

RADIO AGE

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Layout and Drilling for Reinartz Tuner with Amplification

By F. D. PEARNE

SO MANY of our readers have requested information regarding the layout of panels for the Reinartz tuner that we are giving full instructions for same in this issue. Many different arrangements have been shown in various magazines and papers, some of which work out and some do not. This layout is the standard arrangement, designed by the writer and used on more than one hundred sets that have been built under his supervision, so that there is no question about how it will work out.

The panel should be made of bakelite, or hard rubber, 18 inches long, 8 inches wide, and 3-16 of an inch thick. While this arrangement provides for the tuner and one stage of radio and one stage of audio frequency, or the tuner and two stages of audio frequency, as desired, it can also be used for the

tuner only, leaving the other two stages blank, until the builder wishes to add to the set.

The primary idea is to furnish space for the entire combination in a condensed form, which may be added to later on. The holes on the extreme ends of the panel are to be used for the binding posts. The two at the top of the left hand end are for the aerial and ground, while the two at the bottom of the left hand end are used for the positive and negative of the "A" battery. The three binding posts at the right end of the panel, at the top, are used for the terminals of the "B" battery, the top one being connected to the negative, the center one to the 22 1-2 volt positive, and the lower one to the 45 volt positive.

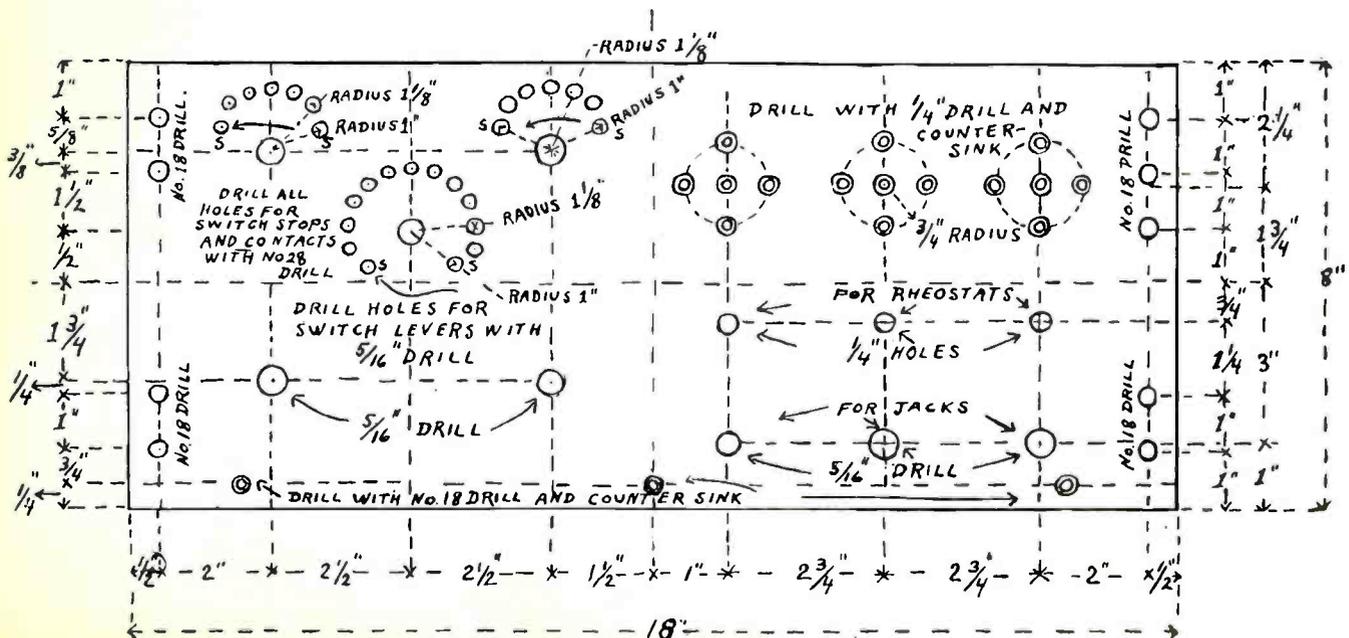
The two lower posts on the right hand end are used for a loud speaker connection, or for an extra set of

head phones. In drilling the holes for the switch contacts, the radius is given as 1 1-8 inches. This of course provides for switch levers of this length which is standard, but as there are several other standard sizes, it would be well to purchase the switches first, as it may be possible that the dealer may not have this size in stock and it might be necessary to use a different radius to fit the particular switch lever obtained.

It will also be noticed that two of the holes in each switch layout are marked "S." These particular holes are to be used for the stops for the switch lever and should be set in towards the center slightly, otherwise the switch lever will pass them and they will be of no use. For this reason it will be noted that the radius for these stops is given as

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PANEL FOR REINARTZ TUNER WITH 2 STAGES OF AMPLIFICATION,



Another Good W-D-II Vacuum Tube Circuit

By F. D. PEARNE

THE simple W-D-11 vacuum tube circuit shown herewith is well adapted to fit the modest means of the amateur who desires to build an inexpensive set and still get good results. This outfit when used on an aerial of from 100 to 150 feet in length will bring in long distance stations very nicely.

Variometer Inductance.

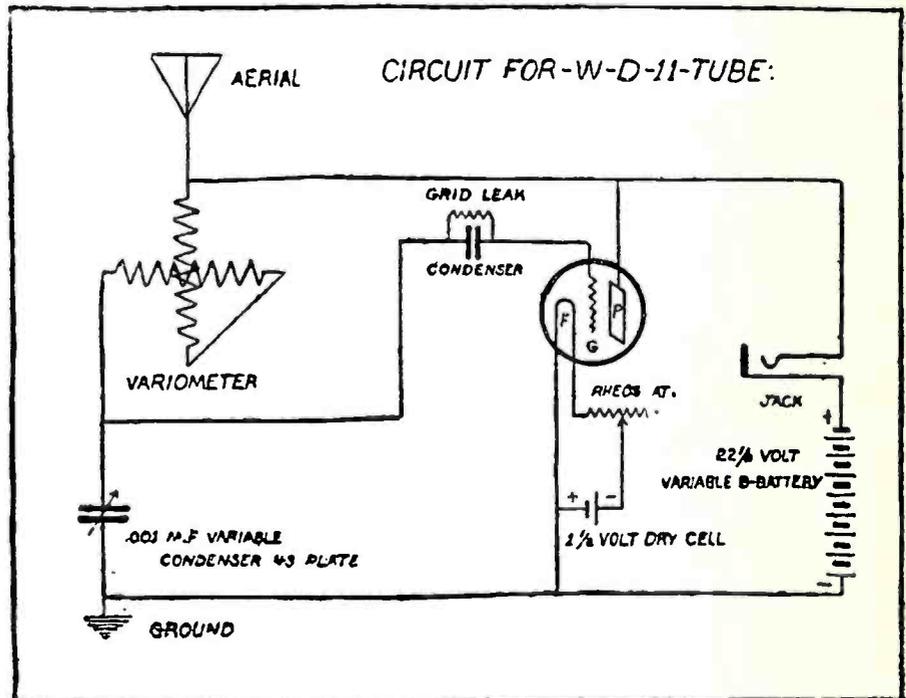
The inductance used in this case is obtained from an ordinary variometer which makes possible a very fine tuning from zero to the maximum capacity of the coils. The circuit is somewhat different from the other standard circuits, in that the variometer is connected between the plate and the grid. A 43 plate variable condenser is placed between the grid circuit and the ground. This combination arranged as shown in the drawing makes it possible to get very close tuning and is especially valuable in clearing up interference. The plate battery is the ordinary standard 22 1-2 volt battery which is usually found to be a little high for the proper working of the W-D-11 tube, so when purchasing this battery, be sure to get one which is tapped at different points, so that any voltage from 16 to 22 1-2 may be obtained as these tube characteristics vary considerably, and the pressure which is right for one tube is wrong for another.

It is very important that the plate voltage be just exactly right for the particular tube used. The grid leak and condenser shown in the drawing are the standard units used on most sets and can be found in any radio supply store, but if one wants to be a little more accurate, he can use a variable grid leak and variable condenser for this purpose. The variable condenser, however, is not so important as the variable grid leak.

The circuit shows a spring jack inserted between the "B" battery and the plate, so that a plug may be used for connecting and disconnecting the head phones. Many users of this circuit have used a filament control jack instead of the plain two way jack shown in the drawing. This is a very good thing to do as it is an assurance that the battery will not be left connected to the filament when the set is not in use.

Amplification.

The ordinary one or two step amplifier may be used in conjunction with this set, or by changing the sockets to fit W-D-11 tubes the amplifier, as well as the tuner, may be operated on 1 1-2 volts, thereby doing away with the storage battery, used on the ordinary amplifier. If W-D-11 tubes are used on the amplifier, one dry cell should be used for each tube inserted in the circuit. These cells should be connected in parallel, however, and not in series. This



means that all the carbon terminals of the three batteries should be connected together and all the zinc terminals together, using the group of three cells as one battery. In this manner the volume of the current is increased three times, while the voltage remains at 1 1-2. If the batteries are connected in series, the tubes will be instantly burned out, so great care should be used to see that the batteries are correctly connected.

Reinartz Tuner

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1 inch, which will bring them in far enough to make an efficient stop.

These contact points are to be spaced three-eighths of an inch apart, starting from the center one on each switch and spacing off with a lead pencil compass. Do not use dividers, as a slight slip will put an ugly mark on the polished surface of the panel, which cannot be erased.

The size of the holes given to accommodate the switch lever bearings is 5-16 of an inch. This is the size of most of them now on the market, but if one contemplates using some special make then the size should be changed accordingly. The two 5-16 inch holes shown below the switches are to be used for the shafts of the two condensers which are mounted directly behind them. The holes for the supporting screws of these condensers are not

shown for the reason that they are not all alike and the builder will have to locate these himself, after he decides what make of condenser he is going to use.

The three countersunk holes at the bottom of the panel are to be used for fastening a baseboard to the back of the panel, to support the coil, sockets, transformers, etc. This base board should be just long enough to fit in the cabinet (if one is used), about 8 inches wide and 1-2 inch thick, and should be of hard wood if possible. This will form a convenient shelf for the mounting of all of those parts which are not mounted on the panel.

The three groups of five holes each are for the purpose of forming a window through which the brilliancy of the filaments may be observed. They should be slightly counter-sunk as shown, and the tubes should be mounted directly behind them, with the radio frequency, or detector tube, to the left, as the case may be.

The three holes below these windows are for the shafts of the rheostats. Here again the holes for mounting have been omitted for the reason that their location will depend upon the particular type of rheostat used. The three holes below the rheostats are to be used for jacks, if desired.