The Patch

The SL 4000 G Series patchbay comes with a minimum of nine rows of bantam (TT) mini-jacks divided into 1U (rack unit) high patchrows each with two rows of jacks.

Each row contains 48 jacks, although consoles with mainframe sizes greater than 48 channels come supplied with 56 jacks per row. The patch is logically divided into paired rows, 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. The outers 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. Most of the other rows are half normalled, apart from the User Option jacks in Rows R, S, T & V (unless normalling was requested by the studio). Any additional rows fitted may or may not be normalled and this should be checked with the studio.

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. 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 GROUP TRIM control. These are normalised down to Row H. Row H feeds the Multitrack Sends (i.e. the multitrack inputs) and also the READY GROUP monitoring button. The READY 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 normalised and these are detailed below together with certain inputs and outputs, the wiring of which may not be immediately obvious:

PRE VCA INS (L1-4, M1-4) - Four insert points after the Quad bus mix amps and before the main Quad VCA fader.

POST VCA INS - (L5-8, M5-8) - Four insert points after the main Quad VCA fader. By patching from L1 to M5 the Left Back VCA can be bypassed. The same applies to the other three feeds. This can free the main Quad fader VCAs (and hence the Quad compressor and Autofade) for use elsewhere in the console. If this is done, you will not be able to fade down the main outputs, but when tracking or overdubbing, this may not be a problem. You can always patch one of the four stereo patchable VCA faders in place of the main Quad VCAs in this case, if you do need automation or level control. M1-M4 provide the Quad compressor inputs and L5-8 the outputs. These insert points may also be used to insert other compressor/limiters or EQs into the main Quad Outputs.

MAIN OUTPUTS + DISTRIBUTION (L9-L15, M9-M15) - These are the main Quad and Stereo Outputs from the console. L9-12 carry the main Quad Outputs which are normalised down to the main Quad distribution Jacks M9-12. These four jacks then feed the tape machine Record feed Jacks L17-L34. The Quad machine feeds (L17-20 & L21-24) are all discrete Quad derived from LB, LF, RF, RB (Jacks M9-12). The LEFT, RIGHT and MONO output jacks (L13-15) provide folded down versions of the main Quad Outputs i.e. L=LF+LB, R=RF+RB and M=LF+LB+RF+RB. The stereo machine feeds (L25-L34) come from the LF and RF Jacks M10 & M11.

The four Distribution jacks (M9-12) are very useful for tape copying. Plugging a signal into these jacks will feed the inputs of all the tape machines connected to Jacks M17-34.
TAPE MACHINES (L,M,N,P 17-34) - four jacks for each machine track. Top jack (Row L) is the console main output and is normalised to the machine Record input (Row M). The machine Replay output comes up on Row N and is normalised down to the External Selector input (Row P). The inputs on Row P are very useful if you need to meter a signal. For example, patching into Jack P33 and selecting STEREO 5 on the External Selector, with the main meters selected to EXTERNAL SOURCE, will bring the source up on the LF Quad meter.

OSC (L16 & M16) - Yes - the oscillator! The lower jack (M 16) feeds to the tone distribution system via the QUAD BUS and GROUPS buttons and is useful for feeding an external oscillator or pink noise source to the desk outputs.

MONITOR LS (L35-38 & M35-38) - L35-38 carry the Main monitor outputs which are normalised to M35-38 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.

MINILS (L39-40 & M39-40) - The feeds to a second pair of monitors. Again remember that plugging line level sources into Jacks M39-40 may blow the speakers.

ECHO RETURNS (L41-48 & M41-48) - L41-48 may be wired to the outputs of reverb or effects devices. They are normalised to the Stereo Echo Return inputs (found on the SL 651G).

LISTEN MICS (On consoles less than 56 channels wide - R38-39 and S38-39. On consoles 56 wide or larger - L49-50 & M49-50) - The top two jacks should be wired to two mics hanging in the studio area. The lower jacks are normalised from the mics and feed into the console Listen Mic inputs. Level controls and on/off switches for these mics can be found on the SL 651G.

MD (On consoles less than 56 channels wide - R40 & S40. On consoles 56 or larger - L51 & M51) - The Musical Director feed. The top jack carries a switched talkback feed from the mic in the console, activated by the MD button on the SL 651G. The bottom jack feeds this signal to a destination known only to the studio wiring staff.
ECHO SENDS (N1-4 & P1-4) - These carry the Aux 1 to 4 outputs which are normalised to the effect send lines out of the console (P1-4). They are always fed from the sends on the right hand side of the console. If the Split buttons on the Local Aux Sends panel are up then the left hand aux feeds will also appear at these jacks. Jacks N1 and N2 are also wired to Jacks N7 and N8 which, together with the Stereo send outputs on N5 and N6 are normalised back into the console (via Jacks P5-8) for the addition of talkback, stereo echo and stereo external sources. These Cue outputs then emerge on Jacks N9-14 as three stereo Cue Sends.

ST1 to ST5 REP (N25-34,P25-34) - Up to five stereo machine returns may be wired to these jacks. The inputs to the corresponding External Selectors can be found on Jacks P25-34.

QUAD DISC (N35-38,P35-38) - A disc (or any Quad/Stereo replay device) may be wired to the External Selector via these jacks.

SLS (N39-40,P39-40) - The SLS outputs are normalised to the power amp feed. Watch it!

PATCHABLE VCAs (N41-48 & P41-48) - Four stereo patchable VCAs controlled by the four faders below the SL 651G. Patch into the VCA on the top row and come out on the row below.

SMPTE (R41-48,S41-48, or on 56+ frames N49-56,P49-56) - These sixteen jacks are designed to be used with the SSL Master Transport Selector. They provide comprehensive patching of timecode sends and returns for up to three machines. Timecode from the three machines, A, B and C comes in on Jacks R41-43 (or N49-51) and is normalised to the inputs of the Master Transport Selector. The selected timecode (from the master machine) returns to the patch on Jack R44 (or N52) and is then normalised to the SSL Studio Computer timecode input S44 (or P52).

The Studio Computer timecode generator output (which reshapes any code fed into S44 (or P52) appears on Jack R45 (or N53) and is normalised to the three distribution Jacks R46-48 (or N54-56) via the insert Jack S45 (or P53). These three feeds of generated timecode are then normalised to the A, B and C machine timecode record inputs via Jacks S46-48 (or P54-56).
LOCAL AUX SENDS (R1-6 & S1-6) - The top jacks are fed from the six Aux send busses on the left hand side of the console. They are normalled to the jacks below and may be wired to external effects devices.

I/O Module Patch Wiring on Consoles with more than 56 Channels

A number of SSL consoles are now manufactured with 64 and 72 I/O modules. At the time of writing there are no 80 channel monsters around but this may change! On these consoles, modules above 56 are wired on rows R, S, T, U, V, W, X, Y, Z and AA, as each I/O module takes up ten patch points. In this case, the Local Aux patch points will be moved to accommodate the additional module patch points. Consoles this large must have twelve double rows of jacks to accommodate all the necessary inputs and outputs.

Stereo Modules

If the patch has been wired to accept Stereo Modules then it will be slightly different from the drawing. The usual practice is to wire all the I/O modules to Rows A to K as shown. Stereo Modules may be wired to Rows R, S, T & U as follows:

If, for example, four stereo modules have been specified then stereo lines from the studio or control room will appear on Jacks R7-14. These will be normalled to S7-14. Stereo Insert Sends and Returns will appear on Jacks T7-14 and U7-14. An alternative would be for the lines and Line Inputs to be wired to R&S7-14 and the inserts to R&S15-22. The positions of patch points for Stereo Modules and I/O modules, when there are more than 56 channels, will vary from console to console.

The majority of consoles are supplied with integral patchbays, however, as an option, versions with remote patchfields are available. The layout and normalling will be the same.