Conversion of APX100 tube amplifier

(First of all, I recommend everyone to read György Plachtovics' "Conversion of the APX-100 type amplifier"

description of the address, which can be found in the 2001/2 and 2001/3 issues of Rádiótechnika. Lots of useful information

serves, although I deviated from a few things)

1. Connecting the 220V branch of the mains transformer to 240V. This is necessary because, due to today's 230V network, the anode voltage exceeds 510V instead of the required 460V. This reduces the

life expectancy of the tubes and the buffer capacitors as well. We can easily perform this operation. THE

solder the indicator wire C to the indicator G on the heat plate of the transformer.

2. The anode voltage switch, which is necessary because it takes some time to energize the cathode of the tubes

required. The semiconductor rectifier charges its circuit to peak voltage without load

buffer capacitors. The cathode of electron tubes slowly takes up the operating temperature. The warmer

parts try to deliver the necessary cathode current. This leads to a decrease in cathodic emission. Aging is a

it is the fastest for finishing pipes. As the emission decreases, the distortion increases and the output power decreases. THE

problem prevention: the delayed power supply' (Rádiótechnika 2001/2). This is more

we can also solve it using this method, Rádiótechnika recommends a delay circuit, but I prefer a better quality one

I solved it with a two-circuit switch. After switching on the amplifier, approx. after 30 seconds,

I turn on the anode voltage.

3. Removing the V3 tube. This is a protection tube. I have read from several sources that there is not much

benefit, and only reduces the performance of the amplifier. We don't have much to do here either. Remove V3

wire from the panel. Let's keep it as a reserve.

4. Replacement of the output transformer. The original 100V system amplifier, output transformer is not

makes it possible to connect any sound system. Every speaker should have one

matching transformer, which transforms the voltage to the speaker. They operate on such a principle

100V systems. This made it possible for the signal to reach even over long distances

from the amplifier to the speakers. The new output transformer is suitable for the commonly used (4-16Ohm)

to make for speakers. We can do this based on the description of Radio Technology, if we do not trust our work, then

we can also shop around or even search on the internet to find sellers.

5. The replacement of the new output transformer also includes a new feedback. This is also a simple task. The R25

the original 33kOhm resistor of the resistor is replaced with a 5.6kOhm one, and the original capacitor C10

We will replace the 68pF capacitor with a 390pF one.

6. Replacement of the buffer and the coupling capacitor. Also the amplifier's old, outdated buffer capacitor

worth replacing. We can do this based on the modified circuit diagram. Electrolyte on the panel

we also replace capacitors. It is important that the voltage value of the part to be replaced matches or is greater

be at the original. It is also worth replacing the coupling capacitor in order to get better bass tones. In this

in this case, replace C1, originally 22n, with a 220n (preferably a good quality one).

7. Setting the quiescent current, if it is necessary to replace the final expansion tubes

"Replacing the end pipes is not a very complicated task, because everything is included, even on the amplifier itself.

Its typical problem is that the two tubes are not well balanced, so the anode of one tube glows. Worth pairing

to replace the end pipes with selected pipes. The procedure for adjusting the end pipes can be as follows: Take out the

end pipes, (2 pcs PL509 or PL519), adjust the potentiometer P4 (it is inside, it can only be adjusted with a screwdriver!)

to a position when the maximum voltage around -54V drops off its slider. We can do this off

even with an amplifier, and thus safer. Next, set P3 (located next to P4, also inside only

can be adjusted with a screwdriver) to the center. Let's put the pipes in. Turn on the amplifier. Let's wait until

heats up, while watching to see if the anode of one of the tubes glows, if so, switch it off immediately and

check that P4 and P3 are in the state described. On the front page we find an instrument and

a switch with position I or II. I and II denote the end pipes, namely the instrument

point of view. For pipes with good emission data, the combination of P3 and P4 should be set so that

so that we do not see a difference between the pipes by switching the switch on the instrument. In practice, unfortunately, the

instrument can make people laugh, so it is better to disconnect it and fit a multimeter in its place, and the

setup using this. Of course, once the symmetry has been set, set the P3

working point of tubes with P4. Let's not rush this thing. It's worth waiting a few minutes, because the

working point (especially for new pipes) changes in half an hour, which requires subsequent adjustment. Then a few hours

passed it is worth looking at it again, and again in a few days. Then only every 2-3 months, depending on usage.

If the amplifier is switched on, immediately after the warm-up we hear a strong hum in the speaker (and otherwise

it was going well until then), almost certainly one PL509 is sick or the symmetry of the two

do. This error can also occur while driving. If we don't balance it properly, not just one tube

we destroy, but usually both. If the anode cap is removed from the end pipes while driving

we will probably succeed in destroying the exit!' (www.elektroncso.hu)

Although I didn't see it as important, if someone wants to replace the old bulb switch-on indicator, then a

you can replace it with an additional LED indicator.

It is important to note that very high voltages are present in the amplifier (+460V), operation

in the meantime, don't touch it under any circumstances! After switching off, it is still in the buffer capacitors for a while

tension is present!