

## VZVMN

Country of origin: Finland



Front panel view of the VZVMN, serial number 44.

## DATA SUMMARY

**Organisation:** Finnish Army.**Developer/maker:** Oy Radio E. Hellberg, Helsinki, Finland.**Year of first production:** Late 1944.**Purpose:** Overhearing field telephone communication.**Amplifier:** Three stage AF amplifier with multiple inputs.**Gain:** With new batteries up to 100dB was reported.**Valves:** DF21, 3x.**Power Supply:** Dry batteries; LT 1½V, HT 45V 2x, or 90V.**Size (cm):** Height 41, length 21, width 32.5.**Weight:** 11kg; complete with batteries 17.5kg.**Accessories:** Headphones, spare batteries.

## Acknowledgements:

- Many thanks to Veli-Martti Koivunen for permission to use his photographs of a VZVMN taken at the depository of the Finnish Broadcast Company.

## References:

- WftW Pamphlet series No. 10, 'Listening Stations', L. Meulstee, 2024, free to download at <http://www.wftw.nl/downloads.html>  
 - Wikipedia: [https://fi.wikipedia.org/wiki/Elias\\_Hellberg](https://fi.wikipedia.org/wiki/Elias_Hellberg)



VZVMN serial number 58.

## Remarks

The Finnish VZVMN was a battery-powered audio amplifier developed for overhearing enemy telephone conversations through the earth conduction of single-line or leaky field telephone lines.

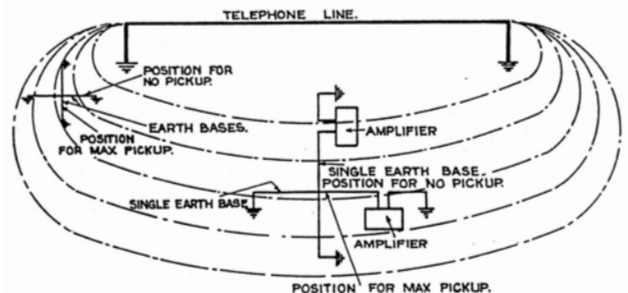
100 units were planned to be produced at Oy Radio E. Hellberg, after the trial model was completed in early winter of 1943. Delays caused by a shortage of materials meant that the amplifiers were not available for the Soviet Union's major offensive in the late summer of 1944. In 1969, 71 units were still recorded in the defence forces' inventory. These were removed in the early 1970s. The VZVMN was a follow-up to an earlier amplifier, the VZVM, manufactured by Radiolaite Oy. It had better specifications, though it was heavier.

[See the free-to-download 'WftW Pamphlet Series No. 10, Listening Stations', for more in-depth historical information on this topic.]

When preparing this WftW Various chapter, no technical details, such as detailed specifications and the circuit diagram of the VZVMN, were found. Since it resembled the German LE35 in some details, its functional block diagram and circuit have been added to page 2.

*Oy Radio E. Hellberg, Helsinki, was founded by Elias Hellberg in 1927, manufacturing broadcast radios before and after WW2.*

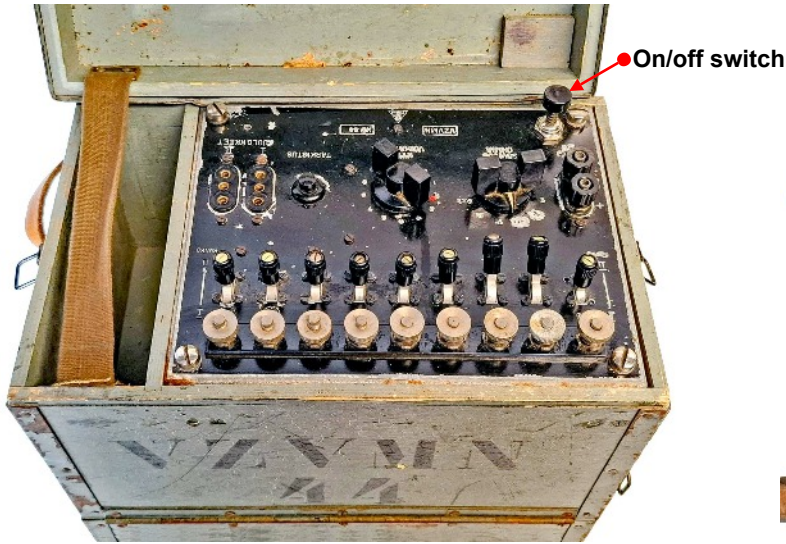
*During WW2, military equipment such as transmitters, receivers, radio location equipment and the VZVMN amplifier were produced. 'Oy' (Osakeyhtiö) means 'Ltd.' (Limited company).*



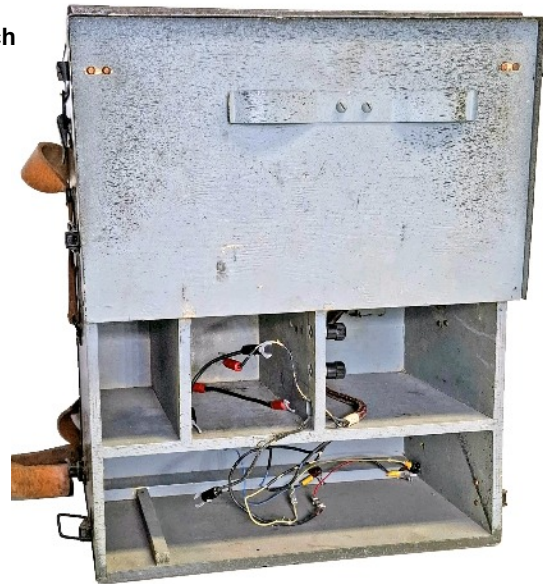
**Diagram showing the path of earth currents or equipotential lines created by a single wire with earth return telephone circuit, and the position of earth bases for maximum and no pickup. It explains the purpose of multiple switched earth bases.**



**Finnish Army operators using a VZVMN at the front line with the Soviet Union. The qualifications for these operators required thorough familiarity with the Russian language and knowledge of the dialect and military expressions, but also the ability to pick out enemy signals through own signals.**



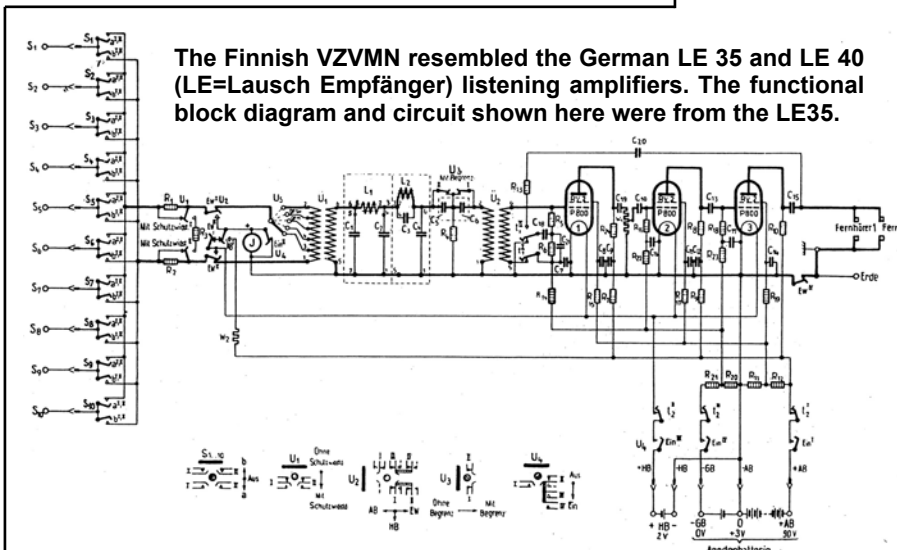
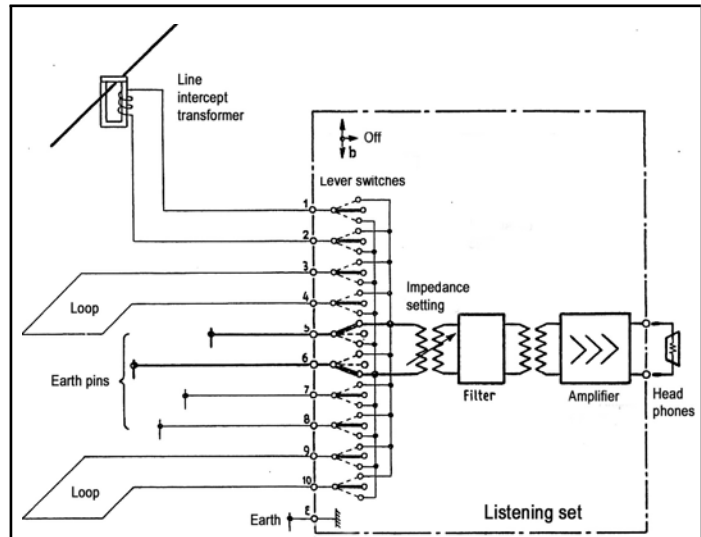
Amplifier VZVMN (s/n 44) as seen from the rear side. The top lid, attached to the case with a canvas strap, had no hinges but had two catches to keep it closed. Note the main on-off switch, which disconnected the batteries when the lid was closed.



The hinged rear lid of the VZVMN amplifier opened, showing the battery and accessories compartments.

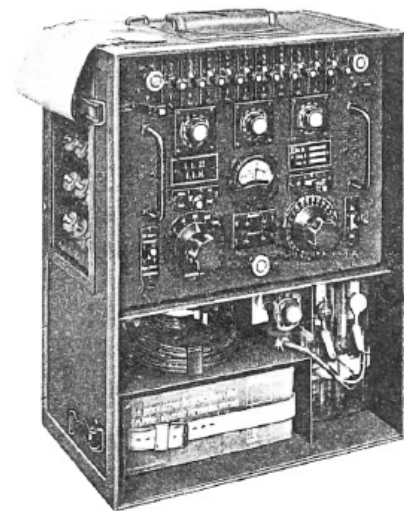


General view of the VZVMN in closed position.



The Finnish VZVMN resembled the German LE 35 and LE 40 (LE=Lausch Empfänger) listening amplifiers. The functional block diagram and circuit shown here were from the LE35.

Circuit diagram of the LE 35 German listening amplifier.



German LE 35 WW2 listening amplifier.