

# GENERAL RADIO COMPANY

## OPERATING INSTRUCTIONS FOR TYPE 813-A AUDIO OSCILLATOR

### BATTERY

Either an internal or an external battery may be used. For intermittent operation an internal 4-1/2 volt dry cell battery (Burgess No. 2730 or equivalent) is recommended. To install, remove panel and connect the red and black wires to the battery. Polarity is of no importance. When replacing panel be sure that none of the internal wiring touches the tines of the fork. Join the terminals B and C by an external jumper or by a switch for keying the output power.

For continuous operation use an external storage battery or other suitable d-c source connected to the terminals A and B. The ends of the internal red and black wires should be taped or insulated to prevent short-circuiting the battery by accidental contact between them.

### INCREASED POWER

Higher power output with an increase in harmonic content can be obtained by increasing the battery voltage across the terminals A and B to a maximum of 8 volts. When using over 4-1/2 volts, the output microphone may tend to pack, causing a progressive decrease in output power. If this occurs, remove the panel and shift the blue cable wire from direct contact with the support of the output microphone to the open end of the small resistor mounted adjacent to this microphone. This will introduce the resistor into the output microphone circuit and prevent excessive microphone current with a reduction of about 20% in the output power.

### STARTING CHARACTERISTIC

Because of its low decrement, the oscillator may require from 10 to 20 seconds to reach full amplitude. For this reason keying must be done in the output circuit.

### OUTPUT

Output impedances of 50, 500 and 5000 ohms are available, any one of which may be selected by the plug provided. There is no metallic connection between driving and output circuits.

### HARMONICS

At maximum power output into a resistive load the harmonics are less than 0.5% with 4-1/2 volt drive, less than 0.8% with 6-volt drive and less than 2% with 8-volt drive. Decreased distortion with lower output is obtained if the impedance of the load is greater than that of the generator.

### FREQUENCY

The frequency is adjusted to within 0.5% of the specified value. The value for the individual oscillators, measured at normal room temperature, is marked on the bottom of the cabinet. The temperature coefficient is -0.007% per degree Fahrenheit and the change in frequency with the driving voltage is less than 0.01% per volt. The frequency is entirely independent of load impedance.