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Radio

Goodreau Answers Questions About His Famous Circuit

By W. FRANCIS GOODREAU

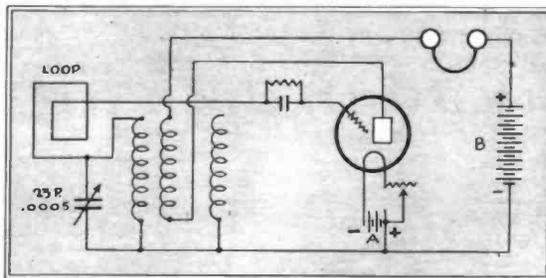
SINCE the publication in the January issue of the article, “An Ideal Circuit for the Ducon Plug,” I have been swamped with letters from interested radio fans from all over the country. This has pleased me very much, and I am glad to know that this little circuit has appealed to you so strongly.

Many of you have received personal replies to the questions asked in your letters; the rest I could not answer because I could not spare the time to do so. However, your editor said I might answer all your questions in this article, and so I hope you will pardon me for not writing each of you a personal letter.

The most important question, judging from the letters received, seems to be, “Can this set be used with more tubes?” Yes, this set can be used with one or more tubes, provided that these additional tubes are used for audio and not radio amplification. I have had little success in combining radio frequency amplification with this circuit, and so would not advise its use. No special audio unit is needed with this circuit, any standard unit will do, and for best results you should make sure that there is a phone

distance range of any set will be, as that depends on many different things. Location of antenna, skill of operator, etc., all affect the range of the set. The Goodreau Circuit on one tube, using antenna or ground alone, will equal any standard set using antenna and ground, provided that this standard set uses the same type of tube, the same antenna, in the same location. It will operate well on antenna or ground alone. I prefer whenever possible to use an antenna or Ducon plug.

Many, in fact most of you, have asked that I describe my personal receiving set, so I will do so. At present I am using three tubes in my set, a UV 200 as a detector and two UV 201 A tubes as audio amplifiers. The circuit is the one described in the article published in the January issue of this magazine. I am using a Kellogg variometer, vernier condenser, Percent 30 ohm rheostats, Bestone sockets, all-American audio transformers. A Dubilier micadon phone condenser capacity .002 mf. is across the primary of the first transformer. The ratio of the audio transformers is 5 to 1. The panel I am using is Radion Muhogantite and the size is 7x18x3-16. The binding posts I use are Eby. The



Goodreau circuit as used for loop reception. For best results a two-stage audio amplifier should be added. This should be connected in place of phones. Loop and antenna may be used together for more selective tuning.

condenser across the primary of the first transformer. This should be a Dubilier Micadon and the capacity should be .001 or .002 mf. Used with one or two additional tubes, the Goodreau Circuit will give very good volume on a loud speaker. The Goodreau Circuit using one tube will not give good results on a loud speaker unless one or two audio units are added.

Any standard tube may be used in this circuit. As stated in the article in the January issue, the UV 200 tube is the best to use as a detector. UV 201 A, UV 199, WD 12, WD 11, etc., are also satisfactory, though they do not equal the UV 200. The plate and filament voltages of the tubes are as follows:

TYPE	FILAMENT
UV 200	6 volts
UV 201 A	Not over 6 V.
UV 199	Not over 3 V.
WD 11—WD 12	Not over 1½ V.

PLATE
Not over 22½ volts
45 volts
45 volts
45 volts

I find that this set works best with low plate voltage.

It is impossible to state what the

dials are the well-known Sommerville 4 in. silver finished dials. I am using 16½ volts on my detector tube and 90 volts on the two amplifiers. I am also using a “C” battery on the grids of both amplifying tubes. This saves the B battery and gives loud, clear signals without distortion. My loud speaker is the well-known Magnavox type R2.

I am using a Ducon plug as my antenna. With an outdoor antenna, it can be of any length up to one hundred feet. I prefer one about seventy-five feet long and about thirty or more feet high.

Many of you have written about there being a difference in the wiring diagram and the wiring in the pictures given. Always follow the wiring diagram when making a new set. The pictures are given for the purpose of showing you how to place the parts for best results, and the wiring should be disregarded. It is almost impossible to trace a complete circuit by following a picture.

Any standard variometer can be made into a split variometer provided you understand how variometers are made and can separate the windings without causing the wire to become loose on the stator or rotor of the va-

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Goodreau Answers Questions About His Famous Circuit

(Continued From Page 26)

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riometer. I advise the purchase of the Kellogg variometer if you do not think it safe to try to split the variometer you may have on hand. If you cannot secure the Kellogg variometer I suggest that you write direct to the Kellogg people for one and mention to them the fact that you wish to use it in the Goodreau Circuit as published in *Radio in the Home*. This also applies to any other part you are unable to secure from your local dealer.

Because of the fact that this set uses no radio frequency amplification it will not cover long distances on a loop. Used with a UV 200 tube as a detector and two UV 201 A tubes as audio amplifiers, it will operate a loud speaker on local stations and will receive up to about six hundred miles on head phones. The circuit will have to be changed a little for use with a loop. Disconnect one wire from the grid condenser on the side away from the socket and to this connect one side of the loop, the other side of the loop is now connected to the wire you removed from the grid condenser. See the diagram with this article.

Of the hundreds who have written to me regarding this set, only two complained of body capacity. I do not have any trouble from this source with my set because it is operated correctly. If you have trouble from body capacity decrease the amount of filament energy by turning down your detector rheostat.

Those who have built this set report good results with one or two exceptions. If you built this set and you are sure it is hooked up O. K. do not blame the set if you do not hear a thousand miles the first hour you operate it. While this set is very simple, you must learn to tune it as you would any other set, and when you have learned the fine art of tuning this receiver you will be more than pleased with the results.

This receiver was designed for broadcast reception only and the wave length range is not great enough to be used for the reception of commercial signals. Its range when used with an outdoor antenna about one hundred feet long will not be over 650 meters. This will enable you to receive ship stations, but that is all.

The greatest distance I have received on this set, using two stages of audio amplification on a good outdoor antenna, was station WBAF, located at Fort Worth, Texas, which is over two thousand miles from my home in Providence, R. I. This was received on the head phones, not on the loud speaker. I use Western Electric phones, Type 509W.

On the loud speaker I have received many stations as far West as Chicago. Some of these are KDKA, WGR, WSAI, WWJ, WTAM, KYW, WJAZ, WDAP. All of these stations could be heard all over an average sized room. Chicago stations come in very loud in Providence and so does KDKA. This station very often sounds like a local one because it comes in so well.

Now you do not have to use the parts that were given in the article in the January issue of this magazine, but those given will give very good results, and if you wish to purchase all the parts for this set, I strongly advise that you use the parts listed. If you already have a good vernier variable condenser of .0005 mf. and wish to use it, you may do so and obtain good results, but it must be a real high-class condenser. A poor condenser will spoil the best receiving set made.

I have used all of the receiving tubes made by the Radio Corporation of America in this set and find the results to be very good when using the dry-cell tubes. When used as a portable set I prefer UV199 tubes, but when used as a receiver in the home I prefer the UV200, and next to that the WD12. This tube is one I value next to the UV200 because a great deal of my long-distance reception has been accomplished while using this tube. Judging from letters received, suggestions regarding tuning seem to be in great demand, so perhaps a few hints will help you to secure the best results with this set. If, when you are tuning in a station and turn down the rheostat in order to clear the signal, you find that it clears with a snap, this means that you are using too much plate voltage. Keep the plate voltage as low as possible on the detector tube. If you are using audio amplification, the voltage on the amplifier can be whatever amount the maker states is the proper voltage to use on the tubes. When tuning in a distant station I operate my set in the following manner: First, I turn on the rheostat almost all the way, turn variometer dial until sharp “click” is heard, then rotate condenser dial very slowly about ten degrees. If no whistles are heard I advance variometer dial again until “click” is heard, then I advance condenser dial again about ten degrees more. I do this until I hear a whistle, or until I have covered the tuner dial. If I do hear a whistle at any point on the dial I adjust both dials until the whistle is loudest, then I decrease the amount of filament energy by turning down the rheostat slowly. This usually makes the whistle still louder and when I get it as loud as possible I turn back the variometer dial very slowly, which usually clears the whistle and brings in the station.

Perhaps a few extracts from some of the letters received will interest you. A lawyer in Maryland writes, “I hooked up the set described in an article in *Radio in the Home*” for January, and inside of one hour had heard the following stations, KDKA, WHAZ, WSB, and the Northern Electric Co. station at Montreal, Canada. This was done while using a ground connection only.”

A Texas man writes, “Finished hooking up your set as described in the magazine *Radio in the Home*” at 11 P. M. last evening, and at 11:10 P. M. was listening to WSAI in Cincinnati, Ohio. During the next hour or so had heard KSD, St. Louis, Mo. (for the first time), etc. I consider this a remarkable little set.”

So it goes; satisfied radio fans all over the country are getting good results, and hearing stations they have never heard before. Many are using the same parts used in former sets and seem quite surprised that they can increase the range by merely changing a few wires.

And now let me say to all of you who have written to me, that I am very glad that you like this set, and I thank you one and all for writing. To those who have written regarding other circuits, and on matters not connected with this particular circuit, I wish to say that I am sorry I am unable to cover the things you wish in this article, but if you write to the Editor of this magazine, telling him what you desire to see in *Radio in the Home* I am quite sure he will be willing to secure for you the information desired.

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