

SL 9000 J Series

Shortform Guide

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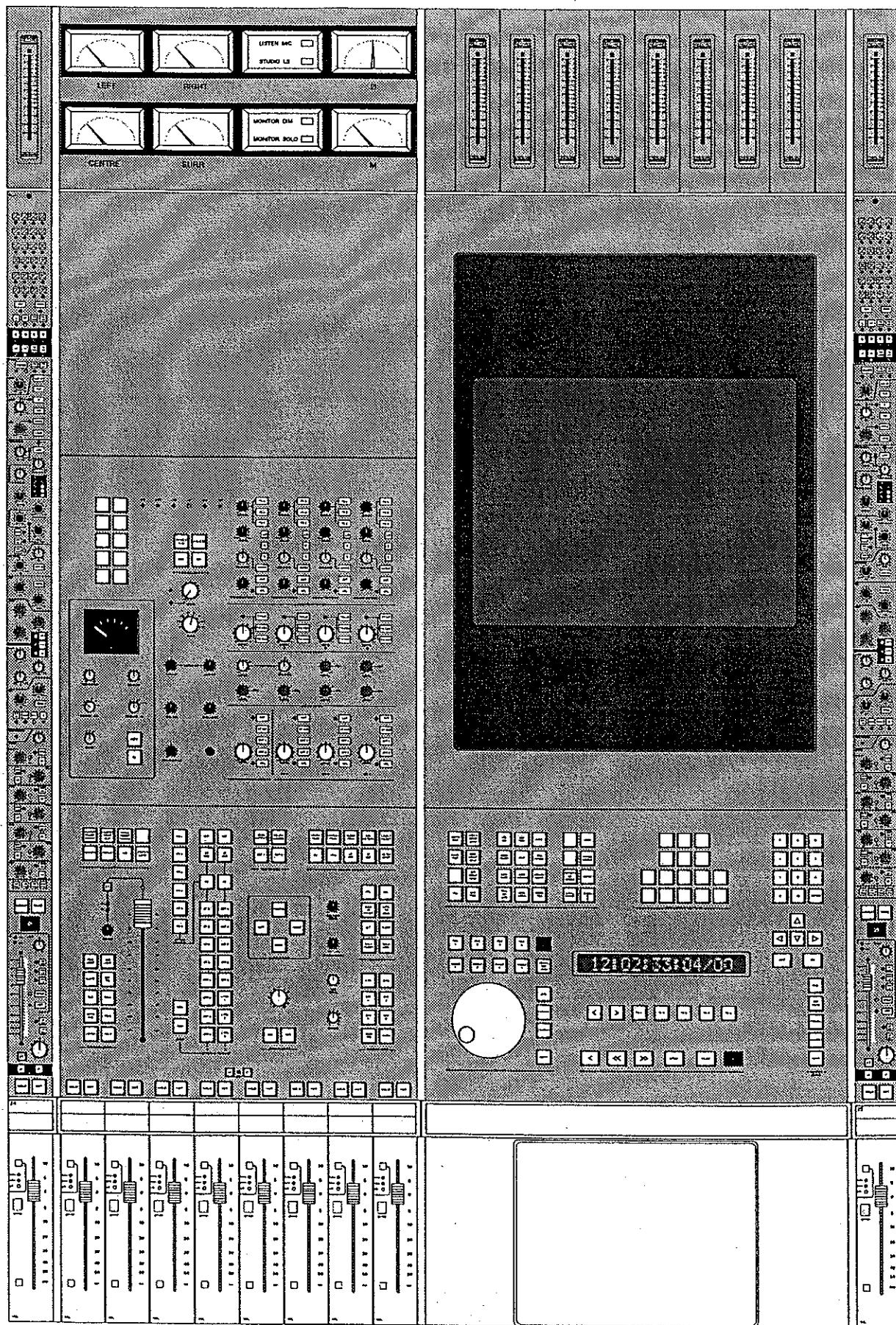
Solid State Logic
SL 9000 J Series
Total Studio System

Shortform Guide

SECTION 1

Console Overview





Console Overview

The SL 9000 J is the latest analogue mixing console from Solid State Logic. It draws on and develops many of the features of SSL's other music consoles, while retaining a control surface that will be familiar to any recording engineer familiar with SL4000, 6000 or 8000 Series systems.

The desk has an in-line signal path, with master status switching to quickly re-configure the console for particular tasks, but the signal routing can be overridden locally, providing even more flexibility than other SSL consoles.

The desk has 48 Multitrack busses, 4 Stereo busses, a Main Stereo (optionally LCR) bus and 8 Auxiliary busses, which are divided into 6 Mono FX sends and a Stereo Cue bus. The four Stereo busses can be used as subgroups, additional record feeds, to generate Surround or Centre signals, or as additional FX sends.

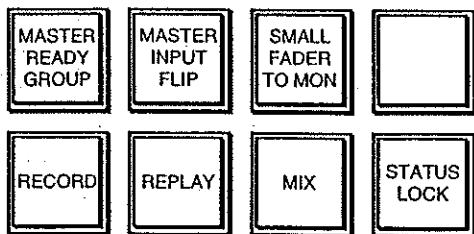
An ingenious reassign system allows Auxiliary send controls on individual channels to be disconnected from their own bus and routed to any of the Stereo or Multitrack busses, allowing up to 64 discrete FX send mixes to be generated.

As well as the Large Fader level and Cut, the following console channel functions are automated:

- Small Fader level
- Small Fader Cut
- EQ In/Out
- Insert In/Out
- Individual Aux On/Off switches

These functions are controlled from an entirely new automation computer, providing additional processing power, colour graphics, pop up menus etc. The J Series Computer also provides complete integration with SSL's digital product range, allowing random access multitrack recorders, digital work stations, random access video recorders and routing switchers to be controlled from the console. Further information on the automation system is contained in the J Series Computer Operator's Manual.

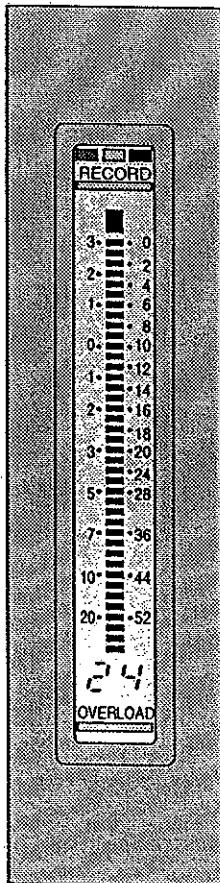
The following descriptions are intended for those engineers who are already familiar with SSL's SL4000/6000/8000 range of consoles. Those requiring a more detailed description of the console's features and functions should refer to the relevant sections of this manual.



Master Status Switching

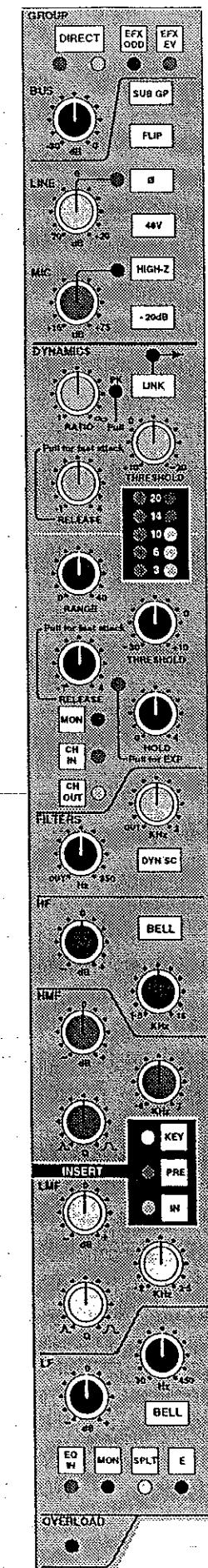
The console retains the familiar RECORD, REPLAY and MIX statuses. Note, however, that in RECORD or REPLAY Status, the Large Fader is in the Monitor path and the Small Fader is in the Channel path. This represents a logical change from SL4000/6000/8000 Series consoles where the additional selection of VCA TO MONITORS or FADER REVERSE is required to achieve the same signal flow.

To reverse faders in RECORD or REPLAY status, select SMALL FADER TO MON. Note that there is a great deal of flexibility in sourcing signals to feed to the various busses – either fader can be switched locally to feed any of the busses in any status.



Metering

Depending on the specification of the console you are working on, it may be fitted with standard VU metering or SSL's back lit LCD bargraphs. These can be switched between VU and digital Peak scales from the console's centre section. The 0dB points of the VU scale can be adjusted to read between 0 and +6dBu. Factory default is +4dBu. The 0dB point of the Peak scale can be adjusted from a terminal to read between +16dBu and +24dBu. Factory default is +18dBu (-6dBFS on a Sony multitrack).



Input/Output Module

The input/output module bears a strong resemblance to the SL4000G module, but with a number of enhancements.

The differences are briefly as follows:

The channel input stage is similar to G Series. The MIC gain is a continuously variable control (from +15dB to +75dB) with a 20dB pad switch. The Mic input can also be switched to high impedance using the HIGH-Z switch, allowing the Mic input to be used for line level signals.

The Multitrack BUS trim control, which on SL4000/6000/8000 Series consoles is adjacent to the Group/Tape switches near the bottom of the module, is also located in this area.

The SL 9000J Series Dynamics section is based on the classic G Series circuits, with the addition of a Peak detect option on the Compressor (selected by pulling the RATIO switch up) and a HOLD control for the Gate. The Expander/Gate section defaults to Gate, with Expand selected by pulling the HOLD control. As with G Series, the Dynamics section can be keyed from the Monitor path by selecting MON and either CH IN or CH OUT. It can also be keyed from the Insert Return by selecting KEY and IN for the channel insert point.

The Equaliser is a four band parametric, with variable Q on the mid bands and shelving/bell high and low bands. The normal curves of the equaliser are based on the G Series equaliser. The mid bands are constant Q, so the bandwidth increases as the gain is decreased. LF and HF BELL switches are provided as opposed to the LMF and HMF range shift switches found on G Series EQ.

The E switch selects an alternative set of EQ characteristics, based on the classic '242' E Series card. The mid bands have a constant bandwidth, so Q increases as gain is increased; the HF band has a shallower slope than in 'normal' mode. The bell curves are identical to the normal ones, ie. without E selected.

The Equaliser can be switched to the Monitor path using the MON switch. SPLT places the filters at the channel input, just as in G Series.

The EQ IN switch is automated.



The Auxiliary send section includes one stereo and 6 mono aux send controls. The Aux On/Off function for each send is automated, with push/push switches on each control toggling between on and off. A yellow LED indicates that the send is On. Auxes can be sourced from either fader. The SF switch next to each send switches the source to the small fader. The PRE switches at the bottom of the section switch the aux source to pre-fader. There is a PRE switch for the Stereo Cue send and one PRE switch for each pair of mono sends.

A major advance on the SL4000 system is the FX send reassign system – EFX for short. This allows any two mono FX sends, or the stereo cue send, to be disconnected from their respective busses and used as sources for the channel's Group Output, the channel's Stereo bus routing and/or the channel's Multitrack routing.

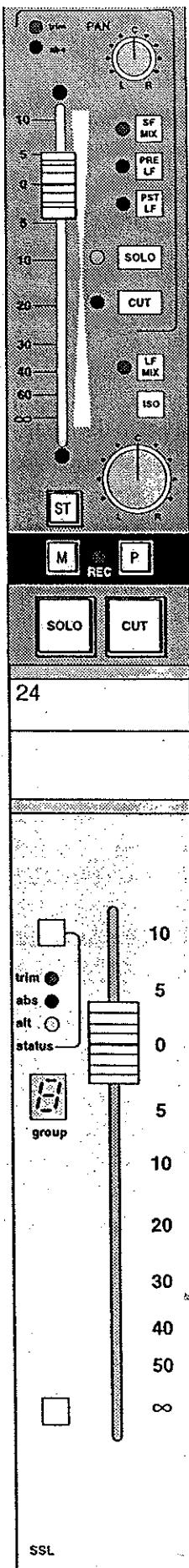
Aux sends are assigned to the EFX system using the EFX switches by each one. FX1, 3 and 5 can be assigned to EFX ODD. FX 2, 4 and 6 can be assigned to EFX EVEN. Selecting EFX on the Stereo Cue send feeds Stereo Cue L to EFX ODD and Stereo Cue R to EFX EVEN. Note that only one odd and one even numbered FX send or Stereo Cue can be assigned. Red (EFX ODD) or green (EFX EVEN) LEDs indicate that a send is assigned to the EFX system.

GROUP, **TAPE** and the Record Enable switches function identically to the SL4000 system.

The Small Fader section is similar to that on an SL4000. Both the fader and CUT switch are automated. The Small Fader pan is located here and, unlike the SL4000, is *always* associated with the Small Fader. The pan is permanently in circuit. The Small Fader can be assigned to the Main Stereo mix bus using the SF MIX switch.

In MIX or RECORD/REPLAY + SMALL FADER TO MON(itor) status, the Small Fader is normally sourced from the Monitor input. In RECORD or REPLAY status the Small Fader is normally sourced from the channel input. This selection can be overridden by the PRE LF/PST LF fader switches. The PRE LF switch will pick up the channel signal immediately post input selection, or the channel signal post signal processing. Which signal is chosen is set by an internal link option. PST LF selects the post Large Fader signal.

The Small Fader has its own automation status switch and LEDs.



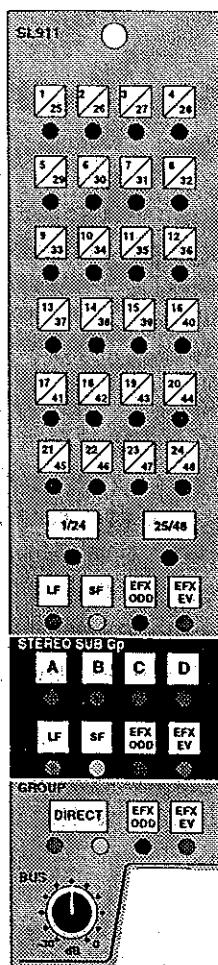
Below the Small Fader is the Large Fader pan control. This is always associated with the Large Fader and is always in circuit.

The Large Fader CUT switch is automated. This and all the other automated switch objects in the channel make use of the Match and Play switches fitted above the Large Fader CUT and SOLO. See the J Series Computer Operator's Manual for more details.

As with the Small Fader Solo switch, the Large Fader SOLO switch can act as a destructive solo, a post pan listen (AFL), a pre-fade listen (PFL) or as a Solo In Front function. This last mode provides a mix of the AFL signal and dimmed Main Mix to the monitors. The different solo functions are selected with the solo mode switches in the console's centre section. These switches also include a SOLO CLEAR switch, ALT which makes all solo switches intercancelling, FLEET which makes them momentary, and SOLO LINK which links Large and Small Fader Solo cut busses.

The Large Fader is motorised and, like all SSL Ultimation systems, can switch the audio via a VCA to allow Trim updates etc. See the J Series Computer Operator's Manual for more details.

The Large Fader can be assigned to one of the 8 master control faders in the centre section, by using the group select switch at the bottom of the fader. Selecting HARD GROUP SETUP on the Motion Control panel enables the select switches. A short press of the individual select switches increments the group number in that fader's 7-segment display; a slightly longer press decrements.



There are four possible outputs from the channel strip:

- The Main Mix stereo bus
- The four Stereo Subgroup busses (A, B, C and D)
- The 48 Multitrack busses
- The channel's Group Output

Either or both faders can feed the Main Mix bus via the LF MIX and SF MIX switches at the foot of the channel strip; the other three outputs each have a source selector.

The Multitrack and Stereo Subgroup busses can be fed by Large or Small Fader (post pan control) signals, or by one or both of the EFX ODD/EVEN signals. If one EFX switch is selected, then the corresponding routing output will be fed in mono by the selected source. Selecting both switches together will feed EFX ODD to left (odd) and EFX EVEN to right (even) bus. This enables any two Aux Send controls to be re-routed to the Multitrack or Stereo busses, allowing large numbers of separate mixes to be generated without using the Small Fader.

The 48-track routing is accessed via 1-24/25-48 bank select switches and signals are normally sourced from the Small Fader unless RECORD/REPLAY + SMALL FADER TO MON(itor) are selected.

The Stereo Subgroup bus routing has no source until one is selected.

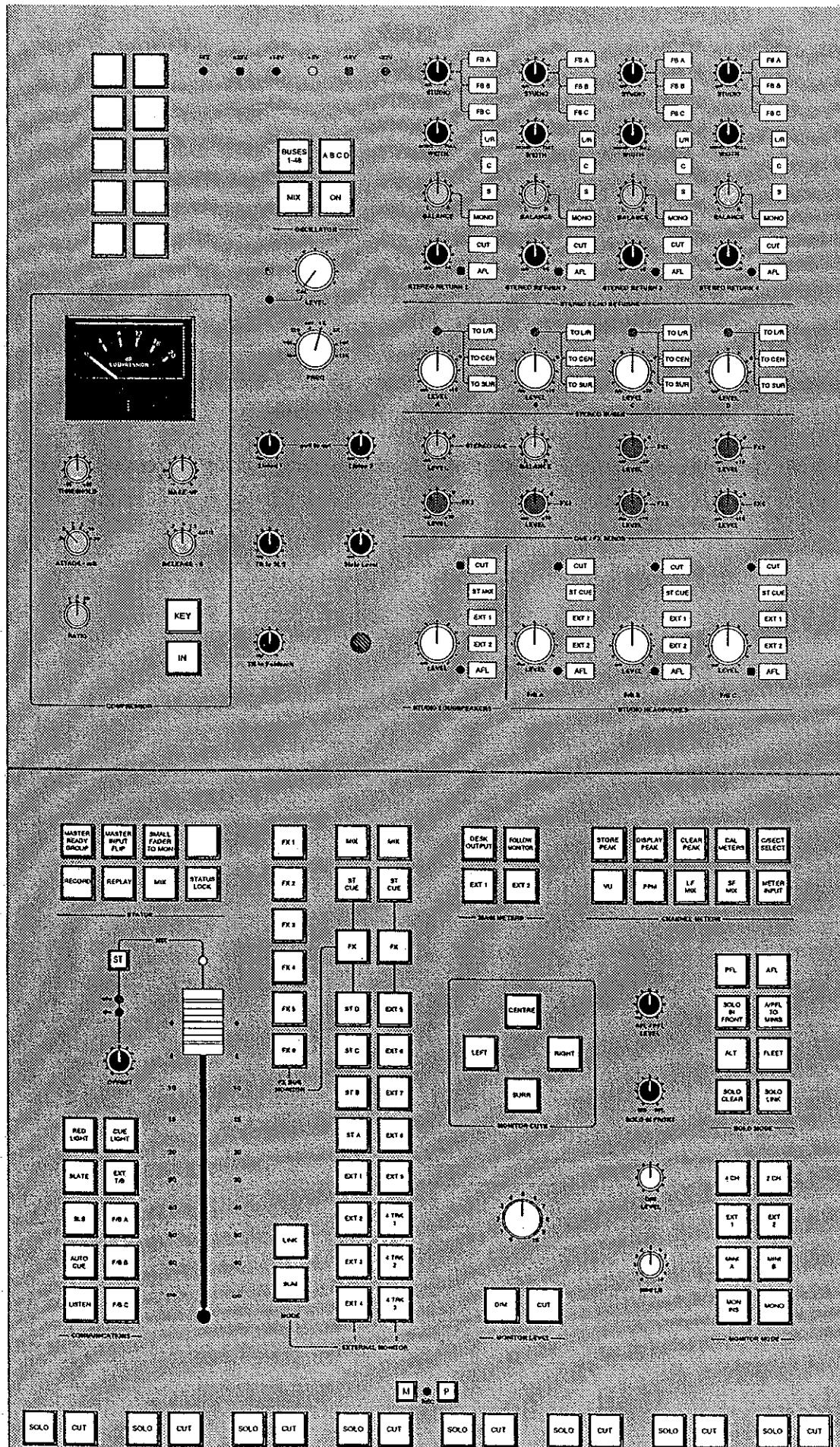
The Group Output is normally fed by the multitrack bus Mix Amp, but this can be replaced with a post-fader channel signal by pressing DIRECT, or by the EFX ODD or EFX EVEN signals.

Centre Section

The SL 9000J centre section is logically divided into two main areas (see the picture on Page 1-ii). On the left, two panels provide master controls for the console's audio functions – console status switching, main outputs and monitoring, subgroup and auxiliary masters, meter switching, talkback, FX and cue send masters, echo returns, oscillator etc. Below these panels, eight master control faders are provided.

The right hand side of the centre section is taken up by a large colour video monitor and a panel housing controls associated with the J Series Computer. A jog wheel, a standard set of transport controls, five instant locate buttons and a large timecode display are provided for machine control. A pen and tablet interface for the computer is provided in the fader area. See Section 4 for more details.

See over the page for a basic description of the centre section audio controls.



Master Audio Facilities

The SL 9000J master audio facilities are built to a completely new design, offering high performance, low noise, high bandwidth and low distortion. The controls provide all of the functionality of a G Series centre section, plus master facilities for the additional Auxiliary and Stereo Subgroup busses. The foldback and external source selection systems are substantially refined and extended. Additional switching for the new Solo modes is provided.

The main console output is 4-channel with a 4-channel fader and compressor. The output is provided with a pre-fade insert point. The compressor is identical to the design used in the G Series range. Selecting KEY bypasses the pre-fade insert point and allows the insert return to be used as a key input. The Master Fader has its own status button and LEDs. The OFFSET control allows the Master Fader level to be adjusted while still leaving the Master Fader at the top of its travel.

The Left and Right Main outputs are fed from console-wide busses. If the LCR Film Pan option is fitted, then the Centre bus can also be fed directly from the channels. The four Stereo Subgroup busses can also be re-routed back to the Left/Right, Centre and Surround outputs, allowing four-channel mixes to be built up even if the console does not have the LCR panning option fitted. The Centre and Surround outputs are fed by a mono sum of the selected Stereo Subgroup bus.

The main monitor output is 4-channel with a switchable insert point, pre the monitor level control, for Dolby Surround encoders/decoders. Two pairs of near-field monitor outputs are also available, and can be selected using the MINI A and MINI B buttons.

The monitors are normally fed by the desk main output, but this can be replaced by either one of two External Source selector banks by selecting EXT 1 or EXT 2. The External Source selectors have independent sources, unlike the SL4000. The buttons are normally intercancelling, but selecting SUM allows several sources to be monitored together. LINK connects both source selectors together, for comprehensive multiple-source selection.

The Auxiliary bus outputs are provided with level control only.

The Studio monitor system has been substantially extended. Three stereo Foldback and one stereo Studio Loudspeaker outputs are provided. Each is provided with level control and can be fed by any one or a mix of External Source Selector 1, External Source Selector 2, or an external signal fed via the patchbay. For the Foldback outputs this is normally the Stereo Cue output, but this may vary from desk to desk. For the Studio Loudspeakers, the third source is always the stereo main Mix output.

The four stereo Echo Returns are similar to those fitted on the SL4000, with the addition of discrete routing switches to the main outputs. Note that the STUDIO level control feeds signal back to the Foldback outputs - not the Auxiliary busses.

Oscillator and Talkback level controls are similar to those found on the SL4000.

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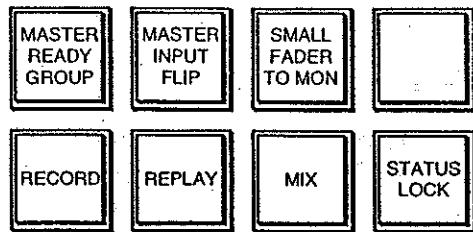
SECTION 2

Basic Routing and Signal Flow



Basic Routing and Signal Flow

In order to understand signal flow through the console, it is probably best to start with the status buttons located on the SL952J Master Panel. These buttons determine basic signal paths in the SL911J I/O module, so they are very important.



When first setting up the console, you should always check these buttons and select them correctly for the particular mode you wish to work in.

There are four basic desk statuses: RECORD, REPLAY, MIX and RECORD + MIX (overdub). The SMALL FADER TO MON(ITOR) and MASTER INPUT FLIP buttons also affect I/O module signal flow.

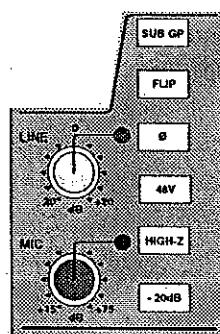
Each I/O module has two completely independent audio signal paths, the 'Channel' path and the 'Monitor' path (typical of an *In-Line* console). This gives the system flexibility, but may cause some confusion if you don't understand which areas of each module are dealing with each of these signals.

The Six Key Points in the SL911J

There are six key points in each I/O module which define the two separate audio paths: two inputs to the module, two faders and two outputs from the module. The status buttons determine how these elements are connected together to provide default configurations required for tackling various tasks from track laying through to final mixdown.

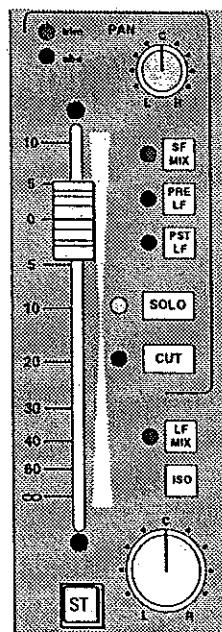
The six key elements in the signal paths are:

The Channel Input



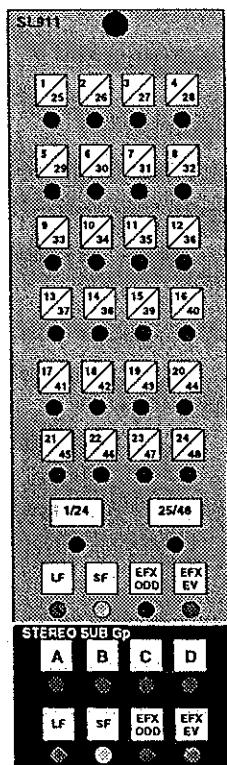
The Channel Input section can be found towards the top of the module and has three inputs: MIC, LINE and SUBGROUP. We will deal with the SUBGROUP input later. The FLIP button allows you to flip between MIC and LINE inputs. All inputs can be flipped by using the MASTER INPUT FLIP button located in the SL952J master status button group.

The Small Fader and Pan



The Small Fader is linked to the computer automation system. Its associated pan control is mounted above and to the right of the fader. This will normally pan between Left/Right or Odd/Even busses unless the optional LCR panning system is fitted, in which case a separate Centre bus is also available.

The Routing Matrix

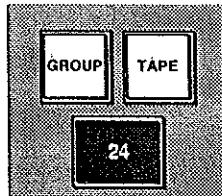


The Routing Matrix provides access to 48 Multitrack busses and four Stereo Subgroup busses. Bus selection is simple in operation, with two buttons determining the Multitrack bus selection for tracks 1-24 or 25-48.

Sources for the Multitrack and Stereo Subgroup busses are determined by the buttons beneath each section. Default selection of Large or Small Fader sources for the Multitrack busses is made by the master Status buttons on the SL952J but this can be overridden locally as required (see later).

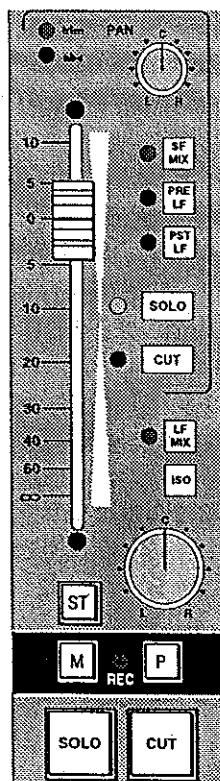
Source selections for the Stereo Subgroup busses are independent of the master console status and may be chosen according to the job in hand. See Page 2-25 for a description of the EFX re-assign system.

The Monitor Input Section



The Monitor Input buttons enable two sources to be selected for the monitor path. GROUP selects that module's Group Output, which also feeds the multitrack. TAPE selects the track output of the multitrack machine. It is possible to select both of these buttons together to get a mix of the two signals.

The Large Fader and Pan



The Large Fader is linked to the computer automation system. Large Faders may be assigned for control by one of the eight group faders in the centre of the console.

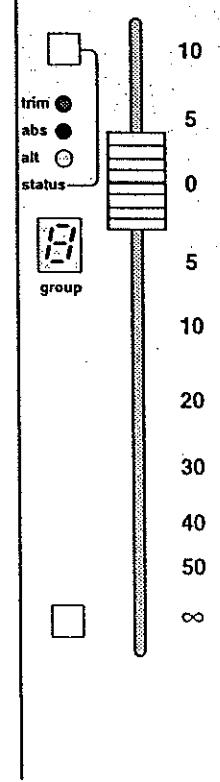
An associated pan control is provided directly above the fader at the foot of the I/O module. This will normally pan between Left/Right or Odd/Even busses unless the optional LCR panning system is fitted, in which case a separate Centre bus is also available.

The Output to Mix Bus Controls

Two buttons, LF MIX (above the large Fader pan) and SF MIX (below the Small Fader pan) determine which fader will feed the console's main Mix bus.

Normally these are selected to a default condition by the master status buttons on the SL952J but may be overridden locally when the situation dictates.

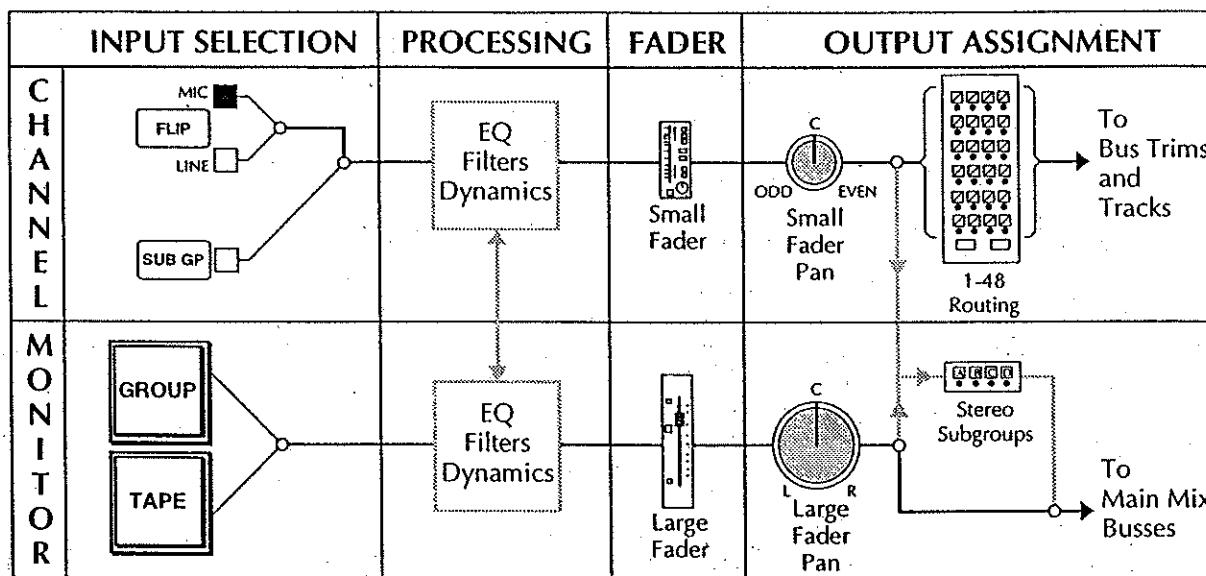
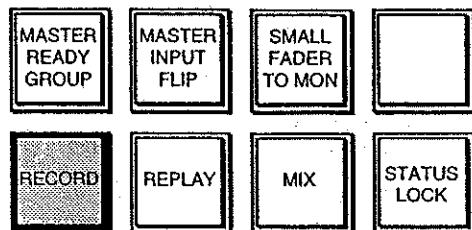
Also in this area are the PRE and POST LF buttons. These are mainly used in mixdown (as we shall see later) to source pre- and post-Large Fader channel signals when the Monitor path and Routing Matrix provide a method of setting up additional Aux/FX sends.



In order to explain the console routing system, we will go through the master statuses in the most logical progression, from basic track laying to final mixing. The status buttons are designed to differentiate between the various phases of the recording process.

Record Status

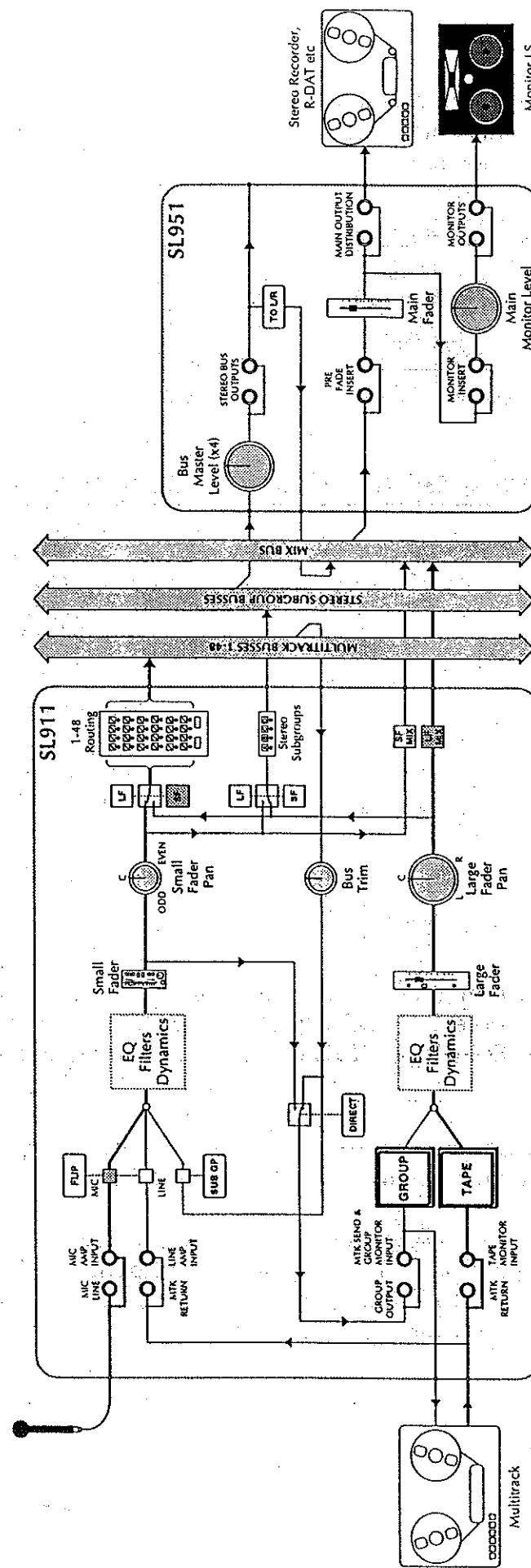
Recording basic tracks onto a blank multitrack tape is the starting point! In the record mode, with the RECORD status button selected, the various elements in the module signal paths are connected as shown below.



This will be the preferred recording mode for most engineers. If you have previously been using an SL4000 system, note that RECORD status on the SL9000 is equivalent to RECORD + VCA to MONITORS (FADER REVERSE on Ultimation and G+ consoles) status.

The Large Faders are much more useful if used as monitor faders during recording, as they can, if required, be automated for end-of-the-day monitor mixes.

The upper section of the diagram shows the 'Channel' signal path whilst the lower part shows the 'Monitor' signal path. The Channel signal path is that path which originates from the Channel Input section of the I/O module. The Monitor signal is derived from the Monitor Input section.



Record Status

The drawing opposite shows RECORD status routing in more detail and will give you a good idea of where the various controls appear in the signal path.

Before we go any further, it would be worth explaining some of the elements in the drawings opposite and on the following pages. This will enable you to more easily understand the default signal paths and the variations available.

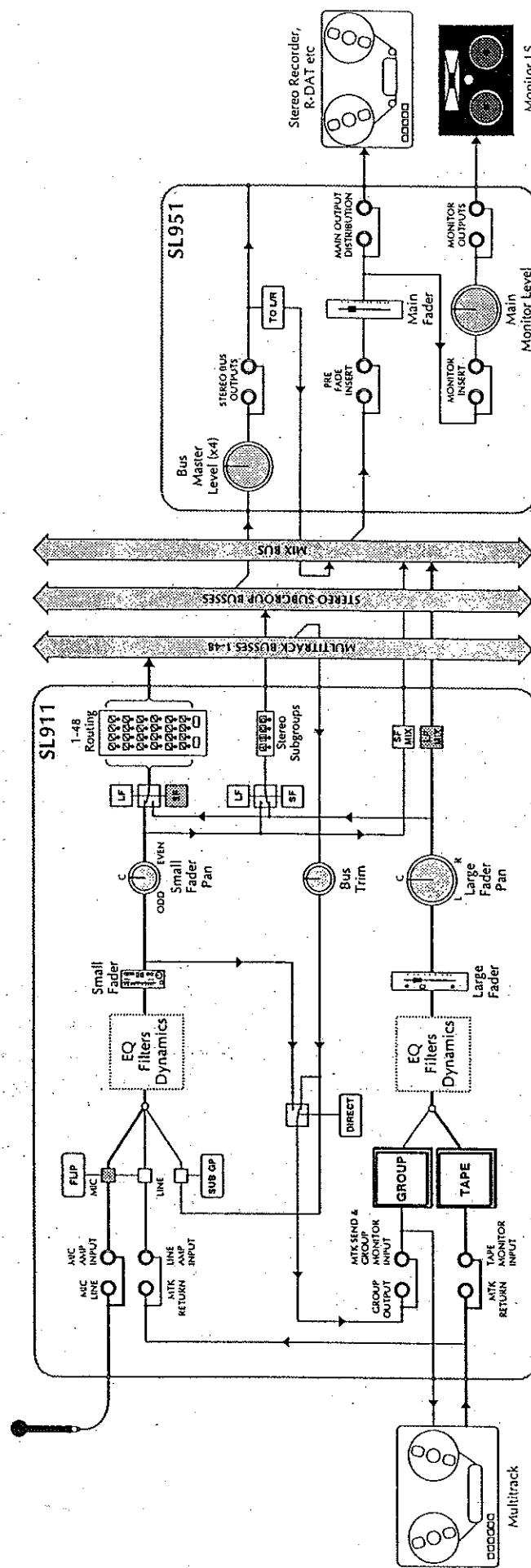
- Default/Main Signal Path in I/O Module
- Alternative/Additional Signal Paths
- [SF] Selected Function (shaded)
- [LF] Deselected Function (unshaded)
- [] Changeover switch (electronic)
- [] Half-normalled jack sockets

Note that most of the drawings are 'single-line' diagrams. This means that even stereo signal paths have been shown, for simplicity, as single lines. Just remember that the outputs of a pan control are always stereo, as are the Subgroup busses, main Mix bus and the Monitoring system.

Record Signal Flow Diagram

This diagram is fundamental to understanding the console signal flow, so it is worth while spending some time to look at it in detail. In this status, a Mic input is the standard selection and this signal will be fed, via the Mic gain control, to Channel path input. The FLIP button allows the Line input to be selected if you are sourcing from line level feeds rather than from microphones. The SUB GP (Subgroup) button overrides Mic and Line selections.

Normally the Subgroup button will be up and the Mic signal will pass to the phase reverse circuit (not shown). If SUB GP is pressed, the Channel signal path will derive its input from that module's multitrack bus (Group) mix amp. This allows signals from other modules to be subgrouped through the channel, which is a very powerful feature while mixing. In the tracking mode this could be used to provide overall Dynamics or EQ to a group of signals prior to sending them to the multitrack. For more on this function, see Page 2-21.



Record Status

Following the input stage, the signal passes via the EQ and Dynamics sections (if selected) to the Small Fader. The Channel signal can also be fed via the insert points to an external device (not shown on the diagram) which can be switched pre or post the EQ.

After passing through the Small Fader and associated pan, the signal is sent to the Multitrack Routing Matrix, via the default selection of the associated SF (Small Fader) routing source button. When recording to a stereo pair of tracks, the Small Fader pan can be used to pan source signals between odd and even multitrack busses.

From the Routing Matrix the Channel signal passes on to the multitrack busses, to be picked up by the bus mix amp associated with that multitrack bus/Group. The Bus Trim may be on another module if the channel has been routed to a bus other than its own (which is usually the case). The signal then passes (via the DIRECT switch) on to the Group Output patch point on Row G, where it is normalled to the Multitrack Send and Group Monitor Input on Row H. The Multitrack Return appears on Row J and is normalled to the Tape Monitor Input (Row K).

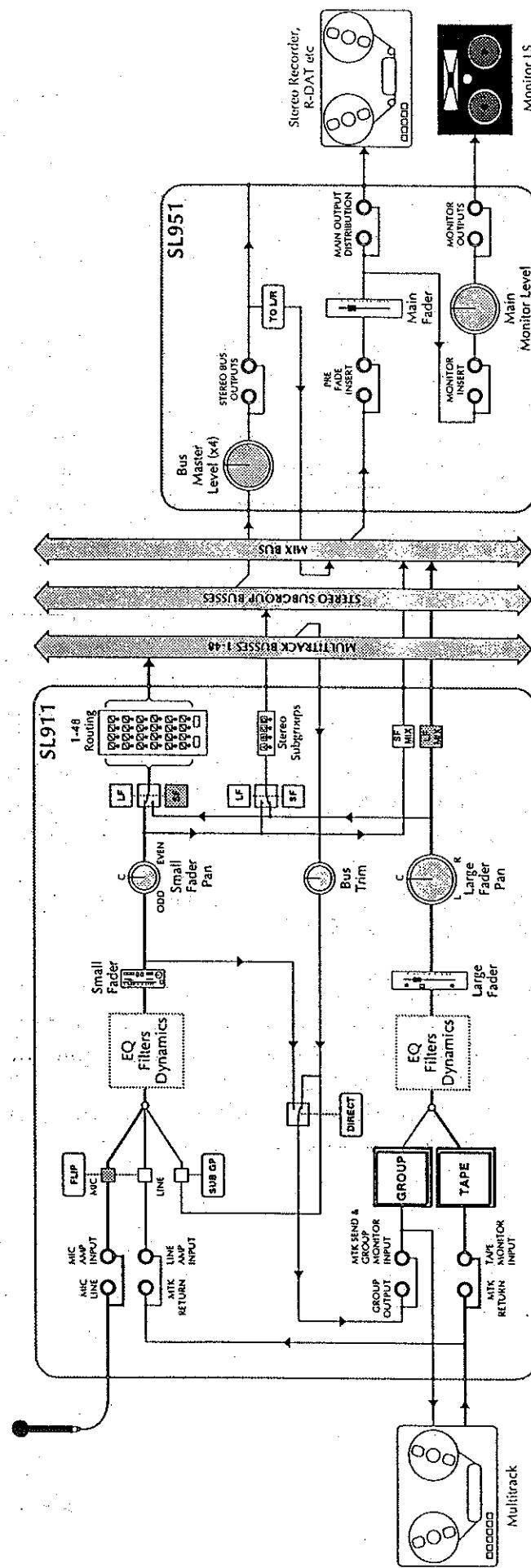
Both these Tape and Group Monitor signals feed a switching matrix which is controlled by the GROUP and TAPE buttons. Note that selection of MASTER READY GROUP on the SL952J selects all Monitor path inputs to GROUP automatically. This can be a useful starting point if you are recording to a large number of tracks simultaneously.

If required, the monitor signal can now be processed with the EQ and Dynamics sections (which can be switched into the Monitor or Channel signal paths). The signal passes on via the Large Fader and out of the module onto the Mix bus.

The Mix bus is fed into summing amps in the centre section and then passes via the Main Fader out to the monitor amps and ATRs.

Remember that, in RECORD status, the Large Faders relate to the monitoring of multitrack sends and returns, and the Small Faders relate to whatever source is being fed into that channel. Quite often these two signals may be completely different. For example, Track 7 may be fed from a mic plugged into Channel 1. The Small Fader on Channel 1 will control the level of that mic to the multitrack machine, the Large Fader on Channel 7 will control the level of Track 7 sends and returns as heard on the monitors.

Provision has been made for an analogue multitrack tape machine output to automatically switch to Sync whenever the RECORD status button is selected. This may, or may not, be wired in your studio.



From the diagram opposite you will see that, if required, the Large or Small Fader Pan outputs can be assigned to any one or more of the Stereo Subgroups. If you need to create audio subgroups of source signals, in order to apply overall signal processing, this can be very easily set up by using the Stereo Subgroups and outboard signal processors, or spare I/O modules (see Page 2-25). For convenient level control, Monitor (Large in RECORD status) Faders can be assigned to the eight group control faders in the centre of the desk.

Track Bouncing

If you have previously been using an SL4000 desk, you will probably be familiar with the FLOAT function. Amongst other uses, this provided a simple method of setting up for track bouncing. The same effect can be just as easily obtained on the SL9000 but requires the selection/deselection of two switches.

As an example, say that we want to bounce Tracks 1, 2, 3 and 4 down to a stereo pair on Tracks 7 and 8, and we are still in RECORD status. First assign the Large Faders on Channels 1, 2, 3 and 4 to the Routing Matrix by selecting the associated LF button. Note that this toggles with the SF button. While in this area, select routing buttons 7 and 8 on each of these modules, having first ensured that the 1-24 routing bank switch is also selected.

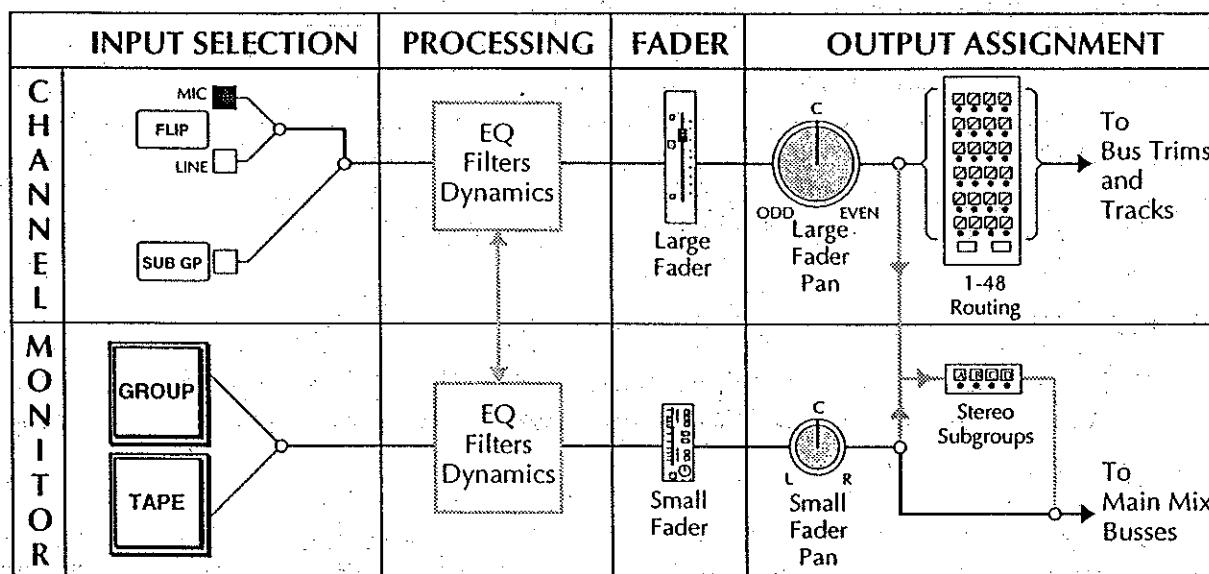
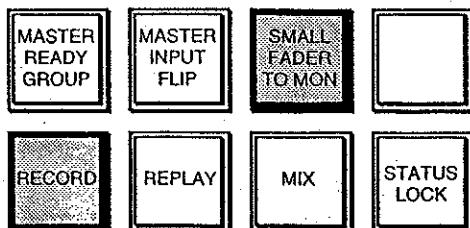
Now move to the foot of the module and deselect the LF MIX button to prevent 'double monitoring' during the bounce. Select GROUP on Channels 7&8 and set the Large Fader pans on these channels to left and right. Set the Large Faders on 7 and 8 to unity gain.

Run the tape and balance the mix of tracks 1-4 on the Large (Monitor) Faders of those channels. If not already set, the Large Fader pans can be used to create the required stereo image.

For more experienced SSL users, this may at first seem over-complicated. However, unlike the SL4000 Series, the Small Fader remains available while track bouncing, and panning across the multitrack busses follows the Large Fader pan control. Think, moreover, of the potential available when you can freely assign Small or Large Fader outputs to the Routing or main Mix busses in any console status.

Record + Small Fader To Monitor

RECORD + SMALL FADER TO MON(ITOR) status provides an alternative record mode to basic RECORD status. Selection of **SMALL FADER TO MON** simply swaps the faders in the Channel and Monitor paths, and can be used in conjunction with both RECORD and REPLAY status.



In this status, the Mic input is fed via the Large Fader and Pan to the Multitrack Routing Matrix (the 'Channel' signal path) and then to the multitrack itself via the module's Group mix amp and Trim control associated with that track of the machine (i.e. Track 7 is fed from Module 7's Group Output).

The Small Faders monitor the multitrack sends (GROUP) and returns (TAPE) and feed these signals to the main Mix outputs and monitoring of the desk, via the module's Small Fader pan (the 'Monitor' signal path), the Mix busses and the SL952J. Again, Track 7 will be monitored on Module 7's Small Fader.

This way of working is particularly suited where you need to handle a large number of sources simultaneously and want to have fader control of these as close to you as possible.

Some consoles may have local **SMALL FADER TO MON** buttons, allowing, for example, Channels 25-48 only to be switched to this mode. The Large Faders on these channels can then be used as input faders while the Large Faders on Channels 1-24 act as monitor faders. Note that **SMALL FADER TO MON** has no effect in **MIX** status.

Master Input Flip

This button works in any desk status and simply flips all channel inputs between Mic and Line inputs. Each channel can be flipped on an individual basis but it is simpler to hit MASTER INPUT FLIP to select the majority type of input. You would use this button if, for example, you are working in the RECORD status and wish to use Line inputs for synthesisers or samplers, rather than the Mic inputs.

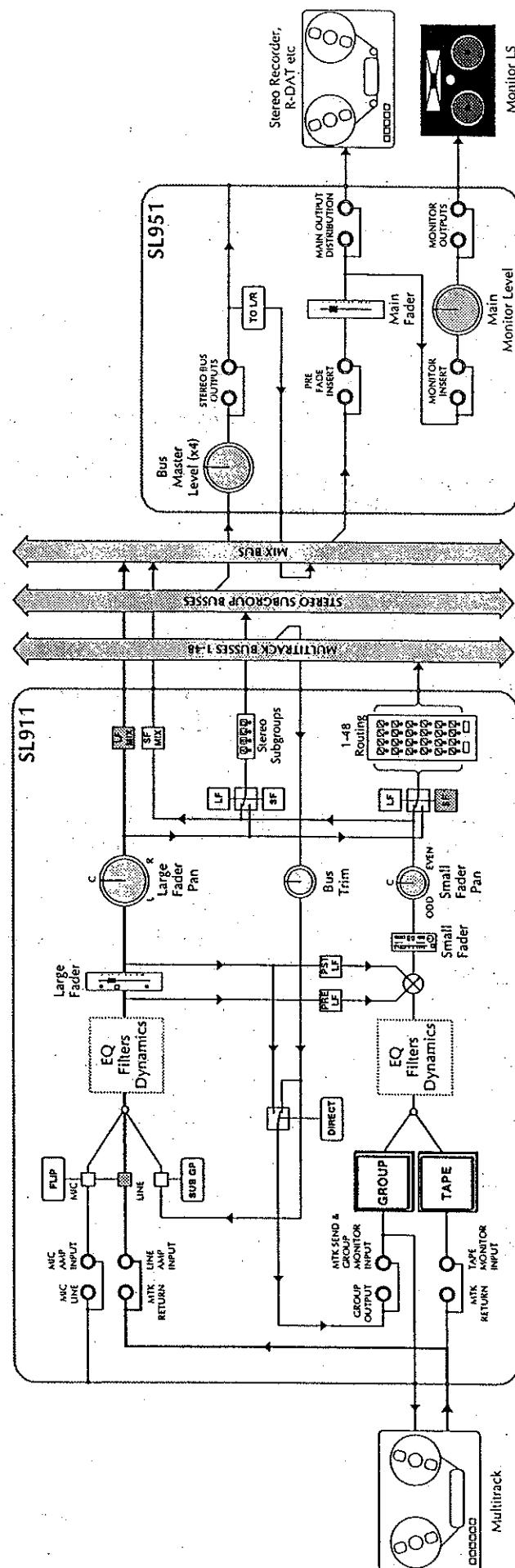
Replay Status

This mode is used when working in RECORD, or RECORD + SMALL FADER TO MON status. The current console status is put on 'standby' and the tape returns are automatically routed to the Monitor faders. This allows a quick replay of the tape without disrupting the console setup. If the Sync/Replay option is wired, then an analogue multitrack machine will be switched to normal Replay.

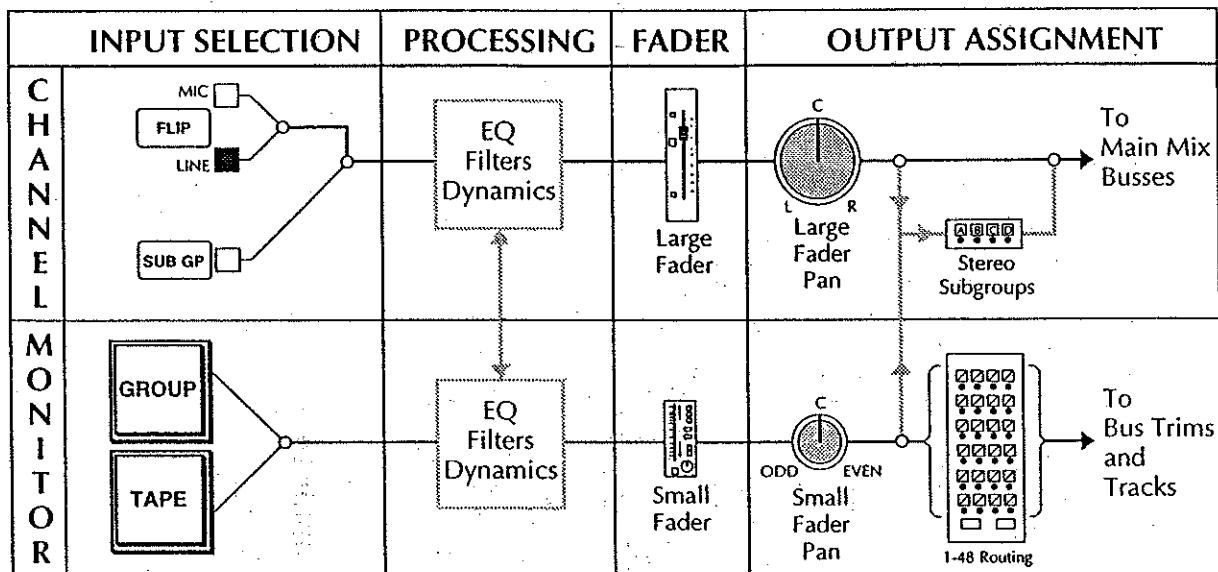
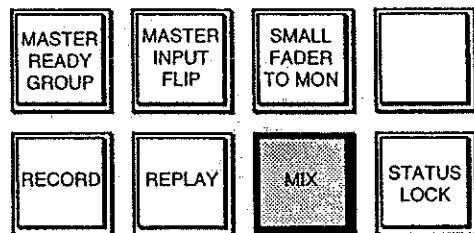
This status is useful during track laying. For example, when operating in RECORD status, the time will come when a quick monitor mix is required. This can be accomplished in RECORD status by deselecting any GROUP buttons, switching the multitrack machine to Replay manually, and mixing down the monitor inputs via the main output busses onto a stereo ATR. REPLAY status does all this with one button. Any GROUP selections are temporarily disabled and the monitor inputs pick up multitrack returns from the Replay head.

Reselecting RECORD status will reinstate all the previous GROUP and TAPE button selections, and an analogue multitrack will switch back to Sync, ready for more recording.

REPLAY status is also useful for playback over the Studio Loudspeakers, as RECORD status prevents the SLS outputs from receiving signal.

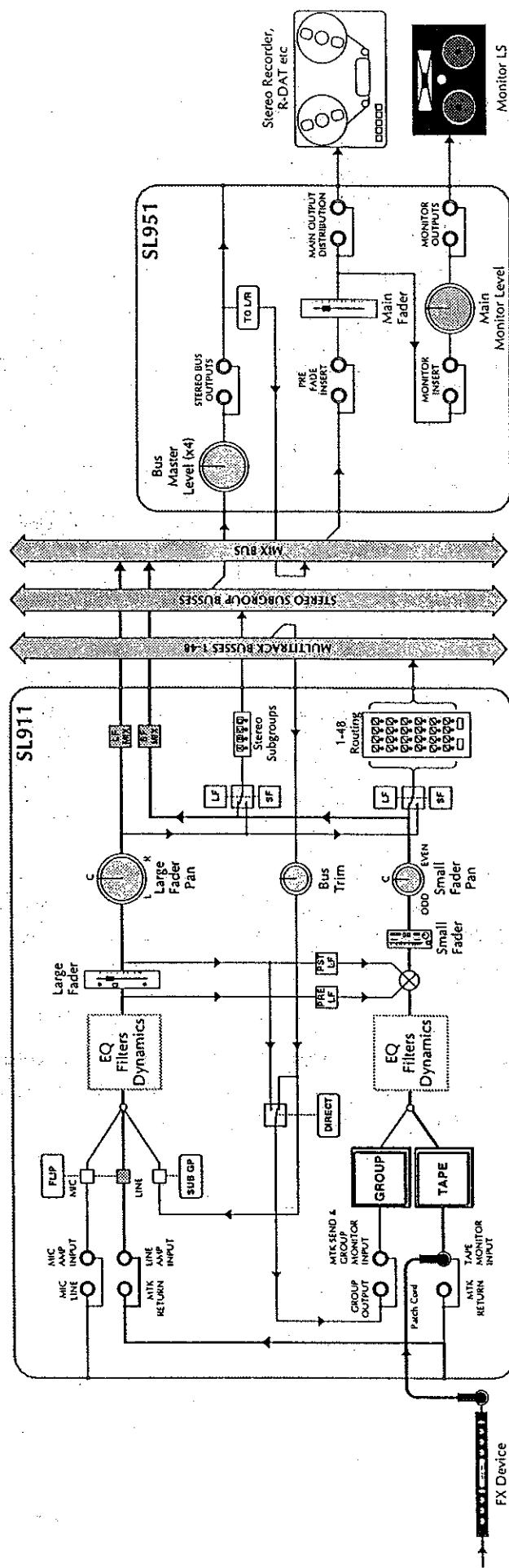


Mix Status



Line inputs are selected on the channels, sent via the Large Faders and Large Fader Pans to the main Mix bus and then, via the Master Fader on the SL 952, out to the mastering machine. The multitrack machine is usually normalled to the Line inputs, so this single status button will instantly set you up for a mixdown.

As described on the following pages, the Small Faders can be used for a variety of different purposes in MIX status. You will see from the drawings above and opposite that the default Monitor path in MIX status feeds the Tape Monitor Inputs via the Small Fader and Pan to the Multitrack Routing Matrix.



Small Faders as Inputs to the Mix

The Small Faders

Learning how to use the Small Faders in various console statuses is the key to getting the most out of the SL9000 system.

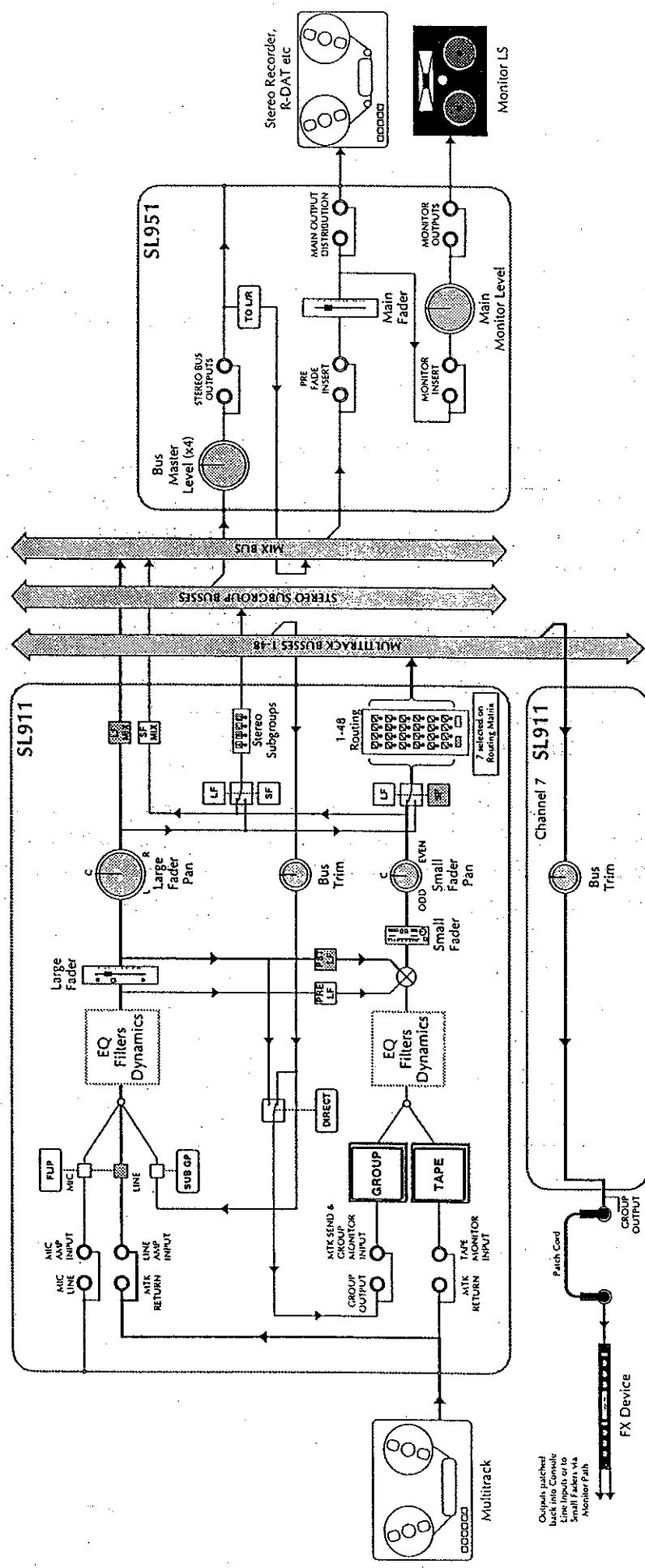
Small Faders as Additional Inputs to the Mix

By patching a line source into a Tape Monitor input jack on the patch, and with both GROUP and TAPE buttons deselected (ie. the Tape input default), this external signal will feed the Small Fader (see opposite).

By selecting the SF MIX button (found on the upper right of the Small Fader), the Small Fader pan output will be added to the main mix. This instantly gives you double the number of inputs to the mix. For example, a 64 channel console can provide 128 inputs to the main outputs. As shown opposite, these Small Fader inputs provide an ideal way of returning multiple FX device outputs to the mix.

The Small Faders are automated on the SL9000, so level changes and cuts can be written to the mix data. Remember, however, that there is only one Dynamics and one EQ section per channel, so it is not possible to fully signal process every input. However, this facility allows smaller consoles to deal with the mega-mixdown situations which are becoming more and more frequent.

Note that the selection of SF MIX does not automatically deselect the Small Fader to Multitrack Routing Matrix switch (SF in the multitrack routing select buttons). This will not normally be a problem unless any routing buttons in the matrix are selected to undesired destinations.



Small Faders as Additional Aux Sends

Small Faders as Additional Auxiliary Sends

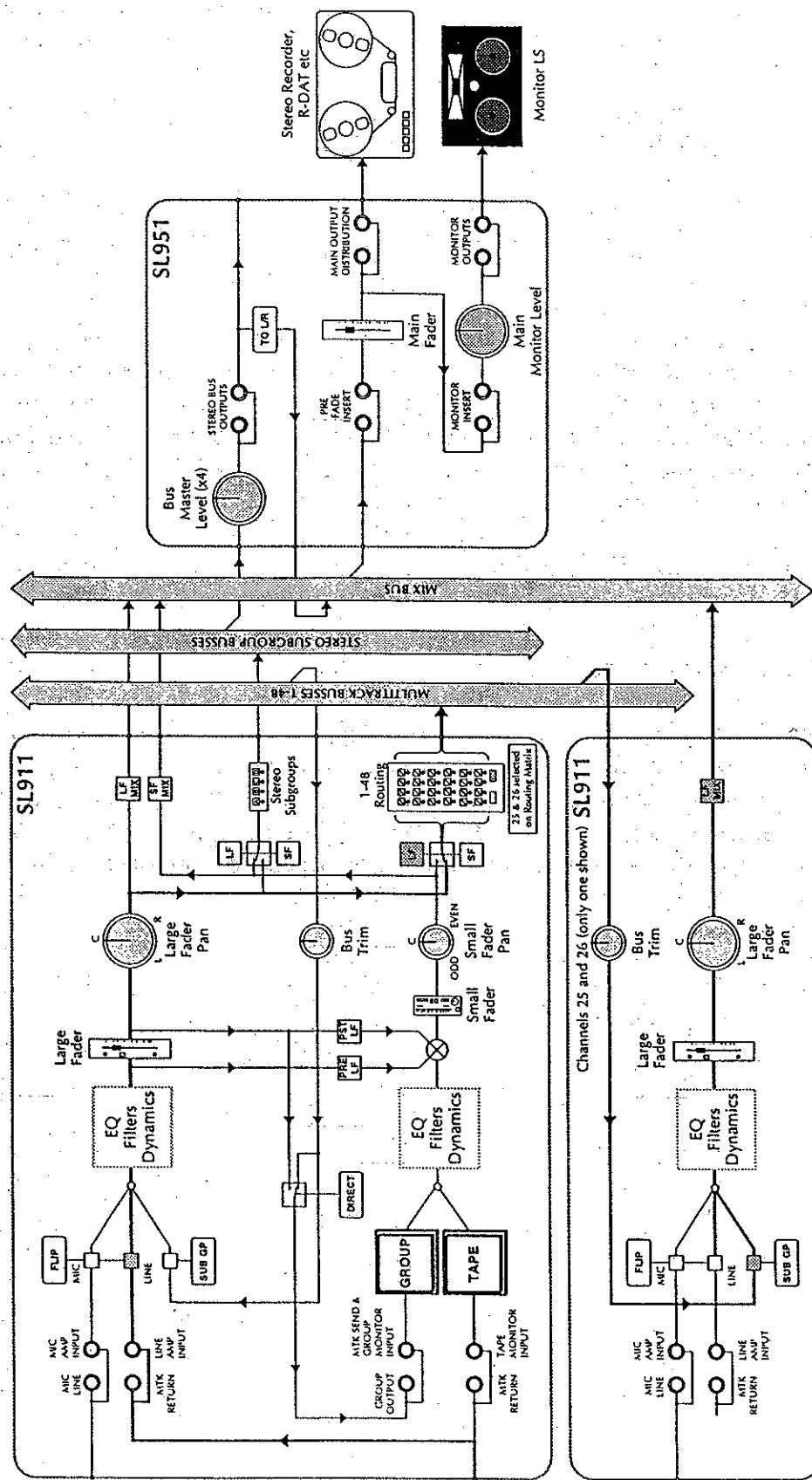
In spite of being provided with six mono and one stereo Auxiliary/EX sends, there may be occasions, particularly in complex mixdown situations, where you need to be able to access large numbers of different FX devices. The SL9000 has an innovative auxiliary send reassign system which can provide up to 56 extra aux send busses. See Page 2-25 for more details.

In addition, as those who have previously used an SL4000 will know, Small Faders and the Multitrack Routing Matrix can also be used to derive additional effects sends from each channel.

The channel signal can be picked up and fed to the Small Fader by selection of either the PRE LF or P(O)ST LF buttons (see opposite) which are located to the right of the Small Fader. In MIX status, the Small Fader pan feeds the Routing Matrix by default. Select an appropriate multitrack bus on the Routing Matrix which in turn will take the feed to the associated Group Output. Patching from there to the effects device input completes the chain. The level of this send can, of course, be automated.

When setting up for a mix, it's useful to patch from Group Outputs into the inputs of all the studio effects devices (apart from the primary reverbs and delays, which are usually fed from the dedicated sends). For example, you might patch delay lines to Groups 1, 2, 3, 4, extra reverbs to 5, 6, 7 etc.

Any channel can then access the input of the reverb connected to Group 7 via either the FX Reassign System (see Page 2-25) or by selecting the PST LF button (for a post-fader feed) and selecting 7 on the Routing Matrix. The send level will be controlled by the (automated) Small Fader. Where several channels are being fed to the same reverb, the overall send level can be controlled by the Bus Trim control on Module 7.



Large Faders Subgrouped to Large Faders

Subgrouping

When dealing with several channels of similar sources in a mix, eg. background vocals, it may be desirable to apply overall compression or other signal processing to a group of channels rather than to each individual source.

For level control alone, Large Faders can be subgrouped to one of the eight group control faders in the centre of the console. However, in order to apply overall signal processing to a group of sources, an audio subgroup must be set up. This can be achieved by routing signals to one of the Stereo Subgroups and inserting outboard processing at the Stereo Bus Output patch point (see opposite), before returning the subgroup back into the main mix (see also Page 2-27).

Alternatively spare I/O modules can be used to setup audio subgroups. This can be easily achieved without the use of patch cords, and in either stereo or mono. Say, for example, we have six backing vocal tracks returning on channels 43 to 48. Channels 25 and 26 are currently spare. By selecting the Large Fader to Multitrack Routing button (LF), the channel signal may be assigned to the Routing Matrix (see opposite). Select routing buttons 25 and 26 to feed a mix of these channels to Group Outputs 25 and 26.

If the SUB GP buttons on Channels 25 and 26 are now selected, the pre Group Output, post Bus Trim signals will be fed to the inputs of Channels 25 and 26. Pan the Large Faders on 25 and 26 left and right. The position of the source tracks in the stereo group can be set on the Large Fader pans of Channels 43 to 48. Overall processing can now be applied using the EQ and Dynamics sections of Channels 25 and 26.

If, instead of hitting the SUB GP buttons on channels 25 and 26, we select the GROUP buttons, the Small Faders will receive the grouped backing mix, as GROUP simply switches that module's Group Output to its Monitor fader. These two Small Faders can now contribute to the mix by pressing SF MIX.

By using Small Faders to act as audio subgroup masters, the Large Faders can still be used as normal, fed from the Channel path. Remember that, as with the use of Small Faders providing extra inputs to the mix described on Page 2-19, there will be a limit to the distribution of signal processing between the Small and Large Fader signal paths.

In fact it is possible to set up other variations on the above theme, i.e Small Fader to Large Fader and Small Fader to Small Fader subgroups. By the way, although we are describing all this in the MIX mode, the basic principles are exactly the same in the other desk statuses.

You can only route to the first 48 Groups via the Routing Matrix, but any channel above Channel 48 can be a subgroup master by patching from any of Group Outputs 1-48 into the Line Inputs (or Tape Monitor Inputs) of channels from 48 onwards.

Record + Mix Status (Overdub Mode)

This mode was designed for use in overdubbing but many engineers will use this status when laying basic tracks. Select this combined status by pressing the RECORD and MIX status buttons simultaneously.

The desk is basically in MIX status but an individual module may be put into the RECORD status, in order to record onto that track, if either the TAPE or the GROUP button is selected. The advantage of this mode is that the majority of modules will be in MIX status and you can mix with the Large Faders as if you were doing a final mix. In other words, the modules are not split into source signal paths and monitor signal paths unless you are recording from that module. You can work towards the final mix as you are tracking, using the mix capabilities to their full extent but with the ability to record onto the necessary tracks.

It is quite usual for the desk to be split for this way of working. The first 24 or 48 modules are dedicated to the multitrack, and modules upwards from 25 or 49 act as source channels, although this is not essential.

By way of an example, suppose you were overdubbing a vocal to several tracks at the very end of the recording process. You have four tracks free, 35 to 38. Select RECORD + MIX status and mix the rest of the tracks normally, as you would in basic MIX mode.

Plug the vocal mic into Channel 49, FLIP the input to Mic, and select LF to the Routing Matrix. Now deselect LF MIX on 49 to avoid feeding the mic direct to the Mix bus. By selecting routing button 35, the Large Fader on Channel 49 will feed the mic to Track 35.

Now select GROUP (and/or) TAPE on Module 35 to monitor the multitrack signal. This will put Module 35 into RECORD mode with the Large Fader monitoring the signal to the Mix bus. (the converse will be true with SMALL FADER TO MON also selected.)

Proceed with the overdub as if you were in basic RECORD status.

When you have completed the overdub, just deselect GROUP (and/or TAPE) on 35 and select GROUP (and/or TAPE) on 36 to continue recording onto Track 36. You will also need to select 36 on Module 49's Routing Matrix, unless all the overdub tracks have been preselected.

Just to add to the possibilities, you could carry out the same recording process in a slightly different way. Simply plug the mic to Channel 35 hit GROUP (and/or TAPE) to put 35 into RECORD mode. The Small Fader will feed the mic signal to the Routing Matrix, so select 35 and monitor the multitrack signal on the Large Fader using the GROUP and TAPE buttons.

The Direct Button

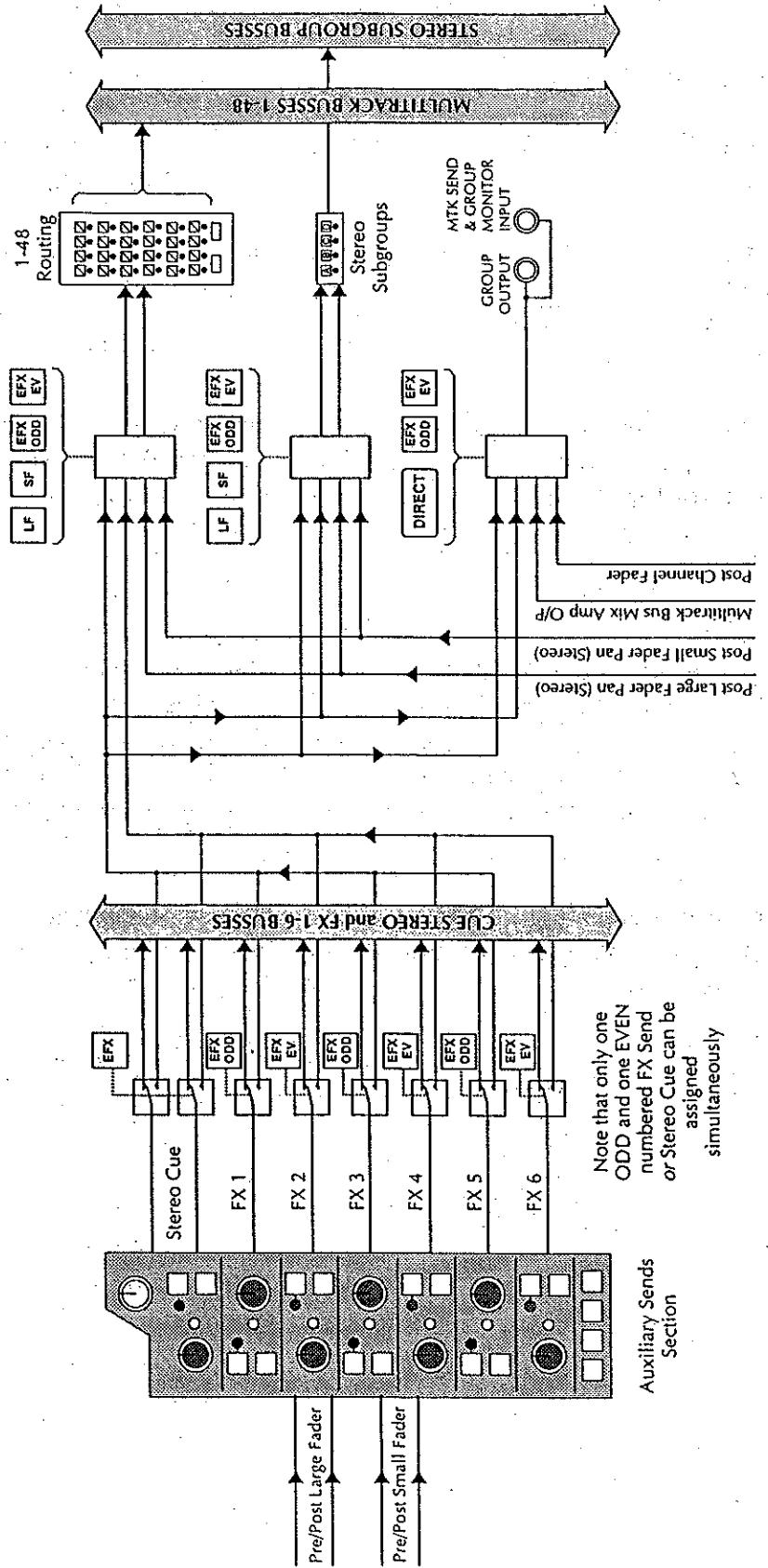
This leads us neatly into use of the DIRECT button. In the last example on the previous page, the Routing Matrix can be bypassed altogether by simply hitting DIRECT. This will send Channel 35's source mic, post-Small Fader, direct to Group 35 without going via the Routing Matrix. The benefit of this is that there will be fewer stages in the signal path. The disadvantage with this method of overdubbing is that you have to re-plug the mic each time you wish to move to another track.

Note that the DIRECT button on channels above Channel 48 can be used to feed post channel fader signals to the same numbered Group Outputs. These Group Outputs cannot, of course, be accessed via the Routing Matrix in the normal way.

By the way, for analogue machines, the multitrack may be switched to the Replay head in MIX mode; if this facility has been wired; whenever the RECORD status button is selected, as in MIX + RECORD, the multitrack will be switched to the Sync head.

All this shows that there are many ways to carry out a particular task. If you are new to the system it may cause some confusion, but the whole philosophy behind the console is to provide alternatives and to allow an engineer, who knows the system well, some choice. A fixed routing path would be simpler to learn but would soon limit the engineer's ability to work quickly and get the best out of the equipment and the performer.

As you spend more and more time on the console, the many possibilities will start to become obvious and will allow you to work faster and with more options than any other system available.



FX ODD and FX EVEN Routing

FX Reassign System

An innovative feature of the SL9000 is its FX Send reassign system – EFX for short, which provides an extended auxiliary send capability of up to 56 extra busses without using the Small Fader as a level control.

The Auxiliary Sends section of each I/O module includes one stereo and 6 mono aux send controls. Auxes can be sourced from pre or post the Large or Small Fader.

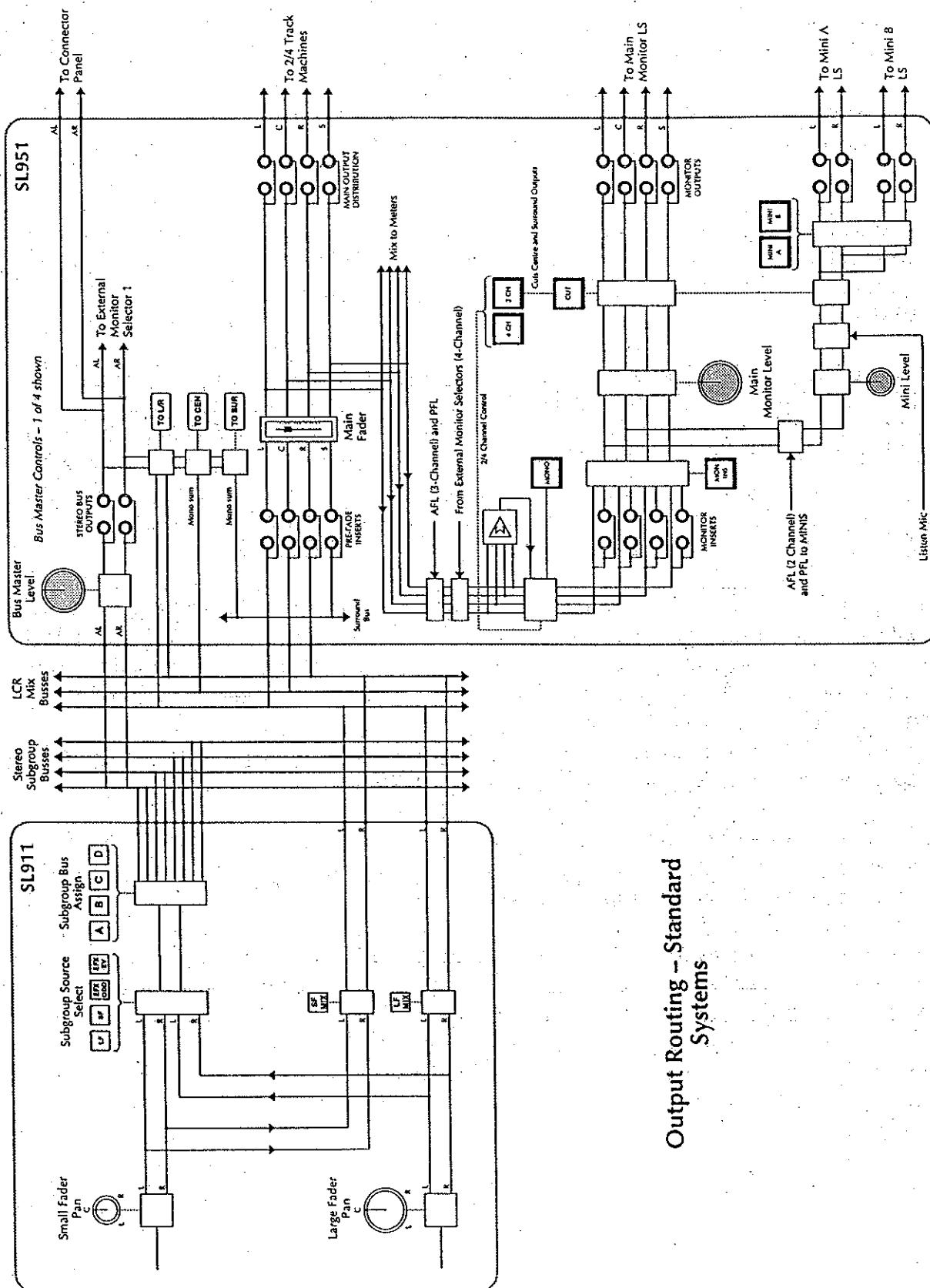
The reassign system allows any two mono FX sends, or the stereo cue send, to be disconnected from their respective busses and used as sources for the channel's Multitrack Routing Matrix, Stereo Subgroup bus routing and/or the channel's Group Output.

Aux sends are assigned to the EFX system using the EFX switches by each one. FX1, 3 and 5 can be assigned to EFX ODD. FX 2, 4 and 6 can be assigned to EFX EVEN. Selecting EFX on the Stereo Cue send feeds Stereo Cue L to EFX ODD and Stereo Cue R to EFX EVEN. Note that only one odd and one even numbered FX send or Stereo Cue can be assigned simultaneously. Lower numbered sends take priority over higher numbered ones, and Cue Stereo takes the highest priority. Red (EFX ODD) or green (EFX EVEN) LEDs indicate that a send is assigned to the EFX system.

The Multitrack Routing and Stereo Subgroup busses can be fed by Large or Small Fader (post pan control) signals, or by one or both of the EFX ODD/EVEN signals. If one EFX switch is selected, then the corresponding routing output will be fed in mono by the selected source. Selecting both switches together will feed EFX ODD to left (odd) and EFX EVEN to right (even) bus. This enables any two Aux Send controls to be re-routed to the Multitrack or Stereo busses, allowing large numbers of independent headphone or effects send mixes to be generated.

Connect FX device inputs to the appropriate Group Output jacks if sends are reassigned to the Multitrack Routing. In the case of Stereo Subgroups, connect devices to the appropriate Stereo Bus Output jacks.

The Group Output is normally fed by the multitrack bus Mix Amp, but this can be replaced with a post-fader channel signal by pressing DIRECT, or by the EFX ODD or EFX EVEN signals. Note that although Group Outputs above Channel 48 cannot be accessed via the Multitrack Routing Matrix, they can be accessed from the same numbered channel by selection of EFX ODD and EFX EVEN (or for a post channel fader signal, by DIRECT).



Output Routing – Standard Systems

So far in this section we have only talked about the console's main outputs and monitoring in general terms. Now we should look at this in a little more detail. If your console is fitted with the LCR pan option, please read this page and the additional information over the page.

Stereo post-Large and Small Fader signals can be freely assigned to the Multitrack busses, the Stereo Subgroup busses and the main Mix busses. As standard, the console is fitted with LCR Mix busses (see opposite), but the Centre bus cannot be accessed directly from channels unless the LCR pan option is fitted (see over the page).

Stereo Subgroups

Signals assigned to the Subgroup busses, if being used for stereo stem mixes, can simply exit the console either via the connector panel or by patching out of the Stereo Bus output sockets on the patch. Your installation may have a multitrack layback machine normalled to these outputs.

In addition, Subgroup signals can be reassigned back, post insert point, onto the main Mix busses by selection of the TO L/R, TO CEN(TRE) or TO SUR(ROUND). Note that the latter two functions feed a mono sum of Left and Right Subgroup bus signals to the respective main Mix busses, and that the Surround mix bus is internal to the centre section.

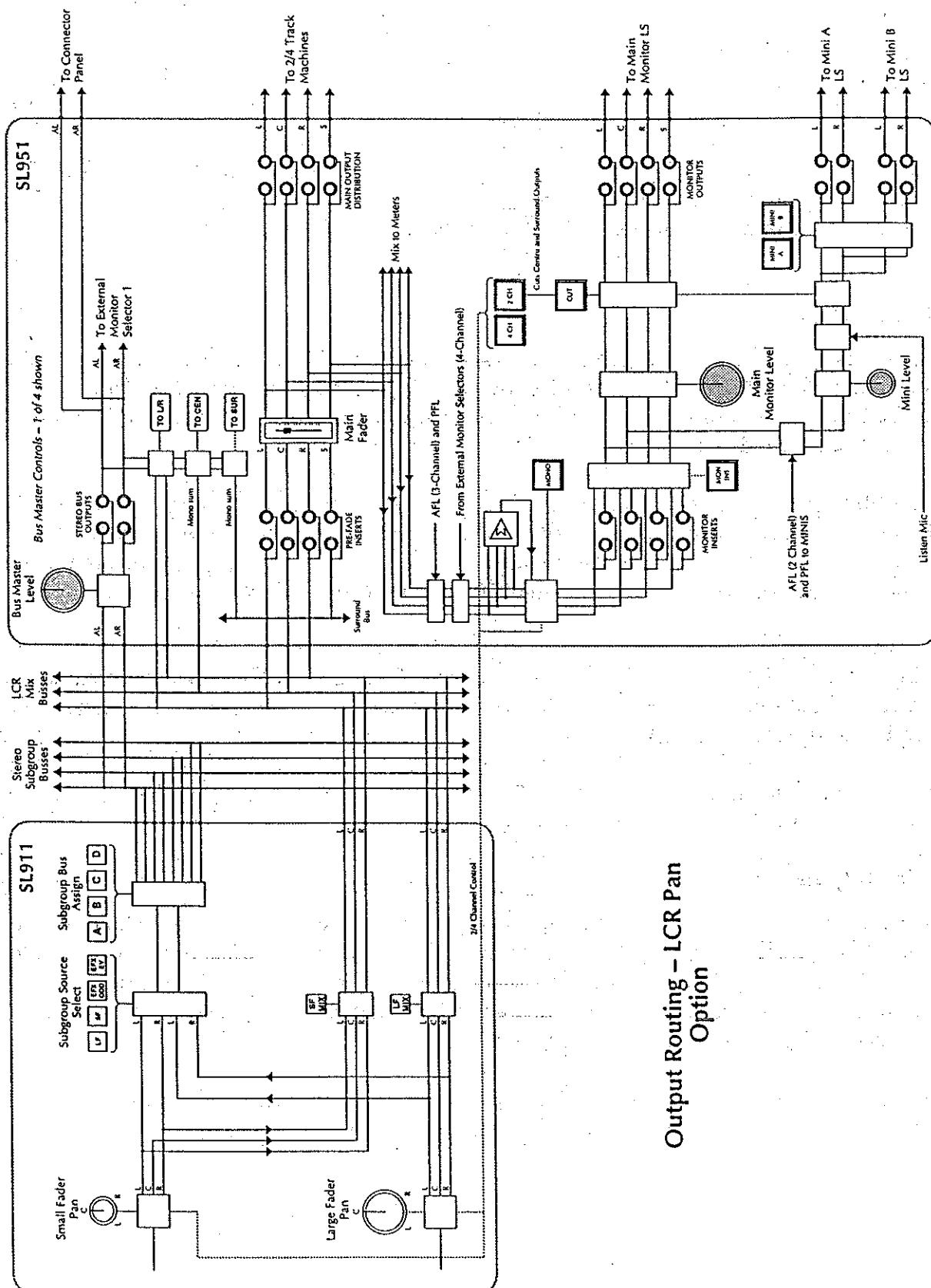
Using the functions described above, with two of the Subgroup busses dedicated to Centre and Surround mix paths, LCRS film or video mixes can be simply generated even if the console is not fitted with the LCR pan option.

The Stereo Subgroup bus outputs can be monitored on External Source Selector 1. See Section 5 for more details.

Main Outputs

Signals on the main LCRS busses pass via a pre-fader insert point before reaching the console's master (4-channel), VCA automated, fader. At this point the centre section's 4-channel Compressor (not shown in the diagram) can be switched in to control main output levels. This compressor is the classic SSL 'Quad' compressor, which will be well known to experienced SL4000 users.

The desk's main outputs are normalled to a series of Distribution jacks which, in turn, may be normalled to three 4-track and nine stereo machines.



Output Routing – LCR Pan Option

Monitoring

Feeds to the desk's monitoring facilities are picked up post the Main Fader and Compressor. This point also feeds the main output meters when selected to DESK OUTPUT.

Following the injection of AFL, PFL and Solo-In-Front signals, the monitor feeds can also be interrupted by source selections from the two External Source Selectors. MONO sums all four monitor busses and feeds the result equally to Left and Right monitor outputs or to the Centre output, subject to the selection of the 2 CH or 4 CH switches. Selecting 2 CH also mutes the Centre and Surround monitor outputs.

A switchable Monitor Insert point is provided for the connection of Dolby Surround Encoders/Decoders.

Level controls are provided for both the Main and two pairs of Mini (near-field) loudspeakers. Inputs from two 'Listen Mic' circuits are fed to the Mini 'A' LS outputs. AFL, PFL and Solo-In-Front are also fed to the Mini 'A' LS outputs if A/PFL TO MINIS is selected. Note that this selection leaves the desk output on the Main monitors and the AFL/PFL level control is inactive.

Output Routing with LCR Pan Option

When the LCR pan option is fitted, the Centre Mix bus can be fed directly from the channels (see opposite). Selection of 2 CH or 4 CH in the centre section determines whether both Small and Large Fader pans will pan between Left and Right with a 'phantom' centre or from Left, through Centre, to Right. When selected to 4-Channel mode, the pans will still pan between odd/left and even/right Multitrack or Stereo Subgroup busses.

Apart from this simple but extremely useful and convenient function, the desk's main output and monitoring signal paths and facilities are as described above for standard systems.

Solid State Logic

SL 9000 J Series

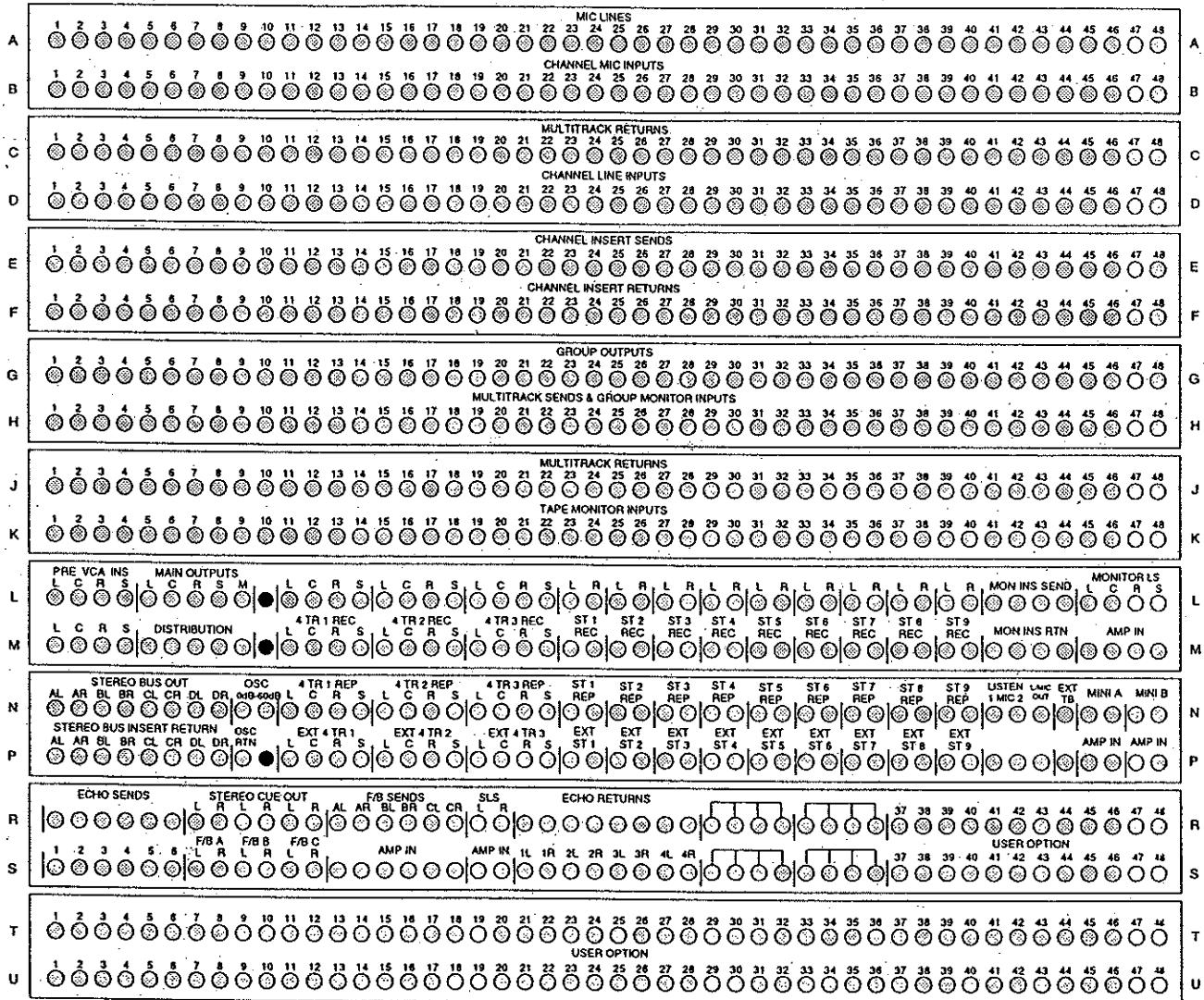
Total Studio System

Shortform Guide

SECTION 3

The Patch





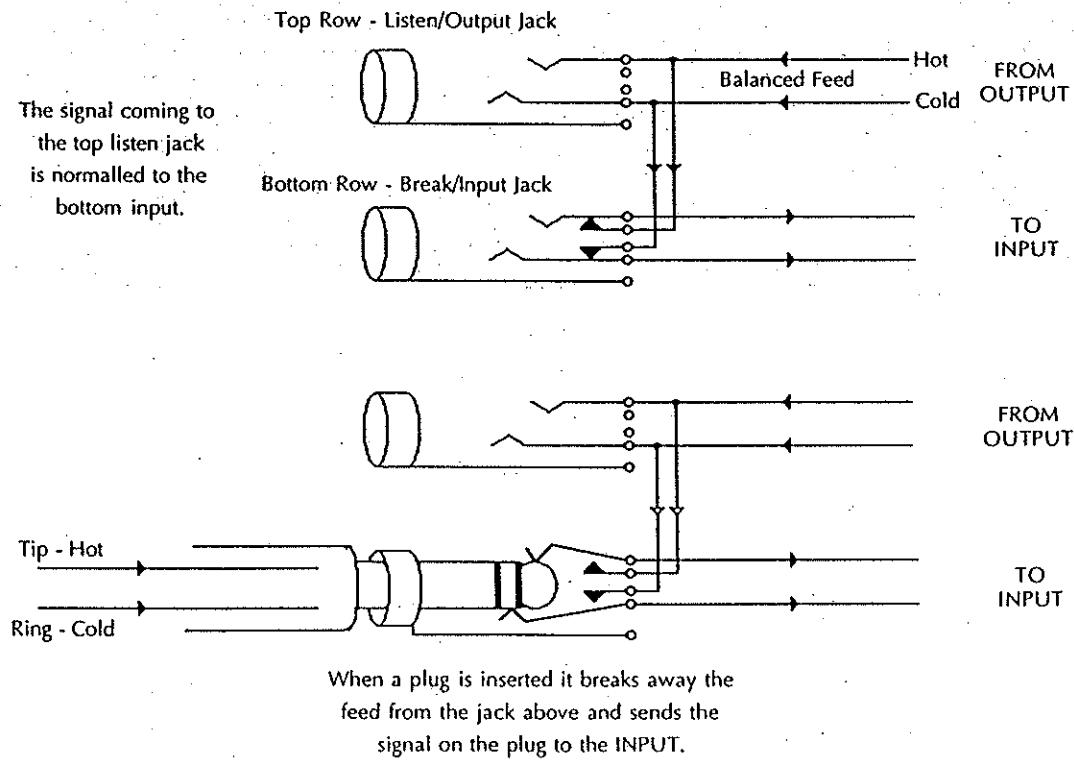
The Patch

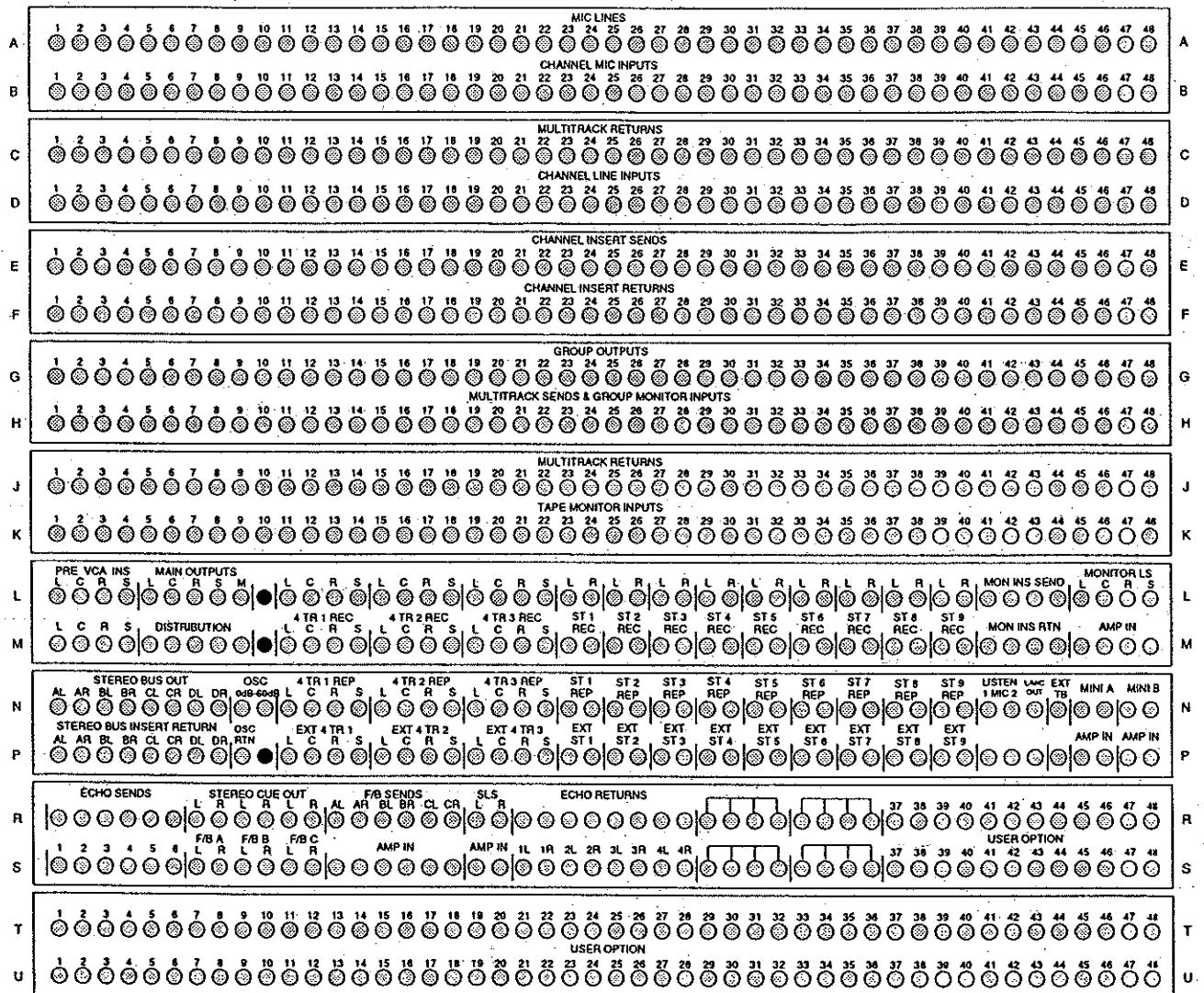
The SL 9000 J Series patchbay is supplied with a minimum of nine, 1U (rack unit) high, panels of bantam (TT) mini-jacks, each with two rows of jacks.

Each row will contain a different number of jacks according to the number of I/O modules in the console. Consoles with more than 56 channels come with the patch split into two columns, ie. two columns of 32-wide rows for a 64 channel console, two columns of 40-wide rows for an 80 channel console etc. The majority of consoles are supplied with integral patchbays, however, as an option, versions with remote patchbays are available. The layout and normalling of a remote patchbay will be the same as that for an integral one of the same size.

The rows in each patch panel comprise a logical pair, the upper jack being an output feed and the lower jack being an input. There are two types of normalling used within the patch:

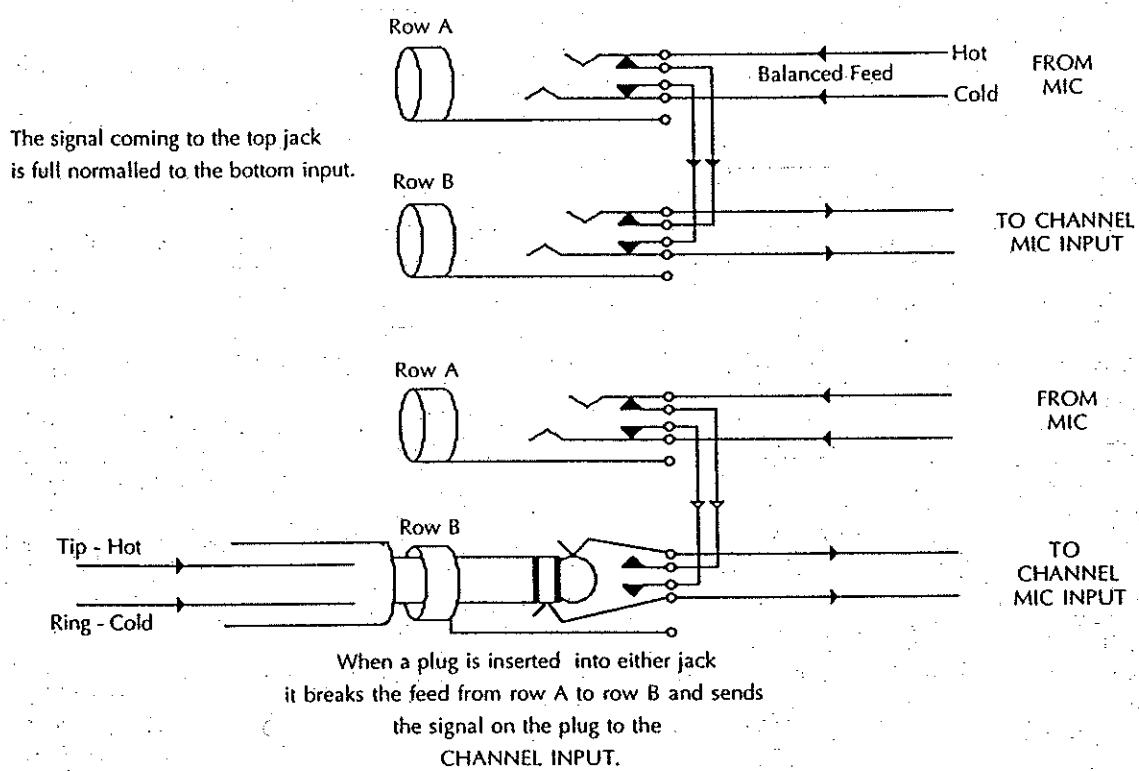
HALF-NORMALLED – The top row is an output listen (bridging) jack. If a jack is inserted into the top row it receives the feed on that socket but does not break the normalling to the row below. Theouters are wired down to the inners (blades) of the row below. The bottom row is an input jack and when a patchcord is inserted, it breaks away the normalled feed from the row above.





FULLY NORMALLED – The top row inners are wired to the bottom row inners. A jack plugged into either the top or bottom row will break the normalling.

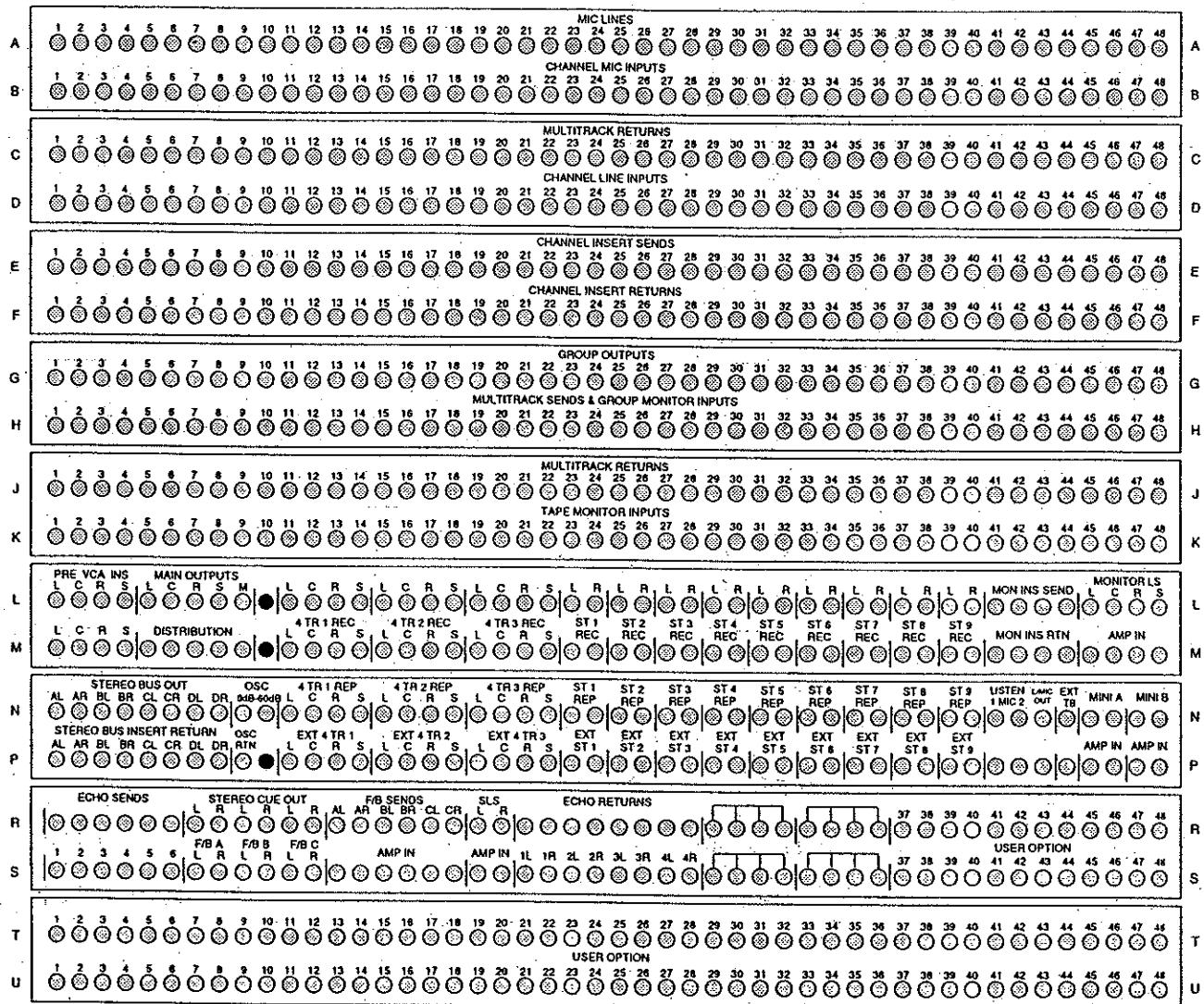
Only the first two rows of jacks (the Mic Lines and Channel Mic Inputs) are fully normalled to prevent a microphone from being connected to two Channel Inputs simultaneously. Most of the other rows are half normalled, apart from the User Option jacks in Rows R, S, T & U (unless normalling was requested in the console specification). Any additional rows fitted may, or may not, be normalled and this should be checked locally with the facility.



ROWS A to K are fairly obvious with these exceptions and notes:

The Multitrack Returns (ie. multitrack outputs) split on entering the console and feed identical signals to both Rows C and J.

Signal is always present at the Channel Insert Send jacks (Row E). It is the return signal path that is switched by the insert IN switch. This is useful for setting input levels on effects devices before switching them in, and also useful for picking up additional feeds from each module.



Group Outputs on Row G are after the I/O module Bus Trim control. These are normalled down to Row H. Row H feeds the Multitrack Sends (i.e. the multitrack inputs) and also the GROUP monitoring button. The GROUP button on a module will always monitor a Multitrack Send even if the Groups have been cross patched.

ROWS L to S – Some jacks are cross normalled and these are detailed below together with certain inputs and outputs, the wiring of which may not be immediately obvious. Note that the following descriptions are based on a 48-channel patchbay. According to the size of your console, there may be some variation in the layout of rows beyond Row K. Rest assured that all the functions and normalalling described below will be the same for all consoles, regardless of the actual location of those functions.

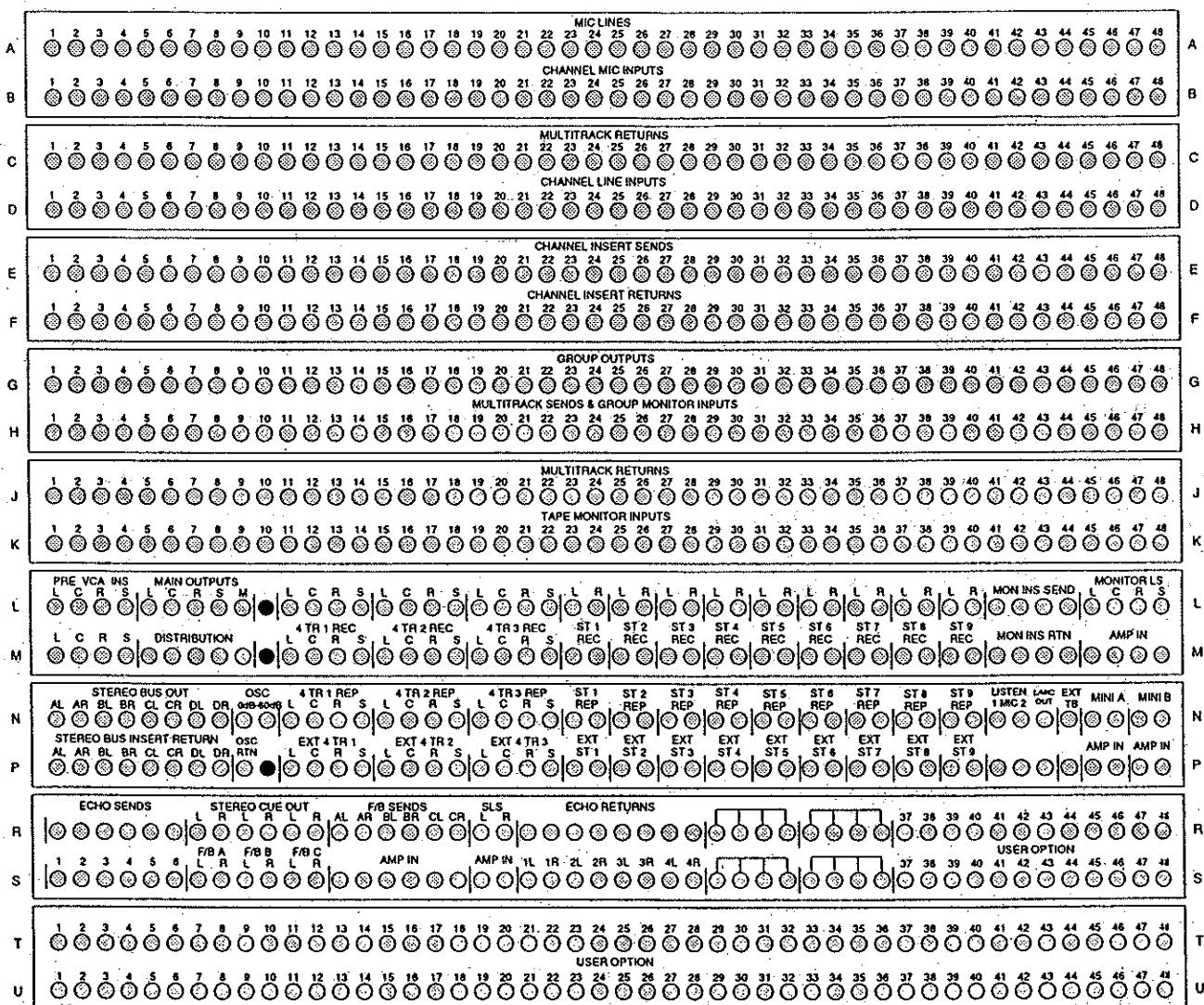
PRE VCA INS (L1-4, M1-4) – Four insert points after the LCRS bus mix amps and before the Main Output VCA Fader (and 4-channel Compressor). These insert points can be used to insert other compressor/limiters or EQs into the main desk outputs.

MAIN OUTPUTS + DISTRIBUTION (L5-L9, M5-M9) – These are the main LCRS and Mono Outputs from the console. L5-8 carry the main LCRS Outputs which are normalled down to the main LCRS distribution jacks M5-8. These four jacks feed the 4-Track and Stereo Recorder jacks L11-L40. 4-Track 1 and Stereo 1 are fed directly from M5-8; all the other Recorder feeds are buffered. The three sets of 4-Track Recorder inputs (L11-22) are derived from the LCRS outputs (M5-8). The stereo machine inputs (L23-L40) are fed from the L and R Outputs, M5 & M7.

The four Distribution jacks (M5-8) can be useful for multi-machine tape copying. Plugging the source signal into M5 and M7, for example, will feed the inputs of all Stereo machines connected to jacks M23-40.

TAPE MACHINES (L, M, N, P 11-40) – Four jacks for each machine track. The top jack (Row L) provides the console main output which is normalled to the machine Record input (Row M). The machine Replay output comes up on Row N and is normalled down to the External Monitor Selector inputs (Row P). The inputs on Row P are very useful if you need to meter a signal. For example, patching into jack P23 and selecting EXT 1 on the External Selector 1, with the main meters selected to EXT 1, will bring the source up on the Left main meter.

STEREO BUS OUTPUTS and INSERT RETURNS (N1-8 and P1-8) – These provide a post main level control Output/Insert for the four Stereo Subgroup busses, A, B, C and D. If used as an insert point for external limiters, EQ etc., the effect will be applied before the busses are folded back to the main LCRS mix busses (See Section 2 for more on this). The Insert Return jacks (P1-8) feed External Monitor Selector 1 and also the console's connector panel for connection, if required, to an external layback machine.



OSC (N9-10 & P9) – Yes, the oscillator! N9 provides the normal oscillator level signal and is normalled to P9, the console's tone distribution system. Oscillator distribution within the console is handled by the BUSSES 1-48, ABCD and MIX selection buttons in the centre section. If required, an external oscillator or pink noise source can be patched into P9 for distribution to the desk's Group Outputs, Stereo Subgroup Busses or Main LCRS Outputs. N10 provides an oscillator output at -60dB – useful for checking microphone inputs.

MONITOR INSERT (L41-44 & M41-44) – This is a switchable insert point, pre the main monitor level pot, provided for the connection of a Dolby Surround Encoder/Decoder.

MONITOR LS (L45-48 & M45-48) – L45-48 carry the Main monitor outputs which are normalled to M45-48 feeding into the Main monitor amps. **WARNING** – These jacks feed directly to power amps. Patching a standard line level signal into them will run the monitors flat out, probably causing damage to the speakers and your ears.

MINI A and MINI B (N45-48 & P45-48) – The feeds to two pairs of (near-field) monitors. Again remember that plugging line level sources into jacks P45-48 may blow the speakers.

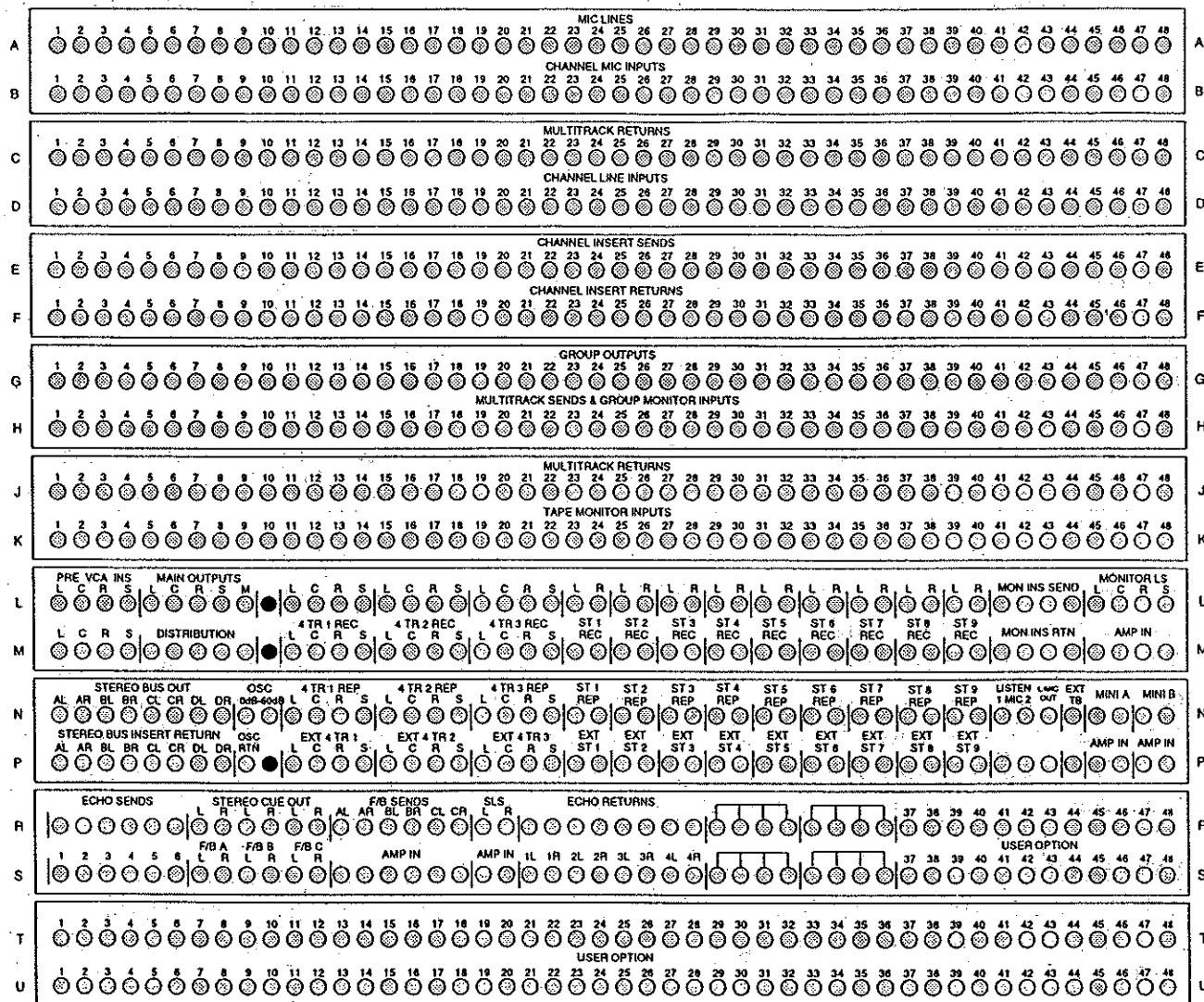
LISTEN MICS (N41-43 and P41-42) – N41&42 should be wired to two mics hanging in the studio area. P41-42 are normalled from the mics and feed into the console Listen Mic inputs. Level controls and on/off switches for these mics can be found in the centre section. N43, L/MIC OUT, provides an output of the Listen Mic circuit post-compressor, the sound of which is much loved by many experienced SL4000 users. Note that a sum of both Listen Mic Inputs is fed via the compressor so you need to cut the other input if you only want a feed from one mic.

EXT TB (N44 & P44) – The External Talkback feed. The top jack carries a switched talkback feed from the mic in the console, activated by the EXT TB button on the SL 951. The bottom jack feeds this signal to a destination known only to the studio wiring staff.

ECHO SENDS (R1-6 & S1-6) – These carry the FX Send 1 to 6 outputs which are normalled to the effect send lines out of the console (S1-6).

STEREO CUE OUT (R7-12 & S7-12) – Three parallel outputs of the Cue Stereo Bus which are normalled to the switch selectable STEREO CUE inputs of the centre section's Studio Headphone circuits, F/B A, B and C.

F/B SENDS (R13-18 & S13-18) – Three stereo Studio Headphone outputs as described above. These can be fed from a choice of Cue Stereo or sources from the two External Monitor Selectors. The outputs in the upper row are normalled to foldback amp inputs in the lower row.



SLS (R19-20 & S19-20) – The Studio Loudspeaker outputs are normalled here to the power amp feed. Watch it!

ECHO RETURNS (R21-28 & S21-28) – R21-28 may be wired to the outputs of reverb or effects devices. They are normalled to the inputs of the four Stereo Echo Returns, situated in the console's centre section.

Solid State Logic

SL 9000 J Series

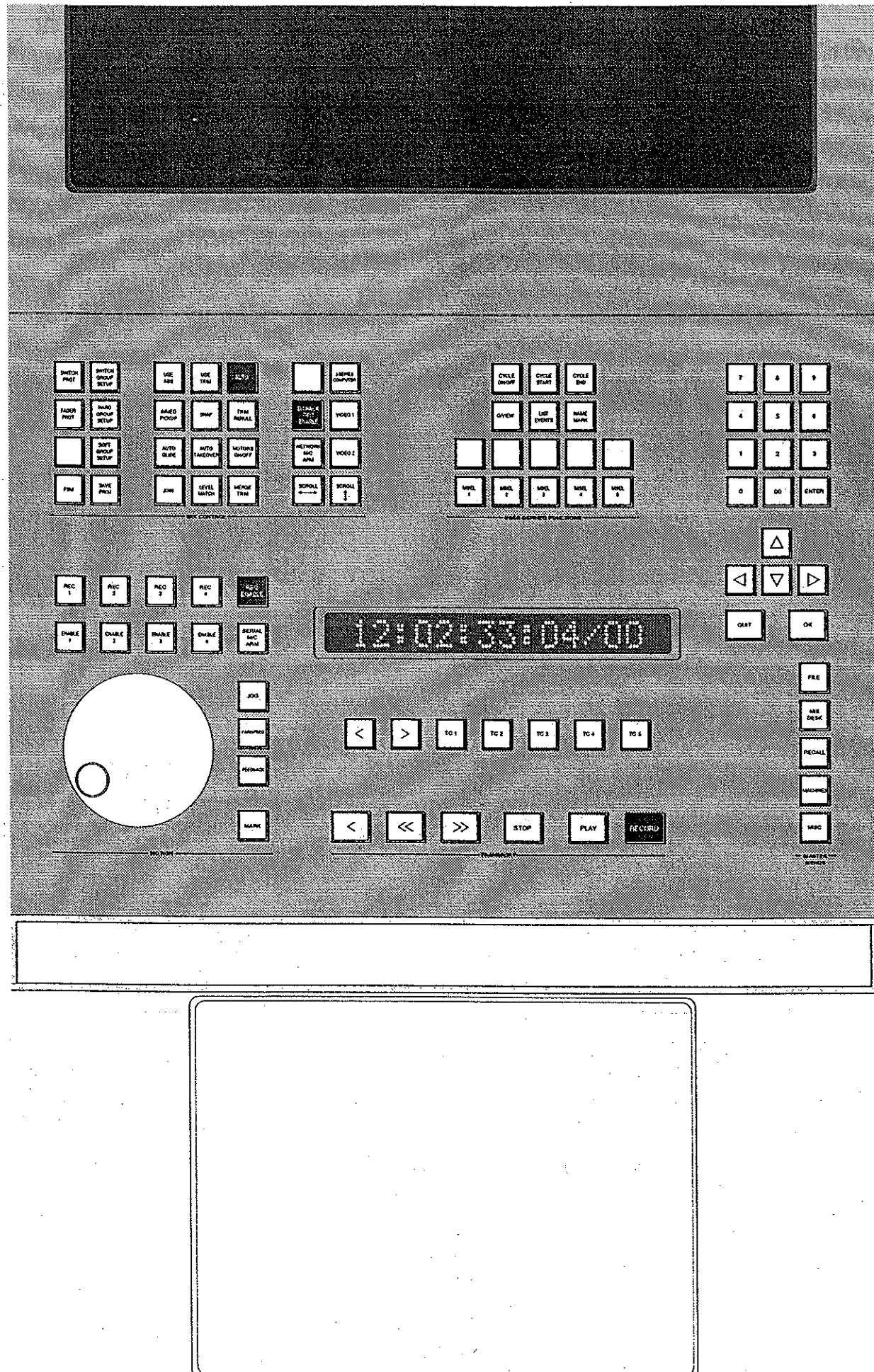
Total Studio System

Shortform Guide

SECTION 4

The J Series Computer





Introduction

The SL 9000 J Series Total Studio System combines a new and advanced analogue console with a powerful new computer. The system can be optionally provided with integral hard disk storage of both audio - with DiskTrack, and video - with VisionTrack.

The J Series Computer features an entirely new automation system based on the advanced processing capabilities of SSL's successful family of digital products. The result is a faster system, which provides automation of major console functions as well as comprehensive session management capabilities.

The computer uses an internal hard disk, known as the System Disk, to store data. The way that the data is stored is different from previous SSL computer systems, but the new system still retains the ability to store information such as Cues, Track Lists, Total Recall Setups and Mix Data. This data can be transferred to other storage mediums such as 600Mb Magneto-Optical or 3.5" Floppy disks for transfer between different studios.

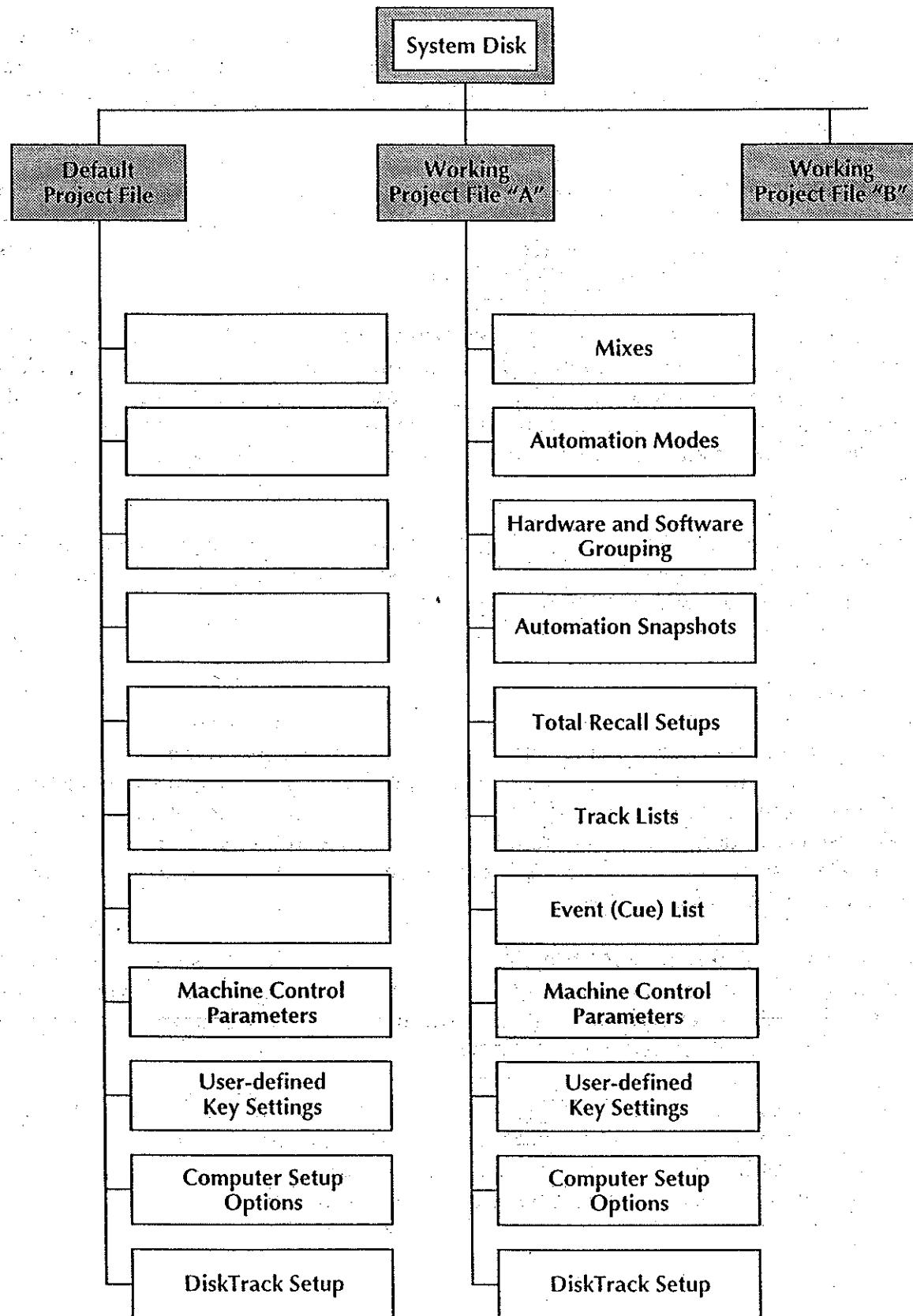
Information stored on G Series Bernoulli Data Cartridges or 3.5" disks can be imported onto the computer's System Disk, and mix data saved with G Series software can be converted to play back with the J Series Computer.

User Interface

The J Series Computer is provided with a pen and tablet user interface, already in use with SSL's family of digital products. Although this may be new to some users, the pen is a very natural instrument which produces a cross-hair cursor on the computer's 14" colour screen. There is an absolute relationship between the pen's position and the position of the screen cursor, which makes it extremely simple to position the cursor accurately anywhere on the screen.

Stabbing (pressing down) with the pen in a box on the screen selects individual functions or new menus. Names and numbers/timecodes may be entered either with the pen via on-screen keypads or, more conventionally, via the dedicated keyboard (in a drawer under the tablet) and numeric keypad.

Note that the more commonly used functions are duplicated in hardware switches on the console's centre section (see opposite). Once the system has been set up, and recording/mixing has begun, use of the pen will be quite limited. Rest assured that the SL 9000 J still retains a *hands on* approach when *using* the system.



Data Storage

The J Series Computer introduces a new way of handling session management in the form of a Project. Session data is stored in Project Files on the System Disk. Studios will have a "Default Project" from which they can build subsequent "Working" Projects.

The Default Project, which will initially be created by trained SSL personnel, will contain all the basic setup information required to begin using the system – this may include, for example, basic console/computer setup parameters, tape machine enables, user-defined function keys (Macros), etc. (see opposite).

Working with a Default Project makes the operator's life easier, as tiresome setup routines can all be loaded with a stab of the pen. Typically, the engineer will load the Default Project, then change the current project's name and save new data within this new project.

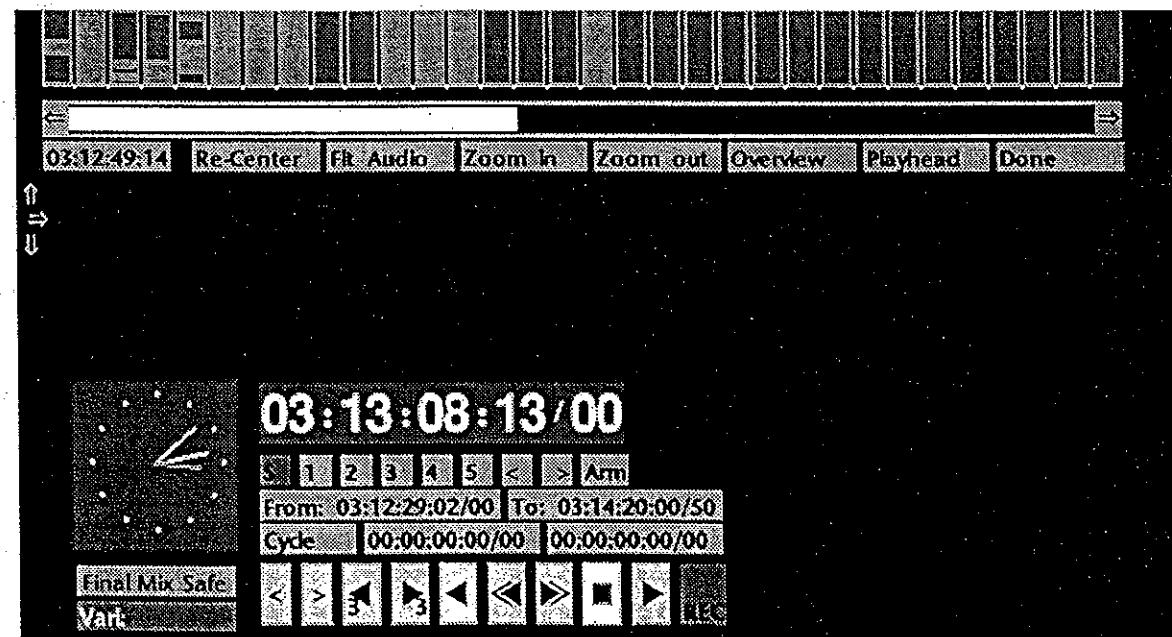
Project Files

Project Files are handled by the Project Manager Setup Menu. All automation data, Track Lists, Events (Cue) Lists, etc., are held in memory until deliberately saved via this menu to the System Disk. Each time any element of a Project File is saved, it generates a new version of that element and does not overwrite the version previously saved to disk. Different versions of Project File elements are available for loading at any time.

The Project Manager Setup Menu provides access to individual lists of (named) Mixes and Total Recall Setups.

Before beginning a session with the J Series Computer, the Default Project data can be loaded and then a new Project File is simply created in which to store future data. Alternatively, if working on a previous project, the appropriate file is loaded at the start of the session.

Project Files may be backed up onto Magneto-Optical or 3.5" floppy disks. Both types of drive are provided as standard in SL 9000J systems.



Machine Control

The J Series system provides a great deal more flexibility than G Series with regard to machine control setups. In a basic setup, the J Series Computer can be the master, capable of controlling up to four other machines as slaves, via direct serial control lines. The slaves can be offset to the master and can be taken off, or put on, line at will. In other words, the J Series Computer provides a complete synchroniser control package, without all the hassle of those extra external units and an incomprehensible collection of cables.

Machine setups are carried out on a Serial Machine Control display (see opposite). The J Series Computer supports the following direct parallel/serial protocols:

DCTM – A parallel interface which is the equivalent of SSL's 'S29' interface as used on the SL4000/6000/8000 systems. The computer slaves to incoming timecode.

VPR3 – Used to control Timeline Lynx Modules (with the VSI option), as well as machines which can be directly controlled by this protocol.

Sony 9-Pin – Provides direct machine control of VTRs, ATRs, as well as ADAT and R-DAT machines. Indirect control of ATRs, VTRs and film transports may also be effected via Motionworker, CB Electronics MC-1 and the Audio Kinetics ES 1.11 units. Contact your local SSL office or distributor for more advice on these control facilities.

A number of setup options are available according to which protocol is selected.

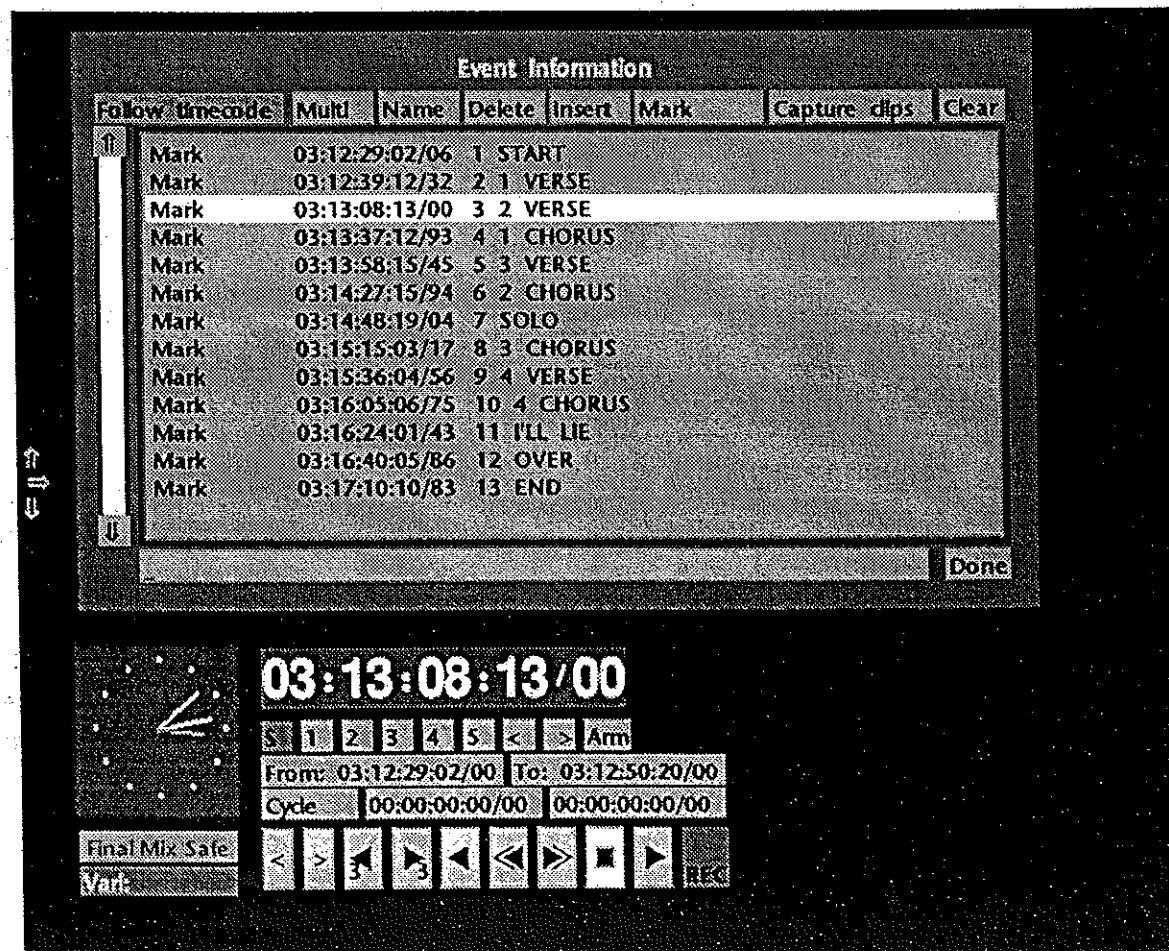
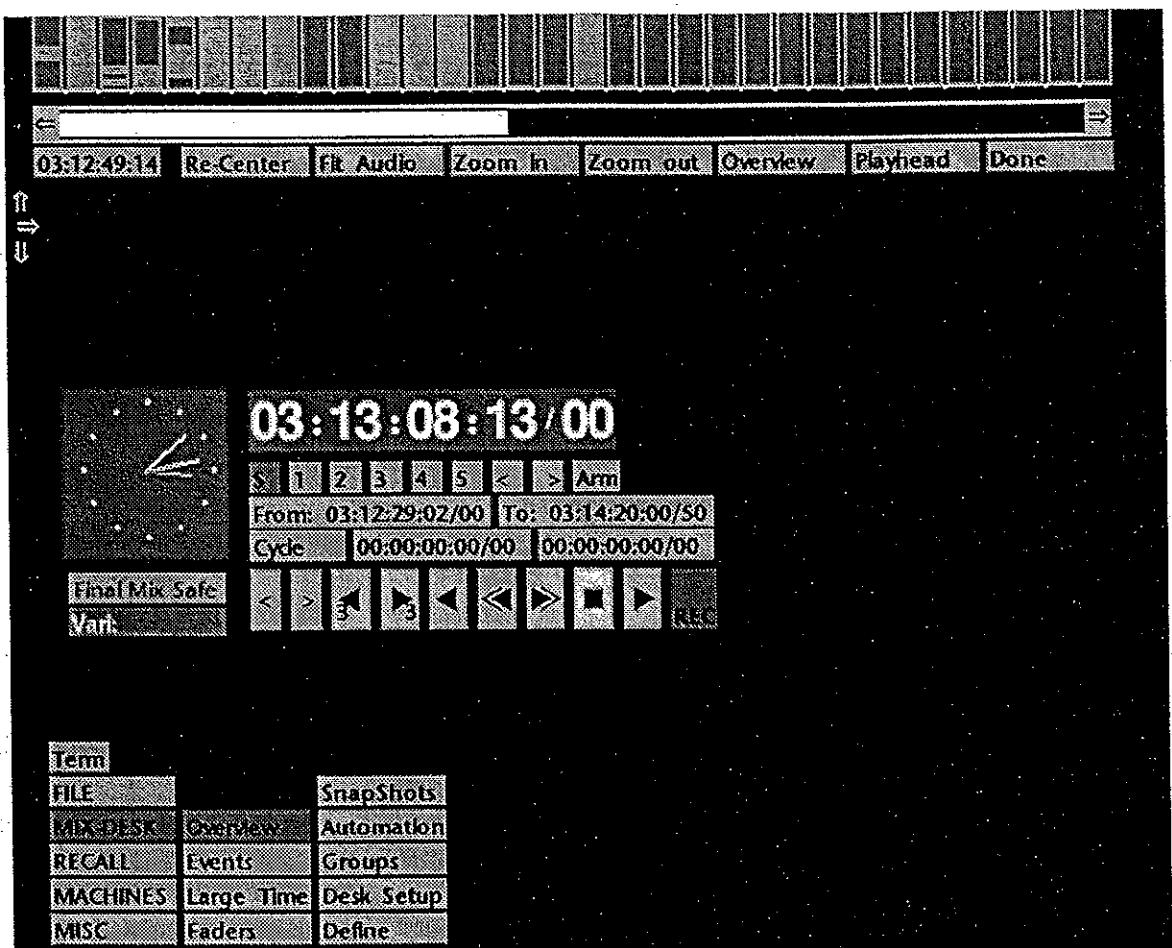
The lower half of the Serial Machine Control display is used to locate individual machines to timecode mark/sync points in multiple-machine setups. Provision is made (on this display and in the form of dedicated hardware buttons) to bring on-line, and record arm, individual machines.

The J Series Computer provides facilities for the generation of both Linear and MIDI timecode. Timecode outputs are provided on the rear of the J Series Computer's connector panel.

Transport Control

The J Series Computer provides many different ways of controlling on-line machines, other than the conventional buttons provided in the console's centre section. These are duplicated, with the addition of frame jog, 3 x Play and 3 x Reverse Play functions on the computer's MIX-DESK display (see opposite).

The Jog Wheel in the console's centre section provides a 'coarse' jog, 'fine jog', or varispeed (up to 4 times play speed, or down to 1/8 play speed) function. Electronic feedback can be selected in all modes to provide, for example, a tactile frame by frame jog facility. Note that, if a tape machine is connected via the parallel port (DCTM), only the Jog function will be available.



The five boxes labelled 1-5, situated above the transport buttons both on-screen and in the form of TC 1-5 hardware buttons in the console's centre section, provide five one-shot locate stores.

Cycle in/out points can be simply set up by entering timecodes or capturing the current time with dedicated Cycle Start and Cycle End buttons in the console's centre section. The system will then cycle when the dedicated Cycle button is selected.

Timecode Displays

The large timecode readout on the MIX-DESK display always shows the current system timecode. The alpha-numeric LED display on the console may be used for the same purpose or, alternatively, can be set to display Events/Cues or the date/time of day.

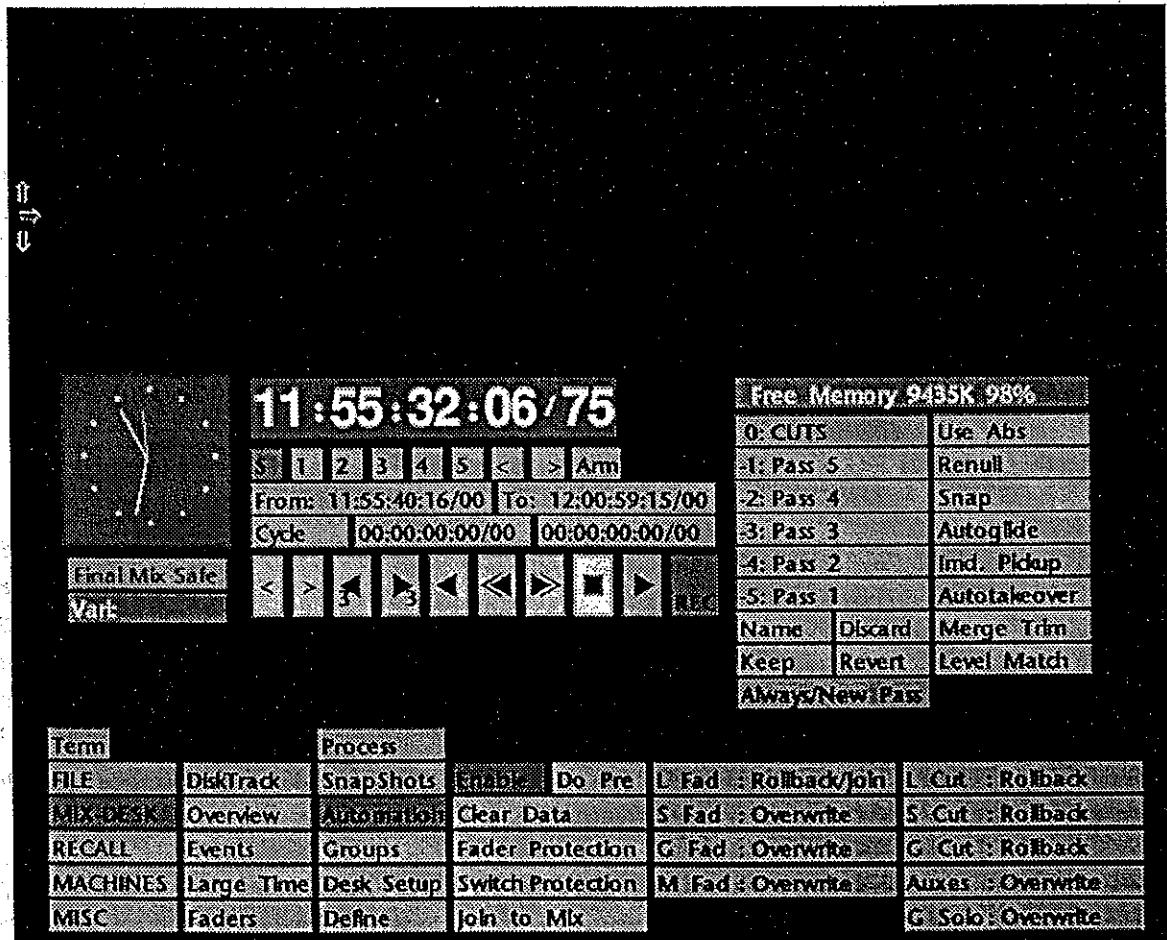
An additional, even larger, timecode readout may be optionally displayed on-screen.

Event (Cue) Lists

With the J Series Computer, the cue list forms part of what is known as the 'Events' list (see opposite). The Events List contains Mark information – a series of timecode-marked points, which enable different parts of the recording to be easily identified, and used as tape machine/DiskTrack locate points. Additionally, the Events list can also show the start and end of audio clips. This information will be generated when audio is recorded to DiskTrack or by the console's unique Capture Clips facility which uses the console channels' noise gates to generate a graphic representation of audio on the computer's Overview display (see Page 4-17).

Cue lists are simply created by use of the MARK button. This can be done 'on-the-fly' as the tape is running or with the system parked at the correct timecode position. Once marked, cues can be named by selecting the NAME MARK key and entering a name on the QWERTY keyboard. 'Enter Mark' and 'Name Current Event', from the macro list (see User-Programmable Keys on Page 4-23), can be programmed into one macro key in order to combine the above functions.

The system can locate to any timecode point, represented by an entry in the Events List, by simply stabbing the pen on that entry. Alternatively the name of a cue can be typed in and, when Enter is pressed, the system will locate to the correct position. Note that the computer only requires a sufficient number of characters to identify that specific cue point. If a cue is numbered, the appropriate number can be entered via the numeric keypad on the console's front panel followed by Enter. Subsequently pressing the Enter key again repeats the last locate-to-cue command.



The Mix System

The SL 9000 J mix automation system incorporates many automation features that will be familiar to users of SSL's G Series mix system software. A big difference, however, lies in the *additional* features provided by the J Series Computer. For example, as well the Large Fader and Cut being automated, the Small Fader and Cut, the FX Send On/Off buttons, Stereo Cue On/Off, Channel Insert In/Out and EQ In/Out are also automated. Additionally, mix data may be edited off-line via a graphic display.

The Large Faders and Group Faders are automated using SSL's patented Ultimation system which provides the intuitive nature of moving faders, coupled with the flexibility of a VCA based system. Normally, the fader motors are turned on and channel audio passes through the fader, except when a specific automation mode dictates that audio should pass via the channel VCA. The facility is provided to turn the motors off, if not required. In this case, audio only passes via the channel VCAs whenever a fader is grouped or the automation is turned on.

Automation of the Small Faders is provided by separate VCAs. Note, however, that Small Fader audio will only pass via the VCA when the automation system is active. Even then, a specific automation mode – Protect Manual – may be selected to allow the audio to pass directly via the fader.

Unlike G Series, the Large Fader Cuts, along with all the other automated objects (switches), are treated quite separately to the faders, and may be selected independently to any one of the mix modes. In any mode, automated objects can be in one of two statuses – Record or Play, ie. write or read. G Series users need not worry about complex cut editing statuses; all you'll ever need to edit mix data for cuts (and all the other automated switches) can be handled effortlessly with two new features – Match and Play (see Page 4-15) and the graphic mix data editing facilities (see Page 4-17).

Regardless of the mix mode selected (see below), there are two possible write statuses for faders – Absolute and Trim. When the system is playing back previously written data, the faders are in Replay status.

The SL 9000 J automation system has seven different types of mix modes – Static, Overwrite, Rollback, Rollback/Join, Clip Fill, Clip End, Cycle Fill and Cycle End. Several of these modes were originally developed for use with SSL's digital post-production products.

Static mode makes an ideal starting point since it allows basic mix levels to be set up without being written to the mix. As soon as the system is rolled back, the levels and switch settings at that point will be recorded for that mix pass (see over the page), from the start of the mix to 23:59:59:24(:29). To update the basic mix pass, Rollback/Join mode can be selected. New information is only written to the point at which the system is rewound. When you play forward again, any fader or switch previously in write will drop back into write at the rollback point. This makes updating mix data very similar to G Series.



Alternatively, if Overwrite is selected as the starting mode, when the system is rewound, the dynamic moves for faders and switch objects, up to the point of rollback, will be written to the current mix pass. Levels and switch settings at the point of rollback will be written to 23:59:59:24(:29), effectively overwriting any previous mix data.

Rollback mode differs slightly from Rollback/Join; when the system crosses the rollback point, faders and switches remain in Replay, ie. does not drop back into write.

Clip Fill and Clip End are designed for use with 'captured clips' (see Page 4-19) or audio recorded to DiskTrack. With Clip Fill, switches and faders can be freely adjusted without being written to the mix. When the system is rewound, the settings at that point will be written for the entire length of the chosen audio clip. With Clip End, dynamic moves can be written to the mix and, at the point of rollback, the last settings will be written to the end of the chosen audio clip.

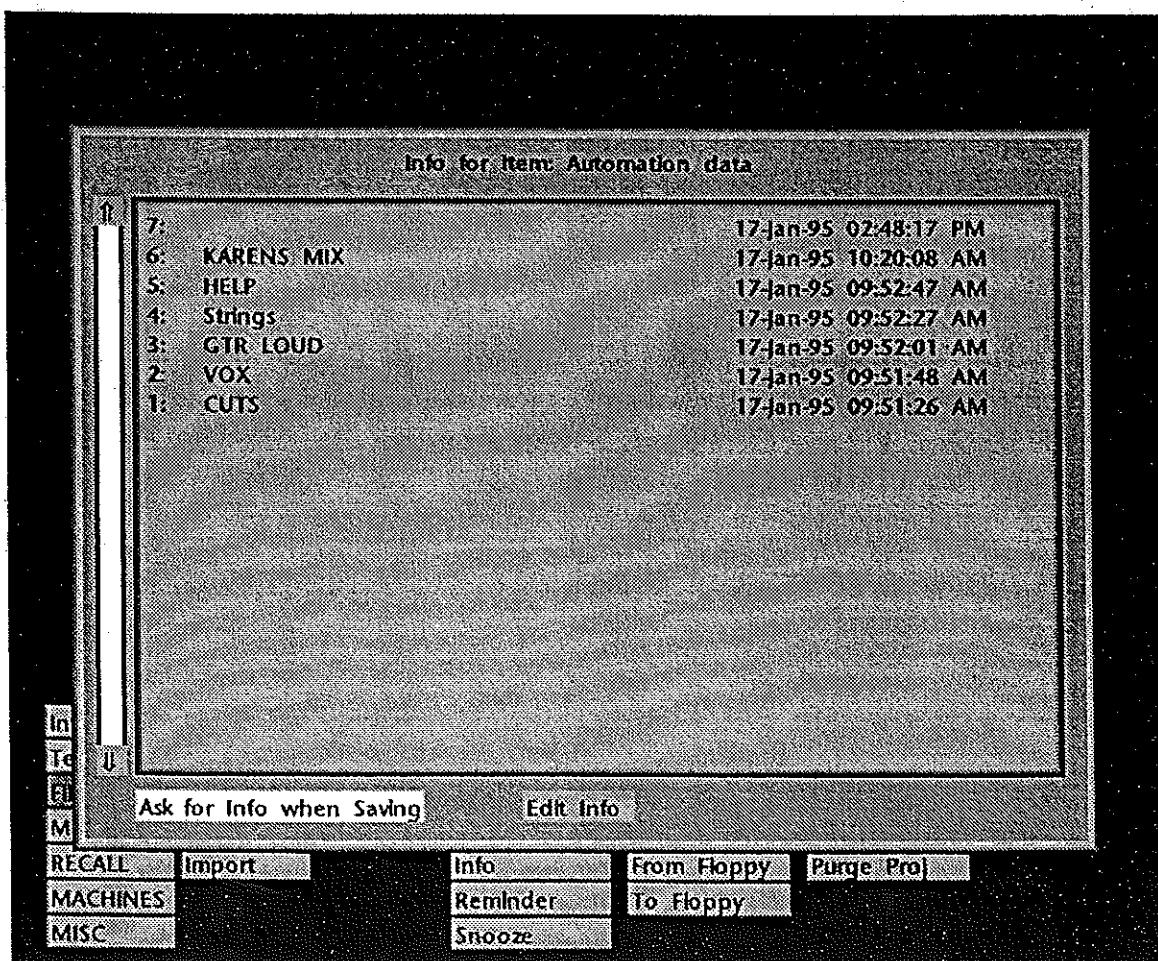
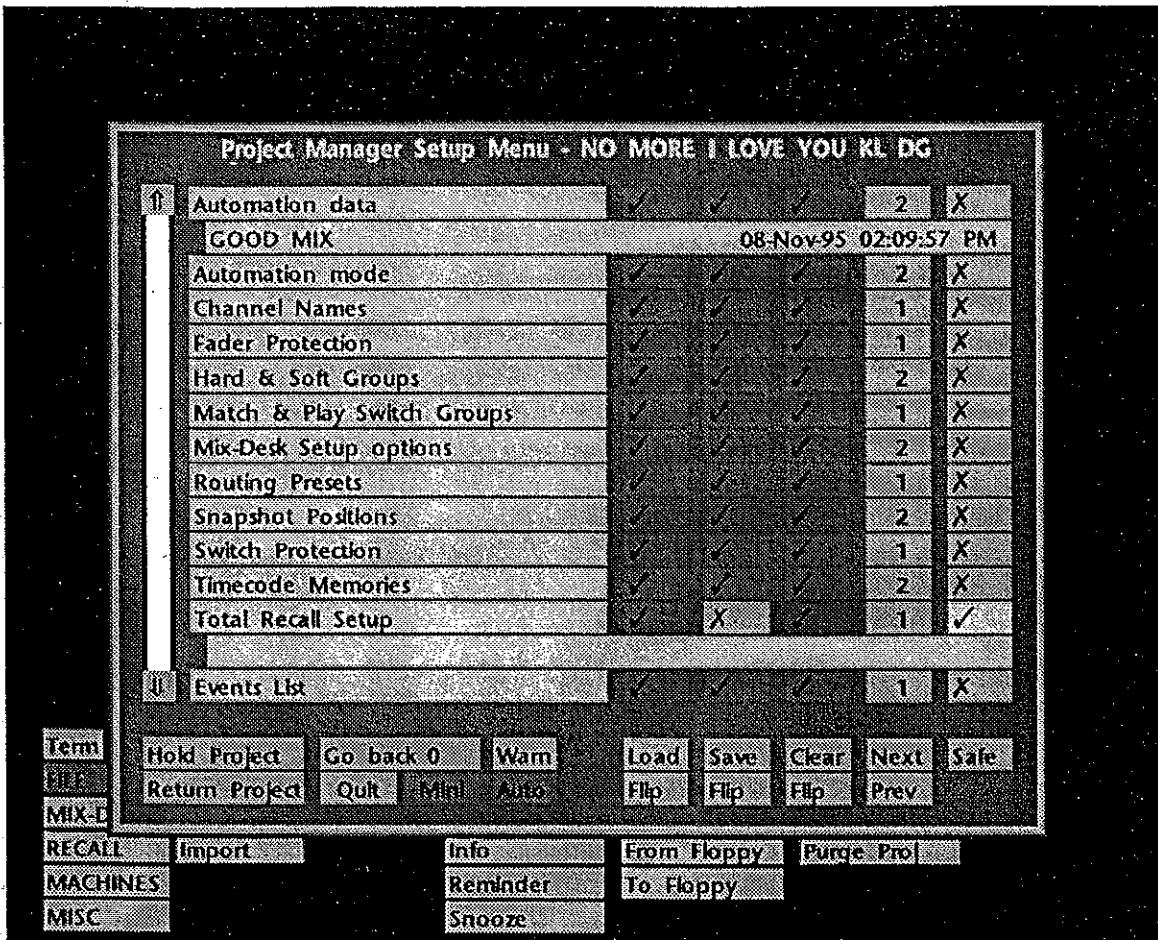
Cycle Fill and Cycle End operate on a similar principle to Clip Fill and Clip End but within the duration of the current cycle window.

The Mix Pass Structure

The J Series Computer has a new way of handling mix passes. Every time the system is rolled back after update moves have been made, the system generates a new 'Mix Pass'. Each pass is automatically given an incrementing number and time-stamped.

A new mix pass is only created if the mix information has been updated. This means that just rolling back, and listening to the mix a number of times, does not create a new mix pass. The Mix Pass list is continually updated as you mix, and provides six mixes (0 to -5 in the Mix Pass box – see opposite) stored in memory. In turn, this allows for six levels of undo. An indication of the memory currently available for mix passes is displayed above the Mix Pass box.

As the Mix Pass list is updated, earlier mix passes are deleted to make room for new ones. It is therefore advisable to periodically save important mixes to the System Disk (see next page). A single mix can be retained for an indefinite period by means of the Keep function. Any unwanted passes can be thrown away with the Discard function, provided as a dedicated button in the console centre section. The Revert function enables any previous passes, other than the pass that has just been created, to be updated. Mix passes in RAM can, of course, be given meaningful names.



The mix system is simply enabled by pressing the AUTO button in the console centre section. The starting status in a new mix for Large and Small Faders is Absolute. When replaying previous mixes, the faders will start in Replay status. As mixing proceeds, the update fader status may be selected to Absolute, Trim or Replay on all or selected channels according to the effect required.

In Trim status, the fader effectively becomes a gain control for any previously made moves. For example, if fader rides on a vocal are correct but they all need to be 2dB louder, the fader can be simply switched to Trim and moved 2dB higher.

Saving Mixes

Up to six mix passes may be held in memory and a stage will soon be reached where the latest mix needs to be saved to hard disk. This is carried out in the Project Manager Setup Menu (see opposite). To facilitate this, the necessary items can be preselected on this display and the mix saved by simply pressing the SAVE PROJ button on the console.

Alternatively, the Auto function can be selected which automatically sets any Project File elements that have been changed ready for saving with the SAVE PROJ button.

When mixes are saved to hard disk they will initially take the name given to the pass when held in memory. A list of saved mixes is available in the Project Manager Setup Menu (see lower screen opposite). Previously saved mixes can be loaded directly from this list, for further updates.

Additional Mix Modes

In addition to the basic mix modes and their Absolute or Trim write statuses, the J Series Computer also provides a number of other, associated, automation facilities. These can be either activated by selecting the appropriate console button or by stabbing with the pen in the relevant on-screen box (see screen overleaf).

Renull – Basically, this provides the option to force a level jump at the point that a fader is switched from Replay to Trim, or not, according to the effect required. With Renull selected, the fader position will be 'renulled' when entering Trim from Replay, thereby avoiding any level change.

Snap – When a Large Fader is in Replay, as soon as the fader is touched it will switch to the selected write mode. With Snap selected, a fader will stay in the write mode as long as you are still touching the fader. Once you let go, the fader will jump back to resume playing back the reference mix data.



Item	Process						
FILE	DiskTrack	SnapShots	Print	Do Pre	L Fad	Rollback/lnh	L Ch. Rollback
MACHINES	Overview	Automation	Clear Data		S Fad	Overwrite	S Ch. Rollback
RECALL	Events	Groups	Fader Protection		G Fad	Overwrite	G Ch. Rollback
MACHINES	Large Time	Desk Setup	Switch Protection		M Fad	Overwrite	Auxes > Overwrite
MISC	Faders	Define	Join to Mix				G Solo > Overwrite

Autoglide – Allows the computer to move the fader back to the null point when you have finished writing. The 'glide' time can be set from 1 frame up to 10 seconds. Autoglide makes an ideal companion for Snap mode.

Autotakeover – This provides an indication of the direction an active update fader must be moved, in order to return it to the null (reference) position. When this point is reached, the fader drops back into Replay. This feature will be well known to G Series users, and provides an alternative to Autoglide when a manually controlled return to Replay is required.

Immediate Pickup – This function is useful for Large Faders when the fader motors are turned off, and simulates the touch sensitivity of moving faders. Even with the Large Fader motors on, Immediate Pickup can be used to intuitively drop Small Faders into write.

Merge Trim – In the J Series Computer mix system, data is written in two automation streams – one for 'absolute' mix data and one for 'trimmed' mix data. When an update pass is made with faders selected to Trim, you are listening to the new trim data added to the 'reference mix' absolute data. This reference mix data could be the last mix pass made with faders in Absolute or the last mix pass saved to disk.

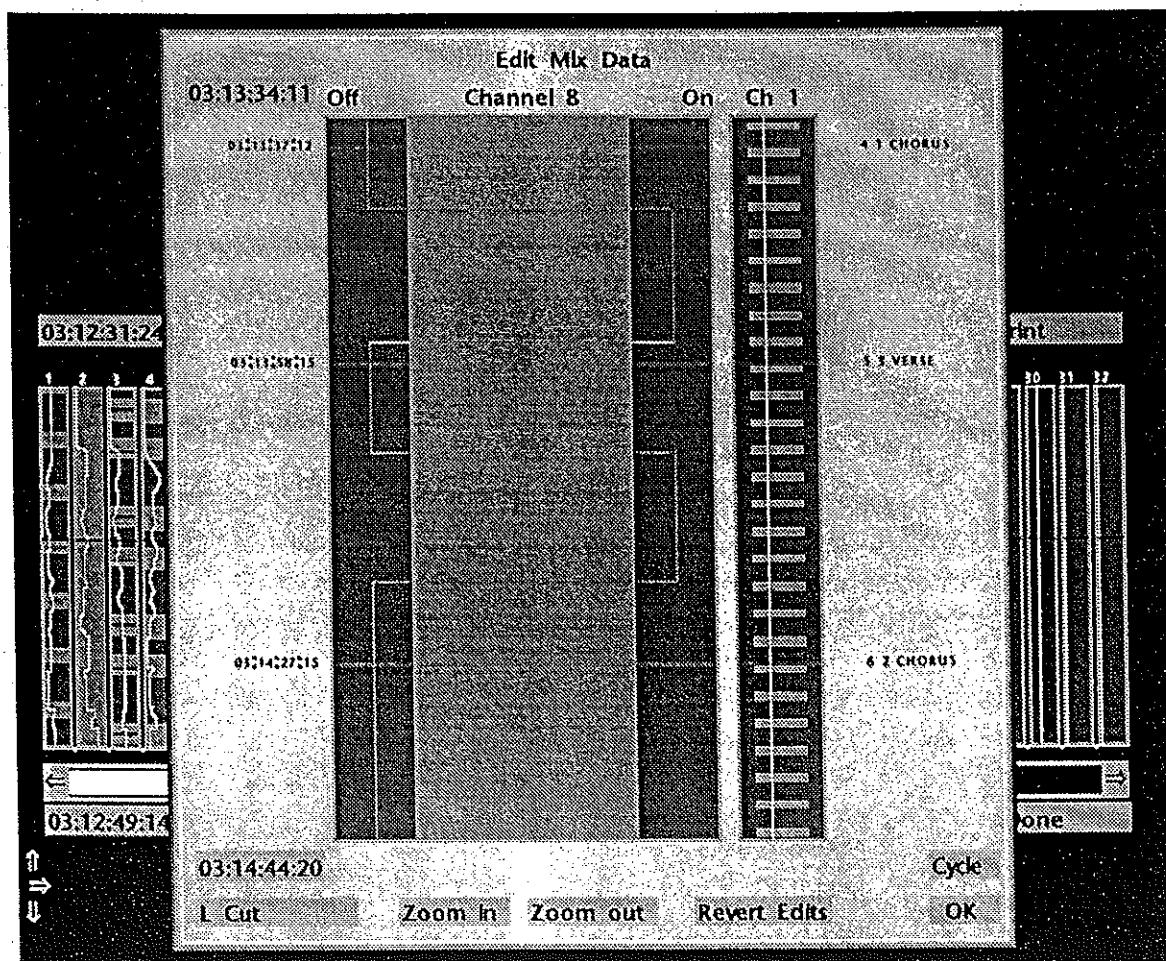
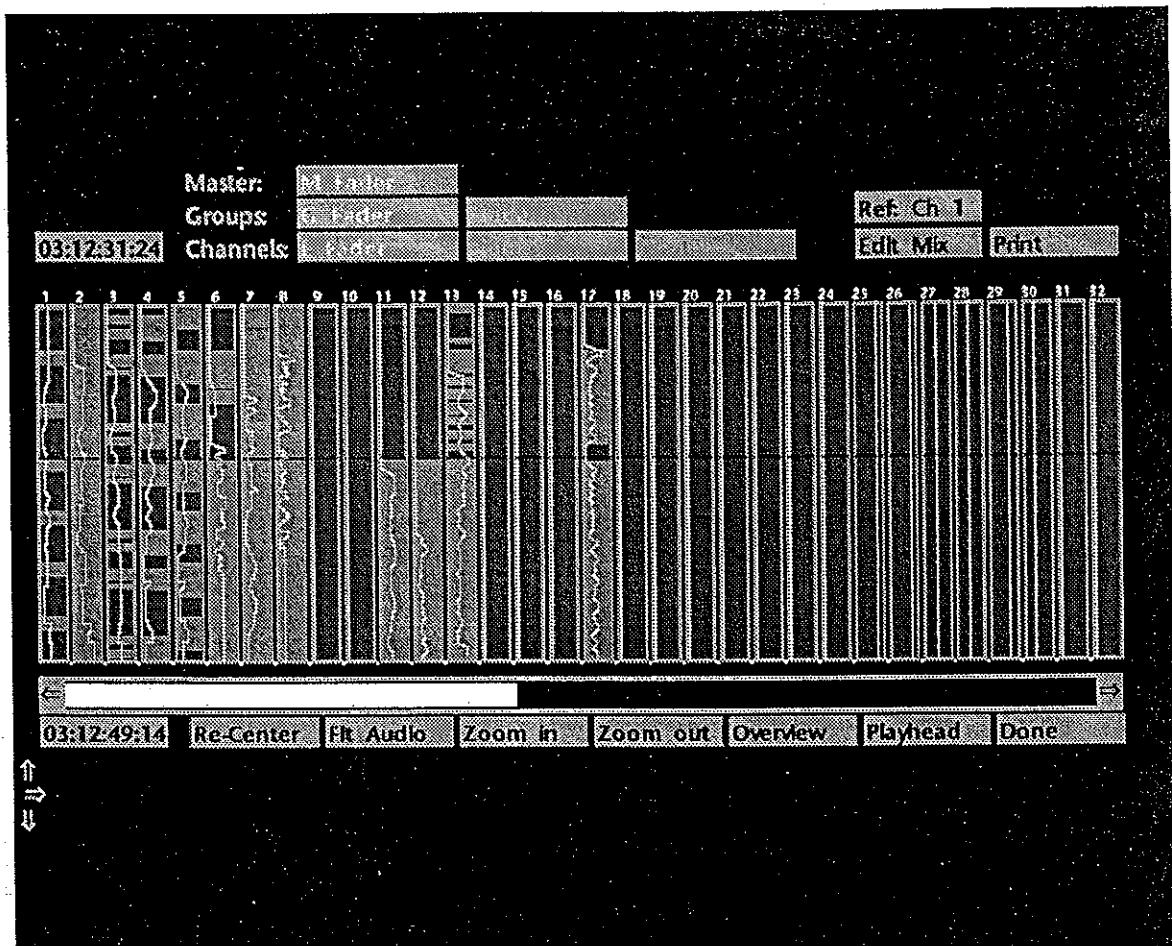
Merge Trim provides the option on subsequent updates to create a new reference mix by merging the trim data with the absolute data, thus allowing further trims to be applied to previously trimmed moves. With Merge Trim deselected, subsequent Trim passes will continue to update the reference mix.

The action of Merge Trim is graphically demonstrated in the Overview display (see Page 4-17).

Level Match – This option only has an application with Large Faders when the motors are turned off. It can, however, be extremely useful for Small Faders at any time. Level Match gives an indication of where a fader should be positioned to match the written mix information (ie. the current null point), in order to avoid a level jump when switching from Replay to Absolute prior to a re-write.

Match and Play

Match and Play is a powerful feature that allows the mix data written for automated switches to be edited, by effectively dropping in and out of write on the existing mix information. Individual Match (M) and Play (P) buttons for each channel are located above the Large Fader SOLO and CUT buttons. A red 'REC' LED lights whenever object data on that channel is being written to the automation system. Separate Match and Play buttons are also fitted above the Group Faders in the centre of the console. These enable the mix data for Group Solos and Cuts to be edited.



Snapshots

In addition to all the dynamic automation options, the J Series Computer also offers a console-wide 'snapshot' facility for all automated objects. Up to 40 of these snapshots can be taken whether the dynamic automation system is enabled or not.

The computer automatically stores a 'Pre Enable' snapshot each time the mix system is enabled. This can be used to restore the console if the mix system is enabled with an older mix which destroys the current console settings.

Snapshots are extremely useful as short term memories that can be used many times when mixing. They can even be fired off at specific timecode points by entering a macro in the Events List.

The Overview Display

The Overview display (see opposite) has a variety of different uses. The main part of the display consists of 32 vertical windows representing Channels 1-32. The display can be scrolled to the left to reveal Channels 33-120. The channel windows are used to display marks (cues), automation data, and a representation of audio (saved with the Capture Clips function – see over the page) to assist in the editing of mix information. For systems fitted with DiskTrack, as well as displaying recorded audio, the Overview display provides a full range of audio editing tools. See Page 4-25 for more on DiskTrack.

A broken red line across the display represents the current Desk ('playhead') position. The system can be located to any timecode point within the Overview window by simply stabbing with the pen at the required position, or by dragging the red line to a new locate point. Marks (cues), created with the MARK button, are represented by horizontal black lines across all the channel windows and can be located so in a similar manner. A Zoom In facility provides a more detailed view.

One of the most useful functions of the Overview display is to show the mix data levels for faders and automated objects in coloured overlay traces. Excursions to the right indicate an increase in fader level or, in the case of switches, the 'on' condition.

Once automation data has been written for faders and objects, that data may be edited on an additional large-scale display of a single channel (see lower screen opposite). This is particularly useful for the editing of cut data. The audio can be displayed as a waveform as a further aid to the editing process.

