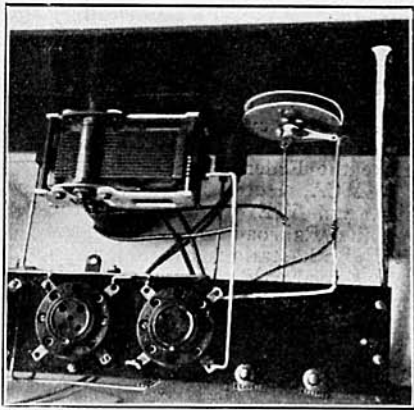


MAKE 'EM HOLD FAST



(Hayden)

TO INSURE perfect contact solder all leads, especially when they are flexible. Don't merely wrap them around, as illustrated in the flexible connections to the rheostat.

Rectifier Tube Drop Can Be Pushed Too Far

One of the characteristics often mentioned in connection with the gaseous rectifier tube or Raytheon, is the voltage drop. By this is meant the difference between the input voltage and the output voltage to the filter system of the radio power unit. Obviously, the lower the voltage drop of the rectifier tube, the higher the output voltage from the radio power unit in which the tube is employed. However, as with all good things, there is danger in excess.

The original S tube, which was the grandfather of the present Raytheon, had a voltage drop of 400, so that its use was limited to the rectifying of high-voltage alternating current for radio transmission work. In fact, the S tube in its day was a prime favorite with radio "hams" or amateurs.

The Raytheon type B has a voltage drop of 120 at full load of 60 milliamperes. Later came the BH type, with the voltage drop reduced to 90 at the full load of 85 milliamperes. The Raytheons intended for operation of vacuum tube filaments in series has a still lower voltage drop.

However, it is well to caution radio enthusiasts with regard to a still lower voltage drop in gaseous rectifier tubes. Battery eliminator devices are designed for a given output voltage from the rectifying tube, so that the normal voltage drop of the rectifying tube is taken into consideration. A lower voltage drop, for a given capacity of tube may result in premature deterioration and therefore greatly shortened life.

Also, the filter system of the radio power unit, designed for a given output from the tube, is likely to become unbalanced with regard to the power being handled, resulting in a marked increase in the hum which causes disagreeable distortion in the loud-speaker rendition and even an audible background. Lastly, the filter condensers, generally designed for a normal working voltage, are seriously stressed and, while they may not break down immediately, their life is very materially shortened.

WHERE TO PUT FUSE

A fuse may be inserted either after or before the switch in the primary circuit connected from the line to eliminators.

EFFECT OF BROKEN WIRE

A broken electric wire running close to the receiver will cause crackling noises, similar to static.

Studio in City's Heart, Aerial Remote, I Rule

By Chester Charlton

There is a general movement of transmitters into the wide open spaces outside the city limits, while the station's studio is in the heart of the city. There are several reasons for this general exodus. The first is that the Radio Commission has limited the power which broadcasters located in congested city districts may use, and favors the remote antenna as a policy. The second is that the broadcasters themselves desire to locate where their waves may have a chance to spread out over a large territory before they are absorbed by steel structures. A third reason is that certain localities have prohibited the use of broadcasters above a certain power within their limits and have imposed a license fee on all the smaller stations which desire to operate within the city limits.

Not only have these municipalities imposed this condition but they prohibit the simultaneous operation of two stations, even though their frequencies may be widely separated.

The purpose of the Radio Commission in limiting the power in congested districts is to safeguard the public interest by preventing any high-power station from blanketing all other stations to which people might want to listen. The purpose of the municipalities which have taken similar action is the same.

Want to Reach Out

The object the broadcasting stations have for moving is to be able to reach the greatest number of listeners with a given radiated power. Transmitting stations located in skyscraper districts are unable to project their wave out very far on account of absorption in the steel structures, and in many locations not far from the station the signal cannot be received with any degree of certainty.

One of the first to move its transmitter out of New York City was WJZ, which moved to Bound Brook, N. J. The power of this station was greatly increased at the time and the result of increased power and a more favorable location is that the station is now heard reliably over a vastly greater area. This station usually operates on 30 kilowatts but is able to go as high as 40 kilowatts.

Soon WEAF will move. Its new station is now in course of construction, under the guidance of Dr. Alfred N. Goldsmith, at Bellmore, Long Island. It is expected that the new station will give reliable daylight service over a radius of 50 miles, which will include the metropolitan district, a large part of New Jersey, Westchester and the southern sections of New England. In the present location at West Street and Hudson River, the signals from WEAF are extremely weak in Westchester County, N. Y., and in the State of Connecticut.

Will Use Large Power

The amount of power to be used by WEAF at Bellmore will be determined by experiment but will be from 20 to 50 kilowatts. This will make WEAF one of the most powerful stations in the United States, and it will also be the most modern. The new transmitter is expected to be in use early in September.

It is also the intention of the National Broadcasting Company, it has been learned on good authority, to move station WRC from Washington to some point in the country, probably midway between the Capital and Baltimore, and at the same time make the station more powerful. The new location and the Company through a special network of large cities but also a vast territory which has hitherto been in a "dead spot."

Minneapolis is one municipality which has banished all stations of more than 500 watts from its confines. It has also prohibited the operation of more than two stations at the same time within its limits.

Charges \$50 a Year

Any station desiring to operate in the city must obtain a license, costing \$50 annually, and the permit to operate is revocable at any time by the City Council or by the Mayor.

The general exodus of the stations to the country will be a boon to the majority of the listening public. It will be disadvantageous to only a relatively small number of people living in the close vicinity of the transmitter. But the problems that these people will encounter can be solved.

Chain Defies Distance with Expert Ingenuity

Great attention has been centered upon the fact that through the use of network broadcasting, listeners in all parts of the country can be reached by the same radio program at practically the same instant. The size and geographical distribution of the network audience appears a continual source of wonder. The stage of the network radio theatre is just as extensive as its audience, although this phase of the matter has received but scant consideration.

The four walls of the broadcast theater have been moved to the boundaries of the United States, and the accomplishments of network transmission indicate that this broadcasting of the stage will not cease until Shakespeare's pronouncement that

"All the world's a stage" has been given a more comprehensive significance than ever before.

A notable instance of this extension of network pick-up occurred during the Red Cross Relief program transmitted a few weeks ago by the National Broadcasting Company through a special network of stations associated with the Red and Blue chains. Halves of this half-hour period originated in Chicago and in Memphis, approximately 500 miles apart, and in addition, the announcements which were an essential part of the program were given from New York City, about 700 miles air distance from Chicago and 950 miles from Memphis.

Not one hitch was experienced.