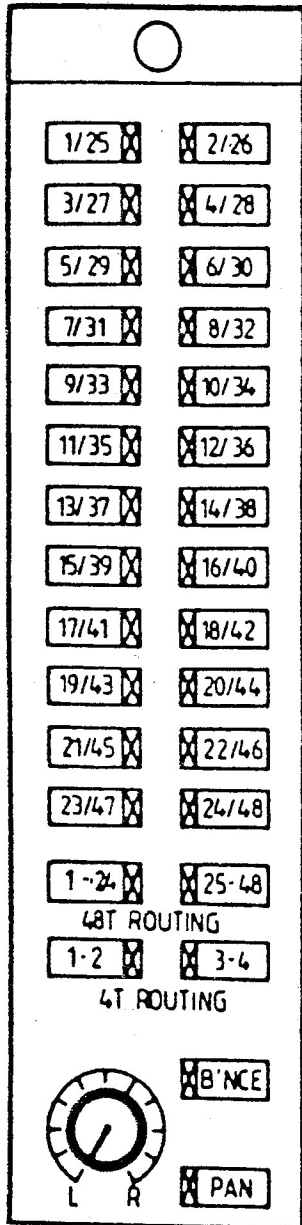


NEVE V SERIES

OPERATORS HANDBOOK



M/T Routing Section

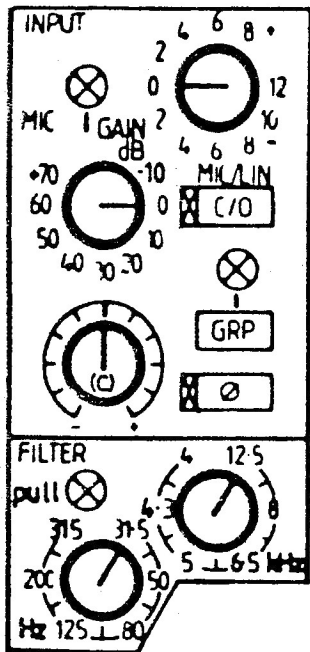
48 mixing buses selectable from 24 dual assignment buttons with led indication of each selection.

These buttons allow preselection of the assignments above to be routed to either of the buses 1-24, 25-48 or both. The added advantage is that both sets of buses can be assigned at the same time thereby allowing a master and slave m/t recording. The system has primarily been designed to meet the requirements of dual 24T recording where by two 24T machines are synchronised together for 48T recording. At the same time the system will cope admirably with the advent of a 48T digital tape machine.

2T routing buttons, essentially provided for effects returns via the small fader while in mixdown mode. A patch input to the monitor path is provided for effects returns. This feature doubles the number of line level inputs available on the console. The main 2T routing is situated above the main pan pot closer to the operator.

B'NCE is an abbreviation for BOUNCE and refers to track bouncing. This operation occurs when all the tracks have been 'used up' in the first recording session and it has become necessary to create spare tracks for additional instruments/effects etc without destroying any original material and still leaving the console set up in the original record mode (with all microphone faders, EQ, Dynamics, untouched). Pressing the 'Bounce' button connects the output of the multitrack tape machine corresponding to this channel via the small fader to the m/t routing. The bounce down track can then be selected on the assignment buttons above making the whole bounce operation very simple. The microphone channel and 2T routing will be automatically cancelled thereby preventing any doubling of the signal level.

Multitrack pan select with led indication. When pressed this enables the pan pot and allows panning between odd and even selections on the routing buttons above.



INPUT SECTION

The input section provides Mic/Line switching on individual and master control. Both mic and line have stepped level controls, the range of control on Line is from -12 to +8 and on Mic the range is -10 to +70 with a fine trim of +/- 10dBs on a smooth control immediately below. With a total range of -20 to +80 on mic sensitivity this can double as a line level input if desired. The led above the mic sensitivity control indicates when in Mic, the led alongside the Mic/Line c/o switch indicates a reversal of master status.

GROUP This button provides a patch free audio sub-grouping facility. On selecting the GRP button on any of the modules 1-48, the fader currently being fed from the channel input section on modules 1-48 will now pick up the multitrack bus of the same number making that fader an audio group fader, all the channel facilities such as EQ/DYN/Filters now belong to that group. The new group can also be routed to a spare multitrack bus along with other groups via the m/t routing buttons to create a group of groups all on one fader. Alternatively, selecting the DIR button (situated above the small fader) bypasses the routing matrix and sends the new group directly to its corresponding m/t tape input. The led above the group button indicates when group is selected. Group overrides the Mic/Line switching.

Phase reversal button operates on both Mic and Line inputs.

Filter section Hi-pass and low-pass filters on smooth controls, the filters can be individually selected by pulling the corresponding pot, the led indicates when either or both filters are selected.

INPUT AND DYNAMICS SECTION,

The Dynamics section comprises of a Limiter, Compressor and Signal/Noise gate with a very comprehensive range of controls and facilities.

EQ/D Selects the Equalizer output of this module to the dynamics side chain so that the gate or lim/comp will trigger on the EQ output. A typical example of use would be d-essing, but a whole range of other effects can be achieved by the use of this button.

GATE Selects the signal/noise gate into circuit. The threshold of operation is adjustable on the smooth control immediately below, the range of control is extended by -30dB when the pot is pulled, giving a total range of 70dBs. The small led illuminates when the threshold pot is pulled.

The release time of the gate and lim/comp is adjustable on a smooth control with a range of 0.05 seconds to 3 seconds, pulling the release pot provides individual control on the gate with auto release on the Lim/Comp.

KEY provides a patch input to the gate, enabling the gate to be triggered by any external device or by any other channel.

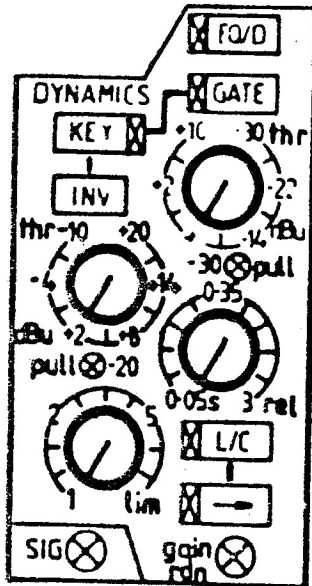
INV Inverts the trigger input from the patch so that the gate closes when a signal of the required level is present at the patch input to gate. A typical use for this would be as a 'ducker'.

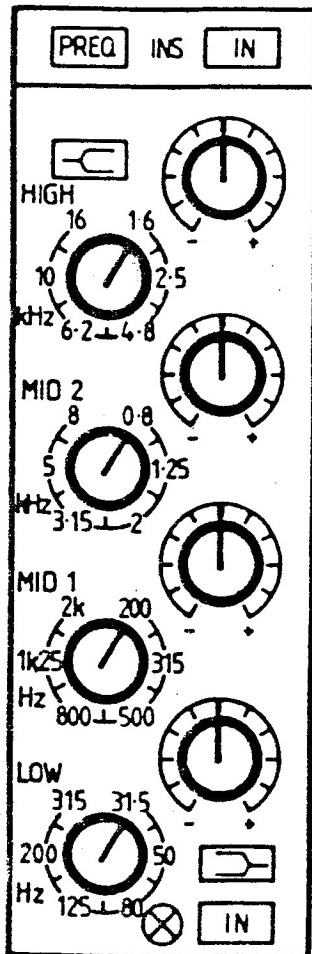
L/C Selects the Limiter/Compressor into circuit. The lim/comp threshold and compression ratio are adjusted by the two smooth controls on the left hand side. Pulling the threshold control extends the range by -20dB and illuminates the small led. As stated above, the release time can be set by the dual control in the gate section or can be switched to auto mode by pulling the release pot.

-> The arrowed button, when pressed, links the control voltage of the Lim/comp to the next channel along for stereo or quad ganging of the Lim/comp.

Metering. A simple metering function is performed by the tri-coloured led labelled 'gain reduction'. The led will indicate green for low gain reduction, yellow for medium and red for high.

Sig Level The led labelled SIG indicates signal presence or signal overload, and threshold control is provided in the main monitor section, with range of -40dB to +26dB.





INSERTION AND EQUALISER SECTION

An independently switchable patch insertion is provided per module.

IN selects the insertion to either the channel or the monitor path, if INS is pressed (alongside small fader) then the insertion is assigned to the monitor path.

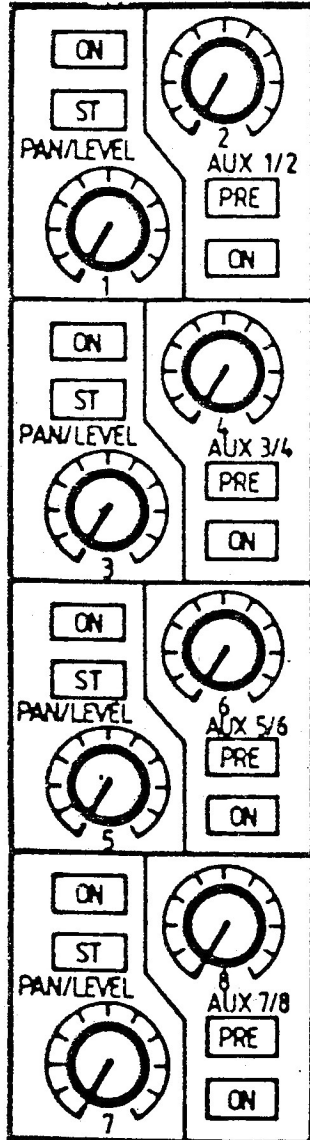
PREQ The insertion, when selected is normally post EQ, pressing PREQ selects the insertion pre EQ when the EQ is selected.

Selecting the EQ unit and transferring to monitor path will not affect the insertion assignment.

Equaliser

The superb performance of the Neve Formant Spectrum Equaliser (FSE) has been acclaimed by studios throughout the world. The very same unit has been utilised here and provides the following facilities. Four continuously variable frequency controls comprising of high and low bands with selectable peaking or shelving characteristics, two mid band controls with automatically varying Q. Each band has 18 dB's of cut or boost on a smooth control alongside.

IN Selects the EQ to either the channel or the monitor path, if EQ is pressed (alongside small fader) then the equaliser is inserted into the monitor path. The led alongside the IN button indicates when the equalizer is selected.

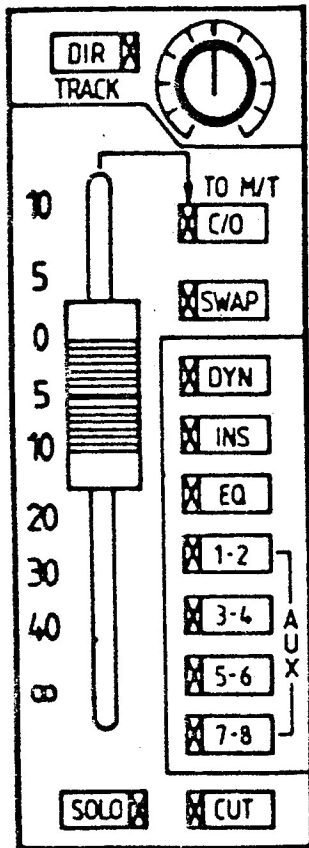


AUXILIARY SECTION Entirely unique flexibility is offered in the auxiliary section.

The section can be configured by the operator as 8 mono auxiliary sends or 4 stereo pairs with panning facility and pre/post fader switching. The operator can select which pairs are switched to stereo by selecting the ST button in the corresponding section, the level control immediately below the ST button becomes a pan pot, and the level control on the right hand side of the pair becomes a stereo level control.

This allows the operator to utilize fully, with no redundant half of a stereo pair, eight mono auxiliaries for reverb sends when in mixdown mode and yet allows the possibility of building up to four individual stereo mixes for the cue sends when in record mode.

The ON buttons act as individual switches for L and R in stereo mode or 1 & 2 for eg in mono mode. The pre button switches the pair of auxiliaries pre-fader in both mono and stereo mode. The signal source of the pre button (ie pre cut for cues, post cut for revs) is controlled automatically by the master mixdown/record switching. The auxiliaries may be selected in pairs to the monitor path by pressing the buttons marked AUX 1-2, 3-4 etc alongside the small fader. A major advantage of this system is that the auxiliaries will stay assigned to monitor or channel path independent of the fader swap system.

SMALL FADER SECTION

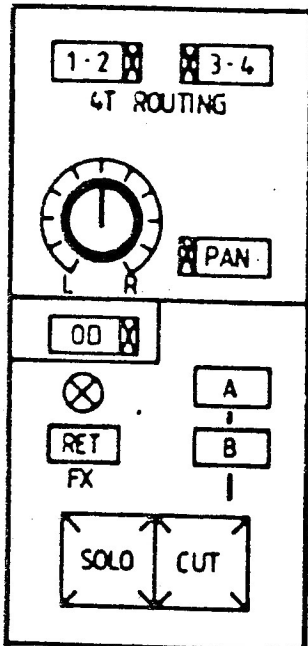
DIR This button selects the channel path to the multi-track tape input of the same number, by passing the m/t routing section. The level going to tape can be adjusted on the pot alongside, this has a detented centre position and 10dB of gain in hand. DIR is simply used when direct channel to track assignment is required with no mixing.

C/O This is an individual routing flip and operates as follows: When the console is in record mode the monitor path goes to the main pan pot and 2T routing, the channel path goes to the m/t pan pot and m/t routing, if c/o is pressed then this will reverse the assignment and send the monitor path to the m/t routing and the channel path to 2T routing. This provides the flexibility of individually configuring the console into mixdown or record mode overriding the master controls. The console may therefore be split and each section (any number of modules) may be either in track or mix mode allowing the setting up of a separate monitor mixer (like the old days) for the use of producers/artists. (On large mixers in Broadcast cases this could enable completely independent mixing of direct stereo and multitrack recording effectively giving 2 consoles) The led alongside c/o indicates when the small fader is going to the m/t routing and will change in accordance with the fader swap function and mixdown, therefore the operator will always know where the small fader is assigned to.

SWAP This is an individual fader swap control and will transpose the small fader plus its solo and cut with the big fader plus its solo and cut. There is also a master fader swap control in the main monitor section. The led alongside the swap button indicates a reversal of the master status. A major advantage of this system is that the auxiliaries will still remain assigned to channel or monitor path independent of the swap function, therefore if the operator simply wishes to replace a small fader with a big fader or a manual fader with an automated fader, this can be achieved very simply at the touch of one button without any reassignment of auxiliaries. The seven buttons grouped together in the rectangular box alongside the small fader enable the following facilities to be assigned independently to the monitor path, DYNAMICS, PATCH INSERTION, EQUALISER, AUXILIARIES 1-2. 3-4. 5-6. 7-8. This small group of buttons with led indication represent a major step forward in the design of the in line monitor console, the operator can now see at a glance the assignment of the various console facilities without having to scan the length of the module to register whether a button near aux 3 say, is in the up position or down position.

SOLO. This is a triple function button, depending on the master selection and record status. The operator can assign this button to select solo cut, positional AFL, or PFL for the small fader by pressing the appropriate buttons in the main monitor section. If the tape machine is in record, the 'solo safe' mode will automatically set and solo monitoring will then continue via the AFL/PFL buses.

The solo, AFL, PFL and Cut functions remain permanently attached to their corresponding faders.



MIXDOWN SECTION AND MAIN SOLO

Main 2T routing buttons for mixdown mode and simultaneous monitoring to 2T during record mode. Main mixdown pan select with led indication, when pressed this enables the pan pot opposite and allows the panning between the odd and even numbers selected on the 2T routing buttons above.

OD. See page 8

RET Abbreviation for RETURN, when pressed this individually 'solo safes' the channel, thereby allowing the channel path to be used as an effects return, the main requirement being that when a channel with effects send is soloed then the operator needs to hear the 'effect' of the return channel mixed in with the original, the return channel therefore must not cut. This facility allows the operator to use any channel as an effects return. On mixdown mode the monitor path may also be used as an effects return or send because of the separate monitor solo safe system.

SOLO/CUT These are the large fader solo and cut buttons and will remain with the large fader in all conditions. The solo button is a triple function device and will allow the operator to select one of three states depending on the master selection in the main monitor, these are 'solo cut mode', APL, or PPL, both SOLO and APL provide positional monitoring.

The cut circuit can be operated individually, remotely, or by master controls via the 'A' and 'B' buttons immediately above. If the button is operated individually then the lamp will glow at full brightness, if the circuit is activated remotely or by master control then the lamp will glow at half brightness. If both master and individual are activated then the lamp will glow full brightness, indicating that if the master is released the channel will still be cut.

OD Abbreviation for over-dub, this mode is normally used when it becomes necessary to replace partly or wholly a pre-recorded track with new material to remedy notational mistakes or generally enhance the original. During and up to this operation the engineer and artiste generally wish to listen to completely different signal sources. The engineer is most concerned with the levels going to tape and rehearsing the point of drop in to record, and therefore wishes to alternate between tape-in or tape-out on the overdub tracks or a mix of tape in/tape out. In the meantime the artistes wish first to hear themselves (tape-in o/d track) un-interrupted, they almost certainly will want to hear the backing tracks (tape out) preferably with EQ, they may wish to hear themselves mixed with their original material (tape in or o/d track mixed with tape out on o/d track) so that the new material can be pitched and synchronised to match the original.

The overdub/cue system provided on this console offers unrivalled flexibility in being able to meet all the above requirements of engineer and artiste independently. The engineer may alternate between tape in/ tape out without affecting the cue sends, therefore the artistes can continue their all important rehearsal oblivious to the engineers level checking etc for the final drop-in. The actual mechanics of this system is orchestrated by the five master buttons in the main monitor section labelled O/P (TAPE IN), P/B (TAPE OUT), O/D (OVER DUB), SUPER CUE AND CUES POST EQ, the last three buttons operate only when the individual channel O/D buttons are pressed. O/P and P/B enable the operator to monitor tape in or tape out globally, O/D is enabled by the individual channel buttons and allows the operator to monitor tape in on the overdub channels only. These three master buttons are interlocked and can be selected without affecting the cue sends.

SUPER CUE, when pressed this sends a mix of tape in and tape out to the cues on the channels with individual O/D selected, if the individual overdub is released, then super cue is cancelled on that channel only, and the artiste then receives tape in. The operator can monitor the super cue mix by switching the main monitor to cues. The system incorporates automatic level compensation for the point of drop-in (i.e. for when the machine goes into record and tape-in equals tape-out).

CUES POST EQ when pressed this switches the cue sends on the channels that haven't O/D pressed (the backing tracks) to a 'follow monitor' condition, the primary function of this is to allow the artiste to hear the backing tracks with the same frequency/dynamics correction as the master-mix, the facility will automatically cancel and return to tape out if the engineer decides to switch to tape in, thereby preventing the artiste from completely losing the backing tracks due to the engineers level checking etc. during the rehearsal for drop in, CUES POST EQ will then reinstate when the engineer returns to tape out.

The master mode buttons offer the totally unique feature of split console operation.

Pressing the arrowed buttons on either MIC, FADER SWAP or MIXDOWN will change the status of channels 1-24 (for the left hand arrow) or 25-48/60 (for the right hand arrow). This effectively means that the operator can choose to configure the console with a separate monitor (for those special clients who want to play with the controls).

Pressing the centre button of each three will reset the whole console. Each of these master controls has associated with it individual channel by channel buttons which when pressed will change the status of an individual channel to the reverse of the master state, and an led alongside each channel button indicates when that channel is in reversal to the master state.

Pressing the master buttons again will reset these channels to the 'new' master state.

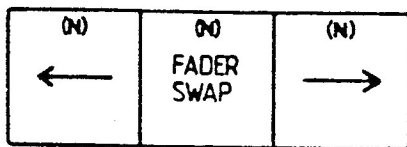
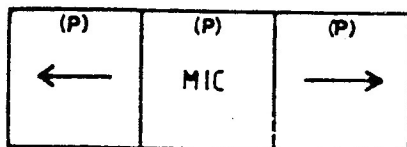
The functions of these master buttons are as follows:

MIC - Operates as a master mic/line changeover, illuminates to show mic.

FADER SWAP - This swaps the large fader plus its solo and cut with the small fader plus its solo and cut. The normal 'power up' state is for the large fader to be in the channel path and the small fader to be in the monitor path, the master fader swap button will reverse these positions and the lamp will illuminate indicating the reversal has taken place.

MIXDOWN - Pressing the mixdown button alters the state of the channel path from 'track laying mode' to 'mixdown mode' for multitrack tape playback and mixdown to 2 track.

The channel input is automatically set to 'line' and the channel path is directed to the main pan pot (closest to the operator, the same pan pot that was used for simultaneous monitoring when in track laying mode). The monitor path is directed to the multitrack pan and routing buttons so that the small fader can be used for additional effects sends or returns.



(R)	(R)	(T)
SUPER CUE	CUES POST EQ	

OVERDUB/CUE SYSTEM

A description of the overdub/cue system with reference to the SUPER CUE and CUES POST EQ buttons shown opposite is given on page 8.

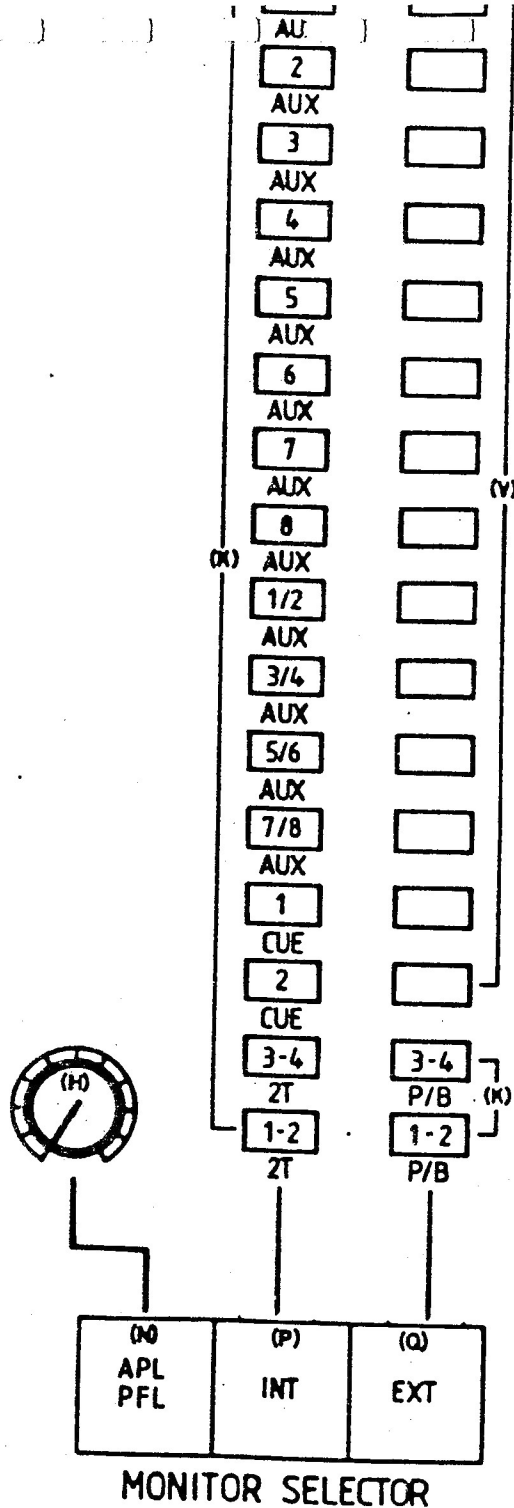
(NO) CHAN SAFE	(NO) MON SAFE	(NO) APL ↓ PFL
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SOLO SYSTEM

Page 11:

A separate monitor and channel solo system is provided. The systems are normally in SOLO CUT mode unless the tape machine is in RECORD or one of the corresponding SAFE buttons is pressed (see opposite). When an individual solo button is pressed in the SOLO CUT mode then all other channels which haven't solo buttons pressed will cut, leaving the soloed signal at the 2 track output. In SOLO SAFE mode the channels are not cut and the solo monitoring is continued via a separate stereo AFL bus to the main monitor. The system provides positional AFL or PFL selection from a master button (situated alongside the SAFE buttons).

The separate solo system on monitor means that the redundant monitor paths can be used as effects returns when in mixdown mode.



MONITOR SELECTOR

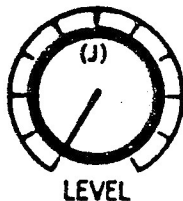
Page 12:

Selection to 16 external stereo sources for 2 track playback, cassette, grams etc is provided when the button marked EXT is pressed. EXT is interlocked with the INT (internal) button and this allows monitoring of the console sources, auxiliaries, cues and 2 track outputs via the 16 button selector.

When the console is in SOLO SAFE and an individual channel/monitor solo button is pressed then the APL/PFL lamp alongside INT/EXT will illuminate indicating that the main monitor has switched over to solo monitoring, the level of solo on to monitor can be adjusted by the control immediately above.

(P) CUT L	(P) CUT R	(M)
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(NO) L/S A	(NO) L/S B	(NO) L/S C
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(P) CUT	(NO) DIM	(M) MONO
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MONITOR

CONTROL ROOM MONITOR (see also monitor selector page 12)

Page 13:

Stereo monitoring of the sources selected on the monitor select is provided with the following facilities. The feeds to the control room monitor loudspeakers are presented with insertions on the patchfield, these can be CUT, DIMMED or converted to MONO by the three buttons opposite. Individually CUT L and CUT R are also provided.

The buttons marked L/S A, B, C allow the operator to select between three different speaker systems. The presets immediately below these buttons enable the level of each system to be set individually, the master level has overall control.



LEVEL

(P) CUT	(Q) EXT	(N) FOLLOW MON
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STUDIO MONITOR

Page 14:

STUDIO MONITOR

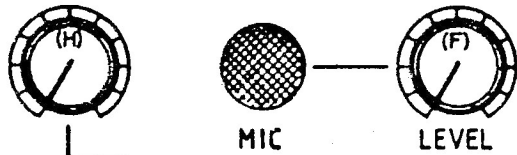
The studio monitor controls the level of the sources selected to the studio loudspeakers. The feeds to the studio loudspeakers are presented with insertions on the patchfield.

The operator can select the studio monitor to follow the control room monitor or to follow the external selector (situated above the control room monitor).

TALKBACK SYSTEM

Talkback to the following destinations can be enabled by the buttons opposite, cue 1, cue 2, Studio loudspeakers (SLS) and 'ALL' sends T/B to cue 1 and 2. SLATE sends 30Hz tone and talkback to the multitrack and 2T outputs. These buttons are momentary action (press and hold to talk). An 'auto-cue' facility is available as an option, this converts CUE 1 and 2 buttons to latching action and enables talkback only when the tape machine is not in RECORD or PLAYBACK, this is a useful feature when a number of successive 'takes' are being performed, the operator can 'talk to' the artiste between 'takes' without pressing buttons.

Return talkback from studio to control room can be enabled by pressing the RTB button, the level can be controlled on to the small console loudspeaker by the level control immediately above.



(N) RTB	(P) RED LIGHT	(T)
(S) SLS	(N) SLATE	(T)
(N) ALL	(S) CUE 1	(S) CUE 2

TALKBACK

(P)	(P)	(Q)
O/P 1-2	O/P 3-4	EXT

2T METERS

(P)	(Q)	(N)
O/P	P/B	FOLLOW MON

M/T METERS

(P)	(Q)	(R)
O/P	P/B	O/D

M/T MONITOR

(P)	(P)	(T)
CUT A	CUT B	

2T METER SELECTOR

There are four bargraph meters fitted to the 2T Metering system, two of these are permanently attached to the main monitor for metering any of the desk sources or 16 external sources through the monitor selector. The other two meters follow the 3 button interlocked selector shown opposite, this allows the operator to meter either of the 2T console outputs directly or the external source selector on the main monitor.

M/T METER SELECTOR

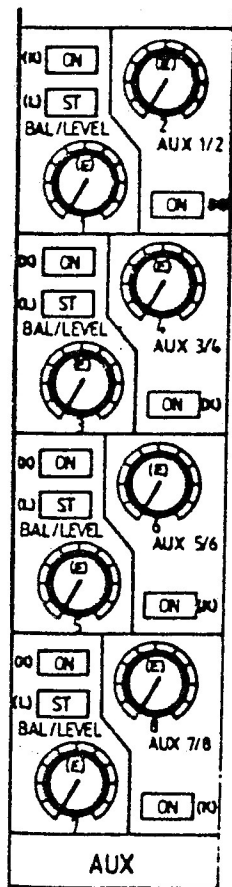
The multi-track meter selector enables selection between tape input (labelled O/P), tape output (labelled P/B) or follow monitor, in the latter state the meters will follow the M/T MONITOR selector immediately below.

M/T MONITOR SELECTOR

The multi-track monitor selector switches the in-line monitoring paths between 'tape in', 'tape out' and 'overdub'. In 'overdub' mode the channels that have the individual overdub buttons pressed are monitored as 'tape in' all other tracks are monitored as tape out. The three button O/P, P/B, O/D are interlocked.

CUT A, CUT B

These buttons when pressed will cut all channels that have their corresponding individual CUT A and CUT B buttons pressed. The system is used for 'muting' or enabling a group of channels at one time.



MASTER AUXILIARY OUTPUTS

Page 17:

As described in the channel section the auxiliary sends have the unique feature of being configured as 8 mono sends or 4 stereo by pressing the button alongside each pair marked ST (stereo), the level control immediately below becomes a balance control and the level control alongside becomes a stereo level control.

The auxiliary send level controls feed to the cue mix system, this enables the operator to build up a mix of auxiliary outputs for the artiste, (trimming of mix levels can be achieved very quickly if the artiste complains 'too much bass!' or 'give me more of myself!').

The auxiliary level controls also adjust the level to the reverb send outputs, the 'on' buttons enable the reverb send outputs. Each reverb send has a patch insertion.

CUE MIX SYSTEM

Two stereo cue sends are provided with stereo equalisation and balance control. The selector buttons above allow the operator to build up a mix of any of the auxiliary outputs along with the console 2T outputs, monitor and patch giving total control over the sound to cues.

Each cue output has a patch insertion for direct injection.

