Manley 50 Watt Mono Amplifier Upgrade

Part 2

Final result.

My review of Manley monoblock retrofits will be in two parts: the design of the anode voltage regulator and the effect this regulator has on the sound.
amplifier.

Part 1. Design.

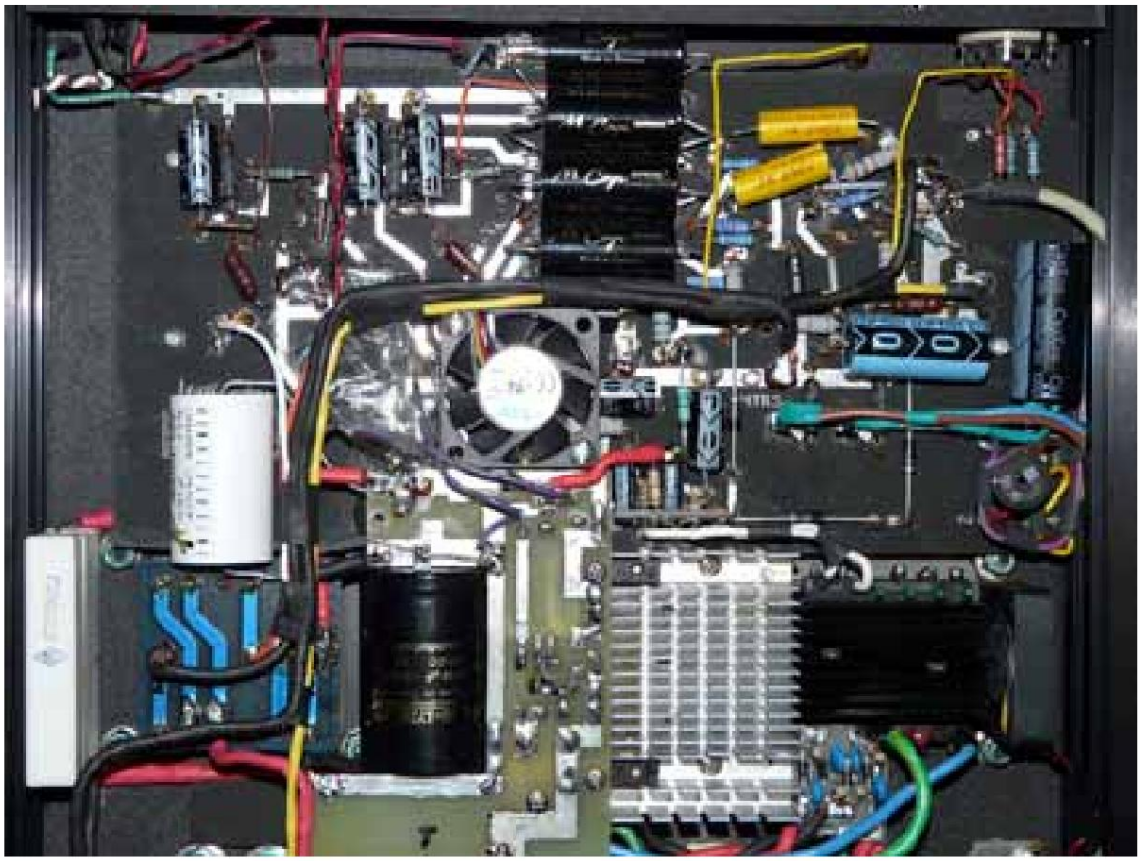
Incorporating a stabilizer circuit into the amplifier case proved to be a difficult task and painstaking, since there is very little space inside the case, and the stabilizer board and, in particular, cooling radiators must occupy a fairly decent volume to ensure the required temperature regime. The stabilizer board was developed
strictly taking into account the dimensions available for assembling the circuit of radio components, ensuring the required minimum distance between circuit elements and power supply elements, as well as the maximum possible use of free volume in the amplifier case. It is a U-shaped structure with the possibility of placing the outlet tank in the middle and the inlet tank under one of the sides of the structure. The radiator is a three-element "sandwich". Two radiators are attached to
pass transistor substrate on both sides, and a tinned copper plate is inserted into the further gap between the radiators, equal in thickness to the thickness of the substrate
transistor, which, in turn, is attached to the third radiator, located structurally above the mains transformer and directly at the cooling fan.

On all the surfaces of the radiators and the transistor that come into contact with each other, there is abundant thermal paste applied. The total cooling surface area is 520 square meters. see. To facilitate the thermal regime of the pass transistor, an additional
fan, but a rather large area of the radiator allows the stabilizer to work for a long time even when the fan is not working. The design provides a second additional fan located in the center of the amplifier, it is turned on using the power button located on the front panel, and is turned off in normal mode. It works by blowing through the perforated bottom of the amplifier case. Turning on this fan is advisable after 5-6 hours of operation of the amplifier, i.e. after complete warming up of the body and all parts of the structure. Use-

The use of an additional fan reduces the heating temperature of the radiator by 3-4 degrees. The fans are powered by a separate heating transformer, which

feeds the incandescence of all amplifier tubes and is located in a separate housing. A separate rectifier is used to power the fans. The filament voltage of the lamps itself is stabilized. Thus, the possible influence of interference on the power supply is completely excluded. from running fans to the quality of the anode voltage and circuit voltage
displacement . The design and execution of a separate power supply for the incandescent lamps of the amplifier will be presented later in another report.

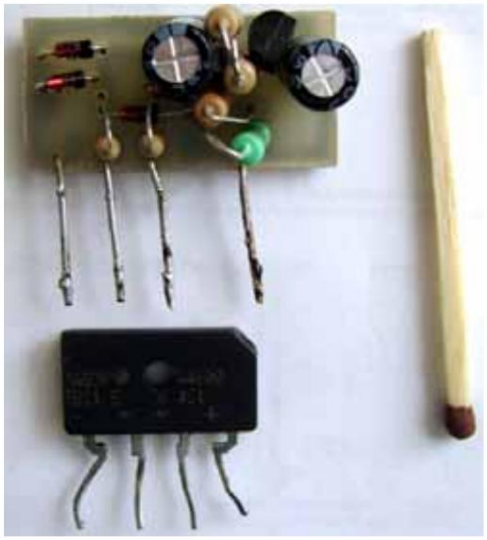
The control transistor of the anode voltage stabilizer has its own separate radiator and is placed directly on the stabilizer board. Stabilizer board
fastened to the amplifier body with screws and 4 posts, which in turn are simply glued to the amplifier body.



The anode voltage was chosen to be 360V (factory setting is 460V with an input network of 230V). With this choice of anode voltage, I tried
find a reasonable compromise between reducing the maximum output power
amplifier and improved sound due to shifting the gain mode to the side
class A. At a given anode voltage, given the maximum power dissipation of the EL-84 lamp, the quiescent current can be selected within 32-35mA, which is one and a half
times the factory setting.

I cannot but express my deep gratitude to the author of the stabilizer circuit, who patiently answered all my many questions regarding both the nuances
the operation of the circuit, and the processes occurring in it. Thanks to the author, in this case, there is not just an assembled structure, made according to what caught the eye
scheme, which is very often the case (I saw it on the Internet, collected it, ... tried it, perhaps I got some kind of sound improvement), but a strict technical justification for the result. The bias stabilizer is assembled on a small board, which is installed instead of

standard rectifier bridge of the bias source.



Part 2. The influence of the stabilizer on the sound of the amplifier.

When listening to assembled amplifiers with stabilizers under the hood
anode voltage and bias circuit, I was once again visited by one very stable thought - a certain level of sound on a particular system can be achieved
different in implementation, and most importantly, in terms of cash costs, ways. I am presenting one episode from my listening practice. A few months ago I took
listening to a Nordost network cable worth about two thousand dollars, my goal was not so much to buy this cable, but to get a certain experience of influence
individual components to the sound of my system. This cable, when connected to any device, gave a tangible improvement in quality, especially its effect
when used with a preamplifier. The middle and high-frequency ranges are immediately noticeably cleared, the resolution improves, and the drawing of small details is more tangible. Using a stabilizer gives a very similar effect only more pronounced. There is another difference: this cable costs two thousand dollars, and the cost of
the stabilizer, based on the most affordable parts, fit into 200 rubles. Feel the difference as advertised. Of course, I personally buy parts for the stabilizer out of respect for Sound, the author

schemes and to satisfy the “worm”, in the subconscious all the time repeating: “every detail is important”, spent a large amount. But still, the fact remains that even with Capxon capacitors, the improvement in sound is no less noticeable. The musicality has also changed for the better, the system has become more melodious, this is especially noticeable on strings.
parts, vocals and when playing jazz. The overall sound can be described
as more lively and emotional. Another important detail is the tonal balance of

the system is now absolutely independent of the mains voltage at a particular time of the day. In conclusion, I would like to say once again that I am very pleased with the

Evgeny with the modernization of his Manley final amplifiers and is very grateful to him for
the help rendered, but the only thought that at the moment makes me insistently
visits - carry out a similar upgrade to the preamplifier.

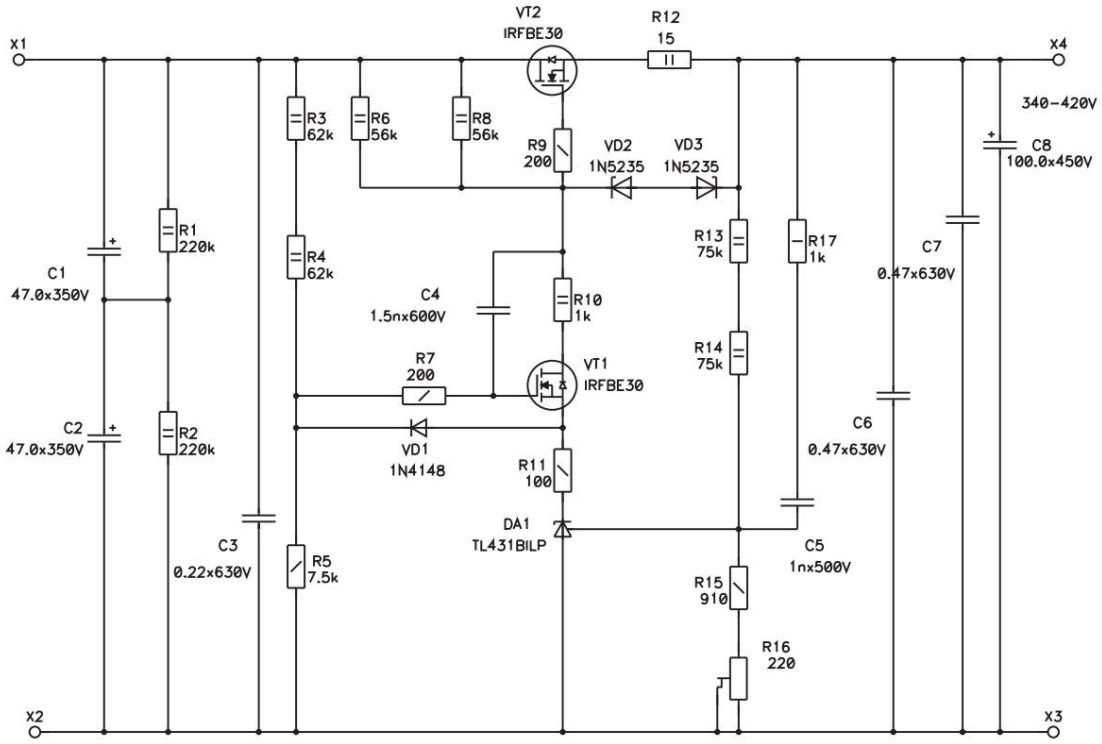
PS I apologize to picky and attentive radio amateurs for the poor quality soldering of wires at the input and output of the stabilizer in the presented photographs. Stabilizers are in the phase of testing and bringing to perfection.

Epilogue

Your attention is presented to the second, independent opinion. I am grateful to Sergey that he decided to move away from the prevailing audiophile stereotypes and test some of my conclusions by applying them in a real device. And, of course, I'm happy that
the conclusions were confirmed. So many experts say that the amplifier must contain
one and a half components (moreover, special ones), and a deviation from this rule puts an end to
sound, which is just scary to believe the results of objective measurements and listening
ÿ.

The appendix shows the circuits that Sergey implemented, and more detailed information about the stabilizer can be found in the article on the site.

Evgeny Karpov



Offset source.

of resistors other than 5% (Power dissipation) 0 25

You can try replacing the diodes with 1N4148 or Schottky diodes (0.5A 100V)