

How Power Sources Work

In a radio transmitter power supplies are required to provide anode and grid screen voltages, grid bias voltage and filament voltages. The nature of basic supply used for any transmitter depends primarily upon its size, upon its output carrier power and also on whether the transmitter is ground based or mobile that is ship board, automobile mounted, air borne or carried by men.

The automobile mounted transmitters of most of the radio equipment are small power transistorized trans-receivers operating usually on short and ultra waves. Low power transistor transmitters may operate directly from direct current batteries. Some transmitters of even relatively large power such as five hundred watts or one kilo watts are mounted in automobiles and power to these is supplied generally from a mobile alternator.

The airborne transmitters are associated radio equipment and usually operate on batteries. Large aircraft use radar equipment's operated on four hundred hertz supply generated in the aircraft. Rectifiers convert this alternating current to direct current voltage to provide anode voltage, screen grid voltage and grid bias.

The trans-receivers carried by men are low power radio telephone and telegraph trans-receiver, amplitude modulated or frequency modulated, carried usually by soldiers on their backs or in their pouches and are usually meant for establishing radio communication over short distances. Such radio equipment operates on a dry battery.

In almost all such mobile transmitters and receivers' equipment a push to talk button is provided in the hand set. This button when pressed connects direct current supply voltage to anode of final radio frequency power amplifier and puts the transmitter on air. This results in saving in power and prevents dissipation of power at anode of last radio frequency power amplifier when not transmitting.

Low power ground based transmitters are fixed radio transmitters having output carrier power of less than about one kilowatt. These use single phase alternating current power source with associated rectifiers and filters.

The low power ground based transmitters are fixed radio transmitters having output carrier power rating above one kilo watt and usually use a three phase alternating current source.

For ground based low power transmitters of output carrier power less than about one kilo watt single phase alternating current power source is usually used. Mains alternating current power is generally used while stand by alternating current generators are kept in readiness for immediate switch over in case of mains power failure.

Power supply circuits used in such transmitters are essentially similar to those used in radio receivers except for higher voltage and current ratings of all components. Thus rectifier tubes have voltage ratings extending to several thousand volts depending upon the output carrier power. For smaller supply voltages and current vacuum tubes may be used but more often particularly for large plate and screen grid currents and voltages, mercury vapor tubes are used.

About the Author

Tymon Hytem has worked in the electronics field for the past 15 years. He enjoys helping people decide on electronic gadgets from telephones to [XM Radio](#) and choosing the perfect XM Satellite Radio system for their needs.

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