "on/off" switch (labelled "ST"), a fader reverse switch labelled "REV" (see section 5:5) and 4 auxiliary sends feeding aux busses 1- 4 with a pre/post switch selectable in pairs.

A pre-fader insertion point is fitted to the group fader section.

6:1) Subgroup Mode:

A subgroup basically enables you to control the level of a number of input channels using one or two group faders, i.e. as mono or stereo subgroups, which is often essential when mixing down to stereo or in sound reinforcement work.

The subgroup faders are accessed by the routing buttons on the S1001 modules. The routing buttons select the subgroup faders in pairs and the S1001 panpot allows you to send the signal to either group fader by panning hard right or left, or to both faders by leaving the panpot central.

To route a signal to subgroup fader 8 from channel 1 for example, all you need to do is press routing button "7 - 8" on the input channel and select the bank switch to "1 - 8" and pan hard right. Similarly, if you want to send a signal to subgroup fader 11 from input channel 24, all you do is press routing button "11 - 12" on input channel 24, select the bank switch to "9 - 16" and pan hard left. Care should be taken to select subgroups properly, especially with the panpot, otherwise the signals will not appear.

To form a stereo subgroup, two subgroup faders will be selected on the input modules. For example, suppose your drum kit occupied 5 tracks on the multi-track tape and were being fed back into the console through channels 1 to 5, the signals being bass drum, snare, hi-hat, and overheads Left and Right. To control the overall level of the kit, it would be easier to form a stereo subgroup using subgroup faders 1 & 2.

The method is explained in the following steps:

The stereo faders on the S4001 module should be at "0" on their scale and the master monitor level control selected to listen to the stereo buss.

- a) Select routing busses "1 & 2" on each input channel 1 to 5;
- b) Select "1 - 8" on the bank switch of each input channel 1 to 5;
- c) Ensure that the stereo assign button "ST" is not pressed on each input channel 1 - 5.
- d) Set subgroup faders 1 & 2 to "0" (unity gain) on their scale;
- e) Pan Subgroup fader 1 hard left and subgroup fader 2 hard right otherwise your stereo image will be confused.

- f) Select stereo 'on' ("ST") and turn the monitor level pot to the "CAL" position.
- g) Select "BUSS" on the monitor input select switch.
- h) Replay your tape, setting the signal levels and panpots on the channel faders and panpots, so that you are pleased with level and stereo image.
- i) Move subgroup faders 1 & 2 up and down; you will find that the level of the drumkit is completely variable without upsetting the panning or the mix balance.

NOTE The monitor section feeds the stereo buss via the panpot, therefore by selecting "BUSS" on the monitor input, the buss output signal from the group fader is routed through to the stereo buss. The monitor pot is selected to "CAL" (unity gain) so that it does not interfere with the signal levels. The monitor section is not used during mixdown as the tape signals now pass through the input channels into stereo directly, or via a subgroup.

The group fader signal output may be cut using the "MUTE" switch, whilst the "AFL" button, which is post-fader, allows you to monitor the signal as described for the S1001 module.

6:2) Buss Output Mode:

Each group fader serves as a buss master output level control. The buss outputs will feed the signals to the multitrack tape recorder, thus fader 1 controls the level of buss 1 (tape track 1); fader 2, of buss 2 (tape track 2), and so on.

The group fader should be set to "0" on the scale (the unity gain position). This means that the level you send to that buss from the input channels will be sent to the output XLR connector without any alteration, unless desired.

The routing of signals to the group faders is identical to the method described in the above section 6:1.

6:3 Monitor mix mode:

The function of the A/B monitor mix is to provide the recording engineer and the musicians with a stereo mix which is built up from combinations of signals being sent from the desk (A, or BUSS OUTPUT) and signals being returned from the multitrack tape recorder (B, or TAPE RETURN). The B signals may be either replay or sync signals.

On the S3301 channel the switch which selects the input to the monitor mix channel is denoted Buss/Tape-FX. When the switch is up (Buss), the input to the monitor level control is taken from the group fader, and the output of the fader is fed to a socket which in turn is connected to the input of the same-numbered track on the tape machine (ie buss 1 feeds track 1, etc).

When the switch is down (Tape-FX), the channel receives whatever signal is present on the S3301 input socket. Normally, this will be the output of the tape machine, but it could be the output of an effects device, according to what you choose to plug into it. This "tape monitor" may also be used as an extra line input when a number of programmable musical instruments (eg drum machines or sequencers) will be recorded direct to stereo, thus a Scorpion II configured 24/16/2 allows 40 inputs to be mixed to stereo.

A 3-band equaliser may be switched in/out of the monitor section, the characteristics of which are:

HF: +/-14dB shelving at 10KHz

MF: +/-14dB peak and dip at 3KHz

LF: +/- 14dB shelving at 80Hz

The output of the monitor mix channels is to the stereo mix buss. You will normally listen with your monitor speakers (or headphones) to the stereo buss by selecting 'ST' on the master monitor input selector switches on the S4001 master module.

The stereo master output faders on the S4001 module should be set to '0' (Unity Gain) on the fader scale, to provide a correct reference level for all other gain stages in the desk.

The usage of the monitor mix channels, then, is simple: when you begin to record tracks, you will set the respective channels to A (Buss), and you will listen to the output of the group faders. If you press B (Tape-FX) on those monitor channels, you will hear the output of the tape machine.

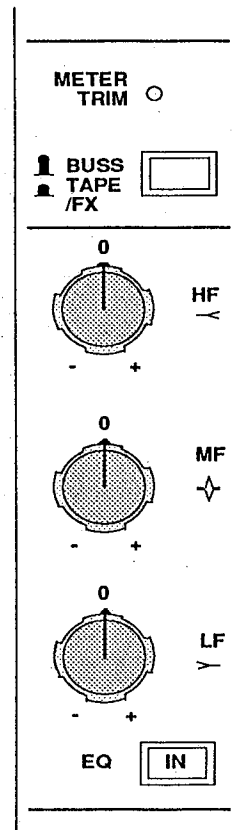
Once you have recorded your original tracks, you will want to overdub more signals (such as a guitar solo, lead vocal, etc). You will then set all the monitor mix channels to B, so that you will hear sync signals from the tape recorder.

These signals may be sent to foldback headphones using the 4 auxiliary sends which are fitted to each monitor channel. They will follow the source selected on the Buss/Tape-FX switch. These auxiliary sends have outputs to aux busses 1, 2, 3 & 4, so your foldback amplifier will be connected to any pair of these aux busses, while the other pair might be used to provide phantom echo (echo on monitor).

2 pre/post switches are provided to switch aux sends 1 and 2, and 3 and 4 pre or post the monitor return pot in pairs. When using aux sends for foldback they should be set pre-fader, so that if you adjust the monitor level (ie level in the control room), it will not affect the foldback level (ie level to the musicians). If on the other hand you use these auxiliaries as effects sends, you should set them post fader.

You will select those monitor channels you wish to use by pressing the 'ST' button on each monitor channel. If the button is not pressed, the channel will not feed to the stereo buss. However, the auxiliaries, if pre fade, will continue to operate as usual. They can be muted by pressing the Mute button.

A panpot follows the monitor level control, allowing a proper stereo image to be set up for your monitor mix.



6:4) Additional Effects Return Mode:

It is also possible to use a monitor section to return an effects device output to the stereo mix. The output of the device will be plugged into the "TAPE/FX" socket of the monitor section and the "BUSS / TAPE/FX" switch pressed to enable the external signal to be brought into the module. The effects signal may then be panned across the stereo buss and its level controlled with the monitor level pot.

NOTE Additional effects return mode is only possible when you are NOT monitoring a tape track or using the group fader in subgroup mode.

6:5) The "REV" Switch:

When the "REV" switch is pressed, the inputs to and outputs from the monitor level control and the fader are reversed (fader reverse). This feature allows the monitor mix level to be controlled by the fader, and the buss output to be controlled by the monitor level pot.

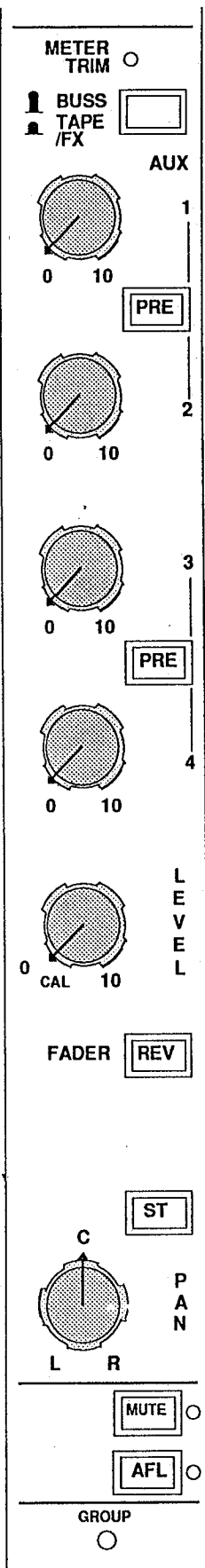
A typical use of this feature is when the monitor mix section is used as an additional effects return, allowing the level to be controlled on the fader instead of the (rotary) monitor level control.

6:6) LED metering: (VU option on LF, XF and XPB 8 buss consoles.)

Each S3301 module has its own 15 segment LED meter in the meter housing.

It is wired into circuit after the "BUSS / TAPE/FX" switch but BEFORE the monitor level control. This allows the meter to give a visual indication of the signal level present, irrespective of the position of the monitor level control. In essence, the meter reads the signal you are listening to, thus, in "BUSS" mode, the meter reads the signal level to tape, and in "TAPE/FX" mode, the meter reads the tape playback signal.

A recessed trimpot is fitted, labelled "METER TRIM", which adjusts the input sensitivity of the meter. It is factory preset such that "0" on the meter scale corresponds to an input signal level of +4dB.



7:0) S3101 SUBGROUP / DUAL MONITOR MODULE:

This module is very similar in function to S3301 module except that it is fitted with two separate monitor mix sections and no EQ section. Thus, in the SF chassis 16/8/2 configuration fitted with the S3101 module, it is possible to have complete 16-track monitoring (16/8/2 + 16); whilst in the LF chassis, it is possible to have 32-track monitoring (24/16/2 + 32). This allows the Scorpion II to be used as a complete 24 or 32-track recording console.

The value of the dual monitor mix section lies in the compactness of operation and also keeps the overall size of the desk small in applications where space saving is important. In sound reinforcement applications, the 8 additional monitor inputs may be used as 8 separate line inputs for effects returns or external signal sources such as cassette players/compact discs etc, where it is not necessary to route the signals to audio groups.

Each section is fitted with a "BUSS / TAPE/FX" switch, level control, stereo assign switch, panpot, and 4 auxiliary sends with pre/post switches.

The subgroup fader section is identical to the S3301 module, and a pre-fader insertion point is fitted.

7:1) Subgrouping:

Subgrouping is carried out using the method described in section 6:1.

7:2) Lower Monitor Section:

In each S3101 module, the controls of the lower monitor section (ie next to the fader) function in exactly the same way as do those of the S3301 module. 4 separate auxiliary sends are fitted, each pair with its own pre/post fader control switch. Thus, sends 1 & 2 could be used for phantom echo (echo on monitor) whilst 3 & 4 could be used for foldback to the musicians. There is no equaliser section on the S3101.

A "REV" switch is fitted for fader reverse mode which operates exactly as described in section 6:5.

7:3) Upper Monitor Section:

The upper monitor section is completely independent from the lower monitor. The controls are similar to those of the lower monitor, with the exception of the Fader Reverse switch, which is not required.

The output of the upper monitor section is fed to the stereo buss via the "ST" switch. A "MUTE" switch is fitted which cuts all outputs from the monitor section, including the 4 auxiliary sends, and an "AFL" switch is also provided. Each upper monitor section has its input selected by the "BUSS / TAPE/FX" switch. In "BUSS" position, the input will come from the direct outputs of input channels 9 - 16 in the SF chassis version (16/8/2) and from the direct outputs of input channels 17 - 24 in the LF chassis version (24/16/2). This means that 16 tracks may be recorded and monitored simultaneously with the SF version and 24 tracks simultaneously with the LF version. In the "TAPE/FX" position, the signal is received from the input jack connector which would be connected to the multitrack tape outputs.

The upper monitor section has no "CAL" position on the monitor pot, as this is not required. The unity gain position on the pot is found at about 1 o'clock.

NOTE: Since the two separate monitor inputs are sourced from the TIP and RING contacts of the same stereo jacksocket, the dual level selection for 0dB or -12dB operation is set up from a switch inside each module.

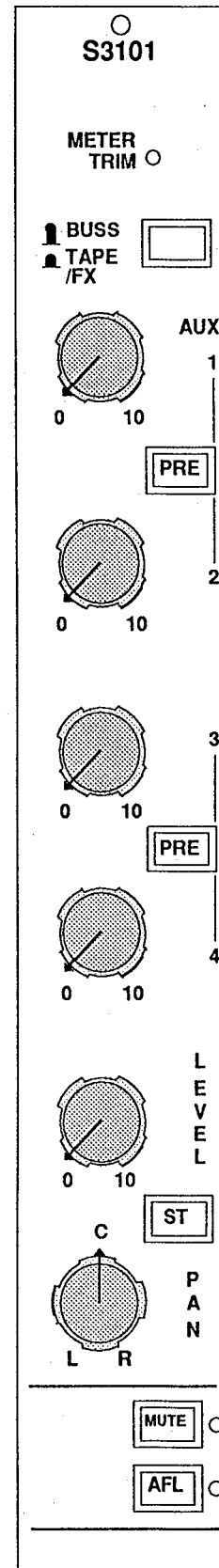
NOTE: The upper monitor section may be used as an additional effects return input at ANY TIME whilst the lower monitor section may be used as an additional effects return ONLY when the subgroup fader is NOT IN USE or when it is NOT being used for tape playback monitoring.

7:4) LED Metering: (VU option on LF, XF and XPB 8 buss consoles.)

Each monitor section has its own independent LED meter which functions exactly as described in section 6:6. Each meter has its own recessed trimpot for recalibration purposes and is factory preset such that "0" on the meter scale corresponds to an input signal level of +4dB.

7:5) INSERTS:

A pre-fader insert is provided on each group output.



8:0) S3201 SUBGROUP / MATRIX OUTPUT MODULE:

The S3201 subgroup/matrix module is 30mm wide and is intended for use in sound reinforcement and theatre sound applications where a number of secondary signals are required to be distributed round the auditorium in support of the main stereo signal. All the subgrouping facilities available on the S3301 module are featured on the S3201 module.

The secondary or Matrix outputs would typically be used to feed flown speaker systems when the main system is on the ground, a central cluster or delay towers etc. They may also be used to supply feeds from the front of house desk to the foldback console carrying effects returns and any other signals generated by the out front engineer that may be required on stage.

Many theatres do not employ a simple left/right configuration for their speaker systems, but have instead various systems in various locations around the auditorium in order to attain optimum coverage not only over the main body of the theatre, but also to the balconies etc. The matrix allows fine tuning of such setups, as up to eight separate mixes may be fed to these discrete points as well as the main left/right outputs of the console. Special effects are another area where the matrix can be of major benefit to the theatre sound engineer, allowing the introduction of effects into unusual locations during the performance.

8:1) Subgrouping:

Subgrouping on the S3201 module is achieved in the same manner as described in section 6:1 for the S3301 module, using the panpot and stereo assign switch.

The subgroup fader is identical to that on the S3301 module and is fitted with a "MUTE" and "AFL" switch (with LED indicators), a panpot, and a stereo assign switch. A pre-fader insertion point is also fitted.

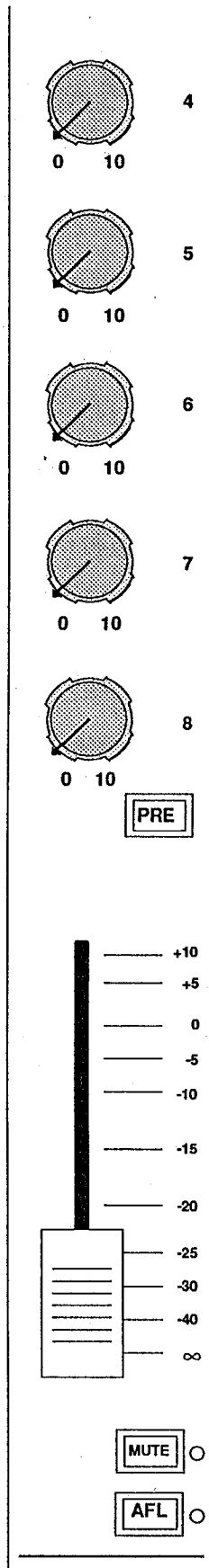
A post fader buss output is still available at the rear panel.

8:2) Matrix Output:

The matrix is defined as 8 x 8 because there are normally 8 S3201 modules fitted to the console, and each module is fitted with 8 rotary controls to provide a further 8 secondary outputs from the group. These 8 pots control the level of signal being sent from the group to each of the 8 matrix outputs.

These signals are summed at the Matrix Master faders, one of which is fitted to each group module. Thus the output from all the pots marked "1" on the matrix section of the group modules are summed at Matrix Master 1 which is on group module 1; outputs from pots marked "2" are summed at Matrix Master 2 which is on the group module 2 and so on to module 8.

Each of the 8 matrix outputs are derived from the 8 sub-group busses, and the sends may be pre or post sub-group fader according to the setting of the pre/post switch. If pre, movements of the sub-group fader will not affect levels sent from the matrix pots; if post, sub-group fader movements will alter all levels sent from the matrix pots equally.



The 8 matrix outputs are each summed in one of the 8 S3201 modules. Matrix output one is therefore controlled by the short fader on S3201 module one, and so on, through to module 8. Each matrix output is terminated in a jack socket.

The matrix has its own MUTE and AFL controls, with LED indicators, completely independent of those provided on the sub-group itself. The AFL control is post fader. The MUTE will cut off all outputs from the matrix only.

A unique feature of the Scorpion II, is that it is possible to assign an input channel directly to the matrix, without the signal feeding to the sub-groups at all. This is because on PA formats mix-busses 9-16 are not used, and thus these are available. Thus if the bank-selector on the input module is set to 9-16, and the buss assign 9-10 is pressed, with the pan hard left, the signal will be assigned to buss 9, and this will feed the input signal directly to matrix one. Accordingly buss 10 is matrix 2 and so on to buss 16 being matrix 8. On versions with 8 auxiliary sends only busses 9-12 can be assigned direct to the matrix, ie to matrix 1-4.

N.B. Therefore: Routing a signal from the S1001 module to buss 1-8 connects to sub group 1-8 in the normal way. Routing a signal to buss 9-16 connects directly to matrix buss 1-8 (i.e. buss 9 connects to matrix buss 1, buss 10 to matrix buss 2 etc.). This is possible because S3201 modules are only used with 8 buss consoles.

This novel feature has many applications. Apart from the obvious advantages which accrue from being able to assign signals to the matrix which are not in the stereo mix, it is also possible to parallel a signal to 2 input modules. This is achieved by plugging one end of a patch cord that has tip and ring normalled into the insert of one channel, and the other end into the Line input of a second channel. The first channel may then be used to feed the subgroups in the normal way, while the second may be assigned to a Matrix Master send while being equalised independently of the signal being fed to the main P.A. This can be particularly useful when on-stage foldback is being mixed from the front of house desk as it provides not only additional mixes, but also signals equalised to suit the on-stage requirements rather than the main P.A. mix.

Where S1201 Stereo line input modules are fitted to a console with the Matrix facility, group busses 1-8 are assigned in the normal way, while assigning busses 9-10 will address matrix Master outputs 1-2, the Left side addressing matrix 1, and the right side matrix 2. Assigning the signal to busses 11-12 addresses matrix master sends 3-4, and so on. This means of course, that the signal from, say, a CD player could be fed direct to a secondary speaker system in a theatre while the main production dialogue continues over the main P.A. Such a facility can greatly expand the possibilities open to the creative sound engineer.

Where S1101 modules and 4xS2001 modules are fitted on consoles with 8 aux sends however, it is only possible to route directly to matrix inputs 1-4 by selecting groups 9-12. Selecting groups 13-16 will not feed matrix inputs 5-8 as these busses are occupied by aux sends 5-8.

The Matrix Master output fader is a short travel unit with a "MUTE" and "AFL" switch. These switches each have LED indicators. Both the MUTE and AFL switches are completely independent of those provided on the subgroup itself. Operation of these controls will not affect the functions of the subgroup section.

A meter select switch is fitted, selecting group fader output or matrix fader output. Thus when the meter switch is in the "up" position, the output from the group is seen, while depressing the switch means the meter reads the output from the Matrix Master.

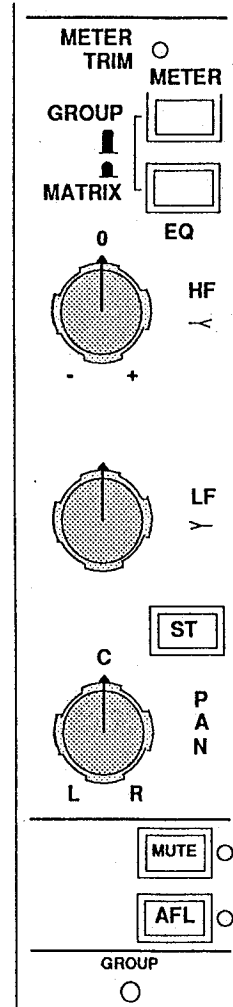
8:3) Equaliser:

A simple two-band shelving equaliser is fitted, operating with +/-14dB boost/cut at 10Khz in the High frequency, and at 80Hz in the Low frequency. Using the selector switch provided, the equaliser may be routed either into the subgroup output section or into the matrix output section, as required. In either mode, the equaliser is post fader.

8:4) LED Metering: (Optional VU on LF, XF and XPB 8 buss consoles.)

Each S3201 Subgroup/Matrix output module has its own LED meter, the input to which may be selected by the "GROUP/MATRIX" switch. In "GROUP" mode, the meter reads the group fader output, whilst in "MATRIX" mode, the meter reads the matrix fader output.

A recessed meter trim is provided for recalibration purposes which is factory preset such that "0" on the meter scale corresponds to an input signal level of +4dB.



9:0) S4001 MASTER MONITOR / STEREO BUSS OUTPUT MODULE:

The S4001 module is approx 30mm wide and provides the overall master monitor and control functions for the console. This includes:-

- a) Stereo buss output;
- b) Headphone and monitor speaker input selection;
- c) Auxiliary monitor output;
- d) Line up oscillator with 3 switch-selectable frequencies;
- e) Talkback system;
- f) VU/PEAK ballistic selector switch for the Left, Right and PFL LED meters;

9:1) Stereo Output:

In the Scorpion II console, all monitoring and mixing is done through the stereo mix buss, which is used at all times. During recording on the multitrack tape machine, the monitor mix sections of the S3301/S3101 modules will feed the stereo buss with a combination of "BUSS" and "TAPE/FX" signals. During mixdown, all signals will go to the stereo buss, either directly from the S1001/S1101 modules or via the subgroups to the stereo buss, which is summed in the S4001 module.

The stereo buss outputs will feed the inputs of the 2 track (stereo) tape recorder.

Two separate faders are provided for Left and Right outputs, which are identical to those used on all the other modules, but they are so close that it is no problem to move them up and down together.

During normal operation, these faders will be set at "0" on the scale. By doing this, you create a reference point to which you can work, and which will assist you in optimizing your signal-to-noise ratio and headroom. The stereo output can be completely cut by pressing the "MUTE" switch located immediately above the faders.

In sound reinforcement applications, the stereo buss will be used to drive the amplifier/speaker system; Headphone monitoring is provided.

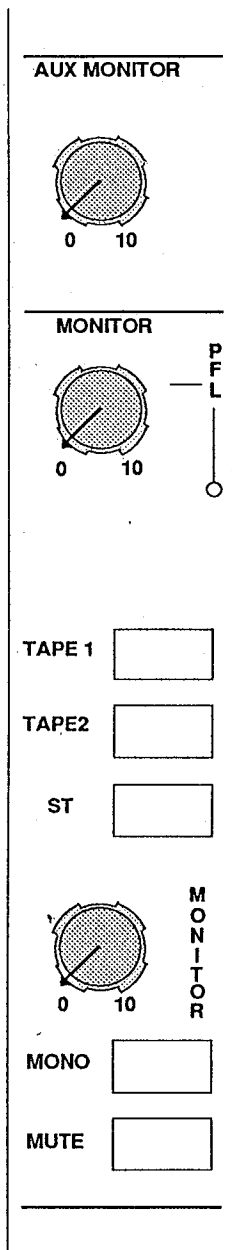
9:2) Monitor Input Selection:

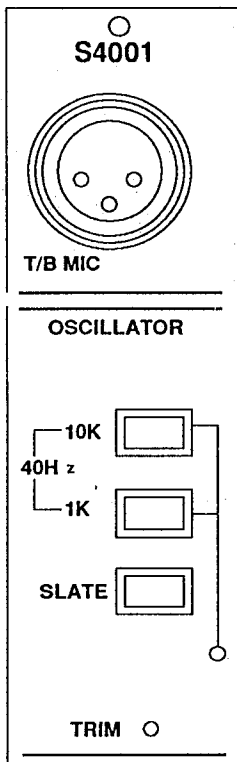
The normal monitoring mode will be to listen directly off the stereo buss outputs in the master monitor section. 3 interlocking switches provide the input to the monitors, with selection between two external stereo sources, and the stereo buss output. The two external sources will normally be stereo tape machine playback outputs (your mixdown machines), but they can be any high level stereo source, such as effects devices, etc.

The level to your monitor speakers is controlled by the monitor level pot. The "MUTE" switch cuts the monitors off completely.

MONO: The switch marked MONO, when pressed, provides a mono sum of both Left and Right outputs of the stereo buss to both left and right monitor outputs.

When you press any of the "PFL" or "AFL" buttons on the console, the signal will automatically override the monitor input you have taken from the selector switches and the LED will illuminate. The overall PFL/AFL level in the monitors or headphones can be adjusted using the Pfl level control.





Two stereo headphone output sockets are fitted just below the armrest at the right hand side of the console, which are fed from the main monitor section, along with the normal monitor amplifier/speaker outputs on the rear panel. These are often used as a comparison reference between the sound of the main monitor speakers and the sound of the headphones, to ascertain that the finished stereo recording will be of suitable quality when played back over small hi-fi speakers or other headphones.

The most common function is to listen to the Afl signals from the auxiliary master sections of the S2001 modules which are being used for musicians foldback during multitrack recording. This enables the recording engineer to hear exactly what the musicians are hearing and make any necessary adjustments, since the response of the headphones will not be identical to the main control room monitor speakers, and adjustments to the foldback mix heard on the main speakers may not be totally suitable for the musicians.

9:3) Auxiliary Monitor Output:

A second monitor output labelled "AUX MONITOR" is provided. This follows the main monitor input selection, but is taken pre-monitor level control, so that adjustments of the main monitor pot do not affect the aux monitor output. The aux monitor output can be used to drive a cassette recorder or a second set of loudspeakers.

9:4) Oscillator:

The oscillator is factory set to give an output level of +4dB at one of 3 switch-selectable frequencies: 10KHz, 1KHz or 40Hz. A recessed trimmer for recalibration of the oscillator's frequency is fitted, should adjustment of the output level be required.

When the oscillator is switched on the LED will illuminate.

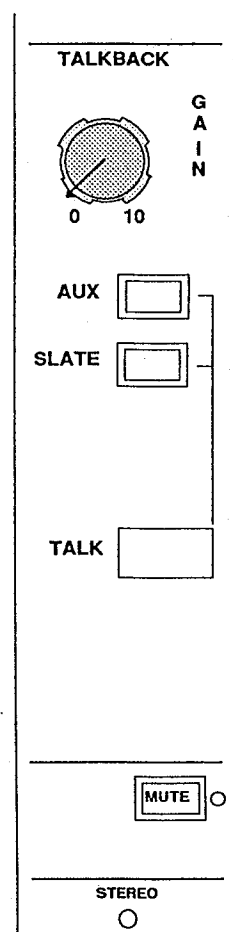
By pressing the "SLATE" switch, the oscillator output is fed to the 16 group output busses and the stereo buss. This function is to allow you to check that all the group outputs from the console are equally calibrated and can also be used to line up the multitrack and stereo tape recorders, since the same signal is present at all outputs simultaneously. All the output faders should be set to "0" on their scales during calibration.

A separate output is also available on the rear panel of the module, by stereo jack connector. Levels are +4dB (0VU) on the tip and -56dB (-60VU) on the ring.

9:5) Talkback:

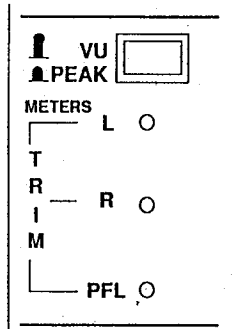
A female XLR socket is provided for a talkback microphone. The talkback signal level is controlled by a rotary level pot, and the talkback system operated when the "TALK" switch is pressed. The talkback signal may be routed to either auxiliary busses 1-4 (talk to foldback), or to the 16 subgroups and stereo outputs (talk to SLATE), by pressing the selector switches provided.

When the "TALK" switch is operated, the monitor outputs will "DIM" i.e. drop by 20dB. This is to avoid feedback (howling) if you happen to talk to an output which you are monitoring simultaneously, for example, you may be listening to Aux buss master outputs 3 or 4 in Pfl mode to check the musicians foldback mix, and need to talk to the musicians at the same time.



9:6) LED/VU Metering:

Individual meters are provided in the meter housing for Left and Right stereo buss signals, and the Pfl/Afl signal. These meters are identical to those used for the Group busses/Monitor mix sections of the S3301 series modules. The switch labelled "VU/PEAK" selects the ballistics of Left, Right and Pfl/Afl meters.



3 recessed trimmers are provided just below the "VU/PEAK" switch, to allow adjustment of the input sensitivity of the stereo and Pfl/Afl meters, should recalibration be necessary. These are factory preset such that "0" on the meter scales corresponds to an input signal level of +4dB.

The stereo Left and Right meters will follow the input selector switches on the main monitor section, and hence will read the signals you are listening to. They are wired pre-monitor level control such that any variation of the monitor level control will not affect the meter readings. In "TAPE 1" or "TAPE 2" mode they will read the playback of the 2 track machines, in "ST" mode they will read the output of the stereo buss, and hence, the signal levels going to the 2 track tape recorder. Their readings will of course follow movements of the stereo buss faders.

In sound reinforcement applications, "ST" mode will allow the stereo meters to give an indication of the stereo mix levels being sent to the amplifier/speaker system.

The PFL/AFL meter will give an indication of signal level present whenever any Pfl/Afl switch is operated on the console. This function is extremely useful for checking the gain structure of individual modules in the console before sending the signals to the various output modules.

In sound reinforcement applications, this function is essential, since signals which are far too loud may damage the system loudspeakers if they are suddenly fed into the stereo buss, also this system provides a means of checking the presence and suitable level of signals which need to be brought into the "live" mix during the performance. The Pfl meter will, in this case, be used in conjunction with the main monitor headphone outputs to "balance" the signal to be brought into the mix along with the current programme material already being heard in the auditorium. In essence, a CUE system.

VU Meters

Either 2 or 3 illuminated SIFAM VU meters may be fitted to all consoles in the range except those with an S chassis format. These read the main stereo Left and Right outputs from the S4001 module, and the PFL/AFL signals. When three VU meters are fitted, these replace the left, right and PFL/AFL LED meters. The VU meters are illuminated from the rear by means of a 12v bulb.

10:0) PATCHBAY FACILITIES:

The Scorpion II patchbay is a one piece panel which occupies 8 module positions in the X format chassis.

There are three different patchbay layouts to accommodate the various input and output configurations of the Scorpion II. One patchbay format is for 24 input, 16 buss models; another for 28 input, 12 buss models; and a third for 32 input, 8 buss models with 16 monitor returns.

The Scorpion II patchbay is arranged in rows of 20 sockets, each row being 180mm wide. The patchbay provides normalised connections for all insert points, tape sends and returns, auxiliary sends and returns, and all outputs. Two rows (i.e. 40 points) are provided for connecting external equipment (e.g. effects units) to the patchbay in order that external devices can simply be patched without moving away from the console.

On patchbay versions of the Scorpion II, all microphone XLR input connectors are mounted on the rear panel of the console together with some of the output connectors. All other connectors are mounted instead on the patchbay jackfield. A list of the connectors mounted on the rear panel is as follows:

All microphone inputs.....	XLRs
All Auxiliary sends and returns.....	XLRs
Main Stereo outputs, L and R	XLRs
Monitor outputs L and R	6.35mm jack sockets
Auxiliary monitor outputs L and R.....	6.35mm jack sockets
Tape 1 inputs L and R.....	6.35mm jack sockets
Tape 2 inputs L and R.....	6.35mm jack sockets
Talkback output.....	6.35mm jack socket
Oscillator output.....	6.35mm jack socket

10:1) Patchbay Patchpoints:

Each Scorpion II patchbay has the following points available on TT (Tiny Telephone) jack sockets:

- 1) All input channels have line input; insert send and returns; and direct output.
- 2) All subgroups have output, insert send and return, and tape monitor/effects points available. On consoles with the S3101 dual monitor facility, points are available to access both the tape monitors for the tape returns.
- 3) Auxiliary sends and returns
- 4) Main stereo outputs L and R, insert send and return on main stereo L and R
- 5) Main stereo tape input L and R
- 6) Monitor outputs and monitor inputs L and R
- 7) Tape 1 outputs and monitor inputs L and R
- 8) Tape 2 outputs
- 9) Oscillator output
- 10) Talkback output
- 11) Multi-track tape Inputs and Outputs (either 16 or 24 depending on format)
- 12) 20 external inputs and 20 external outputs are fitted. These also appear on two 56 way EDAC connectors mounted on the terminal panel at the rear of the console. This is to provide an interface with external effects racks etc.
- 13) Optionally an extra two rows of 20 TT jacks may be fitted. These appear on two 56 way Edac connectors on a plate on the rear terminal panel.

11:2) EDAC Connector Wiring Details:

The multi-track inputs and outputs to and from the tape machine also appear on two 56 way EDAC connectors mounted on the terminal panel on the rear of the console.

The 4 EDAC 56 way connectors wired as follows:-

28:12:2 DUAL MONITOR TAPE IN/OUT.(I.e 2 connectors wired the same).

Channel	Phase	Anti	Screen
1	B	A	All Channels
2	M	L	Share H, T
3	X	W	FF, e, h, j,
4	l	k	and w.
5	v	u	
6	EE	DD	
7	D	C	
8	P	N	
9	Z	Y	
10	n	m	
11	y	x	
12	jj	HH	
13	F	E	
14	S	R	
15	b	a	
16	r	p	
17	AA	z	
18	LL	KK	
19	K	J	
20	V	U	
21	d	c	
22	t	s	
23	CC	BB	
24	NN	MM	

24:16:2 and 32:8:2 Dual monitor Tape In/Out (I.e 2 connectors wired the same.)

Channel	Phase	Anti	Screen
1	B	A	All Channels
2	M	L	share H, T,
3	X	W	FF, e, f, h, j,
4	l	K	and w.
5	v	U	
6	EE	DD	
7	D	C	
8	P	N	
9	F	E	
10	S	R	
11	b	a	
12	r	p	
13	AA	z	
14	LL	KK	
15	K	J	
16	V	U	

EXTERNAL CONNECTIONS 1-20 (and 21-40) i.e 2 connectors wired the same.

Channel	Phase	Anti	Screen
1	B	A	All Channels
2	F	E	share H, T,
3	M	L	FF, e, f, h, j
4	S	R	and w
5	X	W	
6	b	a	
7	l	k	
8	r	p	
9	v	u	
10	AA	z	
11	EE	DD	
12	LL	KK	
13	D	C	
14	K	J	
15	P	N	
16	V	U	
17	Z	Y	
18	d	c	
19	n	m	
20	t	s	

11:3) Optional Extra Rows on the Jackfield.

Depending on the patchbay version, between 14 and 17 rows of Jack connectors are fitted. An additional two rows may be fitted as an optional extra to suit individual requirements.

These terminate onto two EDAC connectors mounted on the rear terminal panel.

11:0) TAC POWER SUPPLY TERMINATIONS:

WARNING:- ISOLATE PSU FROM AC SUPPLY BEFORE REMOVING COVER.

A single large toroidal transformer is used, its windings are colour coded as follows:

RED	:0V	BROWN	:0V
PURPLE	:100V	YELLOW	:100V
GREEN	:110V	PINK	:110V
BLUE	:120V	ORANGE	:120V

These are terminated in a screw terminal connecting block. To alter the operating voltage connect the "mains" input as listed below.

100V operation:	Connect AC between Red and Purple, link Red to Brown, link Purple to Yellow
110V operation:	Connect AC between Red and Green, link Red to Brown, link Green to Pink
120V operation:	Connect AC between Red and Blue, link Red to Brown, link Blue to Orange
200V operation:	Connect AC between Red and Yellow, link Purple and Brown
220V operation:	Connect AC between Red and Pink, link Green and Brown
240V operation:	Connect AC between Red and Orange, link Blue and Brown

N.B: If changing operating voltage please check correct AC mains input fuse is fitted.

For 200-240V operation, 3.15 Amp fuse.

For 100-120V operation, 6.30 Amp fuse.

S1001 INPUT MODULE:
MODULE DIN CONNECTIONS:

1	——	PFL/AFL CONTROL
2	——	PFL/AFL SIGNAL
3	——	RIGHT
4	——	LEFT
5	——	TRACK 15
6	——	TRACK 16
7	——	TRACK 13
8	——	TRACK 14
9	——	TRACK 10
10	——	TRACK 9
11	——	TRACK 12
12	——	TRACK 11
13	——	TRACK 1
14	——	TRACK 2
15	——	TRACK 3
16	——	TRACK 4
17	——	TRACK 5
18	——	TRACK 6
19	——	TRACK 7
20	——	TRACK 8
21	——	AUX 4
22	——	AUX 3
23	——	AUX 2
24	——	AUX 1
25	——	-17.5 V
26	——	+17.5 V
27	——	0 V
28	——	0 V
29	——	0 V
30	——	+48 V
31	——	NOT CONNECTED
32	——	NOT CONNECTED

INPUT CONNECTOR CARD MOLEX:

1	——	MIC INPUT +VE PHASE
2	——	MIC INPUT -VE PHASE
3	——	SCREEN
4	——	LINE INPUT +VE PHASE
5	——	LINE INPUT -VE PHASE
6	——	SCREEN
7	——	SCREEN
8	——	INSERT SEND
9	——	INSERT RETURN
10	——	DIRECT OUT

FADER MOLEX:

1	——	FADER BOTTOM
2	——	NOT CONNECTED
3	——	FADER WIPER
4	——	FADER TOP

**S1101 INPUT MODULE:
MODULE DIN CONNECTIONS:**

1	—	PFL/AFL CONTROL
2	—	PFL/AFL SIGNAL
3	—	RIGHT
4	—	LEFT
5	—	AUX 5
6	—	AUX 6
7	—	AUX 7
8	—	AUX 8
9	—	TRACK 10
10	—	TRACK 9
11	—	TRACK 12
12	—	TRACK 11
13	—	TRACK 1
14	—	TRACK 2
15	—	TRACK 3
16	—	TRACK 4
17	—	TRACK 5
18	—	TRACK 6
19	—	TRACK 7
20	—	TRACK 8
21	—	AUX 4
22	—	AUX 3
23	—	AUX 2
24	—	AUX 1
25	—	-17.5 V
26	—	+17.5 V
27	—	0 V
28	—	0 V
29	—	0 V
30	—	+48 V
31	—	NOT CONNECTED
32	—	NOT CONNECTED

INPUT CONNECTOR CARD MOLEX:

1	—	MIC INPUT +VE PHASE
2	—	MIC INPUT -VE PHASE
3	—	SCREEN
4	—	LINE INPUT +VE PHASE
5	—	LINE INPUT -VE PHASE
6	—	SCREEN
7	—	SCREEN
8	—	INSERT SEND
9	—	INSERT RETURN
10	—	DIRECT OUT

FADER MOLEX:

1	—	FADER BOTTOM
2	—	NOT CONNECTED
3	—	FADER WIPER
4	—	FADER TOP

S1201 STEREO INPUT MODULE:
MODULE DIN CONNECTIONS:

1	—	PFL/AFL CONTROL
2	—	PFL/AFL SIGNAL
3	—	RIGHT
4	—	LEFT
5	—	TRACK 15
6	—	TRACK 16
7	—	TRACK 13
8	—	TRACK 14
9	—	TRACK 10
10	—	TRACK 9
11	—	TRACK 12
12	—	TRACK 11
13	—	TRACK 1
14	—	TRACK 2
15	—	TRACK 3
16	—	TRACK 4
17	—	TRACK 5
18	—	TRACK 6
19	—	TRACK 7
20	—	TRACK 8
21	—	AUX 4
22	—	AUX 3
23	—	AUX 2
24	—	AUX 1
25	—	-17.5 V
26	—	+17.5 V
27	—	0 V
28	—	0 V
29	—	0 V
30	—	+48 V
31	—	NOT CONNECTED
32	—	NOT CONNECTED

INPUT CONNECTOR CARD MOLEX J2:

1	—	RIGHT DIRECT OUT
2	—	SCREEN
3	—	LEFT DIRECT OUT
4	—	SCREEN
5	—	INSERT RETURN RIGHT
6	—	INSERT SEND RIGHT
7	—	SCREEN
8	—	SCREEN
9	—	INSERT RETURN LEFT
10	—	INSERT SEND LEFT

INPUT CONNECTOR J3:

1	—	SCREEN
2	—	SCREEN
3	—	RIGHT INPUT +VE PHASE
4	—	RIGHT INPUT -VE PHASE
5	—	SCREEN
6	—	SCREEN
7	—	LEFT INPUT +VE PHASE
8	—	LEFT INPUT -VE PHASE
9	—	SCREEN
10	—	SCREEN

FADER MOLEX:

1	—	FADER BOTTOM
2	—	NOT CONNECTED
3	—	FADER WIPER
4	—	FADER TOP

S2001 AUXILIARY MODULE:
MODULE DIN CONNECTIONS:

1	— PFL/AFL CONTROL
2	— PFL/AFL SIGNAL
3	— RIGHT
4	— LEFT
5	— TRACK 15
6	— TRACK 16
7	— TRACK 13
8	— TRACK 14
9	— TRACK 10
10	— TRACK 9
11	— TRACK 12
12	— TRACK 11
13	— TRACK 1
14	— TRACK 2
15	— TRACK 3
16	— TRACK 4
17	— TRACK 5
18	— TRACK 6
19	— TRACK 7
20	— TRACK 8
21	— AUX 4
22	— AUX 3
23	— AUX 2
24	— AUX 1
25	— -17.5 V
26	— +17.5 V
27	— 0 V
28	— 0 V
29	— 0 V
30	— +48 V
31	— VIRTUAL EARTH INPUT AUX 1 (3)
32	— VIRTUAL EARTH INPUT AUX 2 (4)

AUXILIARY CONNECTORS MOLEX:

1	— NOT CONNECTED
2	— NOT CONNECTED
3	— SCREEN
4	— AUX RETURN 1 (2)
5	— SCREEN
6	— SCREEN
7	— SCREEN
8	— AUX SEND 2 (4)
9	— NOT CONNECTED
10	— AUX SEND 1 (3)

FADER MOLEX:

1	— FADER BOTTOM
2	— NOT CONNECTED
3	— FADER WIPER
4	— FADER TOP

**S3301 SUBGROUP (WITH EQ) MODULE:
MODULE DIN CONNECTIONS:**

1	— PFL/AFL CONTROL
2	— PFL/AFL SIGNAL
3	— RIGHT
4	— LEFT
5	— TRACK 15
6	— TRACK 16
7	— TRACK 13
8	— TRACK 14
9	— TRACK 10
10	— TRACK 9
11	— TRACK 12
12	— TRACK 11
13	— TRACK 1
14	— TRACK 2
15	— TRACK 3
16	— TRACK 4
17	— TRACK 5
18	— TRACK 6
19	— TRACK 7
20	— TRACK 8
21	— AUX 4
22	— AUX 3
23	— AUX 2
24	— AUX 1
25	— -17.5 V
26	— +17.5 V
27	— 0 V
28	— 0 V
29	— 0 V
30	— +48 V
31	— VIRTUAL EARTH INPUT TRACK 1-16
32	— NOT CONNECTED

SUBGROUP CONNECTOR CARD MOLEX:

1	— BUSS OUT
2	— NOT CONNECTED
3	— NOT CONNECTED
4	— TAPE/FX
5	— NOT CONNECTED
6	— NOT CONNECTED
7	— NOT CONNECTED
8	— INSERT SEND
9	— INSERT RETURN
10	— OUTPUT TO METER

FADER MOLEX:

1	— FADER BOTTOM
2	— NOT CONNECTED
3	— FADER WIPER
4	— FADER TOP

S3101 DUAL MONITOR SUBGROUP MODULE:

MODULE DIN CONNECTIONS:

SUBGROUP CONNECTOR CARD MOLEX:

1	— PFL/AFL CONTROL
2	— PFL/AFL SIGNAL
3	— RIGHT
4	— LEFT
5	— TRACK 15
6	— TRACK 16
7	— TRACK 13
8	— TRACK 14
9	— TRACK 10
10	— TRACK 9
11	— TRACK 12
12	— TRACK 11
13	— TRACK 1
14	— TRACK 2
15	— TRACK 3
16	— TRACK 4
17	— TRACK 5
18	— TRACK 6
19	— TRACK 7
20	— TRACK 8
21	— AUX 4
22	— AUX 3
23	— AUX 2
24	— AUX 1
25	— -17.5 V
26	— +17.5 V
27	— 0 V
28	— 0 V
29	— 0 V
30	— +48 V
31	— VIRTUAL EARTH INPUT TRACK 1-16
32	— NOT CONNECTED

1	— BUSS OUT
2	— NOT CONNECTED
3	— NOT CONNECTED
4	— TAPE/FX
5	— NOT CONNECTED
6	— NOT CONNECTED
7	— NOT CONNECTED
8	— INSERT SEND
9	— INSERT RETURN
10	— OUTPUT TO METER

FADER MOLEX:

1	— FADER BOTTOM
2	— NOT CONNECTED
3	— FADER WIPER
4	— FADER TOP

**S3201 SUBGROUP (MATRIX) MODULE:
MODULE DIN CONNECTIONS:**

1	— PFL/AFL CONTROL
2	— PFL/AFL SIGNAL
3	— RIGHT
4	— LEFT
5	— TRACK 15
6	— TRACK 16
7	— TRACK 13
8	— TRACK 14
9	— TRACK 10
10	— TRACK 9
11	— TRACK 12
12	— TRACK 11
13	— TRACK 1
14	— TRACK 2
15	— TRACK 3
16	— TRACK 4
17	— TRACK 5
18	— TRACK 6
19	— TRACK 7
20	— TRACK 8
21	— AUX 4
22	— AUX 3
23	— AUX 2
24	— AUX 1
25	— -17.5 V
26	— +17.5 V
27	— 0 V
28	— 0 V
29	— 0 V
30	— +48 V
31	— VIRTUAL EARTH INPUT MATRIX 1-8
32	— VIRTUAL EARTH INPUT TRACK 1-8

MATRIX CONNECTOR CARD MOLEX

1	— BUSS OUT
2	— NOT CONNECTED
3	— NOT CONNECTED
4	— MATRIX OUT
5	— NOT CONNECTED
6	— NOT CONNECTED
7	— INSERT RETURN
8	— NOT CONNECTED
9	— INSERT SEND
10	— OUTPUT TO METER

FADER MOLEX:

1	— FADER BOTTOM
2	— NOT CONNECTED
3	— FADER WIPER
4	— FADER TOP

**S4001 MASTER/MONITOR MODULE:
MODULE DIN CONNECTIONS:**

MONITOR MOLEX CONNECTOR (A):

1	— PFL/AFL CONTROL
2	— PFL/AFL SIGNAL
3	— RIGHT
4	— LEFT
5	— TRACK 15
6	— TRACK 16
7	— TRACK 13
8	— TRACK 14
9	— TRACK 10
10	— TRACK 9
11	— TRACK 12
12	— TRACK 11
13	— TRACK 1
14	— TRACK 2
15	— TRACK 3
16	— TRACK 4
17	— TRACK 5
18	— TRACK 6
19	— TRACK 7
20	— TRACK 8
21	— AUX 4
22	— AUX 3
23	— AUX 2
24	— AUX 1
25	— -17.5 V
26	— +17.5 V
27	— 0 V
28	— 0 V
29	— 0 V
30	— +48 V
31	— VIRTUAL EARTH INPUT RIGHT
32	— VIRTUAL EARTH INPUT LEFT

1	— SCREEN
2	— L METER
3	— SCREEN
4	— R METER
5	— SCREEN
6	— PFL METER
7	— SCREEN
8	— OSCILLATOR
9	— TALKBACK SIGNAL
10	— TALKBACK CONTROL

MONITOR MOLEX CONNECTOR (B):

1	—	SCREEN
2	—	L TAPE 2
3	—	SCREEN
4	—	R TAPE 2
5	—	SCREEN
6	—	L TAPE 1
7	—	SCREEN
8	—	R TAPE 1
9	—	NOT CONNECTED
10	—	NOT CONNECTED

MONITOR MOLEX CONNECTOR (C):

1	—	R INSERT RETURN
2	—	L INSERT RETURN
3	—	R INSERT SEND
4	—	L INSERT SEND
5	—	R BUSS OUT
6	—	L BUSS OUT
7	—	R AUX MONITOR
8	—	L AUX MONITOR
9	—	R MONITOR
10	—	L MONITOR

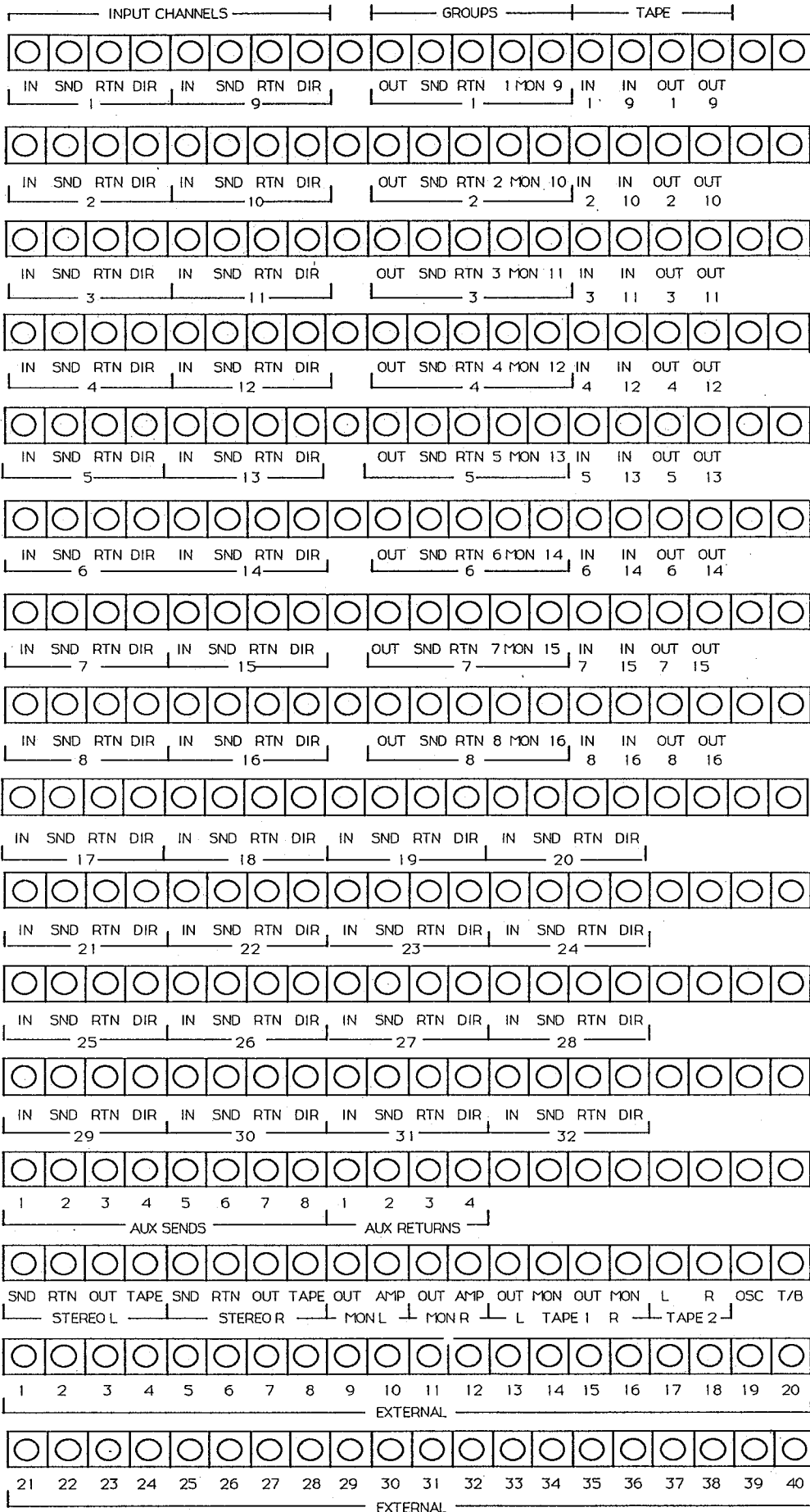
PHONES MOLEX (0):

1	—	SCREEN
2	—	RIGHT
3	—	NOT CONNECTED
4	—	LEFT

FADER MOLEX (LEFT AND RIGHT):

1	—	FADER BOTTOM
2	—	NOT CONNECTED
3	—	FADER WIPER
4	—	FADER TOP

JACKFIELD FOR 32/8/2 DUAL MONITOR SCORPION II



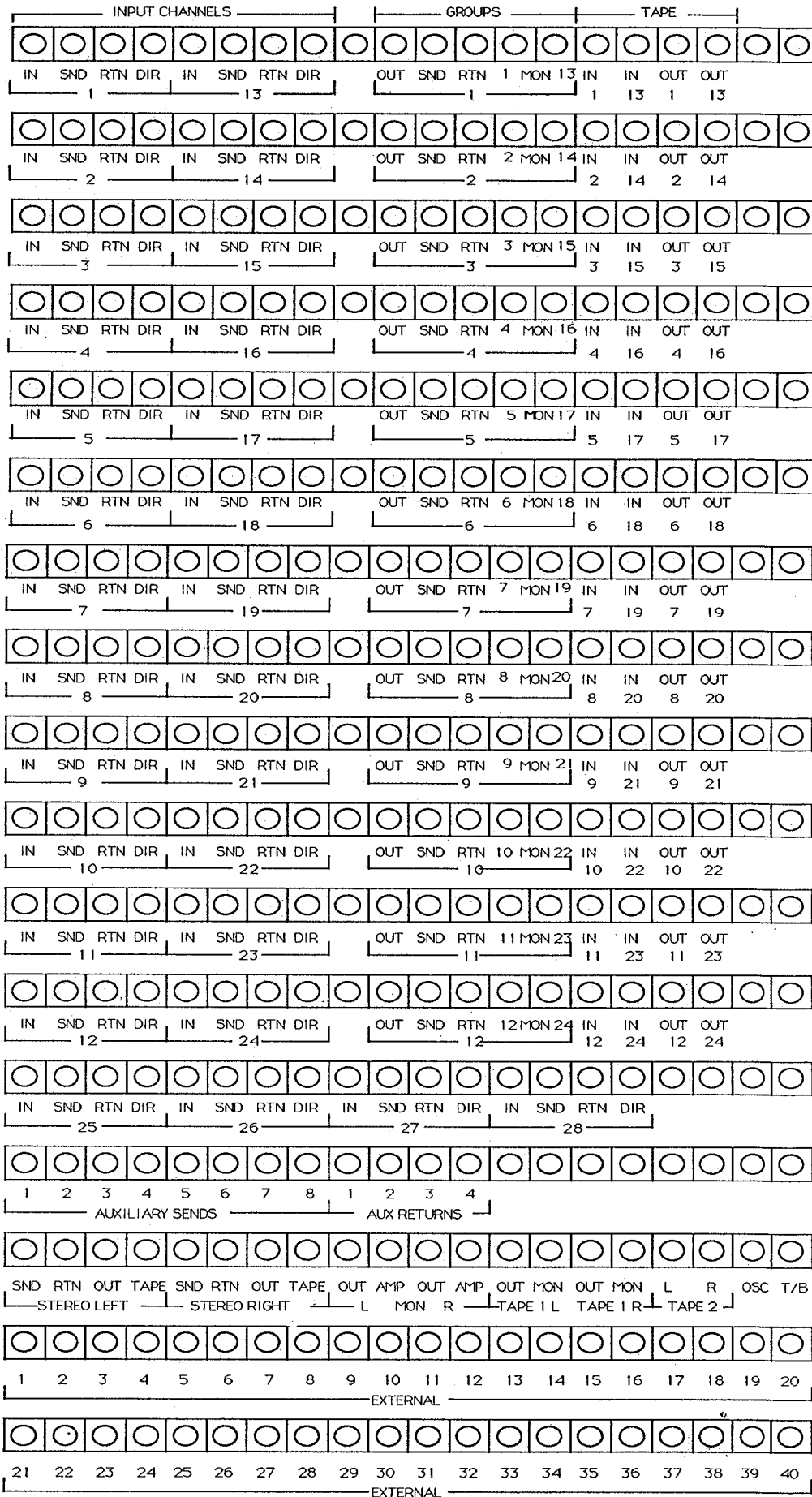
		32/8 DUAL MONITOR SCORPION II - PATCHBAY OPERATION DETAILS		
		SOCKET		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
1	1	CHAN 1 IN	BALANCED LINE INPUT	BREAKS SIGNAL FROM MONITOR 1
1	2	CHAN 1 SND	INSERT SEND (OUTPUT)	NONE
1	3	CHAN 1 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	4	CHAN 1 DIR	DIRECT OUTPUT OF CHANNEL	NONE
1	5	CHAN 9 IN	BALANCED LINE INPUT	BREAKS SIGNAL FROM MONITOR 9
1	6	CHAN 9 SND	INSERT SEND (OUTPUT)	NONE
1	7	CHAN 9 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	8	CHAN 9 DIR	DIRECT OUTPUT OF CHANL. ALSO FEEDS TO TAPE IN EDAC VIA TAPE IN JACK SOCKET (NO 16) & MON 9 WHEN SLECTED BUSS	NONE
1	9	N/C		
1	10	GROUP 1 OUT	GROUP/BUSS OUTPUT FEEDS TO TAPE IN EDAC VIA TAPE IN SOCKET (NO 15)	NONE
1	11	GROUP 1 SND	GROUP/BUSS INSERT SEND (OUTPUT)	
1	12	GROUP 1 RTN	GROUP/BUSS INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	13	GROUP MON 1	INPUT TO (LOWER) MONITOR 1 (TAPE FX SELECTED ON GROUP)	BREAKS SIGNAL FROM TAPE OUT EDAC
1	14	GROUP MON 9	INPUT TO (UPPER) MON 9 (TAPE FX SELECTED ON GROUP)	BREAKS SIGNAL FROM TAPE OUT EDAC
1	15	TAPE IN 1	INPUT 1 TO TAPE MACHINE VIA EDAC	BREAKS SIGNAL FROM GROUP OUT
1	16	TAPE IN 9	INPUT 9 TO TAPE MACHINE VIA EDAC	BREAKS SIGNAL FROM DIRECT OUT 9
1	17	TAPE OUT 1	OUTPUT FROM TAPE MACHINE VIA EDAC	BREAKS SIGNAL TO CHANNEL IN 1
1	18	TAPE OUT 9	OUTPUT FROM TAPE MACHINE VIA EDAC	BREAKS SIGNAL TO CHANNEL IN 9
1	19/20	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS

		32/8 DUAL MONITOR SCORPION II - PATCHBAY OPERATION DETAILS		
		SOCKET		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
2/8		AS ABOVE FOR CHANNELS, GROUP, TAPE	2-8 AND 9-16	
9	1	CHAN 17 IN	BALANCED LINE INPUT	NONE
9	2	CHAN 17 SND	INSERT SEND (OUTPUT)	NONE
9	3	CHAN 17 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
9	4	CHAN 17 DIR	DIRECT OUTPUT	NONE
9	5/16		CHANNELS 18-19-20 AS ABOVE	
9	17/18	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS
9	19/20		AS 17/18 ABOVE	
10/12		AS PER ROW 9 BUT FOR INPUT CHANNELS 21-32		
13	1/8	AUX SENDS 1-8	OUTPUTS FROM AUX SENDS 1-8	
13	9	AUX RETURN 1	INPUT TO AUX RETURN 1	NONE
13	10	AUX RTN 2	INPUT TO AUX RETURN 2	NONE
13	11/12	AUX RTN 3-4	INPUT TO AUX RETURN 3-4	
13	13/14	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS
13	15/16	"	"	"
13	17/18	"	"	"
13	19/20	"	"	"

32/8 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS				
ROW	SOCKET		FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
	NO	TITLE		
14	1	STEREO L SND	LEFT MAIN/BUSS OUTPUT INSERT SEND (OUTPUT)	NONE
14	2	STEREO L RTN	LEFT MAIN/BUSS OUTPUT INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT TO RETURN
14	3	STEREO L OUT	LEFT MAIN/BUSS OUTPUT	NONE
14	4	STEREO L TAPE	INPUT TO TAPE MACHINE VIA XLR ON BACK PANEL	BREAKS SIGNAL FROM LEFT MAIN/BUSS OUTPUT TO XLR ON BACK PANEL
14	5/8		AS PER SOCKETS 1-4 ABOVE FOR R STEREO	
14	9	MON L OUT	S4001 MAIN MON LEFT OUTPUT	NONE
14	10	MON L AMP	INPUT TO AMP VIA LEFT MAIN MON 6mm JACK SOCKET ON BACK PANEL	BREAKS SIGNAL FROM MAIN MON L OUTPUT TO 6mm JACK SOCKET ON BACKPANEL
14	11	MON R OUT	S4001 MAIN MON RIGHT OUTPUT	NONE
14	12	MON R AMP	INPUT TO AMP VIA RIGHT MAIN MON 6mm JACK SOCKET ON BACK PANEL	BREAKS SIGNAL FROM MAIN MON RIGHT OUTPUT TO 6mm JACK SOCKET ON BACKPANEL
14	13	TAPE 1 L OUT	OUTPUT FROM LEFT STEREO TAPE 1 MACHINE VIA 6mm JACK SOCKET ON BACK PANEL	NONE
14	14	TAPE 1 L MON	INPUT TO TAPE 1 LEFT MON ON S4001	BREAKS SIGNAL FROM LEFT STEREO TAPE 1 ON 6mm JACK SOCKET ON BACKPANEL
14	15/16		AS PER SOCKETS 13-14 ABOVE FOR RIGHT TAPE 1 OUT/MON	
14	17	TAPE 2 LEFT	INPUT TO TAPE 2 LEFT ON S4001	NONE
14	18	TAPE 2 RIGHT	INPUT TO TAPE 2 RIGHT ON S4001	NONE
14	19	OSC	OUTPUT FROM S4001 OSCILLATOR	NONE
14	20	T/B	OUTPUT FROM TALKBACK MIC SYSTEM ON S4001	NONE

32/8 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS				
ROW	SOCKET		FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
	NO	TITLE		
15	1/20	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 1-20 EDAC ON BACK PANEL	NONE
16	21-40	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 21-40 EDAC ON BACK PANEL	NONE
17	1/2	SPARE	ALL CONTACTS ON SOCKETS TO 10 WAY MOLEX CONNECTOR	SEE MOLEX CONNECTION DETAILS
17	3/20	SPARES	AS PER SOCKETS 1-2 ABOVE. 1 MOLEX CONNECTOR PER PAIR OF SOCKETS I.E. TOTAL OF 10 MOLEX CONNECTORS	
18	1/20	SPARES	AS PER ROW 17 ABOVE	
		N/B: THE SIGNAL PATH FROM TAPE OUT (EDAC) TO CHANNEL INPUT VIA MONITOR IS UNBALANCED. A BALANCED SIGNAL PATH MAY BE OBTAINED BY EXTERNALLY JACKING FROM "TAPE OUT" TO "CHANNEL IN." OR INSERTING A JACK INTO "MON". MON WILL <u>NOT</u> NOW READ SIGNAL		

JACKFIELD FOR 28/12 DUAL MONITOR SCORPION II



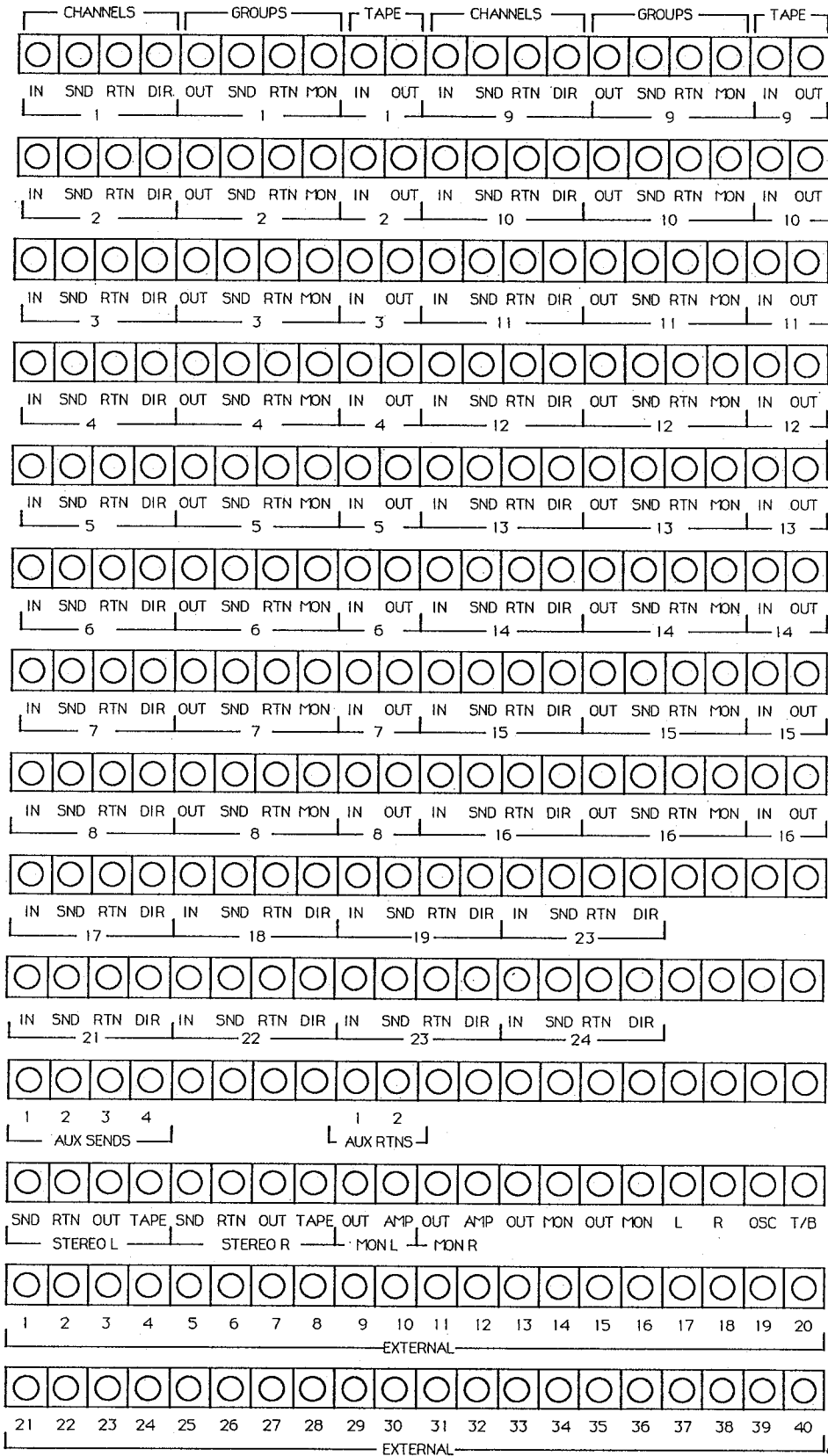
		28/12 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
SOCKET				
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
1	1	CHAN 1 IN	BALANCED LINE INPUT	BREAKS SIGNAL FROM TAPE OUT 1
1	2	CHAN 1 SND	INSERT SEND (OUTPUT)	NONE
1	3	CHAN 1 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	4	CHAN 1 DIR	DIRECT OUTPUT OF CHANNEL	NONE
1	5	CHAN 13 IN	BALANCED LINE INPUT	BREAKS SIGNAL FROM MONITOR 13
1	6	CHANL 13 SND	INSERT SEND (OUTPUT)	NONE
1	7	CHANL 13 RTN	INSERT RTN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	8	CHANL 13 DIR	DIRECT OUTPUT OF CHANL. ALSO FEEDS TO TAPE IN EDAC VIA TAPE IN JACK SOCKET (NO 16) & MON 13 WHEN SELCTD BUSS	NONE
1	9	N/C		
1	10	GROUP 1 OUT	GROUP/BUSS OUTPUT FEEDS TO TAPE IN EDAC VIA TAPE IN SOCKET (NO 15)	BREAKS SIGNAL TO MON AND LINE INPUT
1	11	GROUP 1 SND	GROUP/BUSS INSERT SEND (OUTPUT)	
1	12	GROUP 1 RTN	GROUP/BUSS INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	13	GROUP MON 1	INPUT TO (LOWER) MONITOR 1 (TAPE FX SELECTED ON GROUP)	BREAKS SIGNAL FROM TAPE OUT EDAC
1	14	GROUP MON 13	INPUT TO (UPPER) MON 13 (TAPE FX SELECTED ON GROUP)	BREAKS SIGNAL FROM TAPE OUT EDAC
1	15	TAPE IN 1	INPUT 1 TO TAPE MACHINE VIA EDAC	BREAKS SIGNAL FROM GROUP OUT 1
1	16	TAPE IN 13	INPUT 13 TO TAPE MACHINE VIA EDAC	BREAKS SIGNAL FROM DIRECT OUT 13
1	17	TAPE OUT 1	OUTPUT FROM TAPE MACHINE VIA EDAC	BREAKS SIGNAL TO CHANNEL IN 1
1	18	TAPE OUT 13	OUTPUT FROM TAPE MACHINE VIA EDAC	BREAKS SIGNAL TO CHANNEL IN 13
1	19/20	SPARE	ALL CONTACTS ON SOCKETS TO 10 WAY MOLEX. N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS

		28/12 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
SOCKET				
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
2/12		AS ABOVE FOR CHANNELS, GROUP, TAPE 2-12 AND 14-24		
13	1	CHAN 25 IN	BALANCED LINE INPUT	NONE
13	2	CHAN 25 SND	INSERT SEND (OUTPUT)	NONE
13	3	CHAN 25 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
13	4	CHAN 25 DIR	DIRECT OUTPUT	NONE
13	5/16		CHANNELS 26-27-28 AS ABOVE	
13	17/18	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS
13	19/20		AS 17/18 ABOVE	
14	1	AUX SEND 1	OUTPUT FROM AUX MASTER 1	
14	2/8	AUX SENDS 2-8	OUTPUTS FROM AUX SENDS 2-8	
14	9	AUX RETURN 1	INPUT TO AUX RETURN 1	NONE
14	10	AUX RTN 2	INPUT TO AUX RETURN 2	NONE
14	11/12	AUX RTN 3-4	INPUT TO AUX RETURN 3-4	
14	13/14	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE. INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS
14	15/16	"	"	"
14	17/18	"	"	"
14	19/20	"	"	"

		28/12 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
15	1	STEREO L SND	LEFT MAIN/BUSS OUTPUT INSERT SEND (OUTPUT)	NONE
15	2	STEREO L RTN	LEFT MAIN/BUSS OUTPUT INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT TO RETURN
15	3	STEREO L OUT	LEFT MAIN/BUSS OUTPUT	NONE
15	4	STEREO L TAPE	INPUT TO TAPE MACHINE VIA XLR ON BACK PANEL	BREAKS SIGNAL FROM LEFT MAIN/BUSS OUTPUT TO XLR ON BACK PANEL
15	5/8		AS PER SOCKETS 1-4 ABOVE FOR R STEREO	
15	9	MON L OUT	S4001 MAIN MON LEFT OUTPUT	NONE
15	10	MON L AMP	INPUT TO AMP VIA LEFT MAIN MON 6mm JACK SOCKET ON BACK PANEL	BREAKS SIGNAL FROM MAIN MON L OUTPUT TO 6mm JACK SOCKET ON BACKPANEL
15	11	MON R OUT	S4001 MAIN MON RIGHT OUTPUT	NONE
15	12	MON R AMP	INPUT TO AMP VIA RIGHT MAIN MON 6mm JACK SOCKET ON BACK PANEL	BREAKS SIGNAL FROM MAIN MON RIGHT OUTPUT TO 6mm JACK SOCKET ON BACKPANEL
15	13	TAPE 1 L OUT	OUTPUT FROM LEFT STEREO TAPE 1 MACHINE VIA 6mm JACK SOCKET ON BACK PANEL	NONE
15	14	TAPE 1 L MON	INPUT TO TAPE 1 LEFT MON ON S4001	BREAKS SIGNAL FROM LEFT STEREO TAPE 1 ON 6mm JACK SOCKET ON BACKPANEL
15	15/16		AS PER SOCKETS 13-14 ABOVE FOR RIGHT TAPE 1 OUT/MON	
15	17	TAPE 2 LEFT	INPUT TO TAPE 2 LEFT ON S4001	NONE
15	18	TAPE 2 RIGHT	INPUT TO TAPE 2 RIGHT ON S4001	NONE
15	19	OSC	OUTPUT FROM S4001 OSCILLATOR	NONE
15	20	T/B	OUTPUT FROM TALKBACK MIC SYSTEM ON S4001	NONE

		28/12 DUAL MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
16	1/20	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 1-20 EDAC ON BACK PANEL	NONE
17	21/40	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 21-40 EDAC ON BACK PANEL	NONE
18	1/2	SPARE	ALL CONTACTS ON SOCKETS TO 10 WAY MOLEX CONNECTOR	SEE MOLEX CONNECTION DETAILS
18	3/20	SPARES	AS PER SOCKETS 1-2 ABOVE. 1 MOLEX CONNECTOR PER PAIR OF SOCKETS I.E. TOTAL OF 10 MOLEX CONNECTORS	
19	1/20	SPARES	AS PER ROW 18 ABOVE	
		N/B: THE SIGNAL PATH FROM TAPE OUT (EDAC) TO CHANNEL INPUT VIA MONITOR IS UNBALANCED. A BALANCED SIGNAL PATH MAY BE OBTAINED BY EXTERNALLY JACKING FROM "TAPE OUT" TO "CHANNEL IN." OR INSERTING A JACK INTO "MON". MON WILL <u>NOT</u> NOW READ SIGNAL		

JACKFIELD FOR 24/16/2 SINGLE MONITOR SCORPION II

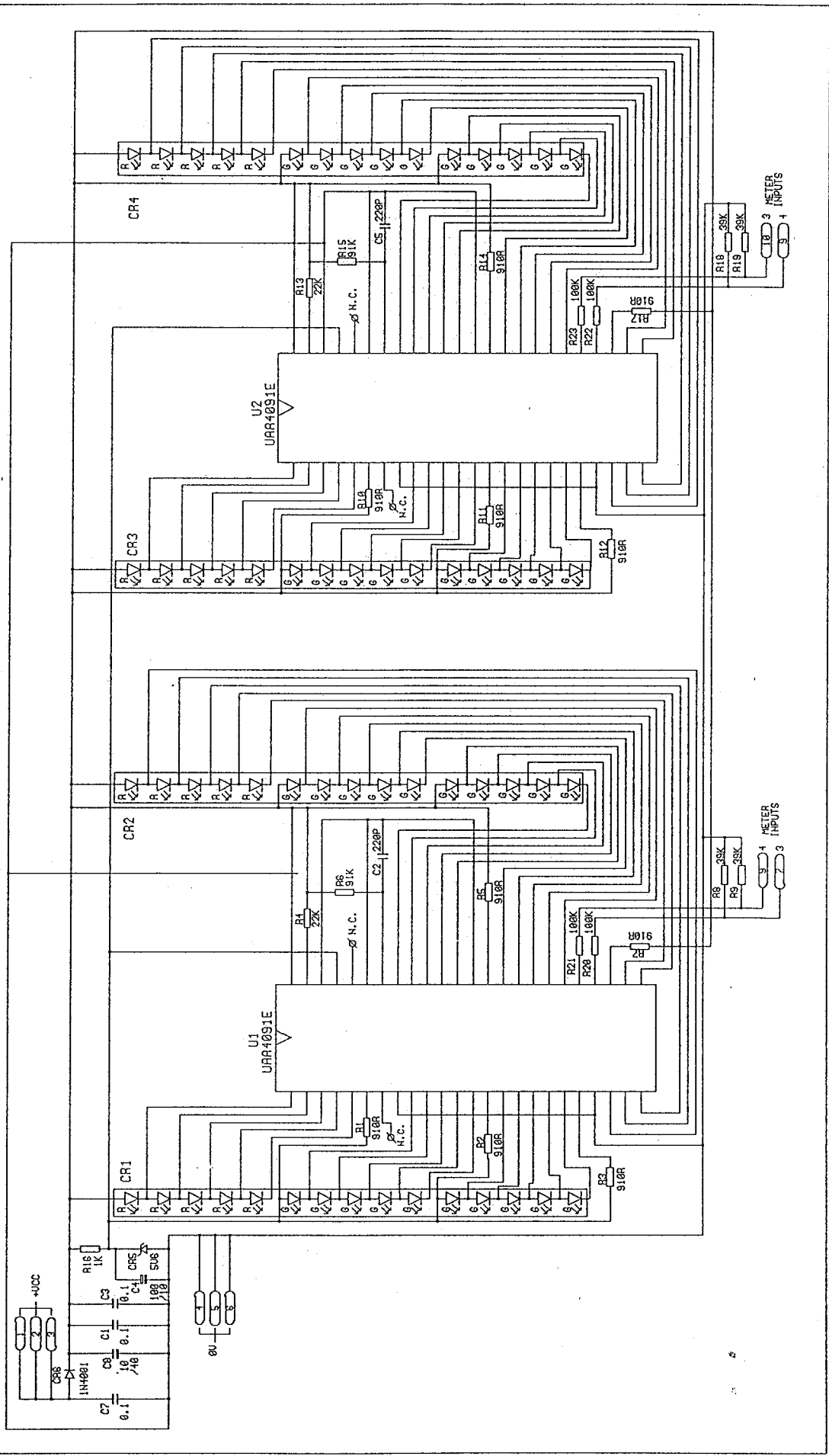


		24/16/2 SINGLE MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
1	1	CHAN 1 IN	BALANCED LINE INPUT	BREAKS SIGNAL FROM TAPE OUT 1
1	2	CHAN 1 SND	INSERT SEND (OUTPUT)	NONE
1	3	CHAN 1 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	4	CHAN 1 DIR	DIRECT OUTPUT OF CHANNEL	NONE
1	5	GROUP 1 OUT	GROUP/BUSS OUTPUT. FEEDS TO TAPE IN EDAC VIA TAPE IN EDAC	NONE
1	6	GROUP SEND	GROUP/BUSS INSERT SEND (OUTPUT)	NONE
1	7	GROUP RTN	GROUP/BUSS INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
1	8	GROUP MON	INPUT TO MONITOR (TAPE FX SELECTED ON GROUP)	BREAKS SIGNAL FROM FROM TAPE OUTPUT 1 (EDAC)
1	9	TAPE IN 1	INPUT TO TAPE MACHINE VIA EDAC	BREAKS SIGNAL FROM GROUP OUTPUT 1
1	10	TAPE OUT 1	OUTPUT 1 FROM TAPE MACHINE VIA EDAC	BREAKS SIGNAL TO MON. AND LINE INPUT
1	11 20		CHANNEL, GROUP, TAPE 9 AS ABOVE	
2	8		AS ABOVE FOR INPUT, GROUP, TAPE 2-8 10-16	
9	1	CHANNEL 17 IN	BALANCED LINE INPUT	NONE
9	2	CHANNEL 17 SND	INSERT SEND (OUTPUT)	NONE
9	3	CHANNEL 17 RTN	INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT SEND TO RETURN
9	4	CHANNEL 17 DIR	DIRECT OUTPUT FROM CHANNEL	NONE
9	5 16		CHANNELS 18/19/20 AS ABOVE	
9	17 18	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS




		24/16/2 SINGLE MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
9	17 18		AS 17/18 ABOVE	
10	1 20		AS ABOVE (CARD 9) FOR CHANNELS 21/24	
11	1		AUX SEND 1 OUTPUT FROM AUX MASTER	NONE
11	2 4		AUX SENDS 2/4 AS ABOVE	
11	5 8		N/C	
11	9		AUX RETN 1 INPUT TO AUX RTN	NONE
11	10	AUX RTN 2	INPUT TO AUX RETURN	NONE
11	11 12	N/C		
11	13 14	SPARE	ALL CONTACTS ON SOCKET TO 10 WAY MOLEX N/C TO CONSOLE INTERNALS AS STANDARD	SEE MOLEX CONNECTION DETAILS
11			15/16, 17/18, 19/20 AS 13/14 ABOVE	
12	1	STEREO L SEND	LEFT MAIN/BUSS OUTPUT INSERT SEND (OUTPUT)	NONE
12	2	STEREO L RTN	LEFT MAIN/BUSS OUTPUT INSERT RETURN (INPUT)	BREAKS SIGNAL FROM INSERT TO RETURN
12	3	STEREO L OUT	LEFT MAIN/BUSS OUTPUT	NONE
12	4	STEREO L TAPE	INPUT TO TAPE MACHINE VIA XLR ON BACKPANEL	BREAKS SIGNAL FROM LEFT MAIN/BUSS OUTPUT TO XLR ON BACKPANEL
12	5 8		AS 1/4 ABOVE FOR R STEREO	
12	9	MON L OUT	S4001 MAIN MON LEFT OUTPUT	NONE

SOCKET		24/16/2 SINGLE MONITOR SCORPION II- PATCHBAY OPERATION DETAILS		
ROW	NO	TITLE	FUNCTION/SIGNAL	CONSEQUENCE OF INSERTING JACK
12	10	MON L AMP	INPUT TO AMP VIA LEFT MAIN MON 6mm JACKSOCKET ON BACKPANEL	BREAKS SIGNAL FROM MAIN MON LEFT OUTPUT TO JACKSOCKET ON BACKPANEL
12	11	MON R OUT	S4001 MAIN MON RIGHT OUTPUT	NONE
12	12	MON R AMP	INPUT TO AMP VIA RIGHT MAIN MON 6mm JACKSOCKET ON BACKPANEL	BREAKS SIGNAL FROM MAIN MON R OUTPUT TO JACKSOCKET ON BACKPANEL
12	13	TAPE 1 L OUT	OUTPUT FROM LEFT STEREO TAPE/MACHINE VIA 6mm JACKSOCKET ON BACKPANEL	NONE
12	14	TAPE 1 L MON	INPUT TO TAPE 1 LEFT MON ON S4001	BREAKS SIGNAL FROM LEFT STEREO TAPE 6mm JACKSOCKET ON BACKPANEL
12	15 16		AS 13/14 ABOVE FOR RIGHT TAPE 1 OUT/MON	
12	17	TAPE 2 L	INPUT TO TAPE 2 LEFT ON S4001	NONE
12	18	TAPE 2 R	INPUT TO TAPE 2 RIGHT ON S4001	NONE
12	19	OSC	OUTPUT FROM S4001 OSCILLATOR	NONE
12	20	T/B	OUTPUT FROM TALKBACK MIC SYSTEM ON S4001	NONE
13	1 20	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 1-20 EDAC ON BACKPANEL	NONE
14	21 40	EXTERNAL	CONNECTED DIRECTLY TO EXTERNAL 21-40 EAC ON BACKPANEL	NONE
ROWS 15-20 ARE BLANK AS STANDARD, BUT MAY BE SUPPLIED WITH SPARES AS REQUIRED ALL CONTACTS ON SPARE ROWS TO 10 WAY MOLEX. N/C TO CONSOLE. SEE MOLEX CONNECTION DETAILS				
N/B: THE SIGNAL PATH FROM TAPE OUT (EDAC) TO CHANNEL INPUT VIA MONITOR IS UNBALANCED. A BALANCED SIGNAL PATH MAY BE OBTAINED BY EXTERNALLY JACKING FROM "TAPE OUT" TO "CHANNEL IN." OR INSERTING A JACK INTO "MON". MON WILL <u>NOT</u> NOW READ SIGNAL				

4 X 15 SEGMENT BARGRAPH METERS



LEGEND

-  DENOTES RESISTOR
-  DENOTES POLARISED CAPACITOR
-  DENOTES SPADE CONNECTOR

