

**P**OWER TRANSFORMERS—those bulky heavy, and expensive items—are found in all types of electronic equipment. Whatever your interest in electronics, you're sure to have noticed one or more of these steel-clad components quietly humming to itself off in a corner of the chassis. When a replacement is needed, or you're searching for a particular item for a construction project, it's necessary to know the inside story of the power transformers; how interchangeable are the units and what do the specs mean?

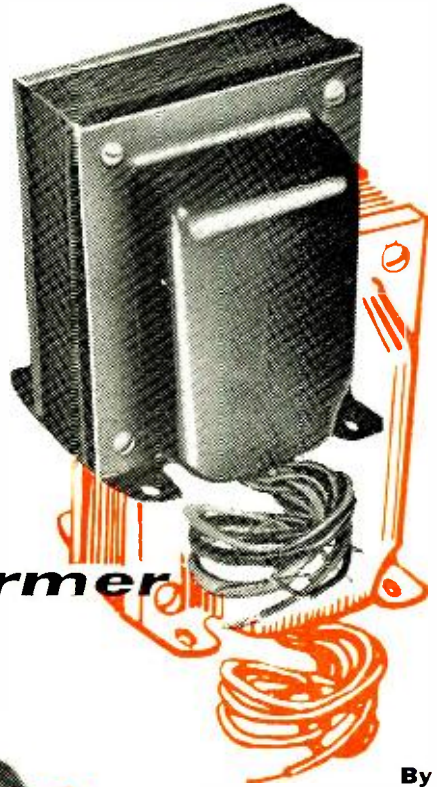
The purpose of a power transformer is

## How to Make Power Transformer Substitutions

simply to convert the a.c. line voltage into the higher and lower voltages required by electronic circuits. The two types you'll come across are known as *high-voltage plate* and *filament* transformers. In receivers and amplifiers you'll find the functions of both combined in a single multiwinding general-purpose unit. A typical power supply is in Fig. 1.

**Size and Frequency.** Physical size of a power transformer depends upon both its power handling capacity and operating frequency. The higher the unit's power rating, the larger the diameter of the wire needed in its windings and the greater the amount of iron laminations in its core. A transformer designed to power a one-tube audio preamplifier may measure a little over an inch on each side and may weigh but a few ounces. However, the power transformer of a moderately large television receiver will measure several inches on each side and be quite heavy.

The lower the frequency, the more iron is needed in the transformer core to main-



By  
**EUGENE RICHARDSON**

