

### AN A-C-OPERATED POWER SUPPLY FOR THE SOUND-LEVEL METER

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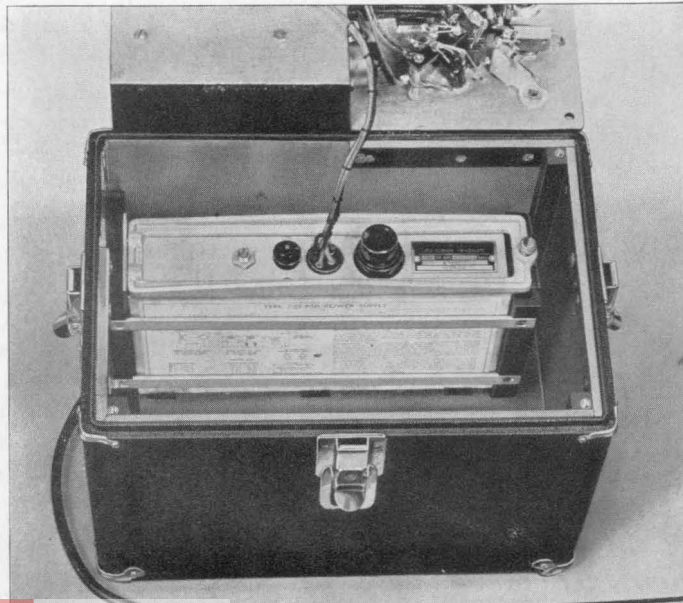
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● MANUFACTURERS OF SOUND-LEVEL METERS are generally divided on the subject of a-c operation versus battery operation. For portable use, battery operation is almost essential. For stationary operation or use only indoors, where power lines are available, a-c operation has some advantages, while for production work, where continuous operation is required, the a-c power supply has a distinct advantage in

that it eliminates the need for frequent replacement of batteries.

It is apparent that, for really universal application, a sound-level meter should be capable of operation either from the a-c power line or from batteries. However, since conventional tube types do not operate equally satisfactorily on both alternating current and small, portable dry cells, and because high-gain amplifiers represent a serious problem in regard to hum elimination when a-c operated, most sound-level meters have been designed for ei-

FIGURE 1. View of the power-supply unit installed in the battery compartment of the sound-level meter cabinet.



ther one or the other type of power supply, but not for universal operation. This seriously restricts the use of any such instrument. Many engineers and laboratories have need for only one sound-level meter and are somewhat at a loss, therefore, as to which type will best suit their requirements.

A logical answer to this problem is provided by the new TYPE 759-P50 Power Supply developed by the General Radio Company for use with its TYPES 759-A and 759-B Sound-Level Meters. In keeping with the company's policy of retarding obsolescence so far as possible, the power supply can be used with the earliest meters in the 759 series as well as the latest. It is small, light, and compact and fits directly in the battery compartment of the sound-level meter in place of the batteries.

The power supply includes an oxide rectifier and suitable filter circuits which supply either 3 or 1.5 volts for operation of the two filaments (depending, respectively, upon whether an A-type or B-type sound-level meter is used). The unit includes also a vacuum-tube rectifier and filter for supplying suitable plate voltage.

Hum level in the power supply has been kept so low that the TYPE 759-B Sound-Level Meter can be used over its entire sensitivity range with this new power supply. The TYPE 759-A Meter can be used down to 34 decibels, which is entirely adequate for most machinery problems such as are encountered in production testing.

In designing the new power supply, an interesting problem was encountered in the development of a suitable filter for the filament circuit. Because of the high gain of the sound-level meter amplifier and the fact that filament-type tubes,

originally intended only for battery operation, are used, it was found that small line-voltage fluctuations would momentarily shift the gain, causing fluctuation in the reading of the meter. While high-capacity electrolytic condensers satisfactorily eliminated all ripple frequencies from the filament voltage, some low-frequency variations were present, particularly with a poorly regulated or noisy power-supply line. The final solution was to use two flashlight cells in the last stage of the filter in place of a condenser. These function satisfactorily as a condenser, but also have the additional advantage that they maintain substantially constant voltage. When used with the TYPE 759-B Sound-Level Meter the cells are connected in parallel, and when used with the A-type they are connected in series. This transformation is accomplished by a simple plug which is inserted into a socket on the top of the power-supply unit.

When the instrument is operating, the cells are charging slightly, so that their life is practically equal to their normal shelf life. When the instrument is turned off, a small relay, built as part of one of the filter chokes, opens the circuit so that the cells will not run down. The cells are of the standard flashlight variety, readily replaceable, and cost only ten cents each. However, under normal line-voltage conditions, their life is six months, a year, or even longer.

The convenience of the power supply is its outstanding feature. At any time it is possible to interchange power supply and batteries immediately without any rewiring or circuit changes. This makes the same sound-level meter readily adaptable for production testing or field work and is a real source of economy in laboratories requiring only one meter.

No alterations to the sound-level



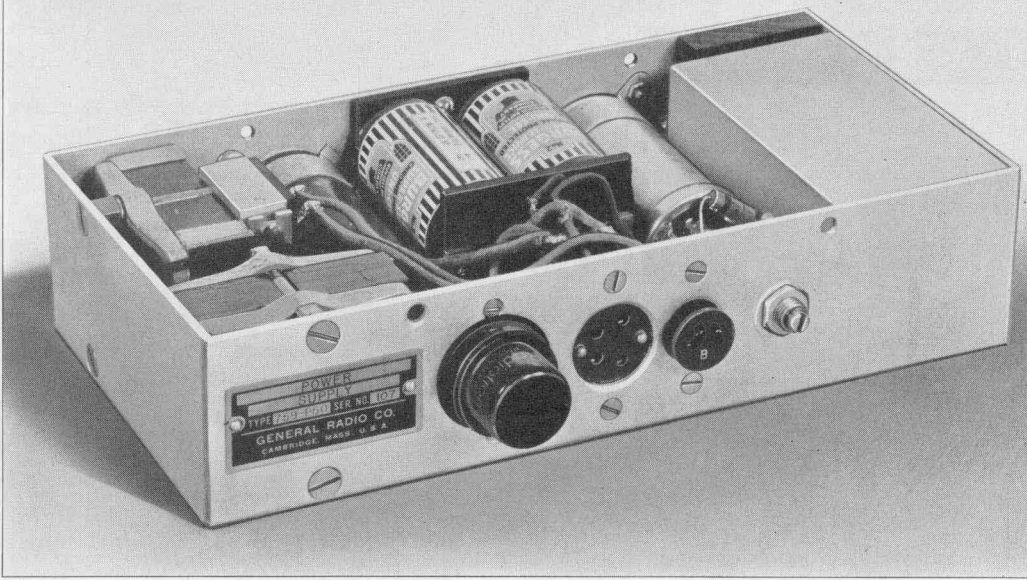


FIGURE 2. View of the power-supply unit showing the compact arrangement of parts.

meter are necessary when the power supply is installed in a TYPE 759-B Sound-Level Meter, and only minor changes are required for the TYPE 759-A.

Complete directions and a kit of parts

are supplied with each power unit so that these alterations can be easily made by the user. It is not necessary to return the instrument to the factory.

— H. H. SCOTT

### SPECIFICATIONS

**Output:** 1.5-volt and 3-volt filament supplies; 90-volt plate supply.

**Hum and Noise Level:** Sufficiently low to assure satisfactory operation over the entire range of the TYPE 759-B Sound-Level Meter when the supply-line frequency is 60 cycles. On the TYPE 759-A Sound-Level Meter, satisfactory operation is obtained on all ranges except at the 60 db attenuator setting, provided the a-c line frequency is 60 cycles. Operation from line frequencies below 60 cycles is possible, but is not recommended.

**Input:** 105 to 125 volts, 40 to 60 cycles. The power input is less than 8 watts at 115 volts, 60 cycles.

**Tube:** One type 6H6 tube is supplied.

**Terminals:** An output socket fits the plug on the battery cable of the TYPE 759-B Sound-Level Meter.

**Dimensions:** (Length) 10 x (width)  $2\frac{1}{4}$  x (depth) 5 inches, over-all.

**Net Weight:** 7 pounds, 6 ounces.

Type		Code Word	Price
759-P50	A-C Power Supply . . . . .	NUTTY	\$55.00

### PRIORITIES

Because practically all of our manufacturing facilities are devoted to National Defense projects, a preference rating certificate or other approved priority rating will be necessary to secure delivery. At the present time a rating of A-10 or higher is required for delivery of all instruments and parts, but for certain items in especially heavy demand a rating of A-2 or higher may be necessary to insure reasonable delivery.