



# TINKER & RASOR

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## PRODUCT INSTRUCTIONS

### Model PD-5

The Model PD-5 Oscillator has been designed to be used with the Model Mark V Ranger Pipe & Cable and Short Locator. The PD-5 fits into the Mark V Ranger Transmitter panel, for convenience, but operates as a separate instrument.

A signal of 750 C.P.S. is generated by using a power transistor switching circuit. This arrangement eliminates troublesome vibrators, buzzers or other moving part elements. The Oscillator converts low voltage (12 volts) DC to stable audio-frequency AC directly; hence, by a highly efficient method, the input current to the Oscillator is only 1.7 amperes for a full output of 15 watts, a conversion efficiency of better than 80%.

In order that a maximum of energy can be transferred from the Oscillator to the pipe, the output of the Oscillator is provided with taps so that voltages of 2.5, 5, 7.5, 15, 50 and 100 volts are available to match the load. An interrupter (Signal Pulse) is provided to make the signal more easily recognized. The Interrupter is actuated by a switch on the panel of the Oscillator. The Oscillator will produce 15 watts of 750 Cycle signal into a 500-ohm load with the output selector set at the 100 volt position.

The audio Oscillator is placed inside the opening in the panel of the Model Mark V Ranger Transmitter. An electrical connection is made to the pipe. Test point lead wires are convenient connections. The pipe lead wire is connected to the terminal of the Oscillator marked PIPE. Connect a wire from the terminal marked GROUND to some metal structure, which is in good electrical contact with the earth. If no structure is available, a rod can be driven into the earth at a point from 20 to 30 feet from the pipe at right angles to the pipeline.

Connect a 12-volt storage (or vehicle) battery to the battery terminals, observing correct polarity (red is positive or +, black is negative or -). Set the output voltage switch to 2.5, the Signal Pulse switch to "OFF" (Down), and the Power switch to "ON" (Up). Advance the output voltage control until the Red Overload LED lights on the Oscillator. Then move the Output Voltage knob to the Left until the LED light goes off. If the Overload LED does not light, move the knob all the way to 100.

NOTE: Model PD-5 (Rev. B) uses a new crystal that produces an interrupt frequency at a faster rate than previous models. Users familiar with this instrument may notice the difference.

If overloaded, the output will be cut off. To reactivate, turn the Power switch to "Off" (Down) and back "On" (Up). This will reset the unit.

Refer to the instructions included with the Model Mark V Ranger for further information.

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