

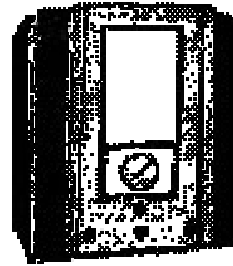
The First Steps (part II)

Vitaliy says us a story about beginning and the First Steps of Russian radio industry

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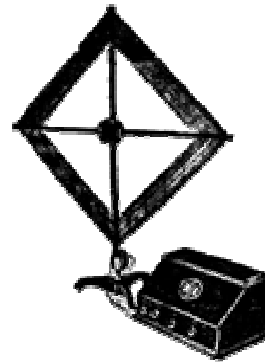
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The first Soviet mass superheterodyne R-set model "**CRL-8**" designed by the Central Radio Laboratory was produced by the Leningrad Kozitsky Works at the end of 1935. On its base the a radiogramophone was created. The set used the tubes SO-182 (RF amp), SO-183 (mixer-oscillator), SO-182 (IF amp), SO-185 (detector-AF amp), SO-118 (AF step II), SO-187 (2 tubes in output "push-pull"), VO-188 (rectifier). It had 4 bands including 2 SW: 17-30 m and 30-60 m.



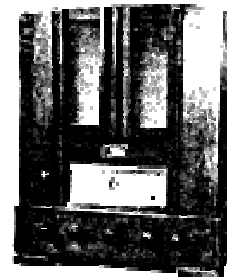
CRL-8

However, attempts to construct a home superheterodyne were made earlier. For instance, as early as 1931 the Kozitsky Works produced some units of 6-tube battery-sourced "super" model "**SG-6**". The set included a loop aerial and worked on tubes of PT-2 type.



SG-6

Soon afterwards the Orjonikidze Works in Moscow commenced output of the "**SI-646**" superheterodyne (AC-net Individual Six-coil Four-tube Model of 1936"). In the first detector a SO-183 tube worked, in IF amp - a SO-182 one. The AF-step was using a SO-187 tube. The set had three quite modern bands - SW of 19-50 m, MW of 200-550 m and LW of 714-2000 m. It had a number of interesting constructive peculiarities. Among them there was a device for fine tuning in the form of an additional round scale with a revolving pointer and a tuning indicator on the base of a shadow galvanometer - "orthoscope". Similar indicators were used in some imported sets of that time ("**Tefag**" etc.). Unfortunately the super "SI-646" was produced only in small lots. Soon after the Kozitsky Works produced its all-band "super" - "**CRL-10K**".



SG-646

Almost simultaneously the Alexandrov Radio Works started production of its famous superheterodynes of first-class series "**SVD**" ("Superheterodyne All-band with a Loudspeaker") using as models the best American receivers of that time. The [RCA radiotrones](#) 6D6, 6A7, 6D6, 6V7, 76, 53, 80 were installed in the set.

in1937(6A8, 6K7, 6F5 - with a connection to the cap of the tube, 6F6, 5C4, 6X6, the 6E5 "magic eye"). The first batches of the this set were equipped with [American tubes](#) produced by the companies "RCA", "Ken-Rad", "Tung-Sol", "Sylvania" etc.

At the beginning of 1938 the "Electrosignal" Works in Voronezh began mass production of none the less notorious radio of those times - the "**6N-1**" (initially spelled "6NG-1": 6-tube Tabletop with a Loudspeaker). It worked using metallic tubes with 6,3 V heating, production of which successfully began in the USSR

Then followed: the "**SVD-M**" using home-made metal tubes, the "**SVD-9**" and "**SVD-10**". They were followed

by the console radio-gramophone **"SVG-K"** (on the base of the "SVD-9" receiver), the receivers models **"9N-4"**, **"10N-15"**, **"5NU-8"**, **"5N-12"**, and the R-gramophone **"D-11"**, **"10MG-16"**. Shortly before the Great Patriotic War (WW2), the following models were constructed: the **"Marshall"**, the **"Pioneer"**(the R-set and the radiogramophone), the **"KIM"**, the **"Orlionok"**, the **"Moskva"** (Factory of Culture Goods of the Rostokin District Industrial Trust), the new outer design of the "6N-1" receiver.

Together with the superheterodynes cheaper receivers of direct amplification models "T-35" and "T-37" were produced by Tula Radio Works. The set "TESD-2" was manufactured by the same works.

During the war the output of home receivers was practically stopped but by the end of the war the working out of new models was resumed. The first set produced at the end of the war was a mass "super" model **"Rekord"** with many later modifications (1, 2). It was turned out by several works. By 1946 mass production of receivers of pre-war models started and many new models followed. Some of them are the **"VEF M-557"**, the **"Moskvich"**(not to be confused with the mass R-set **"Moskvich-B"** of 1949's make), the **"Salyut"**, the **"M-648"**(Moskow Krasin Radio Works), the **"VV-661"**, the **"Riga T-689"** and the cheaper **"Riga T-755"**, the **"Minsk"**, the **"6N-25"**, the **"Vostok 7N-27"**, the **"Ural-47"** (the R-set and the radiogramophone), the **"VEF M-697"**, the **"Baku 6S-47"**, multi-tube the **"Belarus"** and the **"Leningrad"**. With introduction of [2-volt glass direct-heated tubes](#) battery-sourced "supers" the **"4NBS-6"** and **"Rodina"**("Electrosignal" Works in Voronezh) appeared. The modification of the latter the **"Rodina-47"** (**"Electrosignal-3"**) gained a wide popularity. The AC-fed version of this set was produced by the works named **"Electrosignal-2"**.

The first attempt to create a light portable R-set was working out and production of a trial lot of the **"Efeer-48"** produced by the radio works in the town of Alexandrov (Central Russia). It used [direct heating tubes with 1 V filament](#): 1A1P, 1B1P, 1K1P, 2P1P which had appeared by that time. The set looked like a small suitcase weighing 2,5 kG and had a built-in frame aerial. Later the portable models **"Tourist"**, **"Novj"**, **"Dorozhny"** using tubes of the same series became more popular.

Before the war the **"VEF M-1357"** receiver was also constructed. It was a 14-tube(!) device with auto tuning heterodyne, with an expander widening the dynamic range of the sound. It also had a preset tuning. A small lot of such R-sets was produced soon after the war. But it was a simplified version - without preset tuning.

All AC-net receivers produced after the war applied home metallic tubes of rather a high quality or their glass analogs (appeared later). Many receivers are in working condition even now and rather often use originally installed tubes of those times. The mass R-

sets models the **"Moskvich-B"**, **"Minsk S-4"**, and **"ARZ"** were constructed with an economical reflex circuit which by the way showed a good stability.

To make the radios cheaper and reduce their weight universal power- transformerless source was provided in some models (the "Rekord", **"Rekord-47"**, "Leningrader", "Moskvich", "Moskva"). In models the "Moskvich-B", **"Record-52"** and "ARZ" a power autotransformer was installed. For transformerless schemes with series connection of tube filaments the tubes 30C1S, 25P1S, 30P1S with high-tension heating were specially designed. In basic models of few-tube receivers selenium pillars were applied to rectify the anode tension. In further modifications they were, as a rule, substituted for the vacuum rectifiers because of instability of the selenium ones which were produced then (the "Moskvich-B", "ARZ").

In those years fixed tuning to prechosen R-stations was applied not only in expensive sets (the "Belarus", "Leningrad") but also in mass ones (the "Moskva", "Leningrader"). As material for making cabinets apart from wood bakelite was used (the "Moskvich-B" and later the **"Ogonyok"**, **"Strela"**, **"Zarya"**, **"Riga-6"**) as well as metal (the "ARZ", "Riga T-755", later the **"Zvezda-54"**).

Perhaps the biggest achievement of the home tube radio industry of the USSR of those days became the high-grade radiogramophone "Riga" put out by the "Radiotekhnika" works in Riga. This apparatus absorbed all theoretic and practical achievements in the field of home radio of that period. The set was placed in a console of 1,3x0,5x1,0 m and consisted of a gramophone block with an auto 10-disk changer and an electronic block on 21 tubes. The characteristics of the set were considered very high which was ensured by the following schematic peculiarities: a complex speaker system of 3 woofers and a horn tweeter, a powerful push-pull output step using 2x2 6P3S (6L6) tubes, a deep tone control with bass boost system, wide range three-coil IF transformers with auto changing the range according to the level of incoming signal, a supereffective automatic gain control system, a noiseless tuning block. However, this "monster" did not go into mass production and existed only in several units. One of them is exposed at the Polytechnical Museum in Moscow. It is interesting to note that a mixed variety of tubes was applied in the receiver's scheme. For instance, in the IF-tract "old" 6K7 tubes were installed, but the oscillator was assembled on a Noval-penthode - 6G3P. All the rest are octal tubes quite usual in those years.

The further development of home radio industry was connected with improvement of technical characteristics and technology of production of R-sets. But it were the first years after the war which laid a foundation of diversity of models and makes of the Soviet tube R-receivers reflected in the [virtual exposition of <http://oldradio.onego.ru/>](#)