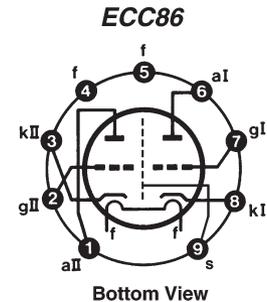
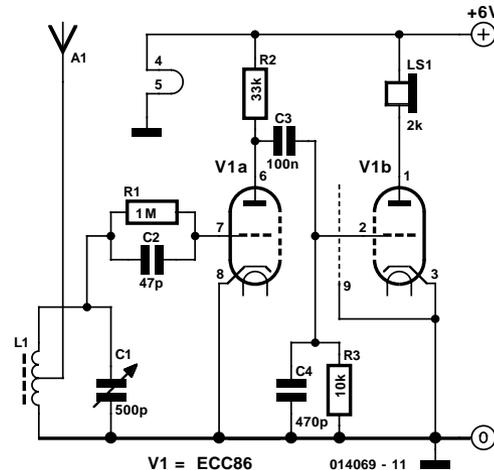


ECC86 Valve Radio

051

B. Kainka

Actually, the age of valves is already past — but valves just refuse to go away! There's many a valve radio still in use, and there are many valves lying in the 'junk box' waiting to be rediscovered. If only we could do without the high voltages! However, there is a valve that can manage with only 6 V — the ECC86. At the beginning of the 1960s, the electronics industry was faced with a problem. The transistor had just been born, so it was finally possible to build car radios without vibrators and large transformers. However, the cut-off frequencies were still too low to allow usable VHF mixer stages to be built using transistors. This meant that a valve had to be used in a transistor circuit. This valve was the ECC86, which was intended to be used for short wave input stages and self-oscillating mixer stages in car receivers powered directly from the car battery. According to the data sheet, an anode voltage of 6.3 V or 12 V may be used. The heater voltage is always 6.3 V. We owe the ECC86 low-voltage valve to this unique bottleneck in the history of electronics technology. Our circuit is a nearly classical valve audion for the medium-wave range. Power is supplied by a 6-V lead-acid gel battery. The circuit is nearly the same as that of a two-stage amplifier. The first stage provides the demodulation and preamplification. The second stage is the audio output amplifier, which directly drives a headphone with an



impedance of 2 kΩ. A 500-pF capacitor between the two stages ensures that RF signals will not be further amplified. Otherwise the valve might easily recall its original intended use and start oscillating in the short-wave range. A ferrite rod with a diameter of 10 mm and a length of 100 mm, with a winding of 50 turns of enamelled copper wire, serves as the aerial.

The radio has a good sound and can receive local signals. In the evening, with a sufficiently long external aerial, it can receive numerous MW stations. It feels just like being back in the good old days.

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