

"Churchilka" Beat Nazis

ON the outbreak of World War II the Germans forbade all residents of Czechoslovakia to listen to foreign broadcasts. If anyone was caught, he was punished severely. Threats and warnings not being effective, the Nazis confiscated all broadcast receivers in many Czech and Moravian districts, as the influence of foreign broadcasting increased.

On the other hand, they wished the inhabitants of the so-called Protectorate of Moravia and Bohemia to listen to their own propaganda. Since listening to Allied stations was possible in many cases only on short waves, all short-wave circuits were taken off the receivers about the beginning of 1943. The short-wave inductors were removed and the corresponding connecting circuits opened or short-circuited.

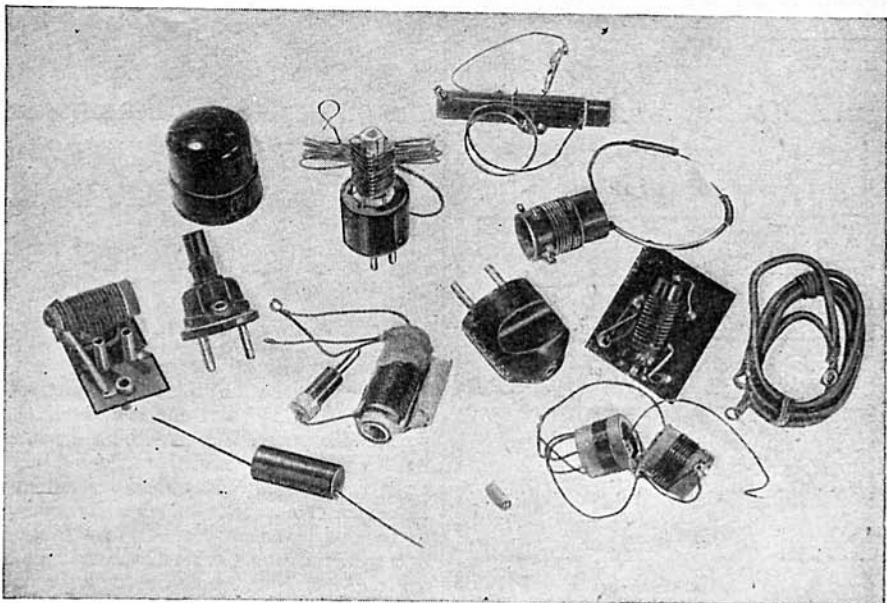
This drastic action had little effect. All who were versed in the construction of radios (Czechoslovakia has a large number of amateurs in proportion to the number of its inhabitants) tried to replace the removed short-wave circuits in various inconspicuous ways. Short-wave resonant circuits were plugged into the phono pickup jack or directly onto the grid of the detector tube. The inductors themselves occasionally were transmission lines (i.e., pieces of ordinary double line-cord) or were mounted

inside condenser cans, line plugs, or dummy tubes.

The most interesting solution, which practically cancelled the Germans' efforts, was almost universally used in superheterodyne receivers. Since all of the ordinary oscillators in most superheterodynes produce a number of har-

monics, reaching into the short-wave frequencies, it was sufficient to insert a substitute inductor between the grid of the first detector and ground. This inductor resonated the input circuit in the short-wave bands and made it possible to receive most of the strong signals

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The Model KT-30 Channel-Analyzer is battery operated, therefore, it is always ready for instant use. A flip of the front panel switch and you are ready to follow the signal from antenna to speaker through all stages with the aid of the sensitive detector Probe. A high-pass filter contained in the Probe "cuts off" at 300 Cycles thus allowing a signal with a super-imposed 60 or 120 Cycle hum to be heard.

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The Model KT-30 Channel-Analyzer comes complete with detector probe, test leads, self-contained batteries and earphone. Comes housed in heavy-gauge crystalline cabinet

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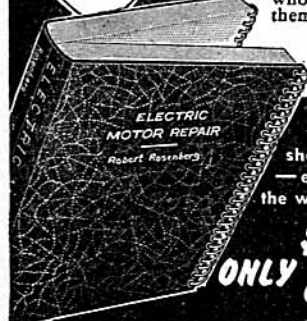
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ELECTRONIC COUNTING

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light through a green filter to second phototube. Output of each phototube is then amplified and applied to one of two pairs of deflection plates of an electrostatic cathode-ray tube. The degree to which the beam is deflected in either horizontal or vertical direction is determined by the respective amounts of red and green light reaching the phototubes. Output of either phototube is strongly influenced when a sub-

standard beam is examined by the optical system, which in turn affects the sweep of the electron beam so that no image is seen on the face of scope. A third phototube, located close to the screen of the cathode-ray tube, is actuated *only* when no image is apparent on the screen. In turn, this phototube operates a mechanical apparatus which quickly rejects the bad beam. At all other times—presence of an image on the screen prevents the third phototube from operating.

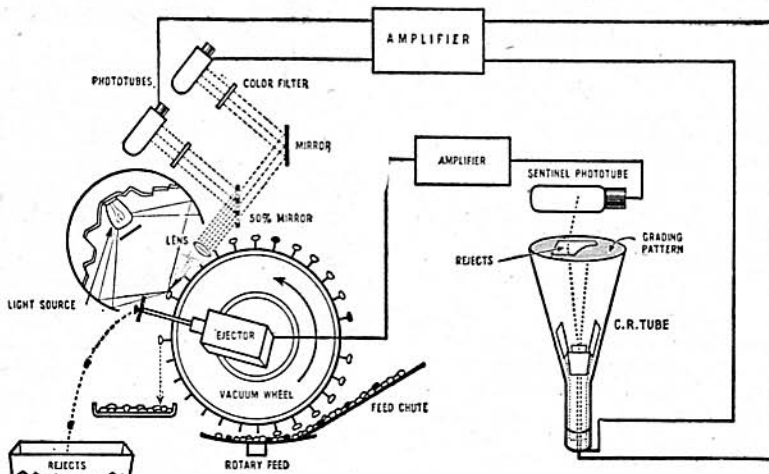


Fig. 6—Simplified diagram of the RCA electronic beam sorter, showing phototube mechanism.

"CHURCHILKA" BEAT NAZIS

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from British, American, French, and Soviet short-wave broadcast stations.

These supplementary inductors, similar to standard short-wave inductors, masked in many ways and provided with convenient clips or connectors, have been called "churchilka" after Churchill.

The photographs will give you an idea of "churchilka" construction and what it looks like. It was a celebrated circuit, as the Czech people wished to be

well informed about all the events of the war. This invention rendered useless practically the whole German effort. The clever camouflage of some of these little instruments provides an interesting note on the resourcefulness of the Czech people, as well as their stubborn opposition to the dictates of the forces who occupied their country.

From a letter by M. Pacak, Chief Editor of *Radioamater* (Prahá, Czechoslovakia), referring to the photographs in *Radioamater* which are reproduced here.

