

HF Receiver for Beginner Ham

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The HF Tube Regenerative Receiver is a classical design of the Tube Era. Somebody gave me magazine with the article at the 70s. I did the receiver and got very good result. I have received lots of amateur stations with the receiver. Then the receiver was remade by me in general coverage HF- Receiver. I could receive with great quality forbidden BBC, Voice of America lots broadcasting stations and easy found at those times "Numbers Stations." Design of my receiver was not strictly followed by the article. Later I made several such receivers for 19, 16 and 13- meter broadcasting bands. Some people asked me did it for receiving BBC and Voice of America that were strongly jammed at others broadcasting bands.

However, I have seen (and heard its work) this receiver made strictly according to the article. It was in Kharkov, when I studied at the Radio and Electronics University. The receiver was made at the far 50s and still used at one Ukraine Amateur Station as a backup receiver.

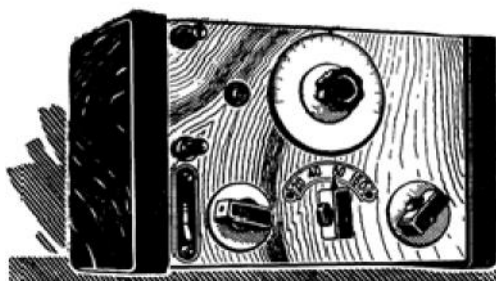
The receiver works well with any types of the tubes. It works good at low voltage, as I remember, 25 Volts was enough for the receiver. Nominals of the resistors and capacitors are not critical. Tolerance in 30- 50% is okay.

Figure 1 shows schematic of the receiver. It is classical regenerative receiver with RF Stage and Separate Audio Amplifier.



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RF Stage (Tube 1) allows use a short wire as antenna. If you would use good long wire you need decrease capacity of the capacitor C5 to 1...- 8- pF. To make general coverage HF Receiver you need use dual variable capacitor to tune input and regenerator inductors. Take attention to the feeding of the heating of the tubes. At the receiver it is used artificial ground to eliminate hum in the phones. Battery operated (or DC – powered) heating would be a good decision.



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Title of the Article

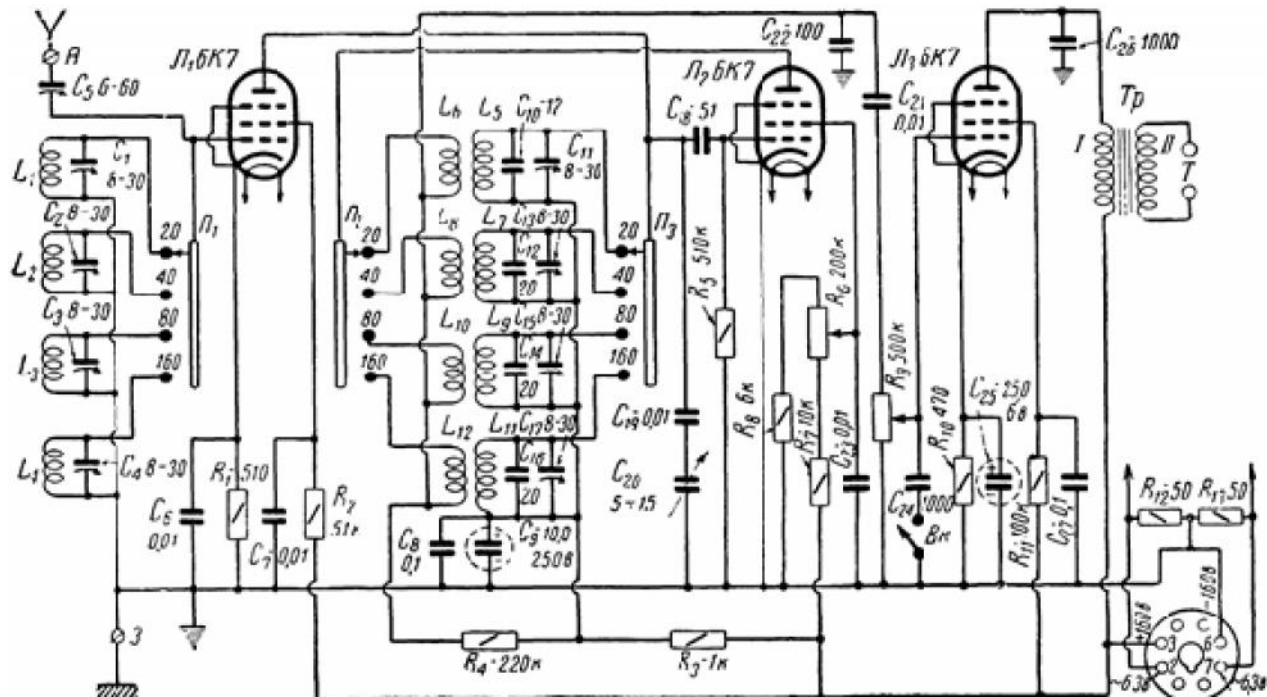


Рис. 1. Принципиальная схема приемника

Figure 1 Schematic Diagram of the HF Receiver for Beginner

Capacitor C20 should be with air dielectric. Vernier of any kind would be useful with the capacitor.

Receiver has potentiometer R9 for audio signal. It is useful part of any regenerative receiver where some signals are at the hearing border but another very loud. Capacitor C24 (with help of a switch) grounded first grid of the audio tube. It is decreased noise in the headphones at CW- reception. Any Audio Transformer from an old tube receiver may be used for the receiver.

Figure 2 shows design of the inductors L1... L12. All inductors were wound on empty gun cartridges in diameter 20- mm. Table 1 shows data for the inductors.

Figure 3 shows design of the receiver. At the top of the inductors trimmer capacitors are installed. It is very conveniently for tuning of the receiver at amateurs bands. Figure 4 shows the trimmer capacitors at top of the inductors.

The receiver is easy to tuning and fun for operation. At good parts and inductors made according to the Table 1 the receiver works straight away and at the frequencies close to amateur bands.



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Picture from 1970s

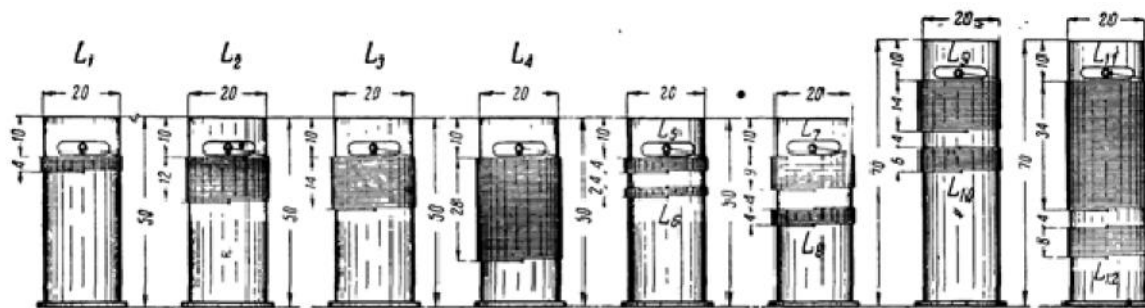


Рис. 2. Эскизы контурных катушек. L_1 содержит 9 витков, а L_2 — 20 витков ПЭЛ 0,5; L_3 — 40 витков, а L_4 — 80 витков ПЭЛ 0,3; L_5 — 9 витков ПЭЛ 0,5; L_6 — 5 витков ПЭЛ 0,3; L_7 — 18 витков ПЭЛ 0,5; L_8 — 14 витков, L_9 — 38 витков, L_{10} — 15 витков, L_{11} — 100 витков и L_{12} — 20 витков ПЭЛ 0,3

Figure 2

Design of the Inductors L1... L12

Table 1 Data for the Inductors.

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
9 turns	20	40	80	9 turns	5	18	14	38	15	100	20
Wire	turns	turns	turns	Wire	turns	turns	turns	turns	turns	turns	turns
0.5-	Wire	Wire	Wire	0.5-	Wire	Wire	Wire	Wire	Wire	Wire	Wire
mm	0.5-	0.3-	0.3-	mm	0.3-	0.5-	0.3-	0.3-	0.3-	0.3-	0.3-
	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm

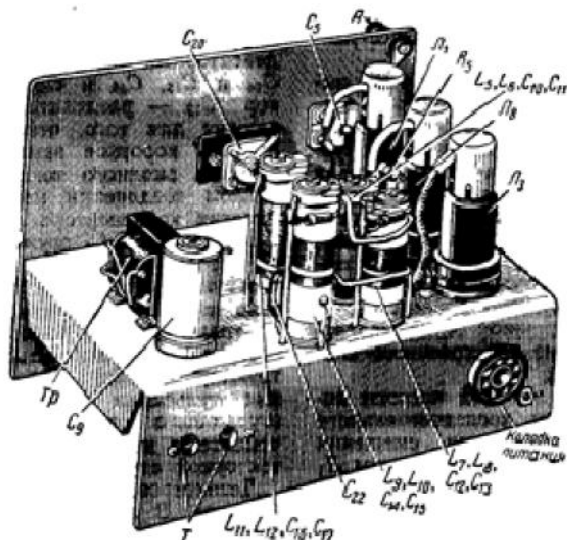


Рис. 4. Вид на шасси приемника сзади

Figure 3 Design of the HF Receiver

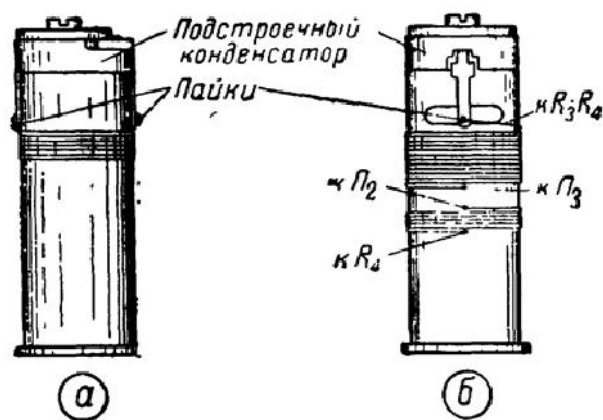


Рис. 3. Общий вид контурных катушек с подстроечными конденсаторами: а — катушек L_1, L_2, L_3, L_4 ; б — остальных катушек

Figure 4 Trimmer Capacitors at Top of the Inductors

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