

## XL-9073 PROBE MICROPHONE KIT APPLICATION NOTES

### APPLICATION

The XL-9073 Probe-Tube Microphone Kit provides an easy and inexpensive way to

make sound pressure measurements in the human ear.

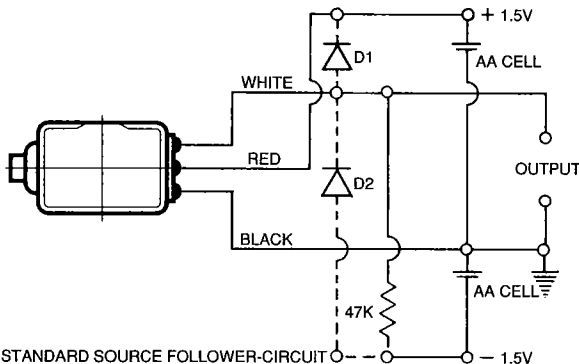
### DESCRIPTION

The XL-9073 Probe-Tube Microphone Kit contains the following items:

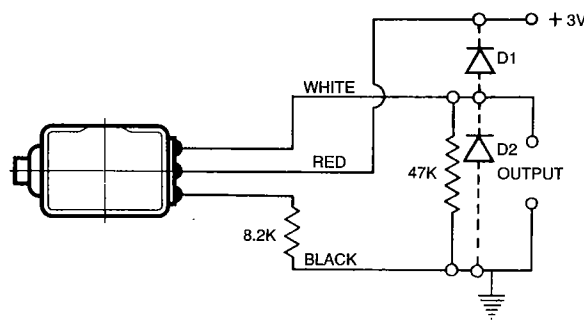
1. One custom selected ceramic probe-tube microphone with colour coded wire leads;
2. Individual response curve;
3. One-foot of PE-200 Intramedic tubing [.055" (1.4 mm) ID x .075" (1.91 mm) OD];

4. One-foot of Markel Flexite E, size 16 vinyl tubing. [.055" (1.4 mm) ID x .087" (2.21 mm) OD];
5. One battery holder (Keystone No. 140 or equivalent);
6. One 47K Ohm, 1/2 Watt resistor;
7. Report on how to use Kit titled, "A Probe-Tube Microphone Assembly" by Edgar Villchur and Mead C. Killion.

### APPLICATION CIRCUITS



STANDARD SOURCE FOLLOWER-CIRCUIT



ALTERNATE SOURCE FOLLOWER-CIRCUIT

### COMMENTS

1. The case of the microphone is electrically connected to the black lead and is, thus, grounded in the standard source follower circuit. Applications not requiring a grounded case may use the alternate source follower circuit.
2. The leads have been chosen to be small and flexible and, as such, are quite fragile. Special care should be used in handling.
3. Care should be taken to prevent clogging the screen in the inlet tube with spray, wicking of cement or debris.
4. The microphone contains a FET semiconductor. Care should be taken so that the voltage applied across any two terminals does not exceed 20 Volts. A grounded soldering iron is recommended.

5. The upper end of the undistorted dynamic range of the microphone is at least 130 dB SPL with a  $\pm 1.5V$  power supply, and at least 150 dB SPL with a  $\pm 5V$  power supply (standard source follower circuit).
6. Ducc cement (Dupont) was used to attach the probe-tube shown in Figure 1 of the report mentioned in Item 7 above.
7. When the probe microphone is wired to a plug whose terminals are exposed, Diodes D1 and D2 should be incorporated to prevent failure of the microphone due to inadvertent electrostatic discharge into the internal FET. (Electrostatic Discharge can be particularly troublesome in carpeted areas during winter months.) D1 and D2 can be IN914, IN4148, or similar high-speed diode types.