



ENGINEERING DATA MODEL 664 CARDIOID MICROPHONE

FEATURES

- Wide, smooth response
- Uniform cardioid pattern
- Rugged die-cast construction

DESCRIPTION AND APPLICATIONS

The Electro-Voice model 664 is a cardioid microphone of the dynamic type with only one moving element. It is designed specifically for public address applications. The cardioid pattern is obtained through use of three sound entrances located in the back of the diaphragm. These three sound entrances, each utilizing the proper acoustical impedance, combine to form one effective back entrance which varies in distance* from the diaphragm inversely with frequency. The resulting phase and amplitude conditions produce a uniform cardioid pattern over a wide frequency range. This variable front-to-back distance along with dynamic-type construction affords high resistance to mechanical shock and eliminates proximity effect.

The Model 664 is an all-purpose public address microphone designed to fulfill requirements of wide-range reproduction under a great variety of conditions. Because of its excellent and uniform polar response, it is especially useful in locations where acoustic feedback, ambient noise, and severe reverberation exist. The preferred instrument for serious home and semi-professional recording, the 664 is also an ideal choice for quality sound reinforcement systems, particularly where acoustic problems exist. It is equipped with a pop-proof wire mesh grille which minimizes wind and breath blasts. The Model 664 may be used on a floor- or desk-stand or carried in the hand.

This all-purpose microphone features the exclusive Electro-Voice Acoustalloy® diaphragm. The non-

metallic diaphragm permits smooth response over a wide frequency range and withstands high humidity, temperature extremes, severe mechanical shocks, and the corrosive effects of salt air. It is practically indestructible with normal use.

SPECIFICATIONS

- Generating Element: Dynamic
- Frequency Response: Uniform from 60 to 15,000 Hz
- Impedance: 150-ohm and high impedance. 150-ohm impedance is balanced to ground. Microphone is wired for high impedance unless 150 ohm is requested.
- Impedance Selection: Selection is made at cable plug. To change from high to 150-ohm impedance, move white lead at terminal #2 to terminal #3.
- Output Level: 150-ohm, -58 db*, EIA sensitivity rating, -149 db.
High Impedance, -58 db**, EIA sensitivity rating, -151 db
* 0 db = 1 mw/10 dyne/cm²
** 0 db = 1 volt/dyne/cm²
- Polar Pattern: Cardioid, uniform front-to-back discrimination. See Figure 2.
- Diaphragm: Electro-Voice Acoustalloy®
- Case: Pressure-cast zinc
- Finish: Satin Chrome (available in non-reflecting gray as model 664A or in decorative gold as model 664G.)
- Dimensions: Diameter: 1-7/8 inch, maximum
Length: 7-3/16 inch, not including stud. See Figure 3.
- Net Weight: 1 lb., 12 oz., without cable

* Variable-D, U. S. Patent No. 3,115,207

Cable: 15 ft. two-conductor, shielded, synthetic rubber jacketed, broadcast type, equipped with model QC-4M Electro-Voice Quick-Change Connector.

Stand Coupler: 5/8 in. -27 thread on stud.

Optional Accessories: Model 419 desk stand

Warranty: Electro-Voice Model 664 microphone is guaranteed against defects in workmanship and materials.

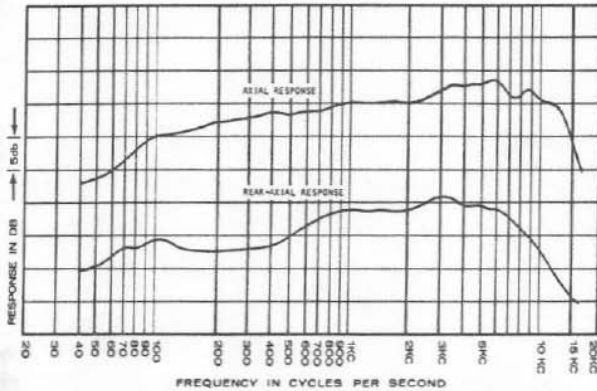


Figure 1.- Response Curve

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a cardioid, dynamic type, with uniform frequency response from 60 to 15,000 Hz. The diaphragm shall be non-metallic Acoustalloy and shall have a magnetic shield to prevent dust and iron particles from reaching the diaphragm. Available impedance shall be 150-ohm and high-impedance. It shall be possible to obtain the impedance desired by moving one connection in the microphone connector. Line shall be balanced to ground on low-impedance and phased. The microphone shall be provided with three sound entrances located in the microphone case at different distances in back of the diaphragm. These three entrances, each utilizing the proper acoustical impedance, shall combine to form one effective back entrance which varies in distance from the diaphragm inversely with frequency. The resulting phase and amplitude conditions shall provide a uniform cardioid pattern at all frequencies.

The output level for 150-ohm impedance shall be -58 db with 0 db equalling 1 mw/10dynes/cm². Output level for high-impedance shall be -58 db with 0 db equalling 1 volt/dyne/cm². EIA sensitivity rating shall be -149 db for 150-ohm impedance and -151 db for high-impedance.

The case shall be made of pressure-cast zinc. The microphone shall have a maximum diameter of 1-7/8 in., a length of 7-3/16 in., not including stud, and a net weight of 1 lb., 12 oz., less cable. Finish shall be satin chrome (if model 664A, finish shall be a non-reflecting gray and if model 664G, finish shall be decorative gold). A 15-foot two-conductor, shielded, synthetic rubber-jacketed, broadcast-type cable shall be provided. The microphone shall be equipped with Electro-Voice Model QC-4M Quick-Change Connector.

The microphone shall include a stand coupler with a 5/8 in. -27 thread on stud. The Electro-Voice Model 664 (or 664A or 664G) is specified.

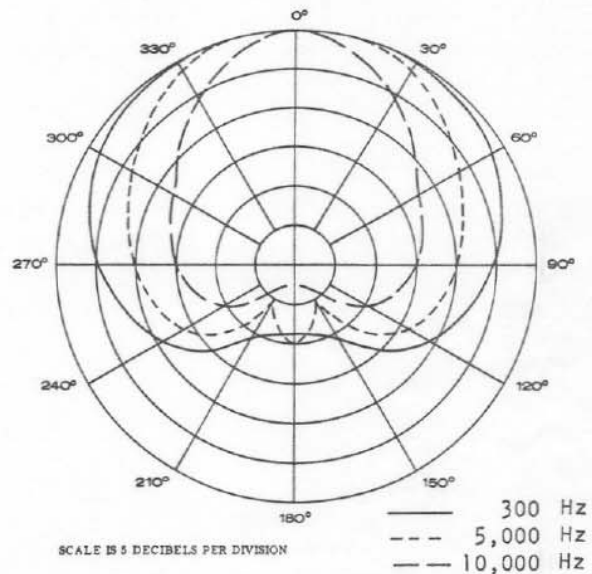


Figure 2 - Polar Pattern

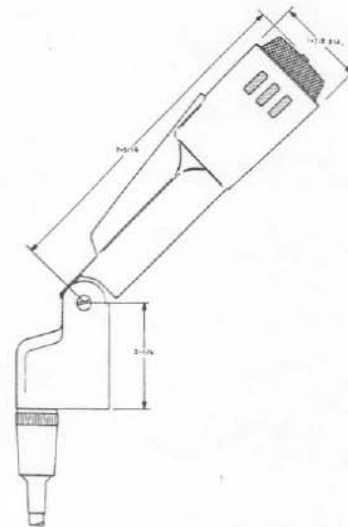


Figure 3 - Dimensions

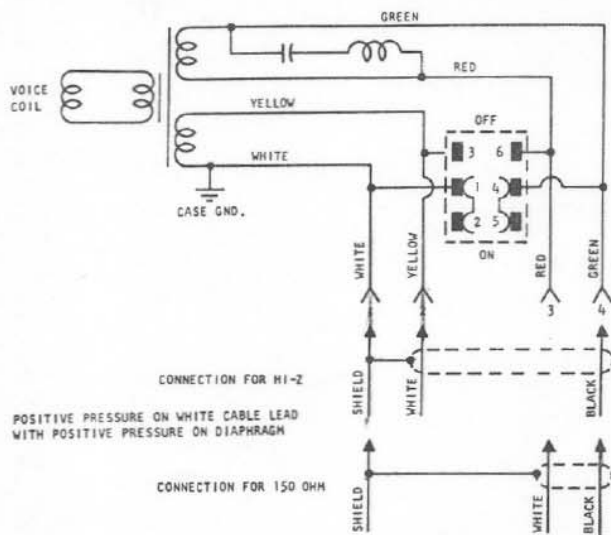


Figure 4 - Wiring Diagram

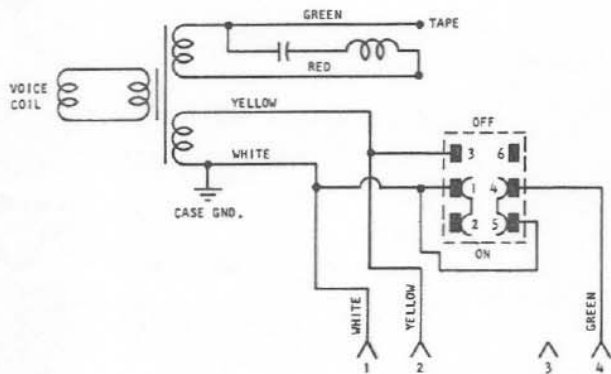


Figure 5 - Wiring Diagram, Modified

INSTRUCTIONS FOR MODIFYING MODEL 664 FOR USE WITH RELAY CONTROL

1. Remove nameplate and switch from stud.
2. Disconnect and tape the green transformer lead from switch Lug #4 (center). Green lead from Pin #4 of cable connector remains connected to switch Lug #4.
3. Connect jumper from switch Lug #1 to switch Lug #5.
4. Disconnect and tape red leads from switch Lug #6.
5. If microphone is to be used for occasional VOX operation in addition to relay operation, remove yellow leads from switch Lug #3, solder together and insulate with tape.
6. Wiring for relay operation is now complete. Replace switch and nameplate.

The cable may now be connected to obtain relay control between pins 1 and 4 of the microphone connector. The white cable lead is microphone output, and the black cable lead serves as relay control. The cable shield is ground return for both circuits. Use of AC for relay control is not recommended. Hum and noise may be picked up by the high-impedance lead.

IMPEDANCE CHANGE PROCEDURE FOR E-V QUICK-CHANGE CONNECTOR

For added convenience and flexibility, an Electro-Voice innovation, the QC-4M Quick-Change Connector, is now supplied with your Model 664. Change from-high impedance (Hi-Z) to low-impedance (Lo-Z), or the reverse, can now be made quickly and easily without tools.

Figure A shows the basic internal wiring diagram of E-V dual impedance microphones.

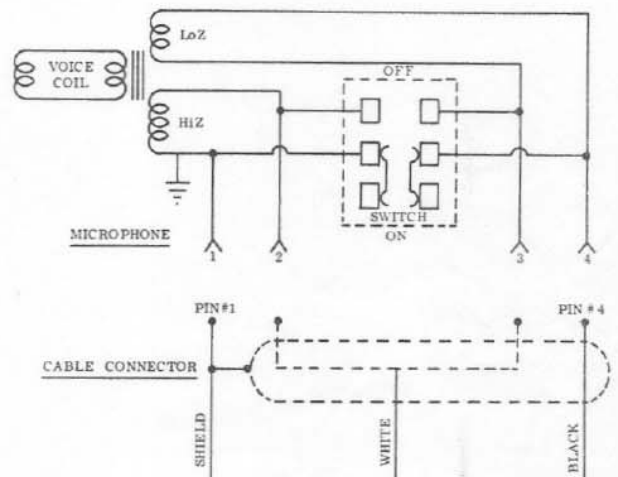


Figure A - Wiring Diagram

Note that moving white cable conductor from Pin #2 to Pin #3 converts the microphone from Hi-Z to Lo-Z.

To change impedance, proceed as follows:

1. Remove cable from microphone by turning the connector shell to left (counter clockwise) until free and then gently pull it away from the microphone.
2. Gripping connector shell firmly in one hand and cable (near connector) in other hand, firmly push cable into shell so that molded plastic insert slips from shell. (See figure B)
3. Separate molded insert as shown in figure C.

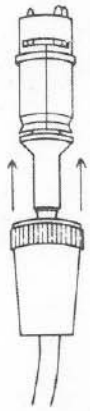


Figure B

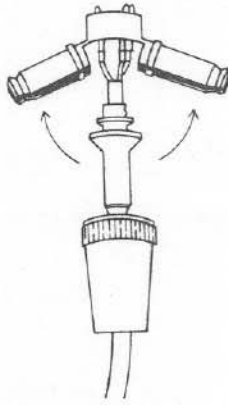


Figure C

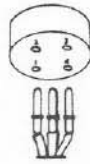


Figure D

4. Note that cable shield and conductors are connected "slip in" pins. Shield pin is in hole #1 of

alignment frame, and pin on black conductor is in hole #4. These should not be changed.

5. The pin connected to the white conductor of the cable should be inserted in hole #2, if high impedance operation is desired, or hole #3 if low impedance is desired. (See figure D)

6. Snap molded insert halves into position. (See figures B and C)

7. Firmly push connector shell back into position (reverse of Step 2). Pressure will be required, since these parts are designed to provide close fit.

8. Align connector guide pin with key slot in the microphone and slip connector into position.

Tighten connector shell by turning in clockwise direction.

Your E-V dual impedance microphone is now ready for operation in the impedance you have selected.