Vintage Vox Tune-up Guide, Part II

By Ken Fischer

In last month's issue we covered many Vox models from 4 to 30 watts of output. When the Beatles became popular, Vox developed higher power amplifiers for them to try to compete with thousands of screaming fans. While these fans proved they could make more noise than even the mighty AC100, the result was a line of amps that are powerful even by today's standards. These amps also sounded great as an added bonus!

The first of these amps was the AC50/2, followed later on by the AC50/4. The 100 watt lineup started with "The 80-100 Watt Amplifier," followed by "The 100 Watt Amplifier". Then came the AC100/2. All of the 4 output tube models are known now as AC100 amps. The 80-100 watt amp is a 1963 model. That means in 1963, going by true R.M.S. output, Vox was the first amplifier company of note to break the century mark with a guitar amplifier. In the Beatles first movie, *A Hard Day's Night*, there's a scene where George Harrison leans against a Vox cabinet almost falling backwards as it starts to fall over. That's an AC50/2 cabinet, early version, with two Vox "Bulldogs" and a single midax horn.

The AC50/2

This amp used two EL34 tubes, three ECC83/12AX7/7025 tubes, one 12AU7 tube, and a GZ34/5AR4 rectifier tube. The 12AU7 was selected for the first gain stage of all AC50 and AC100 amps. Often I see a 12AX7 substituted for more gain, but the amps true voice is the 12AU7. This amp has a normal and a brilliant channel.

The AC50/2 uses fixed and cathode bias in combination. One of the few amps to ever combine both types of bias and yet sound good! Because both types of biasing are used, adjusting the bias can be a bit tricky. The factory recommended that the single fixed bias pot be "pre-set" to a certain voltage. Since I've seen different recommendations from the factory, and these were for Sixties British EL34's, I won't give a voltage to use. Let's just say these amps like to run hot, and should be set up by a person who knows these amps inside out.

A little age dating tip... the very early AC50/2 amps had a little neon bulb inside (Hey, it's a Vox!). Besides the main power fuse, the AC50/2 used a fuse in the center tape of the high voltage winding to ground. This internal fuse is a 3/4 amp, also known as 750 MA or .75 amp, fuse. Always use the correct value. In my personal Vox AC50s I used a 1/2 amp fuse, but it blows before you can fill the room with smoke.

The AC50/4

Replace this 5AR4 with silicon diodes, give each individual output tube its own bias pot and you get the /4 model. The big trick here is when you adjust the bias pot for one output tube, it changes the current flow in the other output tube. What this means is you have to adjust both bias pots several times to get the output both in balance and at the proper current levels. OK, I admit it, when I owned a /4 I used just one of the bias pots, connected to both output tubes, and used *matched tubes*. Of course the /4 is a very clean amp, and an unbalanced output by misadjusting the bias was favored by some as a way to get a bit of dirt. Hey! isn't that what 50 watt Marshalls are for?

The 80-100 Watt AC100

This model is one of my all time favorites for a big clean class "A" cathode bias, with no feedback loop sound. four EL34s, two 12AU7/ECC82s, and one ECC83/12AX7/7025 tube. A single channel AC30 top boost blown up to DR-103 Hiwatt power, before there ever was a Hiwatt! The original JMI Vox sound at its loudest. No, the 80-100 would not overdrive into the complex harmonic distortion of an AC30, but if you wanted the Vox sound loud and clean, or needed a Vox tube head for bass, 1963 was a very good year.

Each output tube in this amp had its own separate cathode bias circuit. This amp also had a problem with fire, as in, "Hey my amps on fire, get me an extinguisher — quickly!" If you own one of any of the AC100 Vox models, you'll have this problem. The problem is caused by making the AC100 head cabinet so compact, they actually had to drop the output tube sockets below chassis level so that the output tubes would clear (most of the time and depending on brand) the top of the cabinet when sliding the chassis in or out for service. This ultra compact head left no room for the high heat of 100 watts of class "A" power to escape and thus the amps often reached their flash point.

If you own an AC100, and plan to use it for more than a conversation piece, I'd suggest you take it out of its original cabinet. You can put the original aside for its vintage thing, and have a custom head cabinet made about 2" inches taller and loaded with ventilation. That will reduce the flameout factor to almost zero.

The 100 Watt Amplifier and AC100/2

These two heads are very much the same; the /2 model adding a brimistor to the high voltage supply and the 1 amp H.T. fuse common to all 100 watt Vox amps became a slow blow type. The 100 and AC100/2 used fixed bias and increased voltage to the first gain stage. A bit louder than the 80-100 amp, but a tad less sweet sounding. The tubes were the same: an ECC82/12AU7 first gain stage, a ECC83/12AX7/7025 top boost stage and another EC82/12AU7 as the phase inverter. The four EL34/6CA7 tubes were in fixed bias with the bias voltage set at -35 volts with Zener diodes. These amps run very hot at -35 volts bias, and I often change the bias to -42 volts, especially with the EL34s being built today. *Never* use EL34s from China in these amps as they will melt within hours.

The V125 LGAD Amp

The V125 is not a JMI Vox but is worth talking about. The heads sound pretty good, but their speaker cabinets were awful. The tubes used are:

V1 and V2 - ECC83/12AX7/7025,
V3 - ECC82/12AU7,
V4 - ECC81/12AT7,
V5, V6, V7, V8 - EL34/6CA7.

This amp also uses a 2N3819 transistor on the input of each of its two channels. The V125 has a tube driven, 5-band, rotary control, "graphic" EQ. The EQ ranges are 100HZ, 250HZ, 500HZ, 1600HZ, and 3200HZ. The V125 also has a sensitivity control for gain, a volume, and a master volume control. It doesn't use the classic top boost circuit of the AC30, AC50, or AC100 but relies on its graphic EQ for tone control. It also uses a very un-Vox like feedback circuit using very Fender Blackface values. Still these amps don't sell for much and, while not an AC100, will do very well for many guitarists. Anyway, if anyone is interested in hearing about later Vox tube amps, let me know.

Other Stuff

Does anyone out there own any strange amps from Germany? If you do, please contact me as I'm trying to determine the history and circuit designs of this breed.

I've heard the prototype of a new amp called the "Hound Dog" uses a G5N7 in the preamp and two EL34s. Hound Dog also does repairs and mods. The prototype Hound I heard was a nice sounding amp at a very reasonable price. You can contact the maker, George "Redbone", at (215) 947-0598.

Next issue: Eight new recipes entitled, "Cooking With French Mushrooms".

Ken builds his highly-regarded Trainwreck amplifiers in Colonia, New Jersey.

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