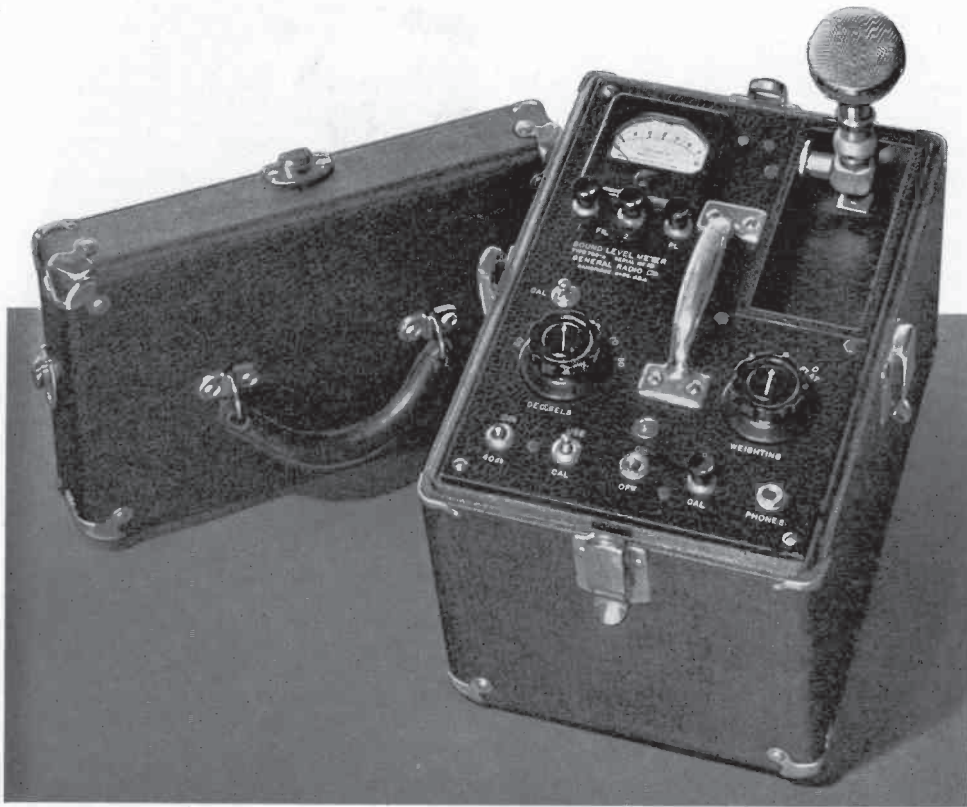


## TYPE 759-A SOUND LEVEL METER



This instrument was designed to meet the demand for an inexpensive sound level meter complying with the tentative standards of the American Standards Association, the American Institute of Electrical Engineers, and the Acoustical Society of America. It incorporates several features previously found only in more expensive and cumbersome instruments and is suitable for practically all types of commercial sound level measurements. Among the features of the new noise meter are the following:

1. A non-directional crystal microphone which responds satisfactorily over a wide range of frequencies, including the high frequencies which make up "hissing" and "swishing" sounds.
2. Unusual sensitivity extending to 24 decibels above a zero reference level of  $10^{-16}$  watts per square centimeter.
3. Three separate weighting networks for adjusting the frequency response characteristics, consisting of a low level network, a high level network, and a network giving a substantially flat over-all response.
4. No rheostats or other battery adjustments.
5. Unusually light weight and small size.
6. Special tube suspension, providing a freedom from microphonic noises.
7. No inductance coils or transformers whatsoever are used in the instrument, thus eliminating error due to magnetic pickup.

SPECIFICATIONS

**Sound Level Range:** Calibrated in decibels from +24 db to +130 db above a reference level of  $10^{-16}$  watts per square centimeter. (This corresponds to a range of +17 to +123 db when referred to the average threshold of hearing [0.45 millibars] as was used in some earlier model meters.)

**Frequency Characteristics:** The frequency characteristic of the sound level meter is adjustable to follow three different curves. The first and second of these are, respectively, the 40 and 70 db equal-loudness contours modified by the differences between random and normal free-field thresholds in accordance with the tentative standard proposed by the American Standards Association. These two response curves are used, respectively, when measuring sounds of low and high intensity. The third frequency response characteristic gives a substantially equal response to all frequencies within the range of the instrument. This characteristic is used when measuring extremely high sound levels or when using the instrument with an analyzer such as the General Radio TYPE 636-A Wave Analyzer.

**Microphone:** A non-directional piezo-electric microphone is supplied with the sound level meter. The microphone mounts directly on a folding bracket on the top of the instrument and folds down out of the way when not in use. The microphone may also be removed from the bracket and used on an extension cord. The microphone is of the sound cell type, thus eliminating the irregularities of response and the variable characteristics frequently encountered in diaphragm-type piezo-electric microphones.

**Circuit:** The amplifier consists of four stages of resistance-capacitance-coupled amplification using pentode tubes followed by an output stage arranged to match the especially-designed rectifier-type meter. This combination provides a high degree of stability and minimizes change in sensitivity resulting from variations in battery voltage. The tubes are all standard types and readily available. A ballast tube is provided for maintaining constant filament current.

**Attenuators:** A 10-db-per-step attenuator precedes the third stage of amplification and provides control of the instrument up to 90 db by means of a single knob. For measurements of higher sound

levels an additional 40-db attenuator is provided. This attenuator is directly on the input of the amplifier. Since the attenuators are at low levels the possibility of errors due to amplifier non-linearity is eliminated.

**Meter:** The indicating meter has a scale which is approximately linear in decibels and which covers a range of 16 db, thus providing satisfactory and accurate interpolation between the steps of the attenuator. The ballistic characteristics of the meter match closely those of the human ear and agree with the tentative standards specified by the American Standards Association.

**Telephones:** A jack is provided on the panel for plugging in a pair of head telephones in order to listen to the sounds being measured.

**Vibration Pickup:** If desired, a piezo-electric vibration pickup may be used in place of the microphone.

**Tubes:** Five 1A4-type tubes and one 1D1-type tube are required. A complete set of tubes is supplied with the instrument.

**Batteries:** The batteries required are two Burgess No. 4FA (little 6's), or equivalent, two Burgess No. Z30P 45-volt B batteries, or equivalent, and one Burgess No. F2BP 3-volt battery, or equivalent. A compartment is provided in the case of the sound level meter for holding all batteries and connections are automatically made to the batteries when the cover of this compartment is closed. A set of batteries is included in the price of the instrument.

**Case:** The meter is built into a shielded carrying case of airplane luggage construction, covered with a durable black waterproof material and equipped with chromium-plated corners, clasps, etc. This case has been designed to combine durability with light weight and good appearance. When operating the sound level meter, the cover is ordinarily removed. An additional handle is provided on the panel of the instrument for convenience in moving it about while it is in operation.

**Dimensions:** The over-all dimensions are approximately (height)  $11\frac{1}{2}$  x (length)  $13\frac{1}{2}$  x (width)  $9\frac{1}{2}$  inches.

**Net Weight:**  $23\frac{1}{2}$  pounds, with batteries;  $17\frac{1}{2}$  pounds, without batteries.

Type	Code Word	Price
759-A	NOMAD	\$195.00*
Set of replacement batteries for above		4.20

\*Price includes both tubes and batteries.

PATENT NOTICE. See Notes 1, 2, page v.