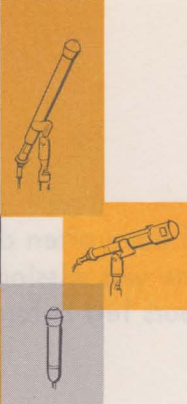


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**ElectroVoice**



# MICROPHONE FACTS

FOR THE OPERATING ENGINEER

ELECTRO-VOICE, INC. • BUCHANAN, MICHIGAN • PHONE OXBOW 5-6831

November 21, 1958

## THE ELECTRO-VOICE MODEL 655C A PRESSURE MICROPHONE OF PROVEN ABILITY

The pressure microphone is known better as a nondirectional or omnidirectional microphone. These descriptions, however, are not true since no microphone is completely nondirectional. The smaller the diameter of the pressure microphone the more nondirectional it will be. Here's why. Sound originating from the back and side of the microphone must move around the microphone to arrive at the diaphragm. In doing so, there is a loss of signal intensity increasing with frequency. This loss increases as the size of the microphone becomes larger. Since this loss becomes increasingly greater as the frequency rises, we find that sound originating at the back or side of the microphone is lacking in high frequencies. The 655C being only one inch in diameter is more nondirectional than others of larger diameter. This increased omnidirectivity, however, was only a by-product of the real objective. We originally designed the 655 to have the extended range we knew would be the result of employing small diameter and an acoustalloy diaphragm.

## MODEL 655C PROVIDES WIDEST RESPONSE RANGE

The 655, predecessor to our present Model 655C, was designed some eight years ago and since that time has been the widest-range microphone in common use for broadcast, TV, and recording purposes. It has uniform response from 30 to 20,000 cps. Few other microphones are capable of uniform response over more than half this range.

The ruggedness of the 655 (now 655C) has never been equaled. Some years ago I started tossing a 655 on the floor at stations throughout the country. It landed on everything from carpet to concrete. To date, except for damaged finish, it is in like-new condition. For every fall a notch was carved on the case until today, there are something short of a thousand!

Naturally, you don't intend tossing your microphones around but you are certainly interested in uniformity, stability and freedom from maintenance that this ruggedness will give you.

## THE CASE OF A SINGLE 655

Sometime ago, an audio engineer of a radio station wrote the following letter to me.

"Dear Lou:

"I recently had an experience I believe will be of interest to you.

"I was scheduled to do the remote pickup of our local symphony as I have often done. When I went to pick up the equipment I found all but one microphone was missing. We turned the place upside-down but no more mikes. With only two hours left before air time, I had to get started with only one lone 655.

"The only thing I could do was to use the one-microphone setup you described to me about a year ago. This is what I did. I found a 15-foot piece of pipe, fastened the mike to it and wired it to the railing of the orchestra pit at the center aisle. This placed the mike about 12 feet above the stage floor and about 19 feet from the first row of instruments on the stage.

"With no rehearsal and only the instrument tune-up period to check the setup, I had no real idea how it was going to sound. When they started to play, what I heard coming out of the monitor certainly sold me. Those listening at the station just wouldn't believe I was using only one microphone.

"Since this time, I have tried some other mikes and some variations in the placement, but have always returned to the original setup. The 655 makes the biggest part of the difference. It has certainly earned the respect of all of us and is being treated with more loving care than it has received in the past.

"Needless to say, we at the station are all very happy. Thanks very much for your help.

73's

George

"P.S. The rest of the mikes were found in the remote truck sent to the garage for service."

The setup I described is one related to me by a recording engineer who has been very successful in the use of a single 655. The following procedure is used to arrive at proper placement of either a 655 or a 655C.

Secure the microphone to the end of a 10-foot pole. Have someone hold it vertically about 10 feet from the orchestra at the center of the stage. While the orchestra is playing, move the microphone back until you arrive at a balance between orchestra and reverberation that produces the depth and life in reproduction that you desire. This distance can vary from 10 to 60 feet or more depending on the acoustics and effect you are looking for. When this distance has been established, it will be best to suspend the microphone. Now it can be raised to locate the best vertical position. This height will vary generally between 10 and 20 feet.

## THE CASE OF A SINGLE 655C

The following case history is an excellent example of a single 655C as compared to a setup using seven ribbon microphones.

Figure 1 and Figure 2 show plan views of a 14-piece orchestra on a theatre stage. The arrangement of instruments and microphones in Figure 1 is the regular setup that had been used. For the trial of the one microphone no rearrangement of the orchestra was made, simply the addition of the 655C on a stand about eight feet high.

For comparison purposes, two tape machines were used. One for the seven-microphone setup and one for the 655C. In this way everything was identical. After the recordings were made the tapes were cut at approximately 15-second intervals and alternately spliced together. In this way a direct AB comparison was made with one setup playing back a 15-second section of music. The 15-second strip following repeated the same section of music but with the other microphone setup. With this arrangement an impartial comparison was obtained.

The comparison was so dramatic it left no doubt as to which was superior. The 655C tape had depth and life that was missing on the other. Most comment, however, resulted from the fact that the 655C microphone produced much more presence even though it was 15 feet away from the drums and traps and the ribbon microphone was only three feet away.

This comparison tape still exists in the tape files of this station. For further information concerning this test, the name of the station and the engineer will be furnished upon request.

## WHY NOT TRY THE SINGLE 655 TEST

Give your 655 or 655C a try with the single-mike technique. You may be very happy you did. If by chance you do not have a 654, 655 or 655C, one will be made available to you. Call your Electro-Voice distributor of professional microphones. He will be happy to place one at your disposal for a thorough test without obligation. This is a standing offer to you.

When new applications arise and you are not sure of the type microphone you will need, your EV distributor stands ready to help you find the answer. Try first one and then another until you are satisfied you have the right one. You need never purchase an EV microphone until you have made sure you have the one you need. After you have made a thorough test, we would like to hear from you. Write to my personal attention. I am very much interested in what you have found.

Did it or did it not do the job you required?

I need your help in improving or tailoring a microphone to fit your need. You in the field have played a large part in our microphone developments in the past and will play an increasingly larger part in the future.

Please drop me a line. What have we done or what haven't we done to please you?

**HOW ABOUT YOUR PRESENT APPLICATIONS?**

Do you have a case history or information you are willing to pass along? I would appreciate anything that can be used in these letters from month to month. If your name can be used as author of an idea, that will be fine. If it cannot, your name will not be used. Anyway, let's hear from you.

Cordially yours,

ELECTRO-VOICE, INC.

*Lou Burroughs*

L.R. Burroughs  
Vice President  
Broadcast & Recording Equipment

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REFERENCE: CASE HISTORY NO. 1 OF MODEL 655C COMPARISON TEST

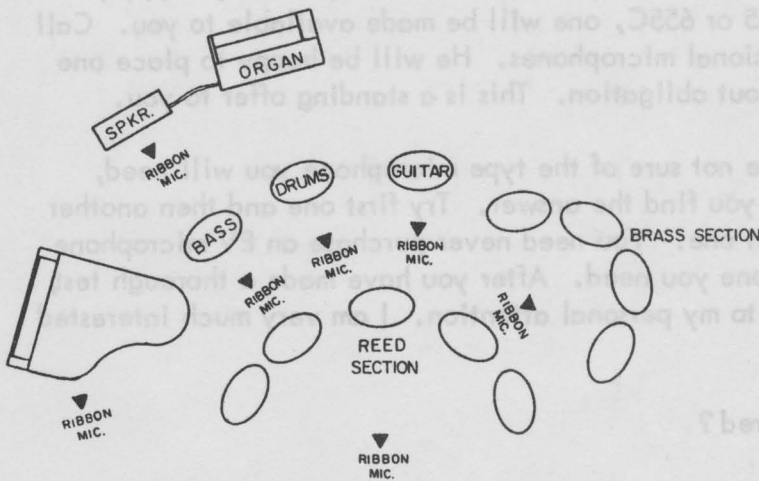


FIG. 1

REFERENCE: CASE HISTORY NO. 1 OF MODEL 655C COMPARISON TEST

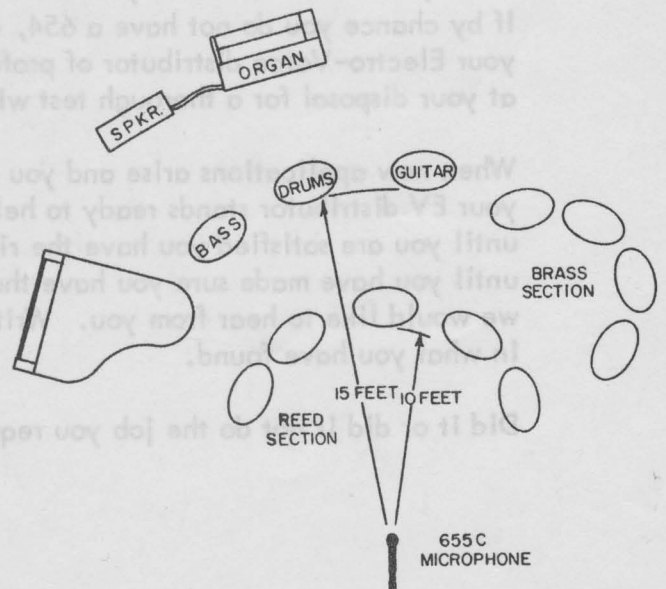


FIG. 2