

High-power Load Bank and Standardized Reactive Loads for Amplifier Testing

EVERY AUDIO-TEST BENCH REQUIRES some sort of resistive load so the power output of an amplifier can be tested. The load must have enough power dissipation to be able to accept, without overheating, the output of large amplifiers. It must also have a stable, accurate, and non-reactive resistance value, typically either 4 or 8 ohms. Many testing laboratories use loads made up of large, wirewound non-inductive power resistors. Usually one or more 50-watt resistors are combined in order to get the required power-handling capability.

An inexpensive alternative is to construct the oil-cooled load bank shown in Figs. 1 and 2. This bank uses many 1- or 2-watt carbon composition resistors connected in parallel by busbar to derive precise 4- and 8-ohm loads. By constructing the resistor "ladder" on the inside surface of the lid of a one-quart paint can, and then immersing it completely in mineral oil, with which the

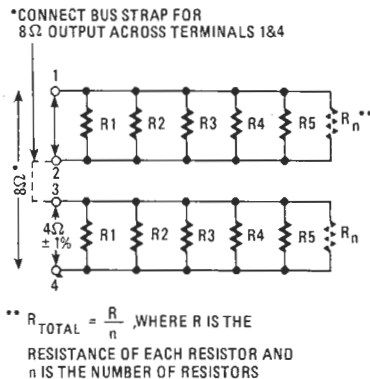


FIG. 1—SCHEMATIC illustrating principles of resistor-ladder construction.

can has been nearly filled, the total power dissipation of the resistors is increased substantially over their free-air dissipation, by a factor of three or more. Thus a ladder of twenty 82-ohm, 1-watt resistors would have an effective resistance of 4-ohms and a power-handling capacity of 60 watts continuous or

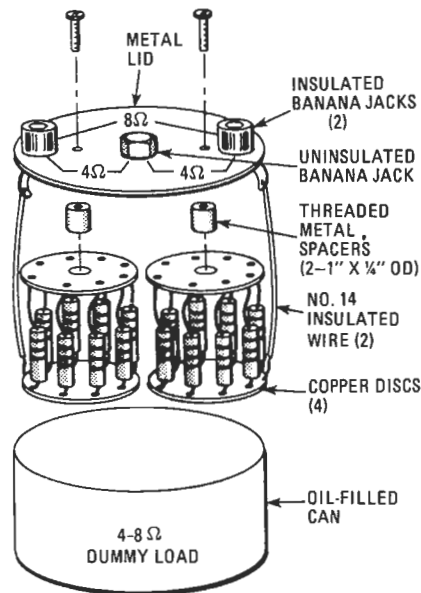


FIG. 2—PICTORIAL DIAGRAM of high-power load bank. Subassemblies contain twenty resistors each.