Lab Report: Buzzer Valve Type 2

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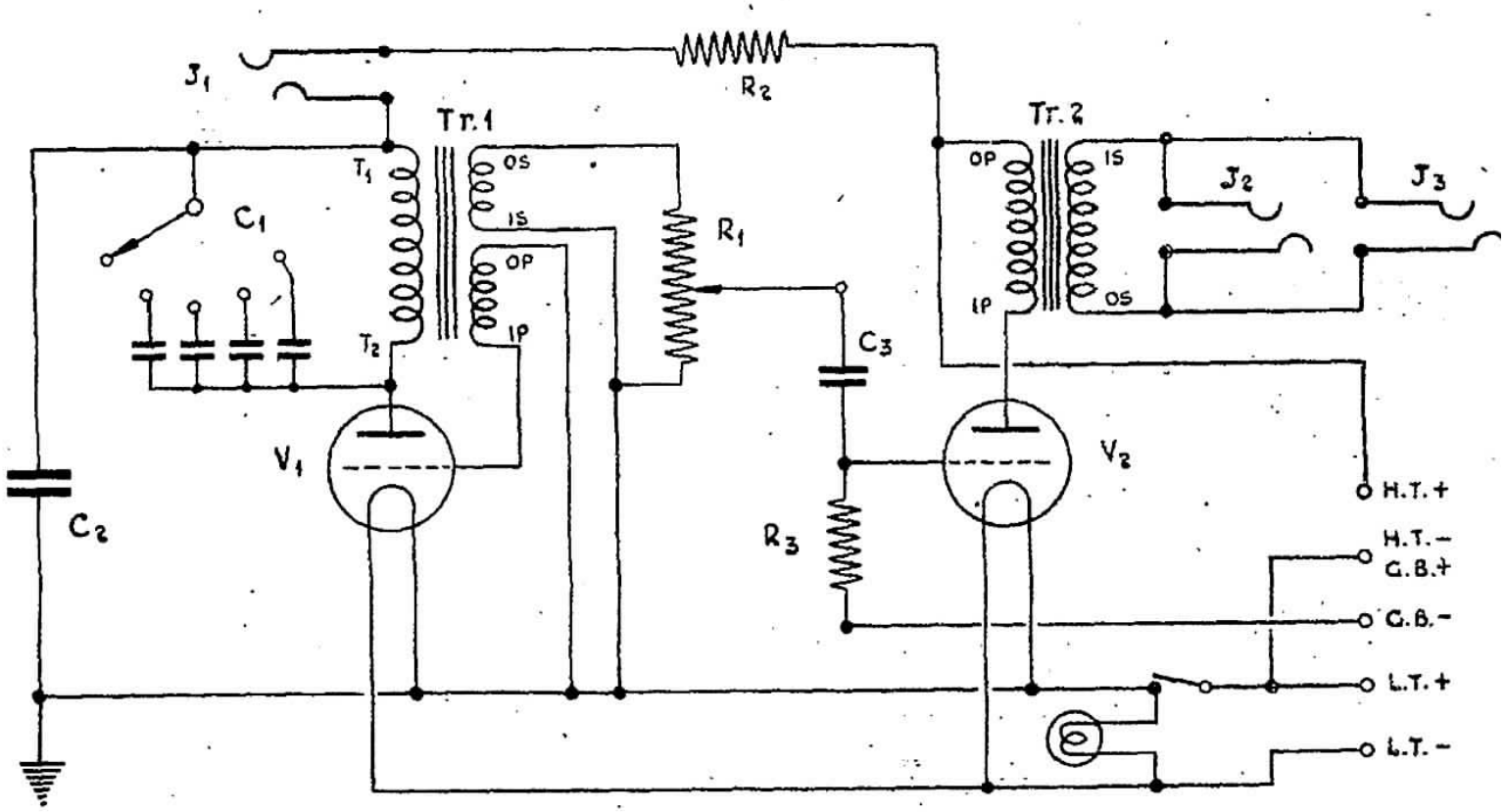
This is a large box containing space for dry batteries and fitted with two valves. It's designed for training in Morse Code and was developed in 1938,



This is the one I bought for a fiver. Actually I bought it for the strap on the box but then looked inside and it seemed quite clean.

There is a PO socket for a Morse key, one for Headphones (20kOhm I expect) and the injection of audio "interference" to confuse the listening student.

PA3ESY has published the Air Ministry Publication AP1186 of 1938. It shows the circuit diagram and key parts.



RESISTANCES (OHMS)		CONDENSERS (μF)	
R_1	50,000	C_1	·001, ·005, ·01, ·02.
R_2	80,000	C_2	0·1
R_3	100,000	C_3	·01

FIG. 1, THEORETICAL CIRCUIT DIAGRAM

They arrived on the surplus market in July 1950:



MORSE OSCILLATORS

"Buzzer Valve Type 2." A morse oscillator of high quality. A five-position switch selects the desired note and a control the output level. A jack is provided for superimposing interference over the CW note.

As new and complete **15/-** *Carr., pkg., 1/6.*

This was an advertisement in *Short Wave Listener*, the equivalent cost today would be about £32.

There is a strap on mine but the finish is not as good as that described in the AP.

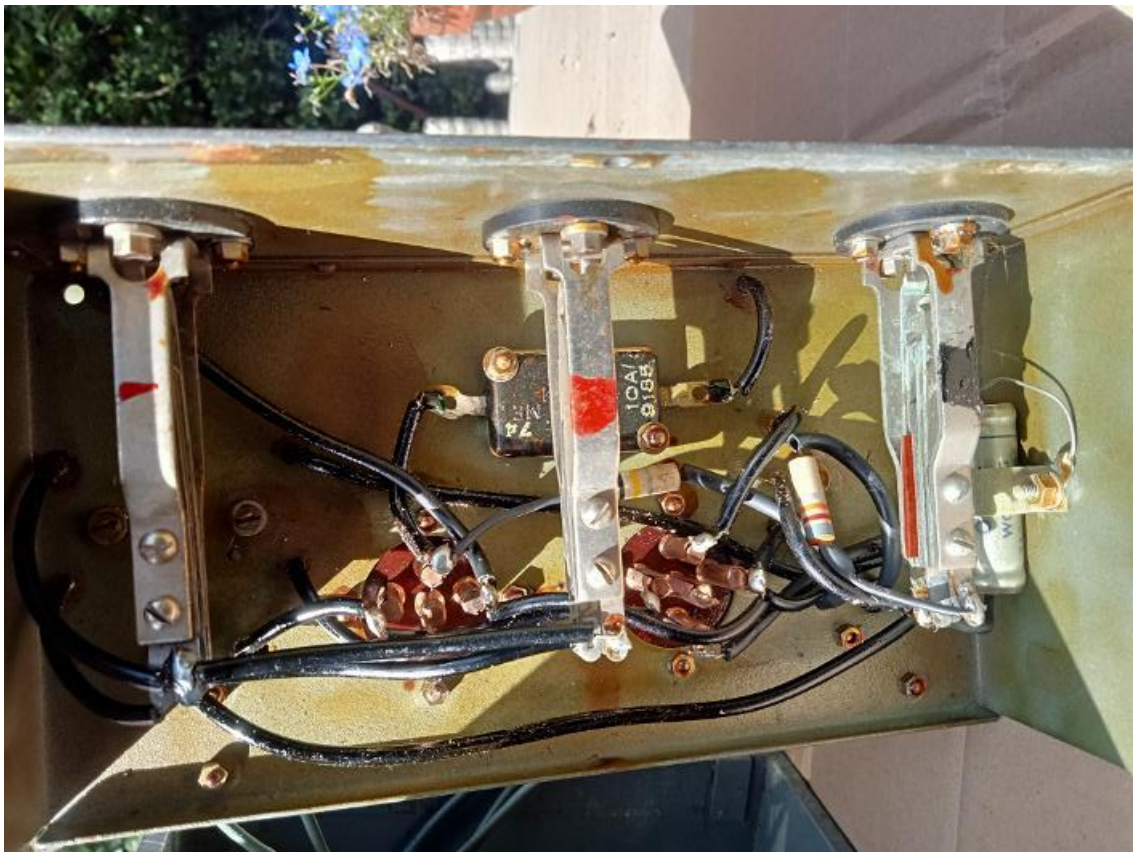
Notably missing on my set is the ruby-red light to the top left.



This is a 15mm diameter bulb, looks almost like a bayonet, but the specification of small bayonet SBC B15 3 volts is unobtainable today.

Inside the box, the two valves are present, and it all looks very clean.




10A

The valves are VR21 and VR22, the latter one was equivalent to the LP2 equivalent used in the Army wireless set WS17.

The circuit diagram shows 5 capacitors which, through the selector switch on the front panel, determine the audio frequency of the oscillator, and therefore the tone. Here they are in my unit at close-up:



I tested them with a meter and none are open circuit. The same is true of the capacitor and resistor of the underneath assembly. Even so, I might have to change them.

Batteries

There are three batteries: LT for the filament, Grid bias, and the HT voltage.

The **LT battery** assumes a 2 volts accumulator at 200 mA. The nearest equivalent I can find is an Alkaline D Cell at 1.5 volts. At that voltage I expect a higher current so will put three D Cells in parallel.

The **GB battery** is for a nominal 4.5 volts so I will place 3 AA batteries in series. Looking at the spec for the valves a voltage drop will still work.

The **HT battery** is 67.5 Volts although the valves could take higher. So, 7 @ 9 volt PP3 batteries in series will provide a nominal 63 volts until they run down.

The indicator bulb

I couldn’t find a bulb for the socket and could have inserted a 2 volt bulb in a new holder, but looking at the circuit diagram it isn’t mission critical.

Fitting the Batteries

Conveniently, in my box the labels identifying GB + and -, HT + and – and LT + and -, were still fitted to the leads, although I did check them.



The battery boxes all fit into the rear compartment of the wooden box. Note there’s what appears to be a safety switch on the right hand side next to the filament batteries.



I created the HT battery and mounted it in the left hand side, and the grid bias batteries from 3 “C” cells.

Does it all Work?



Someone suggested running the heater at low current for about 20 minutes so I did that first

Yes it did – but it has stopped now. The key plug stuck into the “down” position at first and it went straight into oscillation.

While it worked it was very weak. But the different tones were all present (low to the left) and the volume control was effective with an increase when set to max.

I checked the voltages and they were all OK, but I think the valves have now retired and left the stage. I could probably buy them from ebay at a vast sum but remember these are of 1938 vintage.

Anyhow, I now have a load of batteries and boxes for the next project1

73 de Andy G0SFJ

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