How the LA2A Leveling Amplifier does its magic

Teletronix La2a

analogvibes

As mentioned in the last chapter the LA2A is one of the most iconic compressors in recording history. With only three knobs on the front of which only two actually control the sonics, it's an extremely simple design. In the following I wanna show you that the simplicity of this wonderful piece of gear is not only limited to the visual design & controls, but also kept up in the electronic design.

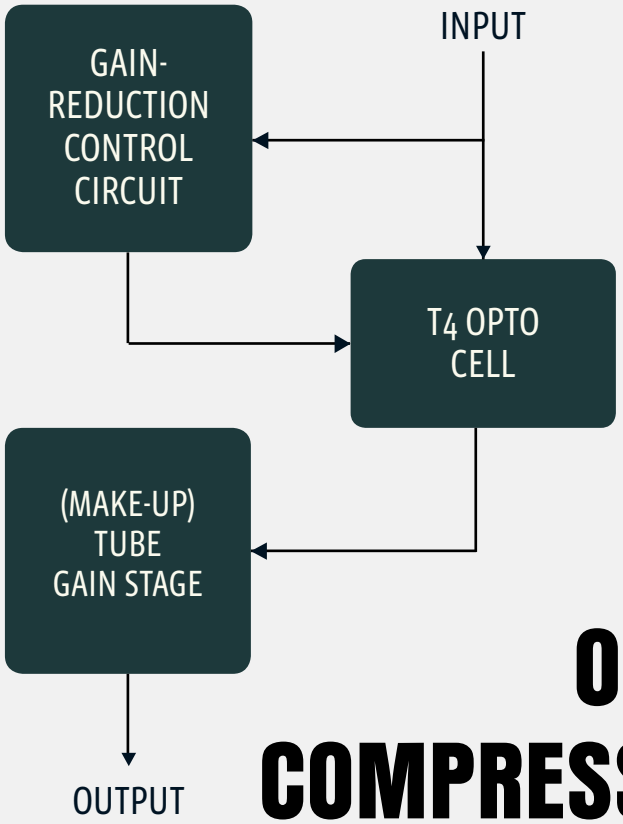
But before we jump right into it - assuming that even though pretty much all of you have used an LA2A as a plugin in your DAW, and only the minority has used the actual hardware - **I wanna find out one thing: What exactly is it that makes this compressor so special?**

The reason why I'm bringing up the plugin here is, from my own experience there's a huge difference in grasping the principles and the magic of such a unit when using the digital emulation on screen compared to the hardware unit.

My personal impression when first using a hardware LA2A was that it's sonic character has the ability to make the signal sound bigger, or thicker if you will.
Almost like adding an extra dimension - giving the signal some **warmth in the low mids**, while producing some **beautiful sheen further up the frequency spectrum** at the same time.
And it does all of that in a **very smooth and unobtrusive** way, which may be due to the fact, that the **compression itself actually sounds very transparent**. If you take a look at the meter and see it already applying 10db of gain reduction, you wouldn't believe it just listening to the results.

But how does it do that? As shown in the image below - extremely simplified, **the LA2A consists of two major circuit parts: the gain-reduction control circuit** which drives the most important part for the compression characteristics: the T4 Opto cell. And the wonderful sounding **tube (make-up) amp**:

fig. 1

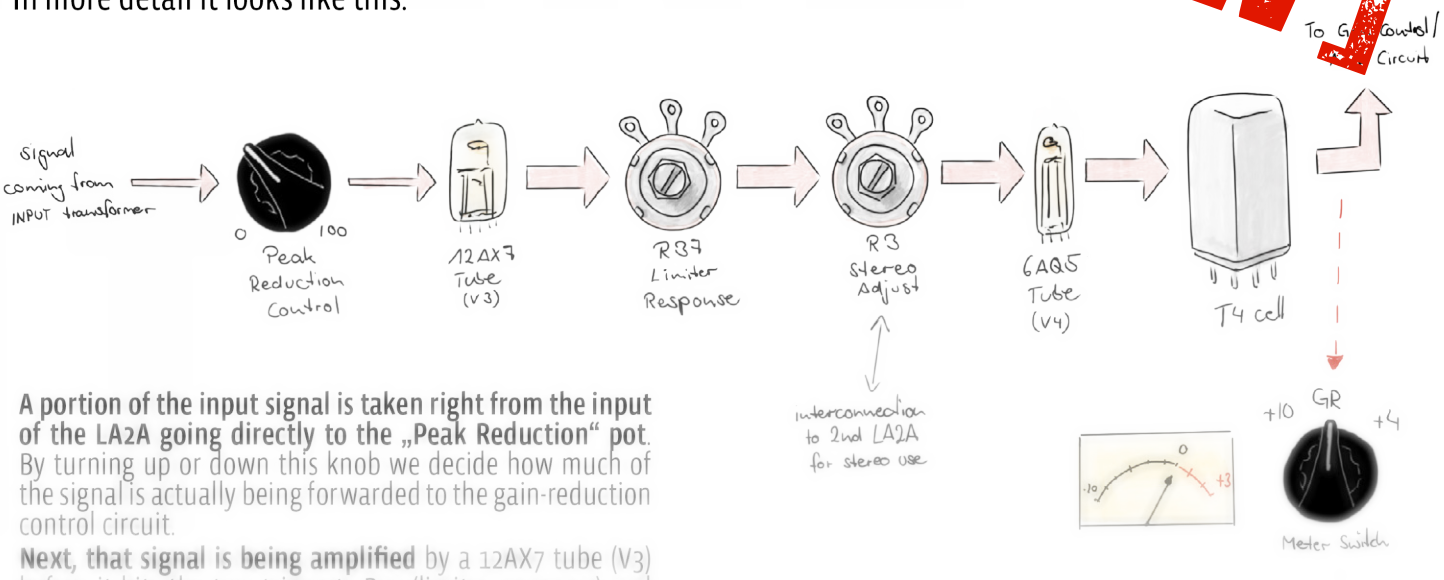


OPTO COMPRESSOR

Without any detour a portion of the signal, coming from the input transformer, is **directly fed into the gain reduction control circuit** (aka the „compressor-sidechain-circuit"), which in short **decides, how much gain-reduction the T4 applies** to the signal before it's getting forwarded to the make-up amp and from there to the output.

THE GAIN-REDUCTION CONTROL CIRCUIT

In more detail it looks like this:



A portion of the input signal is taken right from the input of the LA2A going directly to the „Peak Reduction" pot. By turning up or down this knob we decide how much of the signal is actually being forwarded to the gain-reduction control circuit.

Next, that signal is being amplified by a 12AX7 tube (V3) before it hits the two trimpots R37 (limiter response) and R7 (stereo adjust) mounted on the back of the unit.

FREQUENCY RESPONSE CONTROL