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Giblin 6-Tube R. F. Circuit

Works on Loop Specially Designed for DX Reception
With Loud Speaker Volume

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Eventually the outdoor antenna will be a thing of the past. This is not the writer's opinion but a forecast of leading authorities. During a conversation with Major Armstrong some time ago he stated that within a few years the reciver using a loop antenna will be more in evidence than the present receiver using the outdoor antenna.

The receiver illustrated on this page was designed by Thomas P. Giblin of the Standard Radio & Electric Company for the loop reception. It is particularly suited to one who cannot erect an antenna, but desire distance reception with a loop. The parts used in this receiver ar as follows:

1 Giblin Loop.
1 .005 mfd. Variable condenser.
6 Tubes.
6 Sockets.
1 Potentiometer.
2 Rheostats.
2 Giblin radio frequency transformers.
3 Audio frequency transformers.
1 Grid condenser.
1 Grid leak.
1 .0005 mfd. Fixed condenser.
1 A battery.
2 22 ½ volt B batteries.
1 C battery.

The loop used with this receiver is of special design. An illustration of the loop will be found on this page. It is fifty-two inches high, twenty-four and one-half inches wide and six and one-half inches deep. It is wound with 120 feet of braided enameled wire, making a total of 12 turns. The wires are wound horizontally instead of vertically as is the practice with the pancake loop. This method of winding makes it possible to eceive more signal energy. A .0005 mfd. variable condenser (C1) tunes the loop and it is connected directly across the loop. Leads are brought from the variable condenser to the grid and the arm of the potentiometer (P).

It is wise to connect the stationary plates of the variable condenser to the grid and the movable plates to the arm of the potentiometer. The ends of the potentiometer are connected across the A battery leads. There is also a lead taken off the potentiometer to the G terminal of the first Radio Frequency Transformer (RF1). All of the terminals marked P on the transformers are connected to the plates of the tubes and all of the terminals marked G on the transformers except the readio frequency transformer (RF2) are connected to the grids of the tubes. The G terminal of transformer (RF2) is connected to the grid condenser (C2) and then the other side of the grid condenser is connected to the grid of the tube. The grid condenser should have a capacity of .00025 mfd. Note that the grid

leak is not connected across the grid condenser but is connected from the grid of the tube to the negative said of the filament.

A fixed condenser (C3) is connected across the grid and plate of the fourth tube. The capacity of this condenser .0005 mfd. and all of the condensors used in the circuit should be of the mica type to secure the best results. The Giblin audio frequency transformers are of the air core type but they have been designed to cover a wave length band from 250 to 550 meters. It is these transformers that make long distance reception with the loop a possibility. The audio frequency transformers should be of the low ratio type to avoid distortion. Three audio frequency transformers are needed. They are AF1, AF2 and AF3. A C battery is used with this receiver. In the illustration of the rear of the set the C battery is located in the lower left hand corner. The negative side of the C battery is connected to the F terminals on the three audio frequency transformers. The negative side of the C battery is connected to the negative filament leads.

A potential of 45 volts supplies the plates of the amplifier tubes. For thie B battery voltage the C battery should have a potential of 1 volt. Higher B battery voltages are not recommended unless the C battery voltage is also increased, as outlined in the article on the "Late of Your Tubes" in this section today. The detector receives 22 ½ volts as usual. Two rheostats are used. Rheostat R1 controls all of the amplifier tubes and rheostat R3 controls the detector tubes. It is recommended that 201A tubes be used throughout the receiver. In the case the resistance of the rheostat R1 should be 6 ohms and the resistance of R3 should be 15 ohms. The resistance of the potentiometer (P) can either be 200 or 400 ohms. Finer regulation is obtained with the 400-ohm potentiometer. However, the 200-ohm potentiometer can be used successfully . The variable condenser should be of the low loss type to obtain sharper tuning.

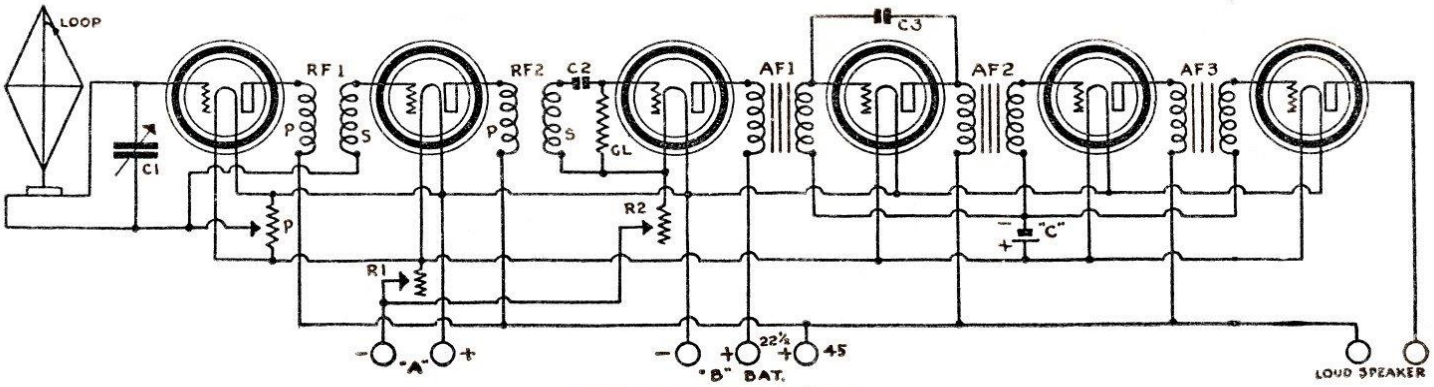
The A battery should be in the form of a storage battery. Any standard six volt storage battery ill give satisfactory results. The B battery should be two 22 ½ volt blocks or can be a 45 volt blocks with a 22 ½ volt tap.

The operation of the set is not difficult. The two main controls are the variable condenser and potentiometer. To start operating the set proceed as follows: Turn the point of the stabilizer in a counter clockwise direction as far as it can go, then turn the rheostat controlling the amplifier tubes in a clockwise direction to a point three-fourths of the way around. At this time five tubes should be lighted, the first two from the left and the last two from the right. Insert the phones or the loud speaker into the jack or the loud speaker binding posts. Turn the rheostat controlling the detector in a clockwise direction to a point until you hear a pronounced hiss or frying noise. When you hear this hiss turn up rheostat back very slightly until the hiss just disappears.

To tune in the station turn the stabilizer or potentiometer in s clockwise direction about three-fourths of the way around. Then turn the variable condenser very slowly. If stations are broadcasting you will hear their carrier wave whistle at various points as the condenser is rotated. There is a neutral point in this whistle where the speech and music will be heard. When you hear the voice or music retard the potentiometer very slowly until the station come in loud and clear.

After the station has been tuned in move the loop very slightly until you reach a point where the signals coming in very loudly. Make note of these dial settings and use these settings when tuning the set again.

Under test the Giblin receiver performed well with the loop as a five-tube set using an outdoor antenna. Distant stations were brought in with ease and the volume was sufficient to operate a loud speaker.



Schematic Diagram of Circuit.