

# Glossary

## Amplifying Stages

Each EQ band contains an amplifying stage. The mic pre contains two, as does the HPF. The original Neve BA338 amplifying stages have been tweaked to improve their drive ability and stability versus temperature, resulting in reduced distortion and approximately 9dB more dynamic range. As a further improvement to the original designs, each section of the 2081 channel module has its own power supply filtering.

## Channel Bin

Front on, the Channel Bins of the *Custom Series 75* are almost indiscernible. However each group of eight 2081 channel modules are housed in an aluminum casing known as a 'bin'. Beneath this are the individual Channel Bin motherboards. From the rear, each bin can be seen clearly. Depending on the chassis size, there may be up to eight Channel Bins.

## Current Summing

Current Summing is a modern solution to the 'deficiencies' of Voltage Summing. No matter how many signals you feed to the mix bus of a Current Summing circuit, the voltage on the bus will remain at 0 Volts. We call this a "Virtual Earth" - the inverted op-amp output voltage is 'fed back' to the virtual earth point via a feedback resistor, resulting in 0V at the op-amp input. A more sophisticated variant of this circuit is used to achieve balanced virtual earth mixing as used in this console. Due to the virtual earth, this design does not require an input or output transformer. A Current Summing Mix Bus does not colour the audio.

## Modern Output Stage

The Modern Output Stage of the *Custom Series 75* has been designed for sonic transparency and excellent technical specification. It's a transformer-less balanced floating output, that can drive balanced or unbalanced professional grade studio equipment. All op amps are LM4562 by National Semiconductor, generally regarded as the best sounding opamp available.

All capacitors in the audio signal path (Modern & Retro) are WIMA polypropylene film or Rubycon ZLH electrolytic chosen for long life and superior sonic performance. All relays, switches and connectors in the audio signal path have gold plated contacts.

## Retro Output Stage

The Classic Output Stage which was made famous by the Neve 1073, 1272 and 2254 could be described using words such as warm, defined and flattering. The only way to truly know is to listen. Circuitry wise, the sound is largely due to the BA283 output amplifier and L01166 output transformer. These two components, when used together, have a significant sonic effect.

Care has been taken to recreate the renowned Classic Output Stage for the *Series 75 Console*. The BA283X output stage, single ended, class A circuitry with a gapped core transformer, and the L01166 output transformer are as it was originally.

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## Stem Outputs

A Stem is a sub-mix output. In music mixing, stems are more often stereo mixes of just the drums, guitars, or vocals etc. These can then be subsequently re-mixed together for a complete stereo mix. The *Series 75* Stem Outputs are post-fader, and may be used to record just the sub-grouped signals.

## Voltage Summing

In the 1970s Voltage Summing was the only way to sum multiple signals onto a bus. Put simply, the signal level on the mix bus drops as more signals are fed to it, typically to around -30dbu. Further, the mix bus must be designed from the outset to have a fixed number of sources, and the impedance and bus level depends on this not changing. The signal passes through an input transformer and amplifying stage – the "mix amp". This input transformer will subtly colour the signal. Once the signal passes through the mix amp it hits an output transformer. The output transformer is where much of the sonic colour comes from. In effect, a Voltage Summing Mix Bus colours the audio in a way that is pleasing to our ear.