Pre-Amplifier Upgrade

Manley Shrimp

The idea to introduce stabilizers into the preamplifier occurred to me immediately after how the anode voltage regulators were integrated into the Manley monoblocks, and this gave improvement in sound quality. My preamplifier is built on 4 tubes in a transformerless circuit. The input stage of each channel is made on a 12AT7 (ESS-81) lamp, and the output stage is a White repeater on a 7044 (GE) lamp. When choosing an anode voltage stabilizer circuit, I immediately had two questions, which I asked Evgeny. 1. On what element base is it best to implement a stabilizer? After all, the currents in the pre-amplifier tubes are an order of magnitude smaller than in the final amplifiers. It would be logical to use not so powerful transistors, and even adapt the circuit itself somewhat

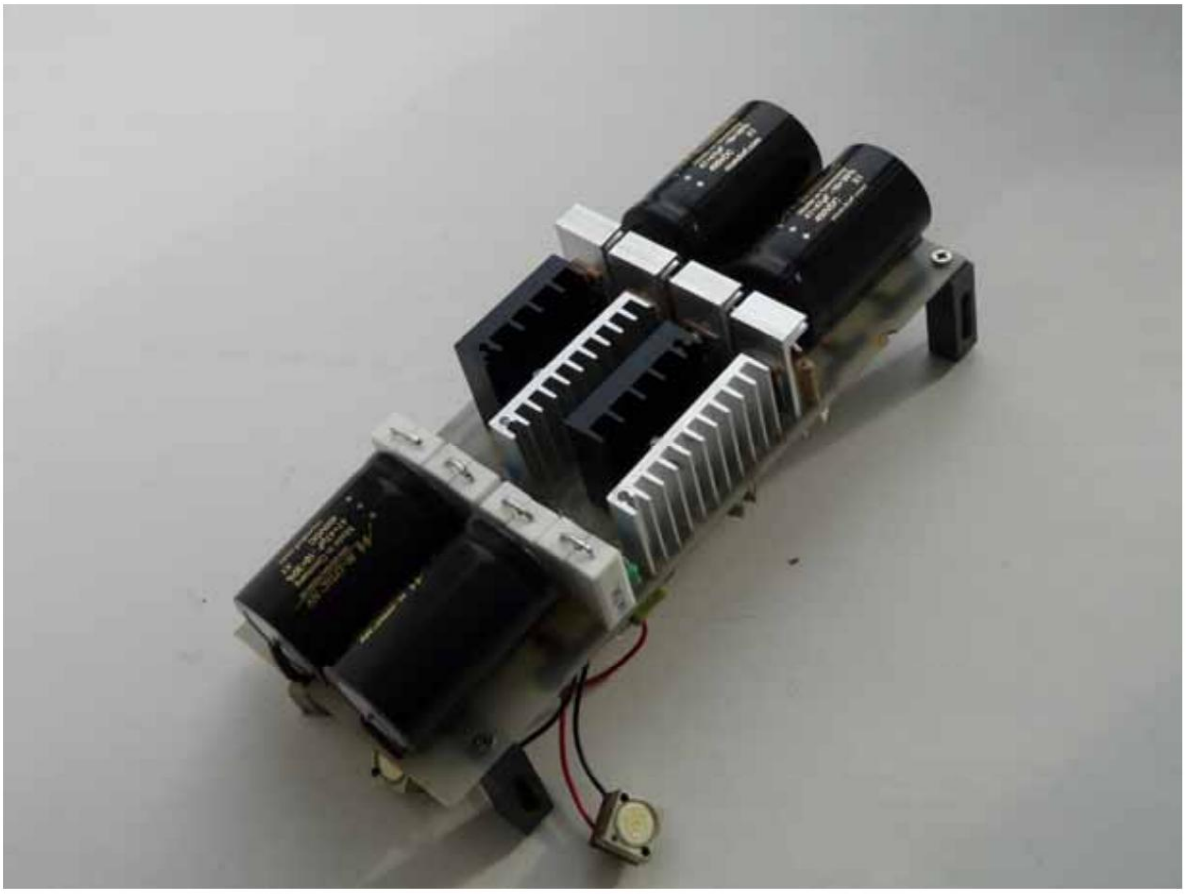
for a specific task. To
which I was given a very reasoned answer about what to pick up the active elements of a smaller capacities that meet specific requirements will not be so easy. And in fact, if
the gun has been tested and it shoots well, why try to change it? 2. What is
the best number of stabilizers to make?
The fact is that earlier I upgraded the power supply of my preamplifier, namely, I threw away the factory board with a transformer and designed a separate power supply with two

transformers (one for each channel) and kenotrons as rectifiers. Eugene, he
the author of the anode voltage stabilizer circuit, advised me to get by with two stabilizers (one for each channel), and decouple the input and output lamps of each channel with a 100 ohm resistor. The argument was that it would be much easier to perform this way, and the currents in the preliminary lamps

amplifiers are very small, so the mutual influence on the power supply of the input and output lamps will be very negligible, if noticeable at all. As subsequent tests showed, everything turned out to be not as simple as, however, everything in this unpredictable world of audio. The factory circuit for the anode power supply of my preamplifier was made very simply - after the rectifier, a cascade of filters of resistors and electrolytic capacitances was installed, which ensured the power separation of each of the four lamps.

The anode voltages (at a mains voltage of 230V) were set as follows: input lamp-340V, output lamp-290V. On the advice of Eugene, I experimented and changed the lamp modes somewhat, however, I did it, as he later summarized - through the back porch. Namely: I did not touch the factory-set bias, but chose the anode voltages of the input and output lamps that were optimal in sound. Considering that my anode voltages fell into the range of normal operation
each type of a particular lamp, made a mistake, I think not very much. It turned
out the following: for the input lamp Tung-Sol 12AT7-270V, for the output Tung-Sol 5687-256V. This is the end result I indicated, but at first it was like this - I assembled 2 stabilizers on the breadboard and began to listen, then I assembled the third one and separated the input and output lamps with stabilizers in one of the channels. The result immediately made itself felt, the sound changed very significantly, the impression was created that I did not connect an additional stabilizer, but replaced the interconnects and speaker wires. Then I assembled the fourth stabilizer, since the prospect of using a stabilizer for each lamp was more than obvious. The board of 4 stabilizers was made according to
the size of the factory power supply board to install in its place.

Input and output electrolytic capacitors are dual, the power supply is implemented as a separate block. The placement and layout of the elements is clearly visible in the photo.



Subjective assessment

I'll make a reservation right away that everything written applies only to a specific system, a specific preamplifier and specific tubes, but personally I am simply convinced that in other conditions the result will be similar, the only thing is that the quantitative increase in quality will depend on the level of the system itself in which the preamplifier will work. So:

If you use two stabilizers, i.e. each channel has its own and at the same time have its own source for each channel - the sound becomes noticeably better. The influence of the stabilizer on the sound quality is undeniable, the sound is more musical, less tense, so to speak, the bass sounds much better - it is more tangible and in some fragments of the recording the echo that was before disappears. But the real transformation of sound occurs when there are four stabilizers, that is, for each lamp -

mine. Incredibly, everything is changing so dramatically that it's hard to believe. Although, from a technical point of view, the changes are not very significant. Strings take on a magical melodiousness on records that didn't have it before and in
cymbals fascinate the ear - they become distinguishable, obvious and, it seems, even visible. At the same time, the bass is lower and more elastic, absolutely without any boom (all that has been said is only compared to the previous version). It is worth switching the same four stabilizers in a different way, and namely: one source for the input lamps, the second - for the weekend, everything
disappears somewhere. Perhaps, in my case, the potential of a previously designed power supply with independent channels. Maybe I don't know, but the bottom line is that it's worth soldering only 2 wires to the output of the stabilizer and the picture changes
noticeably. With what can the result be compared quantitatively? I am sure that if instead of my preamplifier in my system I put a preamplifier even an order of magnitude more expensive, the result will definitely be less noticeable than the improvement that was obtained.
just a power upgrade.

In conclusion, I would like to say many thanks to Evgeny for his patience, for the time spent, for assistance in modernization, for the fact that my system, with his help, not only improves, it
becomes more refined and sophisticated.
What about further ideas? In the light of the result, I really want to return to monoblocks and introduce a separate stabilizer for the input and driver lamps, but that will be the next story.

Sergey.

Summary Strictly speaking, all of the above is an excellent illustration of the well-known axiom - the "correct" power supply system of the amplifier is half the sound quality. And of course, to this we must add that this "correct" system must be correctly connected. In general, I believe that the results achieved by Sergey are of a more general nature than the improvement
the sound of a particular system. The real possibility of a significant improvement in the sound quality of serial devices is shown, in general, "with little bloodshed".

Evgeny Karpov