

The Technical Corner

Converting a 6 volt Farm Radio to 117 Volts AC

ROSS SMITH

In the early 1930's before rural electrification, a large number of farm radios were built to operate on a single 6 volt wet "storage" battery. The "B" and "C" batteries were eliminated by using a synchronous self rectifying power supply. Examples of these sets include Zenith chassis 5405, Philco model 624, and RCA model M-34.

Purchasing a 6 volt automobile battery to operate the radio is not a practical solution to a power source. Conversion to a 117-volt power supply can easily be done with the purchase of one extra transformer and 2 solid state rectifiers. The transformer needed is a 6.3 volt, 6 ampere filament transformer that will feed into the original power transformer and replace the 6.3 volt DC circuit. Since the vibrator is no longer used, the new transformer may be mounted above the vibrator socket. Terminals on the vibrator socket can be identified and used for tiepoints in the new circuit.

The six leads from the original high voltage power transformer must be positively identified and wire color codes should be recorded. The center tapped primary will measure less than one ohm. The three leads from the secondary will check 400 to 700 ohms across the full winding and half of this figure at the center tap. Note that one end connection of the primary is not used. Using the outside primary winding would result in only half of the "B" plus output voltage.

The new 6.3 volt transformer will also light the tubes and pilot lights. Some sets use a combination of 6 volt and 2 volt tubes. Dropping resistors for the 2 volt tubes are already part of the original circuit and need not be changed.

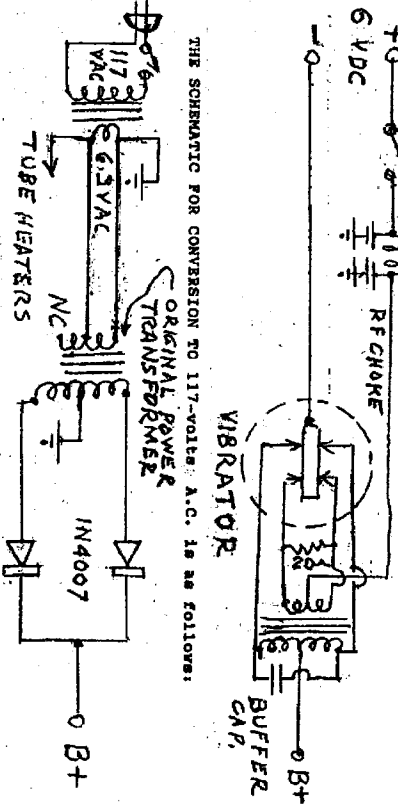
When the radio uses all 2 volt filament tubes, such as the

(see next page)

Philco Model 624 with type 19, 30, 32, and others, the filament supply should be direct current. The change to D.C. requires a rectifier and a small electrolytic capacitor across the filaments, (be sure to observe the polarity), in order to remove the possibility of 60 cycle hum. If tubes are the heater type with separate cathode connections, such as the Zenith chassis 5405, rectifiers are not needed. If the radio has a combination of filament and separate cathode heater tubes, only the filament type tubes, such as type 19 output tubes, need to be changed to 2 volt direct current.

Ross Smit

THE SCHEMATIC for the original power supply is as follows:



THE SCHEMATIC FOR CONVERSION TO 117-VOLTS A.C. IS AS FOLLOWS:

Note that the filter capacitors on the R & choke, the 20 ohm resistor on the primary and the buffer capacitor on the secondary are no longer needed. The same circuit will convert a 6-volt automobile see to 117-VAC. 73, R.S. 5-1-2000

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